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Supporting Data FY 2005 President's Budget  
Submitted to OSD – February 2004

**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 2005  
PRESIDENT'S BUDGET SUBMISSION  
FEBRUARY 2004**

**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 2005 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), and R-4a (Schedule Detail) Exhibits, which provide narrative information on all RDT&E program elements and projects for FY 2003 through FY 2005.

**2. Relationship of the FY 2005 Budget Submission to the FY 2004 Budget Submitted to Congress.** This paragraph provides a list of program elements restructured, transitioned, or established to provide specific program identification.

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

<b>OLD</b>		<b>NEW</b>
<b><u>PE/PROJECT</u></b>	<b><u>NEW PROJECT TITLE</u></b>	<b><u>PE/PROJECT</u></b>
0604645A	Common Components	0604645A/F59
0604645A	Family of Systems, Analysis & Integration	0604645A/F60
0604645A	Government Support Costs	0604645A/F61
0604645A	Mission Equipment Platforms	0604645A/F62
0604645A	Network Software	0604645A/F63
0604645A	Other Contract Costs	0604645A/F64
0604645A	S of S Engineer & Program Management	0604645A/F65
0604645A	S of S Test and Evaluation	0604645A/F66
0604645A	Supportability	0604645A/F67
0604645A	System Integration Management	0604645A/F68
0604645A	Training	0604645A/F69
0604645A	NLOS Launch System	0604645A/F70
0604645A	Joint Military Intelligence Program	0604645A/F71
0604645A/F49	Non Line of Sight Cannon	0604647A/F58
0604808A/443	Close Combat Capabilities Eng Dev	0604808A/016

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0203752A/106	Avionics Component Improvement Program	0702239A/C92
0601104A/H59	HBCU/MI Centers – TRADOC Battlelabs	0601104A/H04
0601104A/H59	Institute for Collaborative Biotechnologies	0601104A/H05
0601104A/H59	Robotics Collaborative Technology Alliance	0601104A/H09
0602105A/H84	Nanomaterials Applied Research	0602105A/H7G
0602105A/H16	Biotechnology Applied Research	0602120A/SA2
0602720A/F25	Pollution Prevention	0602720A/895
0604808A/443	Close Combat Capabilities Eng Dev	0604808A/443

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

<b>FROM</b>		<b>TO</b>
<b><u>PE/PROJECT</u></b>	<b><u>PROJECT TITLE</u></b>	<b><u>PE/PROJECT</u></b>
0603802A/AS3	Objective Individual Combat Weapon PD/RR	0604802A/134
0604770A/202	Army Common Ground Station (CGS) (TIARA)	0604766A/957
0305114A/711	JPALS	0604201A/C97

**C. Establishment of New FY 2005 Program Elements/Projects.** There are no major system new starts. Minor new initiatives for FY 2005 are shown below with asterisks. The remaining programs listed are outyear initiatives, restructures beyond FY 2005, or were previously funded from other Defense appropriations.

<b><u>TITLE</u></b>	<b><u>PE/PROJECT</u></b>
Range Upgrades	0603308A/988
Integrated Fire Control	0603327A/E88
Non Line of Sight Cannon	0604647A/F58
Avionics Component Improvement Program*	0702239A/C92
Representation of Space Capabilities*	0604760A/C69

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

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<b><u>PE/PROJECT</u></b>	<b><u>TITLE</u></b>	<b><u>BRIEF EXPLANATION</u></b>
0603305A/TR6	Army Air and Missile Defense	Program transition to 0603327
0604710A/L69	HTI 2d Gen FLIR ED	Program terminated
0604768A/MD6	ATACMS – Penetrator	Program terminated
0604768A/P01	Multi-Mode Seeker Development and Test	Program complete
0604802A/AS5	Artillery Munitions Engineering Development	Program transition to Navy
0604817A/902	Individual Combat Identification System (ICIDS)	Program terminated
0203726A/33C	Improved Position Azimuth Determining Sys	Program terminated
0203735A/718	Ground Combat Vehicle HTI	Program complete
0203802A/785	Longbow Hellfire PIP	Program terminated

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

0203806A/Z02	0602601A/C84 *	0603020A/B77 */B84/B85/B96
0203808A/E11	0602786A/C60	0603322A/B92
0301359A	0603005A/C66	0603710A/C65/C67 *
0602122A/B72/622	0603009A/B18/B31	0604328A/C71

\* Funding ends in FY03

**4. Comprehensive Program Review.** This year, the Administration undertook a comprehensive review of 20% of the programs of the Executive Branch, including the same portion of programs within the Department of Defense. The Basic Research programs of the Department were reviewed as a whole, including Basic Research programs of the Army. The Basic Research program merited a rating of "Effective". A summary sheet describing the rating from the Basic Research evaluation follows.

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FY 2005 RDT&E Program

Exhibit R-1

Summary

22-Jan-2004

Summary Recap of Budget Activities	Thousands of Dollars		
	FY 2003	FY 2004	FY 2005
Basic research	242,924	381,593	317,506
Applied Research	852,485	1,039,845	651,192
Advanced technology development	1,095,874	1,205,226	814,615
Advanced Component Development and Prototypes	944,163	920,801	734,493
System Development and Demonstration	2,430,934	4,663,567	6,129,313
Management support	954,015	893,813	859,298
Operational system development	1,074,181	1,096,509	929,140
Total RDT&E, Army			

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Line No	Program Element Number	Act	Item	Thousands of Dollars		
				FY 2003	FY 2004	FY 2005
Basic research						
1	0601101A	01	IN-HOUSE LABORATORY INDEPENDENT RESEARCH	20,255	23,914	23,971
2	0601102A	01	DEFENSE RESEARCH SCIENCES	138,432	156,146	131,206
3	0601103A	01	UNIVERSITY RESEARCH SCIENCES (H)	0	85,242	75,133
4	0601104A	01	UNIVERSITY AND INDUSTRY RESEARCH CENTERS	84,237	99,786	77,658
5	0601105A	01	FORCE HEALTH PROTECTION	0	16,505	9,538
Total: Basic research				242,924	381,593	317,506
Applied Research						
6	0602105A	02	MATERIALS TECHNOLOGY	35,041	39,972	15,385
7	0602120A	02	SENSORS AND ELECTRONIC SURVIVABILITY	21,700	25,230	25,629
8	0602122A	02	TRACTOR HIP	6,322	5,649	6,627
9	0602211A	02	AVIATION TECHNOLOGY	39,163	39,172	41,629
10	0602270A	02	EW TECHNOLOGY	17,002	16,471	18,034
11	0602303A	02	MISSILE TECHNOLOGY	52,793	91,560	51,993
12	0602307A	02	ADVANCED WEAPONS TECHNOLOGY	19,785	14,706	16,641
13	0602308A	02	ADVANCED CONCEPTS AND SIMULATION	28,453	30,431	15,041
14	0602601A	02	COMBAT VEHICLE AND AUTOMOTIVE TECHNOLOGY	81,562	125,147	69,638
15	0602618A	02	BALLISTICS TECHNOLOGY	61,372	57,197	51,301
16	0602622A	02	CHEMICAL, SMOKE AND EQUIPMENT DEFEATING TECHNOLOGY	15,480	21,722	3,476
17	0602623A	02	JOINT SERVICE SMALL ARMS PROGRAM	5,373	5,649	5,739
18	0602624A	02	WEAPONS AND MUNITIONS TECHNOLOGY	71,917	75,266	44,666
19	0602705A	02	ELECTRONICS AND ELECTRONIC DEVICES	61,510	76,809	41,236
20	0602709A	02	NIGHT VISION TECHNOLOGY	18,707	21,506	22,617
21	0602712A	02	COUNTERMINE SYSTEMS	18,408	26,016	20,547
22	0602716A	02	HUMAN FACTORS ENGINEERING TECHNOLOGY	20,247	23,913	16,899
23	0602720A	02	ENVIRONMENTAL QUALITY TECHNOLOGY	26,461	30,824	17,026
24	0602782A	02	COMMAND, CONTROL, COMMUNICATIONS TECHNOLOGY	20,805	18,115	18,604
25	0602783A	02	COMPUTER AND SOFTWARE TECHNOLOGY	3,931	4,010	3,982

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				FY 2003	FY 2004	FY 2005
26	0602784A	02	MILITARY ENGINEERING TECHNOLOGY	54,562	51,577	47,152
27	0602785A	02	MANPOWER/PERSONNEL/TRAINING TECHNOLOGY	15,130	15,053	15,322
28	0602786A	02	LOGISTICS TECHNOLOGY	35,826	49,349	21,131
29	0602787A	02	MEDICAL TECHNOLOGY	120,935	174,501	60,877
Total: Applied Research				852,485	1,039,845	651,192
Advanced technology development						
30	0603001A	03	WARFIGHTER ADVANCED TECHNOLOGY	55,618	66,855	68,034
31	0603002A	03	MEDICAL ADVANCED TECHNOLOGY	168,093	217,737	38,404
32	0603003A	03	AVIATION ADVANCED TECHNOLOGY	42,388	84,966	69,549
33	0603004A	03	WEAPONS AND MUNITIONS ADVANCED TECHNOLOGY	61,206	53,737	67,622
34	0603005A	03	COMBAT VEHICLE AND AUTOMOTIVE ADVANCED TECHNOLOGY	304,885	270,656	203,126
35	0603006A	03	COMMAND, CONTROL, COMMUNICATIONS ADVANCED TECHNOLOGY	8,700	11,339	9,946
36	0603007A	03	MANPOWER, PERSONNEL AND TRAINING ADVANCED TECHNOLOGY	7,606	8,921	7,288
37	0603008A	03	ELECTRONIC WARFARE ADVANCED TECHNOLOGY	28,662	59,170	41,760
38	0603009A	03	TRACTOR HIKE	16,943	7,686	8,035
39	0603015A	03	NEXT GENERATION TRAINING & SIMULATION SYSTEMS	0	15,658	18,072
40	0603020A	03	TRACTOR ROSE	3,261	4,159	4,736
41	0603103A	03	EXPLOSIVE DEMILITARIZATION TECHNOLOGY	0	24,842	9,706
42	0603105A	03	MILITARY HIV RESEARCH	0	14,059	6,641
43	0603125A	03	COMBATING TERRORISM, TECHNOLOGY DEVELOPMENT FOR	41,822	8,610	3,383
44	0603238A	03	GLOBAL SURVEILLANCE/AIR DEFENSE/PRECISION STRIKE T	29,774	12,505	10,721
45	0603270A	03	EW TECHNOLOGY	18,566	25,360	9,382
46	0603313A	03	MISSILE AND ROCKET ADVANCED TECHNOLOGY	100,616	121,126	92,800
47	0603322A	03	TRACTOR CAGE	2,938	7,499	13,312
48	0603606A	03	LANDMINE WARFARE AND BARRIER ADVANCED TECHNOLOGY	28,075	29,662	25,577
49	0603607A	03	JOINT SERVICE SMALL ARMS PROGRAM	16,396	9,575	5,968
50	0603654A	03	LINE-OF-SIGHT TECHNOLOGY DEMONSTRATION	29,931	8,739	0
51	0603710A	03	NIGHT VISION ADVANCED TECHNOLOGY	77,129	84,066	50,071
52	0603728A	03	ENVIRONMENTAL QUALITY TECHNOLOGY DEMONSTRATIONS	12,694	20,462	14,666

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				FY 2003	FY 2004	FY 2005
53	0603734A	03	MILITARY ENGINEERING ADVANCED TECHNOLOGY	13,643	13,106	3,865
54	0603772A	03	ADVANCED TACTICAL COMPUTER SCIENCE AND SENSOR TECH	26,928	24,731	31,951
Total: Advanced technology development				1,095,874	1,205,226	814,615
Advanced Component Development and Prototypes						
55	0603305A	04	ARMY MISSILE DEFENSE SYSTEMS INTEGRATION	36,790	108,078	53,509
56	0603308A	04	ARMY MISSILE DEFENSE SYSTEMS INTEGRATION (DEM/VAL)	56,974	35,532	4,871
57	0603327A	04	AIR AND MISSILE DEFENSE SYSTEMS ENGINEERING	0	121,489	91,713
58	0603619A	04	LANDMINE WARFARE AND BARRIER - ADV DEV	9,719	36,563	11,634
59	0603627A	04	SMOKE, OBSCURANT AND TARGET DEFEATING SYS-ADV DEV	2,324	10,147	6,249
60	0603639A	04	TANK AND MEDIUM CALIBER AMMUNITION	26,367	26,055	39,697
61	0603645A	04	ARMORED SYSTEM MODERNIZATION - ADV DEV	127,951	0	0
62	0603653A	04	ADVANCED TANK ARMAMENT SYSTEM (ATAS)	150,234	60,692	51,892
63	0603747A	04	SOLDIER SUPPORT AND SURVIVABILITY	19,664	13,833	13,810
64	0603766A	04	TACTICAL SUPPORT DEVELOPMENT - ADV DEV (TIARA)	16,112	16,878	15,441
65	0603774A	04	NIGHT VISION SYSTEMS ADVANCED DEVELOPMENT	10,984	7,005	14,047
66	0603779A	04	ENVIRONMENTAL QUALITY TECHNOLOGY DEM/VAL	30,980	40,509	9,356
67	0603782A	04	WARFIGHTER INFORMATION NETWORK-TACTICAL - DEM/VAL	48,849	81,393	99,645
68	0603790A	04	NATO RESEARCH AND DEVELOPMENT	4,561	2,747	4,801
69	0603801A	04	AVIATION - ADV DEV	10,660	14,307	9,233
70	0603802A	04	WEAPONS AND MUNITIONS - ADV DEV	35,634	31,500	2,382
71	0603804A	04	LOGISTICS AND ENGINEER EQUIPMENT - ADV DEV	11,997	12,863	10,485
72	0603805A	04	COMBAT SERVICE SUPPORT CONTROL SYSTEM EVALUATION A	8,275	8,585	6,366
73	0603807A	04	MEDICAL SYSTEMS - ADV DEV	13,280	13,392	10,258
74	0603850A	04	INTEGRATED BROADCAST SERVICE (JMIP/DISTP)	1,928	2,073	4,356
75	0603854A	04	ARTILLERY SYSTEMS - DEM/VAL	306,778	0	0
76	0603856A	04	SCAMP BLOCK II	14,102	27,716	10,221
77	0603869A	04	MEADS CONCEPTS - DEM/VAL	0	249,444	264,527
Total: Advanced Component Development and Prototypes				944,163	920,801	734,493

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				FY 2003	FY 2004	FY 2005
System Development and Demonstration						
78	0604201A	05	AIRCRAFT AVIONICS	35,971	47,155	68,857
79	0604220A	05	ARMED, DEPLOYABLE OH-58D	1,759	0	0
80	0604223A	05	COMANCHE	865,613	1,068,029	1,229,664
81	0604270A	05	EW DEVELOPMENT	38,291	32,870	16,879
82	0604280A	05	JOINT TACTICAL RADIO SYSTEM	62,892	133,293	121,400
83	0604321A	05	ALL SOURCE ANALYSIS SYSTEM	54,341	19,959	5,346
84	0604328A	05	TRACTOR CAGE	9,304	16,046	14,149
85	0604329A	05	COMMON MISSILE	28,104	93,705	152,381
86	0604601A	05	INFANTRY SUPPORT WEAPONS	0	28,340	28,187
87	0604604A	05	MEDIUM TACTICAL VEHICLES	3,584	4,321	2,854
88	0604609A	05	SMOKE, OBSCURANT AND TARGET DEFEATING SYS-ENG DEV	7,521	11,968	3,798
89	0604611A	05	JAVELIN	467	946	944
90	0604622A	05	FAMILY OF HEAVY TACTICAL VEHICLES	13,852	16,875	2,479
91	0604633A	05	AIR TRAFFIC CONTROL	2,161	2,489	2,088
92	0604641A	05	TACTICAL UNMANNED GROUND VEHICLE (TUGV)	1,146	0	0
93	0604642A	05	LIGHT TACTICAL WHEELED VEHICLES	7,900	18,010	0
94	0604645A	05	ARMORED SYSTEMS MODERNIZATION (ASM)-ENG. DEV.	159,175	1,423,146	2,700,455
95	0604647A	05	NON LINE OF SIGHT CANNON	0	260,495	497,643
96	0604649A	05	ENGINEER MOBILITY EQUIPMENT DEVELOPMENT	7,651	0	0
97	0604710A	05	NIGHT VISION SYSTEMS - ENG DEV	31,687	38,816	24,693
98	0604713A	05	COMBAT FEEDING, CLOTHING, AND EQUIPMENT	80,989	98,960	115,093
99	0604715A	05	NON-SYSTEM TRAINING DEVICES - ENG DEV	55,865	70,870	51,694
100	0604716A	05	TERRAIN INFORMATION - ENG DEV	8,092	6,905	3,199
101	0604726A	05	INTEGRATED METEOROLOGICAL SUPPORT SYSTEM	3,359	3,275	2,485
102	0604738A	05	JSIMS CORE PROGRAM	28,759	0	0
103	0604741A	05	AIR DEFENSE COMMAND, CONTROL AND INTEL - ENG	26,983	28,993	27,376
104	0604742A	05	CONSTRUCTIVE SIMULATION SYSTEMS DEVELOPMENT	43,673	16,818	42,869
105	0604746A	05	AUTOMATIC TEST EQUIPMENT DEVELOPMENT	12,647	11,316	4,713
106	0604760A	05	DISTRIBUTIVE INTERACTIVE SIMULATIONS (DIS) - ENGIN	18,087	25,789	26,985

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				FY 2003	FY 2004	FY 2005
107	0604766A	05	TACTICAL EXPLOITATION SYSTEM/DCGS (TIARA)	57,229	26,022	21,821
108	0604768A	05	BRILLIANT ANTI-ARMOR SUBMUNITION (BAT)	55,922	9,897	21
109	0604770A	05	JOINT SURVEILLANCE/TARGET ATTACK RADAR SYSTEM	4,509	4,656	0
110	0604778A	05	POSITIONING SYSTEMS DEVELOPMENT (SPACE)	0	1,558	2,048
111	0604780A	05	COMBINED ARMS TACTICAL TRAINER (CATT)	8,162	3,956	23,849
112	0604783A	05	JOINT NETWORK MANAGEMENT SYSTEM	7,673	9,339	10,726
113	0604801A	05	AVIATION - ENG DEV	2,979	3,344	2,378
114	0604802A	05	WEAPONS AND MUNITIONS - ENG DEV	49,830	157,076	125,885
115	0604804A	05	LOGISTICS AND ENGINEER EQUIPMENT - ENG DEV	56,101	87,471	89,151
116	0604805A	05	COMMAND, CONTROL, COMMUNICATIONS SYSTEMS - ENG DEV	89,465	216,811	219,790
117	0604807A	05	MEDICAL MATERIEL/MEDICAL BIOLOGICAL DEFENSE EQUIPM	18,769	22,615	11,727
118	0604808A	05	LANDMINE WARFARE/BARRIER - ENG DEV	125,024	96,187	51,045
119	0604814A	05	ARTILLERY MUNITIONS - EMD	102,141	122,631	133,297
120	0604817A	05	COMBAT IDENTIFICATION	4,983	11,817	6,994
121	0604818A	05	ARMY TACTICAL COMMAND & CONTROL HARDWARE & SOFTWARE	97,970	101,166	68,110
122	0604819A	05	LOSAT	10,603	30,488	22,628
123	0604820A	05	RADAR DEVELOPMENT	0	0	6,107
124	0604823A	05	FIREFINDER	28,401	26,825	18,516
125	0604854A	05	ARTILLERY SYSTEMS - EMD	30,483	32,289	9,550
126	0604865A	05	PATRIOT PAC-3 THEATER MISSILE DEFENSE ACQ - EMD	0	156,827	64,178
127	0605013A	05	INFORMATION TECHNOLOGY DEVELOPMENT	70,817	63,203	95,261
Total: System Development and Demonstration				2,430,934	4,663,567	6,129,313
Management support						
128	0604256A	06	THREAT SIMULATOR DEVELOPMENT	17,593	19,601	22,101
129	0604258A	06	TARGET SYSTEMS DEVELOPMENT	10,049	13,444	11,017
130	0604759A	06	MAJOR T&E INVESTMENT	47,054	60,141	57,987
131	0605103A	06	RAND ARROYO CENTER	21,163	22,072	20,012
132	0605301A	06	ARMY KWAJALEIN ATOLL	125,327	138,884	143,921
133	0605326A	06	CONCEPTS EXPERIMENTATION	23,330	30,704	22,727

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Line No	Program Element Number	Act	Item	Thousands of Dollars		
				FY 2003	FY 2004	FY 2005
134	0605502A	06	SMALL BUSINESS INNOVATIVE RESEARCH	179,142	0	0
135	0605601A	06	ARMY TEST RANGES AND FACILITIES	129,665	182,885	181,114
136	0605602A	06	ARMY TECHNICAL TEST INSTRUMENTATION AND TARGETS	41,774	56,899	52,433
137	0605604A	06	SURVIVABILITY/LETHALITY ANALYSIS	34,921	41,860	44,648
138	0605605A	06	DOD HIGH ENERGY LASER TEST FACILITY	16,672	18,299	15,725
139	0605606A	06	AIRCRAFT CERTIFICATION	3,555	2,999	2,985
140	0605702A	06	METEOROLOGICAL SUPPORT TO RDT&E ACTIVITIES	6,792	9,359	8,711
141	0605706A	06	MATERIEL SYSTEMS ANALYSIS	8,978	15,642	18,000
142	0605709A	06	EXPLOITATION OF FOREIGN ITEMS	3,430	3,465	4,740
143	0605712A	06	SUPPORT OF OPERATIONAL TESTING	83,911	66,995	71,239
144	0605716A	06	ARMY EVALUATION CENTER	43,809	46,527	62,209
145	0605718A	06	SIMULATION & MODELING FOR ACQ, RQTS, & TNG (SMART)	0	2,568	1,935
146	0605801A	06	PROGRAMWIDE ACTIVITIES	59,836	62,966	59,368
147	0605803A	06	TECHNICAL INFORMATION ACTIVITIES	54,182	42,122	27,713
148	0605805A	06	MUNITIONS STANDARDIZATION, EFFECTIVENESS AND SAFET	30,002	39,783	14,611
149	0605857A	06	ENVIRONMENTAL QUALITY TECHNOLOGY MGMT SUPPORT	1,794	4,780	4,527
150	0605898A	06	MANAGEMENT HEADQUARTERS (RESEARCH AND DEVELOPMENT)	10,855	11,818	11,575
151	0909999A	06	FINANCING FOR CANCELLED ACCOUNT ADJUSTMENTS	181	0	0
Total: Management support				954,015	893,813	859,298
Operational system development						
152	0102419A	07	JOINT LAND ATTACK CRUISE MISSILES DEFENSE (JLENS)	33,489	58,397	81,514
153	0203610A	07	DOMESTIC PREPAREDNESS AGAINST WEAPONS OF MASS DEST	2,437	3,956	
154	0203726A	07	ADV FIELD ARTILLERY TACTICAL DATA SYSTEM	44,959	28,599	17,994
155	0203735A	07	COMBAT VEHICLE IMPROVEMENT PROGRAMS	81,285	31,336	15,952
156	0203740A	07	MANEUVER CONTROL SYSTEM	40,612	39,145	24,753
157	0203744A	07	AIRCRAFT MODIFICATIONS/PRODUCT IMPROVEMENT PROGRAM	206,500	276,191	224,368
158	0203752A	07	AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM	6,759	5,339	2,427
159	0203758A	07	DIGITIZATION	27,727	18,049	24,506
160	0203759A	07	FORCE XXI BATTLE COMMAND, BRIGADE AND BELOW (FBCB2)	59,887	47,901	23,510

UNCLASSIFIED

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UNCLASSIFIED  
 Department of the Army  
 FY 2005 RDT&E Program

Exhibit R-1

Appropriation: 2040 A RDT&E, Army

22-Jan-2004

Line No	Program Element Number	Act	Item	Thousands of Dollars		
				FY 2003	FY 2004	FY 2005
161	0203801A	07	MISSILE/AIR DEFENSE PRODUCT IMPROVEMENT PROGRAM	39,262	46,055	31,690
162	0203802A	07	OTHER MISSILE PRODUCT IMPROVEMENT PROGRAMS	12,229	1,061	4,863
163	0203806A	07	TRACTOR RUT	0	8,754	3,321
164	0203808A	07	TRACTOR CARD	8,495	9,153	9,023
165	0208010A	07	JOINT TACTICAL COMMUNICATIONS PROGRAM (TRI-TAC)	13,281	16,362	18,177
166	0208053A	07	JOINT TACTICAL GROUND SYSTEM	2,811	9,659	9,967
167	0301359A	07	SPECIAL ARMY PROGRAM	12,445	19,737	
168	0303028A	07	SECURITY AND INTELLIGENCE ACTIVITIES	26,182	15,873	
169	0303140A	07	INFORMATION SYSTEMS SECURITY PROGRAM	22,153	20,500	24,725
170	0303141A	07	GLOBAL COMBAT SUPPORT SYSTEM	49,273	55,217	94,215
171	0303142A	07	SATCOM GROUND ENVIRONMENT (SPACE)	67,716	86,389	51,959
172	0303150A	07	WWMCCS/GLOBAL COMMAND AND CONTROL SYSTEM	16,704	16,934	19,204
173	0305114A	07	TRAFFIC CONTROL, APPROACH AND LANDING SYSTEM-FY 19	934	945	
174	0305204A	07	TACTICAL UNMANNED AERIAL VEHICLES	68,650	68,629	27,127
175	0305206A	07	AIRBORNE RECONNAISSANCE ADV DEVELOPMENT	11,433	4,699	5,128
176	0305208A	07	DISTRIBUTED COMMON GROUND SYSTEMS (JMIP)	44,805	37,375	43,254
177	0603778A	07	MLRS PRODUCT IMPROVEMENT PROGRAM	94,584	83,903	97,422
178	0702239A	07	AVIONICS COMPONENT IMPROVEMENT PROGRAM	0	0	997
179	0708045A	07	END ITEM INDUSTRIAL PREPAREDNESS ACTIVITIES	79,066	85,853	67,236
180	1001018A	07	NATO JOINT STARS	503	498	595
Total: Operational system development				1,074,181	1,096,509	929,140
Total: RDT&E, Army				7,594,576	10,201,354	10,435,557

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<b>#6 - Management support</b>			
128	0604256A	THREAT SIMULATOR DEVELOPMENT	1
129	0604258A	TARGET SYSTEMS DEVELOPMENT	4
130	0604759A	Major T&E Investment	11
131	0605103A	Rand Arroyo Center	19
132	0605301A	ARMY KWAJALEIN ATOLL	23
133	0605326A	Concepts Experimentation	25
135	0605601A	ARMY TEST RANGES AND FACILITIES	33
136	0605602A	Army Technical Test Instrumentation and Targets	39
137	0605604A	Survivability/Lethality Analysis	47
138	0605605A	DOD High Energy Laser Test Facility	54
139	0605606A	AIRCRAFT CERTIFICATION	56
140	0605702A	Meteorological Support to RDT&E Activities	58
141	0605706A	MATERIEL SYSTEMS ANALYSIS	61
142	0605709A	EXPLOITATION OF FOREIGN ITEMS	65
143	0605712A	Support of Operational Testing	67
144	0605716A	Army Evaluation Center	71
145	0605718A	Simulation & Modeling for Acq, Rqts, & Tng (SMART)	74
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154	0203726A	Adv Field Artillery Tactical Data System	133
155	0203735A	Combat Vehicle Improvement Programs	147
156	0203740A	Maneuver Control System	159
157	0203744A	Aircraft Modifications/Product Improvement Program	167
158	0203752A	Aircraft Engine Component Improvement Program	198
159	0203758A	Digitization	207
160	0203759A	Force XXI Battle Command, Brigade and Below (FBCB2)	214
161	0203801A	Missile/Air Defense Product Improvement Program	222
162	0203802A	Other Missile Product Improvement Programs	231
165	0208010A	Joint Tactical Communications Program (TRI-TAC)	244
166	0208053A	Joint Tactical Ground System	259
169	0303140A	Information Systems Security Program	267
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171	0303142A	SATCOM Ground Environment (SPACE)	294
172	0303150A	WWMCCS/Global Command and Control System	322
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175	0305206A	Airborne Reconnaissance Adv Development	372
176	0305208A	Distributed Common Ground Systems (JMIP)	380
177	0603778A	MLRS PRODUCT IMPROVEMENT PROGRAM	410
180	1001018A	NATO Joint STARS	433
181	0708045A	End Item Industrial Preparedness Activities	436

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<b>Program Element Title</b>	<b>PE</b>	<b>Line No.</b>	<b>Page</b>
Adv Field Artillery Tactical Data System	0203726A	154	133
Airborne Reconnaissance Adv Development	0305206A	175	372
AIRCRAFT CERTIFICATION	0605606A	139	56
Aircraft Engine Component Improvement Program	0203752A	158	198
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Army Evaluation Center	0605716A	144	71
ARMY KWAJALEIN ATOLL	0605301A	132	23
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ARMY TEST RANGES AND FACILITIES	0605601A	135	33
Combat Vehicle Improvement Programs	0203735A	155	147
Concepts Experimentation	0605326A	133	25
Digitization	0203758A	159	207
Distributed Common Ground Systems (JMIP)	0305208A	176	380
DOD High Energy Laser Test Facility	0605605A	138	54
End Item Industrial Preparedness Activities	0708045A	181	436
Environmental Quality Technology Mgmt Support	0605857A	149	114
EXPLOITATION OF FOREIGN ITEMS	0605709A	142	65
Force XXI Battle Command, Brigade and Below (FBCB2)	0203759A	160	214
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Joint Tactical Ground System	0208053A	166	259
Major T&E Investment	0604759A	130	11
Management Headquarters (Research and Development)	0605898A	150	123
Maneuver Control System	0203740A	156	159
MATERIEL SYSTEMS ANALYSIS	0605706A	141	61
Meteorological Support to RDT&E Activities	0605702A	140	58
Missile/Air Defense Product Improvement Program	0203801A	161	222
MLRS PRODUCT IMPROVEMENT PROGRAM	0603778A	177	410
Munitions Standardization, Effectiveness and Safet	0605805A	148	103
NATO Joint STARS	1001018A	180	433
Other Missile Product Improvement Programs	0203802A	162	231
Programwide Activities	0605801A	146	76
Rand Arroyo Center	0605103A	131	19
SATCOM Ground Environment (SPACE)	0303142A	171	294
Simulation & Modeling for Acq, Rqts, & Tng (SMART)	0605718A	145	74
Support of Operational Testing	0605712A	143	67
Survivability/Lethality Analysis	0605604A	137	47
Tactical Unmanned Aerial Vehicles	0305204A	174	333
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Technical Information Activities	0605803A	147	92

# Alphabetic Listing - RDT&E Volume III

<b>Program Element Title</b>	<b>PE</b>	<b>Line No.</b>	<b>Page</b>
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Traffic Control, Approach and Landing System-FY 19	0305114A	173	330
WWMCCS/Global Command and Control System	0303150A	172	322

**Program: Basic Research**

**Agency:** Department of Defense--Military

**Bureau:** Research, Development, Test, and Evaluation

**\*Rating:** Effective

**Program Type** Research and Development

**Program Summary:**

The Basic Research program includes scientific study and experimentation to increase fundamental knowledge in the physical, engineering, environmental and life sciences and consists of a wide portfolio of projects. The program is carried out primarily through grants to universities and non-profits. The results of this research are expected to improve the country's defense capabilities, although the actual results of any specific project are unpredictable. Notable successes in the past have led to advances in satellite communications and imagery, precision navigation, stealth, night vision and technologies allowing greatly expanded battlefield awareness. Due to the long-term nature of research results, the R&D PART emphasizes assessment of the process of choosing funded projects and independent assessments of how well the research portfolio is managed.

The assessment indicates that the basic research program has clear purposes of providing options for new weapons systems, helping prevent technological surprise by adversaries, and developing new scientists who will contribute to the DoD mission in the future. DoD can document--through its contracts and grants management regulations, public announcements of award competitions and results from independent review panels--the methodical management of its program. Additional findings include:

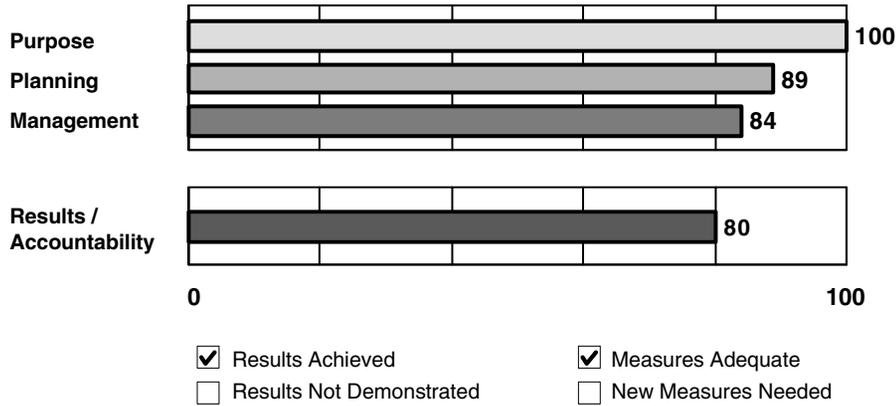
1. The grants/contract solicitation, review and award processes are competitive.
2. The program is reviewed regularly by technically capable outside reviewers, which recommend improvements they would like to be implemented. They indicate that the work is of overall high quality.
3. The program has competent planning and management.
4. Earmarking of projects in the program has increased in the past decade and contribute less than the typical research project to meeting the agency's mission.

In response to these findings, the Administration will:

1. Continue to emphasize the use of independent review panels in assessing the performance of the program.
2. Work with the research community and Congress to explain the need to limit claims on research grant funds to proposals that independently can meet the standards of a strict merit-review process.

**Program Funding Level (in millions of dollars)**

\* This assessments has not changed since publication in the FY 2004 Budget. For updated program funding levels, see Data File - Funding, Scores, and Ratings.



**Key Performance Measures**

**Year Target Actual**

Key Performance Measure	Year	Target	Actual
Certification in biennial reviews by technically competent independent reviewers that the supported work, as a portfolio, is of high quality, serves to advance the national security and is efficiently managed and carried out.	2003 and later	100%	
Long-term Measure: Portion of funded research that is chosen on the basis of merit review Reduce non-merit-reviewed and -determined projects by one half in two years (from 6.0% to 3.0%)	2005	-50%	

**Program:** *DoD Small Business Innovation Research / Technology Transfer*

**Agency:** *Department of Defense--Military*

**Bureau:** *Research & Development*

**Rating:** *Results Not Demonstrated*

**Program Type:** *Research and Development*

**Program Summary:**

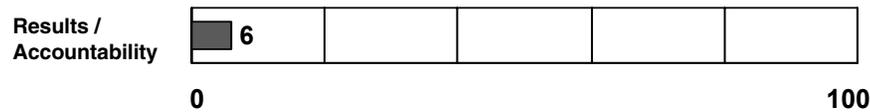
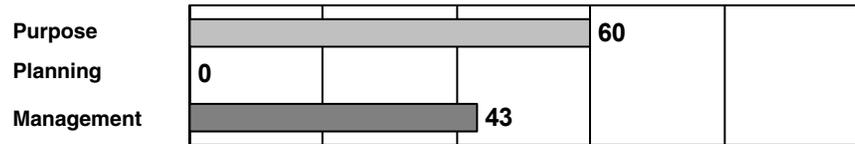
The Department of Defense's (DoD's) Small Business Innovation Research and Small Business Technology Transfer programs supply funds to small businesses (in the latter case, in conjunction with non-profit research institutions) to develop products that help DoD defend the country.

The assessment found that the program:

- 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 treating additional investment in the same way as product sales.

In response to these findings, the Administration will:

1. Tighten eligibility requirements for accepting proposals from companies and individuals that repeatedly fail to sell resulting products in the marketplace.
2. Change the way companies' past performance is assessed to ensure that it more closely matches the intent of the law.
3. Look for ways to budget explicitly for the program's administrative costs.
4. Seek to get highly successful awardees to enter the mainstream of Defense contracting.



**Key Performance Measures**

**Year Target Actual**

Long-term Measure: Revise the Commercialization Achievement Index (CAI) to eliminate counting of investments as commercialization no later than three years after receiving the first Phase II support. After that, count competitive sales receipts only.	2004	All	
Long-term Measure: Stop funding companies with more than 5 current or past Phase II awards in the last 5 years if the company is in the bottom quartile in the CAI.	2005	All	
Long-term Efficiency Measure: Emphasize commercialization so overall competitively awarded sales to the government (direct or indirect) from resulting products is at least equal to new R&D investment (Phases I-III), as a portfolio of prior 3-8 year investments (rolling average).	2004	0.15	
	2005	0.2	
	2006	0.3	
	2007	0.5	

**Program Funding Level (in millions of dollars)**

<b>2003 Actual</b>	<b>2004 Estimate</b>	<b>2005 Estimate</b>
963	1,100	1,133

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

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0604256A - THREAT SIMULATOR DEVELOPMENT</b>	PROJECT <b>976</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
976 ARMY THREAT SIM (ATS)	17593	19601	22101	21151	19367	20020	20998

**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) conducted 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 as defined in the Army Threat Simulator and Simulation Program Plan (TSPP). 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 that the Army conduct operational testing in a realistic threat environment. Actual threat equipment is acquired when appropriate (in lieu of development) and total package fielding is still required (i.e., instrumentation, operations and maintenance, manuals, new equipment training, etc.). Threat simulator development is accomplished under the auspices of the Project Manager for Instrumentation, Targets and Threat Simulators (PM ITTS) and the Director, Operational Test and Evaluation, Threat Simulator Investment Working Group. These affiliations minimize any development duplication within the U.S. Army or Department of Defense (DoD).

FY 2005 funds develop intelligence and electronic warfare (IEW) scenario generation system dense test threat scenarios required to fully simulate environments supporting analysis for the Future Combat System. Continues development of XM11s required for the testing of Army Aviation systems; development of the information assurance test tool threat system; and begins development efforts for the threat IEW environment.

This project supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Develop Intelligence and Electronic Warfare scenario generation system for test scenario planning and execution.	3145	7629	7832
Develop product enhancements for XM11S simulator threat system.	3674	4069	4859
Continued instrumentation and fielding of Threat Mines Simulator.	1048	0	0

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

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0604256A - THREAT SIMULATOR DEVELOPMENT</b>	PROJECT <b>976</b>
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<b>Accomplishments/Planned Program B(continued)</b>	FY 2003	FY 2004	FY 2005
Develop Information Assurance Test Tool (IATT) Threat system.	2557	2722	1598
Developed Radio Frequency Surface to Air Missile Threat Simulator.	2100	0	0
Validate threat simulators/simulations to ensure they are available for operational test.	602	154	138
Conducted a target acquisition and designation study for Unmanned Aerial Vehicle simulator.	1038	0	0
Conducted Radar Surveillance and Target Acquisition (RSTA) Study.	539	0	0
Conducted Injection Jammer Proof of Concept Study.	790	0	0
Develop Automated Intelligence and Electronic Warfare Test System (AI-EWTS) multiple emitters.	0	2082	0
Developed Multi-Mode Top Attack Threat Simulator.	2100	0	0
Conduct Threat Systems Management Office Operations efforts at Ft. Bliss, TX.	0	0	5877
Develop Threat IEW Environment to simulate EW capabilities.	0	0	1797
Develop radio frequency (RF) Surface-to-Air Missile (SAM) radar prototype.	0	2500	0
Small Business Innovative Research/Small Business Technology Transfer Programs	0	445	0
<b>Totals</b>	<b>17593</b>	<b>19601</b>	<b>22101</b>

<b><u>B. Program Change Summary</u></b>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	18158	17751	18915
Current Budget (FY 2005 PB)	17593	19601	22101
Total Adjustments	-565	1850	3186
Congressional program reductions		-172	
Congressional rescissions			
Congressional increases		2500	
Reprogrammings	-565	-478	
SBIR/STTR Transfer			
Adjustments to Budget Years			3186

Change Summary Explanation: Funding - FY 2004: Congressional plus-ups in the amount of \$2500. FY 2005: Funds realigned from the Army Test and

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

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

PROJECT  
**976**

Evaluation Command (PE 0605712A/V02) for more efficient operation of the management of threat systems (+ \$5877).

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

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

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	10049	13444	11017	9446	9423	9830	10330
238    AERIAL TARGETS	5270	7995	7241	6392	6174	5750	6043
459    GROUND TARGETS	4779	5449	3776	3054	3249	4080	4287

**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.

These systems support the Current to Future transition path of the Transformation Campaign Plan (TCP).

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

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

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	10226	13890	12582
Current Budget (FY 2005 PB)	10049	13444	11017
Total Adjustments	-177	-446	-1565
Congressional program reductions		-118	
Congressional rescissions			
Congressional increases			
Reprogrammings	-177	-328	
SBIR/STTR Transfer			
Adjustments to Budget Years			-1565

Change Summary Explanation: Funding - FY 2005: Funds realigned (\$1565) to support higher priority requirements.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

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

**PROJECT**  
**238**

COST (In Thousands)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate
238      AERIAL TARGETS	5270	7995	7241	6392	6174	5750	6043

**A. Mission Description and Budget Item Justification:** Supports Army Transformation by providing for development, acquisition, operation, storage, update, and maintenance of realistic surrogate or acquired threat high-performance, multi-spectral aerial targets and development of virtual target computer models of aerial targets. Modern weapons require test, evaluation, and training using threat representative aerial targets to assess their effectiveness on the battlefield. This program encompasses a family of rotary and fixed-wing targets; full-scale, miniature and subscale targets; virtual targets; ancillary devices; and their control systems. These products are required to adequately stress weapon systems undergoing test and evaluation (T&E). To stress systems under test, 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.

These systems support the Current to Future transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Continue management and sustainment of more than 20 Army (Reliance Lead) Rotary Wing Targets, including updates for obsolescence, maintenance, and safety to support T&E programs such as Comanche, Medium Extended Air Defense System (MEADS), Surface Launched Advanced Medium Range Air to Air Missile (AMRAAM) (SLAMRAAM), and others.	343	414	349
Provides RDT&E portion of funds needed to update aging MQM-107 equipment to overcome obsolescence for spare and repair parts, and to maintain equipment and documentation for safe operations supporting T&E programs such as Patriot, Stinger, Joint Land Attack Cruise Missile Defense Elevated Netted Sensors (JLENS), MEADS, SLAMRAAM, and classified programs for Army and Tri-Service customers. FY05 begins the process to acquire replacements for expended targets, which will include development of updated component/subsystem replacements of no-longer-available, obsolete equipment and for an enhanced performance envelope, including endurance.	996	997	1566

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**6 - Management support**

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

PROJECT  
**238**

**Accomplishments/Planned Program (continued)**

	FY 2003	FY 2004	FY 2005
Complete redesign and testing of upgraded Target Tracking Control System (TTCS) to new design. Complete testing of upgraded initial test sets. Continue to support current TTCS to maintain operations until all TTCSs are upgraded. Continue management of Targets Management Initiative to develop and integrate a set of Common Digital Architecture control equipment into aerial targets to improve performance and reduce operating costs. FY03-05 completes upgrade of remaining TTCS to new configuration at a rate of 2-3 per year. 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.	2691	3389	2104
Continue development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets, and ancillary devices. FY03-05 continues development and testing of Low Cost Towed target system emulating current threats at a very low cost to Patriot and a classified customer. FY05 also integrates tandem tow technology into large-scale towed targets to support air defense weapons T&E (e.g. Patriot).	706	732	749
Integrated Avionics Program incorporated Central Test and Evaluation Investment Program (CTEIP) Common Digital Architecture into aerial targets controlled by TTCS, improving reliability, maintainability, and target performance while reducing operational cost. FY 03-04 develops initial prototypes and test set, and performs tests using an MQM-107. FY05 provides RDT&E portion to initialize production and provide maintainer and operator training, and finalize technical documentation. The customer will provide funding and training for production units.	534	750	1509

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

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

**PROJECT**  
**238**

**Accomplishments/Planned Program (continued)**

FY04-05 funding supports research and development of evolving Army and DoD simulation standards and evolving implementation techniques; fabricates additional simulation target models of airplanes, helicopters, missiles, and unmanned aerial vehicles in commonly used model formats; develops simulation target model infrared and radar frequency signature models, and provides archiving and distribution of simulation target models to simulation developers throughout the Army and DoD test and evaluation communities. Simulation target models are employed to facilitate simulations for both Developmental and Operational Testing (test planning, test rehearsal, post-test analysis, hardware-in-the-loop testing, and execution of test events that are too costly or difficult to be conducted under actual field conditions). These models will be used by Developmental Test Command's (DTC) Virtual Proving Ground simulation, Operational Test Command's (OTC) Analytical Simulation and Instrumentation Suite (OASIS), and multiple weapon systems' T&E (e.g. Future Combat System, Comanche, Patriot, SBCT (Stryker), MEADS, etc.). These models are on-line and available to all T&E simulation developers.

	FY 2003	FY 2004	FY 2005
	0	394	814

Develops, tests and provides generic, tactical class Unmanned Aerial Vehicle (UAV) targets to provide threat representative support for MEADS/SLAMRAAM testing in FY 05-06 and Comanche and MEADS testing in future years. Provides 12 COTS based air vehicles for developmental testing 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.

	0	1093	150
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Small Business Innovative Research/Small Business Technology Transfer Programs.

	0	226	0
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<b>Totals</b>	<b>5270</b>	<b>7995</b>	<b>7241</b>
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# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**6 - Management support**

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

PROJECT  
**459**

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
459      GROUND TARGETS	4779	5449	3776	3054	3249	4080	4287

**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.

These systems support the Current to Future transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
FY03-05 funds management and oversight of five Primary Operating Centers to include operation, storage, maintenance, and configuration management for the repair of 167 active and 182 inactive Mobile Ground Target vehicles, and acquisition of new material and spare parts. Supports users such as FCS, Comanche, Precision Fire, Apache, and others.	2160	2152	1964

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

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

**PROJECT**  
**459**

**Accomplishments/Planned Program (continued)**

	FY 2003	FY 2004	FY 2005
Supports research and development of evolving Army and DOD simulation standards and evolving implementation techniques; fabricates additional simulation target models of wheeled and tracked ground vehicles in commonly used model formats; develops simulation target model infrared (IR) and radio frequency (RF) signature models, and provides archiving and distribution of simulation target models to simulation developers throughout the Army and DOD T&E communities. Simulation target models are employed to facilitate simulations for both DT and OT (test planning, test rehearsal, post-test analysis, hardware-in-the-loop testing, and execution of test events that are too costly or difficult to be conducted under actual field conditions). These models will be used by DTC's Virtual Proving Ground simulation, OTC's Analytical Simulation and Instrumentation Suite (OASIS), and multiple weapon systems' T&E (e.g. Future Combat System (FCS), Comanche, ATACMS, SBCT (Stryker), Land/Air Warrior, etc.) These models are available on-line to all T&E simulation developers.	1384	1965	1366
Develops (FY03), tests (FY04), validates (FY04), and fields (FY05) a very low cost (less than 10% of cost of the actual Main Battle Tank (MBT)) Russian MBT Surrogate, which will emulate the visual, infrared, and radio frequency signatures to support T&E (e.g., Comanche, Apache, FCS, NLOS, LOSAT, and others).	1235	1190	446
Small Business Innovative Research/Small Business Technology Transfer Programs.	0	142	0
<b>Totals</b>	<b>4779</b>	<b>5449</b>	<b>3776</b>

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

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

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	47054	60141	57987	56309	57814	60435	63513
983 MAJOR T&E INVEST-USAKA	8083	13749	8493	6210	7098	7431	7811
984 MAJOR TECH TEST INSTR	32431	35673	35361	34607	32694	34153	35883
986 MAJ USER TEST INST	6540	10719	14133	15492	18022	18851	19819

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

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

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

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	51168	62135	66524
Current Budget (FY 2005 PB)	47054	60141	57987
Total Adjustments	-4114	-1994	-8537
Congressional program reductions		-528	
Congressional rescissions			
Congressional increases			
Reprogrammings	-4114	-1466	
SBIR/STTR Transfer			
Adjustments to Budget Years			-8537

Change Summary Explanation: Funding - FY 2005: Funds realigned (-\$8537) to support higher priority requirements.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0604759A - Major T&amp;E Investment</b>	PROJECT <b>983</b>
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COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
983 MAJOR T&E INVEST-USAKA	8083	13749	8493	6210	7098	7431	7811

**A. Mission Description and Budget Item Justification:** This project funds the purchase of major improvement and modernization (I&M) equipment for the US Army Kwajalein Atoll/Ronald Reagan Ballistic Missile Defense Test Site (USAKA/RTS) located in the Marshall Islands. USAKA/RTS is a national test range supporting Army, Missile Defense Agency (MDA), US Air Force, National Aeronautics and Space Administration (NASA), STRATCOM, and other customers. Program upgrades radars, telemetry, optics, command/control and other equipment required to maintain RTS as a national test range. These upgrades are critical to the success of Theater Missile Defense (TMD) and Ground-based Mid-course Missile Defense (GMD) test missions. The completed Kwajalein Modernization and Remoting (KMAR) project was a concurrent, range-wide modernization effort maximizing the use of common, standardized commercial off-the-shelf (COTS) technology to replace obsolete components; implement common hardware/software architectures and automation; and "remote" the operation of range sensors and instrumentation to the island of Kwajalein. This effort upgraded range capabilities that are critical to the success of Theater Missile Defense (TMD) and Ground-based Mid-course Missile Defense (GMD) test missions. This activity supports the Current to Future transition path of the Transformation Campaign Plan.

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Completed Kwajalein Modernization and Remoting (KMAR) - Completed installation of Intermediate Frequency (IF) receiver, computer, digital pulse compression and recording equipment for Advanced Research Projects Agency (ARPA) Long Range Tracking and Instrumentation Radar (ALTAIR). Completed development of Target Resolution and Discrimination Experiment (TRADEX) KMAR systems. Completed installation of four telemetry (TM) antenna systems at Kwajalein TM site. Completed installation of remaining four Super Recording Automatic Digital Optical Tracker (RADOT) servo systems. Completed installation of IF receiver, computer, digital pulse compression and recording equipment for TRADEX Radar	3416	0	0
Upgrade RTS Safety Center to incorporate alternate command destruct transmitter.	890	1500	0
Completed Outside Cable Plant Restoration - All pressurized, lead-sheathed backbone and distribution cable was replaced with copper cable. This upgrade will provide adequate mission and administrative communications support for RTS technical instrumentation and its supporting/supported organizations and customers.	2610	0	0
Modernize RTS Operations Control Center (ROCC) for compatibility with upgraded KMAR sensors and to provide interoperability with Pacific Ranges.	1167	5235	3002

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2004**

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0604759A - Major T&amp;E Investment</b>	PROJECT <b>983</b>
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<b>Accomplishments/Planned Program (continued)</b>	FY 2003	FY 2004	FY 2005
Provide Transportable Optics via Transportable Infrared Optical Sensors (TIROS) capabilities which will enable RTS to project optical support data throughout the Marshall Islands and to Wake, Johnston, Midway or Alaska in support of missions.	0	0	2991
Apply new Solid State Technology to simplify radar transmitter hardware. Enhances reliability, sensitivity and commonality of KREMS radar transmitters.	0	1500	1200
Modernize MPS-36 Radars to replace unsupportable hardware and computer systems.	0	3100	500
Initiate Film to Digital Video (FDV) replacement of 70/35mm cameras with high resolution, high speed digital video cameras and recorders.	0	1200	800
Complete ALTAIR wheels and rails upgrade.	0	805	0
Small Business Innovative Research/Small Business Technology Transfer Programs.	0	409	0
<b>Totals</b>	<b>8083</b>	<b>13749</b>	<b>8493</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0604759A - Major T&amp;E Investment</b>				PROJECT <b>984</b>		
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
984 MAJOR TECH TEST INSTR	32431	35673	35361	34607	32694	34153	35883

**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 \$1M/yr or \$5M for the total project) and applicability to other mission areas or services. These projects are technically demanding, state-of-the-art, unique instrumentation assets or suites to meet the technology shortfalls, and generally result from development programs managed by a professional project management team. The Test Support Network (TSN) at WSMR provides complete secure coverage of voice, data and video in a single integrated, transport system. The TSN will provide advanced encryption capabilities and remote control of switching capabilities for test configuration and total network data management control. The Land Combat Instrumentation (LCI) provides for upgrade and expansion for Automotive Communication Network (ACN) suite of instrumentation required for performance testing of combat and tactical vehicles, advanced armor, and advanced munitions. The Hardened Subminiature Telemetry and Sensor System (HSTSS) is developing, miniaturizing, and hardening an instrumentation/telemetry package at YPG that will provide continuous direct measurement of internal functioning and flight data for cannon-launched munitions, smart submunitions, and small missiles/rockets. The Versatile Information Systems Integrated Online (VISION) develops a modular, scaleable instrumentation suite with sufficient integral mass storage for extended operation; extends ATC and DoD networking to mobile platforms nationwide; and provides database accessibility throughout DoD, advanced program management tools, and on-line customer definable multimedia reports. The Advanced Multi-Spectral Sensor and Subsystem Test Capabilities (AMSSTC) develops the capability to test modern weapon systems and subsystems in the laboratory, in an open- or closed-loop scenario. The Range Digital Transmission System (RDTS) will improve test operations through modernization and will reduce test costs allowing for efficient data collection and remote operations at YPG. The Mobile Infrared Scene Projector (MIRSP) project will conduct performance testing of imaging Infrared and Forward Looking Infrared (FLIR) sensors while installed on the weapon system under test at ATTC and RTTC. 21st Century Target Control System provides the integration of newly developed joint target control system with the range communication infrastructure and command center and ensures target control interoperability between the services. Starship II is the C4I Test Instrumentation Control Center (TCC) which enhances and modernizes EPG's Enhanced Position Location and Reporting System (EPLRS) TCC to provide and automate a command and control center software tool that monitors test progress and performance status in real time for all Army Battle Command Systems (ABCS). Joint Warfighter Test and Training Suite: FY05 development instrumented test area capable of creating MOUT and maneuver training area for platoon size operations. Digital Network Migration: FY05 development of mobile assets for support of testing remote areas and linking instrumentation assets to TSN and Cox Range Control Center (CRCC). This program line supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2004**

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>	<b>PE NUMBER AND TITLE</b> <b>0604759A - Major T&amp;E Investment</b>	<b>PROJECT</b> <b>984</b>
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<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Completed Land Combat Instrumentation (LCI): Installation of Automotive Communication Network (ACN) at test areas of Aberdeen Test Center.	318	0	0
Test Support Network (TSN): Completed installation of transmission electronics and system integration and testing efforts at White Sands Missile Range.	1369	0	0
Range Data Transmission System (RDTS): FY03-05 installation of 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.	12295	7960	8353
Hardened Subminiature Telemetry and Sensor System (HSTSS): FY03-04 initiate and complete development of HSTSS Embedded Instrumentation for single round munitions which provides hardened internal data collection for diagnostics and description of flight dynamics for speed, location, yaw, pitch, and roll while surviving 100,000 (+) "G" forces.	4674	600	0
Advanced Multi-Spectral Sensor and Subsystem Test Capabilities (AMSSTC): FY03-05 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.	5153	13287	13992
Versatile Information Systems Integrated Online (VISION): FY03-05 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. Development of security communication features to handle classified information.	6313	6691	10297
Mobile Infrared Scene Projector (MIRSP): FY03-04 develop multi-spectral projection capability and participate in design of large format resistive array. FY05 begin development of 2048x1024 pixel large format, resistive array infrared scene projector.	1412	2005	2719
21st Century Target Control System: FY03-04 development and integration of DoD-standard multi-service target control system at WSMR.	200	2316	0
Starship II: FY03-05 development of the 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.	697	1565	0
Dynamic Infrared Scene Projector (DIRSP): FY04 complete corrective actions and integrated system for final acceptance testing.	0	250	0
Small Business Innovative Research/Small Business Technology Transfer Programs	0	999	0
<b>Totals</b>	<b>32431</b>	<b>35673</b>	<b>35361</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0604759A - Major T&amp;E Investment</b>	PROJECT <b>986</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
986 MAJ USER TEST INST	6540	10719	14133	15492	18022	18851	19819

**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), Army Transformation, Homeland Defense, and Anti-Terrorism. 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. Without these capabilities, the Operational Test community will encounter shortcomings in its ability to adequately assess the Future Combat System and Future Force developments. OT-TES RDTE develops performance enhancements and technology upgrades to the Command, Control and Communications (C3) Center, Communications Network, weapons system interfaces, miniaturization of the vest peripherals, Global Positioning System (GPS), encryption components and integrates high-fidelity digital battlefield data collection and analysis tools. These tools will collect, store and analyze data from the digital battlefield. These improvements will enable OT-TES to measure and record accrued damage, levels of exposure, effects of countermeasures, evasive action, and instrument threat vehicles, while significantly reducing system intrusiveness and increase the safety of current instrumentation for both vehicle and dismounted instrumentation. Instrumentation does not presently exist to monitor, record, stress, and analyze the effects of the digital battlefield in realistic operational scenarios. This capability is required by the operational test community to integrate digital battlefield data collection and analysis tools into the Mobile Automated Instrumentation Suite (MAIS). These tools will collect, store and analyze data from this new dimension of digital battlefield warfare. The ability to fully stress the entire battlefield with numerous simulated entities present opportunities for significant cost savings and greater realism than would otherwise be achievable. This effort responds to the current Operations Tempo (OPTEMPO) and Personnel Tempo (PERSTEMPO) demands to force the U.S. Army to conduct more realistic, more accurate, and comprehensive evaluations at reduced costs by virtually replicating a greater number of troop resources in force-on-force testing and training exercises. Personnel and resources cuts have already been taken in the test community predicated upon data reduction/analysis streamlining provided by this capability.

FY05 OT-TES RDTE provides for the development of an improved player unit communications and encryption system, player unit retrofits, Threat Air Defense Artillery (ADA) models to support the Comanche Operational Test (OT), friendly ADA air-to-ground advanced simulation endgame models (ASEM) to support ADA interface into testing, and the initial operational test Future Combat Systems (FCS) embedded technologies.

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

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**6 - Management support**

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

**PROJECT**  
**986**

These systems support Current-to-Future transition path of the Transformation Campaign Plan (TCP).

**Accomplishments/Planned Program**

	FY 2003	FY 2004	FY 2005
Development and upgrades to the OT-TES: FY03-05 complete fielding of new C3 Center and Weapons Performance Modules; development of rotary wing, Land Warrior, indirect fire, and Military Operations in Urban Terrain (MOUT) instrumentation; development of Air Defense Artillery (ADA) fly-out models; development of improved communication architecture; Geometric Pairing research and development.	6540	9149	12907
FY04-05 development of Operational Test Command (OTC) Analytic Simulation and Instrumentation Suite (OASIS).	0	1274	1226
Small Business Innovative Research/Small Business Technology Transfer Programs	0	296	0
<b>Totals</b>	<b>6540</b>	<b>10719</b>	<b>14133</b>

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

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605103A - Rand Arroyo Center</b>					PROJECT <b>732</b>		
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	
732 ARROYO CENTER SPT	21163	22072	20012	19912	21907	22209	23338	

**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. This program supports the Current to Future Force transition path of the Transformation Campaign Plan (TCP).

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Research addressing the war on terrorism, including Army operations in Afghanistan; Army forces for the war on terrorism, including homeland security; technologies for combating terrorism; modeling and simulation for military operations on urbanized terrain; implications and options for the Army of failed states as terrorist sanctuaries; and a comprehensive assessment of expectations, mission, and employment strategy for the Individual Ready Reserve.	3388	0	0

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

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605103A - Rand Arroyo Center**

**PROJECT**  
**732**

<u>Accomplishments/Planned Program A(continued)</u>	FY 2003	FY 2004	FY 2005
Research addressing Army transformation, including human resource implications; the evolution of leader development; the total Army school system; training development for CSS systems; managing the Future Combat Systems acquisition program; a framework for Army program decision-making; an integrated modernization analysis process; organizing and managing the Army S&T community for transformational R&D; Army global posture for the new national security environment; CSS transformation; the USASOC sustainment support structure; identifying readiness and cost drivers or key weapons systems; linking improved AMC logistics processes and inventory to equipment readiness; CSS urban intelligence preparation of the battlespace; rethinking Army structure; support to TRADOC for Army transformational analysis; enhancing the transformed Army's urban operations performance; new approaches to operational-level information fusion and communications analysis; and Future Force bandwidth requirements.	9942	0	0
Research addressing the Army's enduring challenges, including evaluating joint capstone operational concepts; Future Force interoperability and effectiveness analysis; exploring precision-strike operations; assessing the value of Army international activities; integrated multinational sustained operations; assessing the health of the logistics system; creating an integrated logistics business environment; identifying drivers of customer wait time; using Combat Training Center training proficiency data to assess the needs of current and future forces; the college market development and program mix; the roles and limits of outsourcing; and an analytic method to determine the Army's minimum military essential logistics capability.	7833	0	0
Research addressing the implications of current operations: key issues for the Army in Operation Iraqi Freedom, including RC deployment, diversity of land force operations, effectiveness of air-ground interaction, quality of situational awareness, AMEDD operations, and logistical operations.	0	3564	0
Research addressing the Army's transformation to meet near-term and future force challenges, including new challenges and opportunities for SOF; improving SOF support; future manning/rotation requirements; balancing the force mix; new strategies for the Independent Ready Reserve; unit manning; CSS transformation; requirements for stability operations; training strategies for the UA; network sharing and fusion; C4ISR and combat vulnerabilities; organizing S&T for transformation; military utility of UGVs; modeling future force effectiveness; rail gun feasibility assessment; support to TRADOC for wargame design/analysis; integrating future air/ground visions; and predicting enemy's use of land mines.	0	10636	0

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

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605103A - Rand Arroyo Center</b>	PROJECT <b>732</b>
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<u>Accomplishments/Planned Program A(continued)</u>	FY 2003	FY 2004	FY 2005
Research addressing the Army's enduring challenges, including Combat Training Center effectiveness and home station training; college market development; the National Call to Service program; evaluating Army international activities; MFC globalization; Army investment decision making; improving the review of Generating Force activities in the Total Army Analysis; military billets in competitive sourcing; a living architecture approach to information technology investment decisions; synchronizing Army business processes; equipment readiness measurement and drivers; linking AMC processes to increased readiness; analysis of recapitalization program; metrics for supply chain management; and identifying drivers of customer wait time.	0	7216	0
Research addressing the role of transformed ground forces in the national security strategy.	0	0	6297
Research addressing shaping and staffing the force.	0	0	6790
Research addressing reshaping support functions and infrastructure.	0	0	5520
Research addressing exploring technology alternatives.	0	0	1405
Small Business Innovative Research/Small Business Technology Transfer Programs	0	656	0
<b>Totals</b>	<b>21163</b>	<b>22072</b>	<b>20012</b>

<u>B. Program Change Summary</u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	21172	22804	23016
Current Budget (FY 2005 PB)	21163	22072	20012
Total Adjustments	-9	-732	-3004
Congressional program reductions		-194	
Congressional rescissions			
Congressional increases			
Reprogrammings	-9	-538	
SBIR/STTR Transfer			
Adjustments to Budget Years			-3004

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

February 2004

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605103A - Rand Arroyo Center**

PROJECT

**732**

Change Summary Explanation: Funding: FY 2005 - Funds realigned to higher priority programs (-3004).

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

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605301A - ARMY KWAJALEIN ATOLL</b>	PROJECT <b>614</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
614 ARMY KWAJALEIN ATOLL	125327	138884	143921	147262	148381	149635	148821

**A. Mission Description and Budget Item Justification:** The U.S. Army Kwajalein Atoll/Ronald Reagan Ballistic Missile Defense Test Site (USAKA/RTS), located in the Republic of the Marshall Islands, is a remote, secure activity of the Major Range and Test Facility Base (MRTFB). Its function is to support test and evaluation of major Army and DoD missile systems, and to provide space surveillance and space object identification in support of US Space Command and National Aeronautics and Space Administration (NASA) scientific and space programs. Programs supported include Army missile defense, Missile Defense Agency (MDA), demonstration/validation tests, Air Force Intercontinental Ballistic Missile (ICBM) development and operational tests, U.S. Space Surveillance Network, and NASA Space Transportation System (Shuttle) and orbital debris experiments. The technical element of USAKA/RTS is the RTS, which consists of a number of sophisticated, one-of-a-kind, radar, optical, telemetry, command/control/communications, and data reduction systems. These systems include the four unique radars of the Kiernan Reentry Measurement Site (KREMS); Super Recording Automatic Digital Optical Tracker (SRADOT) long range video-metric tracking systems; high density data recorders for high data-rate telemetry collected by nine antennas; and underwater acoustic impact location system data analysis/reduction hardware/software. USAKA/RTS is government-managed/contractor-operated (GMCO) and is therefore totally dependent upon its associated support contractors. Program also provides funds for the contractors to accomplish installation operation and maintenance (O&M). Funding is required to maintain minimal O&M support, while accepting moderate risk of continued degradation of USAKA/RTS infrastructure (housing, offices, facilities), higher future repair costs, and reduced logistical support capability, as well as completion of the Kwajalein Modernization and Remoting (KMAR) Program. The KMAR program is a concurrent, range-wide modernization effort to maximize the use of common, standardized commercial off-the-shelf (COTS) technology to replace obsolete components; implement common hardware/software architectures and automation; and "remote" the operation of range sensors and instrumentation to the island of Kwajalein. This effort will upgrade range capabilities that are critical to the success of upcoming Theater Missile Defense (TMD) and Ground-Based Mid-Course(GMD) test missions. The Army, Air Force, Navy and MDA have programs planned, which have significant test and data gathering requirements at USAKA/RTS. Air Force programs require firing from Vandenberg Air Force Base, CA, with complete data collection during late mid-course and terminal trajectory. MDA programs require range sensors to collect technical data in support of GMD and TMD programs. This test data cannot be obtained except through the use of technical facilities available on and in the vicinity of USAKA/RTS. Program supports US Space Command requirements for data collection on objects in space. The Advanced Research Project Agency (ARPA) Long-Range Tracking and Instrumentation Radar (ALTAIR), and the Target Resolution Discrimination Experiment (TRADEX) radar located at USAKA/RTS, are two of only three radars world-wide that have deep-space tracking capability. Program supports Air Force's Peacekeeper, Minuteman III, and Delta; MDA's Ground Based Interceptor (GBI), Ground Based Radar (GBR), Battle Management/Command, Control and Communications (BMC3), In-Flight Interceptor Communication System (IFICS)); Army/MDA PAC-3, System Integration of Tests, Family of Systems, Critical Measurements Program, Patriot, and ground-based radar; and NASA's Space Transportation System (STS), Small Expendable Deployer System and Orbital Debris Measurement Program; and the Air Force Space and Missile Center's associated programs. This activity supports the Current to Future transition path of the Transformation Campaign Plan.

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

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605301A - ARMY KWAJALEIN ATOLL</b>	PROJECT <b>614</b>
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<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Provide management support (salaries, training, travel, SMDC matrix, etc).	9528	11224	11522
Accomplish maintenance and repair projects, including design, executed by Corps of Engineers (COE).	3582	700	700
Procure petroleum, oils and lubricants (POL) and Military Standard Requisitioning and Issue Procedure (MILSTRIP).	14506	15392	15719
Procure other mission operating supplies, equipment and services.	4283	5700	5794
Provide air and sea transportation (cargo to and from continental United States).	6005	7211	7474
Continue to support Army, MDA, NASA and Air Force development and operational missile testing.	21165	35480	41290
Provide logistical support (facilities maintenance and repair, aviation, automotive, marine, medical, food services, education, information management, etc.) to self contained islands of USAKA.	66258	59307	61422
Small Business Innovative Research/Small Business Technology Transfer Programs.	0	3870	0
<b>Totals</b>	<b>125327</b>	<b>138884</b>	<b>143921</b>

<u>B. Program Change Summary</u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	126486	137307	139394
Current Budget (FY 2005 PB)	125327	138884	143921
Total Adjustments	-1159	1577	4527
Congressional program reductions		-1193	
Congressional rescissions			
Congressional increases		3100	
Reprogrammings	-1159	-330	
SBIR/STTR Transfer			
Adjustments to Budget Years			4527

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605326A - Concepts Experimentation**

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	23330	30704	22727	16739	15997	22232	22013
308 CONCEPTS EXPERIMENTATION	15889	13984	7901	9106	9464	10216	10572
312 ARMY/JOINT EXPERIMENTATION	4416	13678	12058	4928	3736	10973	10387
33B SOLDIER-CENTERED ANALYSES FOR THE OBJECTIVE FORCE	3025	3042	2768	2705	2797	1043	1054

**A. Mission Description and Budget Item Justification:** This program sustains and advances the Army's vision for designing the Future Force through operationally focused military experimentation as presented in the Army Transformation-Concept Development and Experimentation Campaign Plan (AT-CDEP) and is predominant for risk mitigation for the future. 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 CSA 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 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.

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605326A - Concepts Experimentation**

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	23564	26473	27121
Current Budget (FY 2005 PB)	23330	30704	22727
Total Adjustments	-234	4231	-4394
Congressional program reductions		-270	
Congressional rescissions			
Congressional increases		5250	
Reprogrammings	-234	-749	
SBIR/STTR Transfer			
Adjustments to Budget Years			-4394

Change Summary Explanation: Funding: FY 2005 - Funds realigned to support higher priority programs (-4394).

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605326A - Concepts Experimentation**

PROJECT  
**308**

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
308 CONCEPTS EXPERIMENTATION	15889	13984	7901	9106	9464	10216	10572

**A. Mission Description and Budget Item Justification:** This program supports the Future Force. Resources will provide for the development of the Live-Virtual-Constructive linkages and integration to the joint simulation infrastructure which supports the Secretary of Defense mandated use of human-in-the-loop war gaming with both constructive and live force elements in support of FY05-08 Army experimentation efforts (Phase I of the AT-CDEP) focused on enabling fielding of initial Future Force capability by 2010, establishing the Unit of Action and essential Unit of Employment capabilities. This will be accomplished through a number of focused developmental experiments enabling annual integrating experiments, culminating in an FY08 capstone experiment. Army experimentation will also support Joint CD&E, including participation in the Standing Joint Force Headquarters (SJFHQ) prototype pathway.

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Unit of Action Close Fight Operations Experiment	2380	0	0
Unit of Action Tactical Operations Experiment	3083	0	0
Unit of Action Non-Line-of-Sight Support Operations Experiment	1686	0	0
Unit of Action Air-Ground Mobility Experiment	502	0	0
Maneuver Support Experiment	530	0	0
Unit of Action Sustainment Experiment	1350	0	0
Mounted Maneuver Battle Lab Experimentation to Fund Cooperative and Collaborative Research Program with Kentucky Universities	1973	0	0
Unit of Action Battle Command Experiment	2313	2505	0
Unit of Employment Concept Experiments	0	5313	0
Joint Urban Operations Experiment	0	500	0
Specific FY 05 requirements to be determined by the FY 05 Experimentation Planning Conference scheduled for summer 04.	0	0	7901
Mobility and Intelligent Munitions Experiment	700	0	0
Battle Lab Collaborative Simulation Environment	1227	0	0
Combat Service Support Modeling and Simulation (CSS M&S)	145	0	0
Technology Management and Collaboration Initiative (Congressional add)	0	5250	0
Small Business Innovative Research/Small Business Technology Transfer Programs	0	416	0

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605326A - Concepts Experimentation</b>	PROJECT <b>308</b>
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<u>Accomplishments/Planned Program (continued)</u>	FY 2003	FY 2004	FY 2005
Totals	15889	13984	7901

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605326A - Concepts Experimentation</b>	PROJECT <b>312</b>
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COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
312 ARMY/JOINT EXPERIMENTATION	4416	13678	12058	4928	3736	10973	10387

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

In accordance with the Army Transformation Concept Development and Experimentation Plan (AT-CDEP), FY 04-08 experimentation focuses on setting the conditions for achieving Future Force capability this decade. The initial focus is at the tactical level to rapidly develop the Future Combat System (FCS) equipped Unit of Action (UA) as described in the UA Operational and Organization Plan and FCS Family of Systems Operational Requirements Document (CCD). As the experimentation campaign progresses, the focus shifts to the operational and strategic levels to refine the operational Unit of Employment (UE) concept and a broad range of functional concepts affecting the way we execute doctrine, build organizations and conduct training and leader development such as Battle Command, Maneuver Support, Maneuver Sustainment, Fires and Effects, and Aviation. FY 09-15 experimentation will continue UA and FCS development but is focused on establishing the UE and its associated pooled capabilities. This phase also addresses joint integration across the entire force, to include future and current force capabilities.

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Communications Realism in Experimentation	230	0	0
Battle Lab Collaborative Simulation Environment (BLCSE) technical integrator for modeling and simulation	200	0	0
Modeling and Simulation Capability for Combat Service Support	145	0	0
Battle Lab Collaborative Simulation Environment (BLCSE)	1757	52	0
Standing Joint Force Headquarters	2084	0	0
Network and Distributed Common Ground Station - Army (DCGS-A) Intelligence, Surveillance and Reconnaissance Experiment	0	1695	0
Network Operations Tools and Functions Experiment	0	1000	0

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605326A - Concepts Experimentation**

**PROJECT**  
**312**

**Accomplishments/Planned Program (continued)**

	FY 2003	FY 2004	FY 2005
Unit of Employment Computer Assisted Map Exercise	0	1000	0
Enabling Networked Freedom of Maneuver Experiment	0	1000	0
Army Airspace Command and Control Experiment	0	1000	0
Battle Command Integrating Experiment	0	7524	0
Specific FY 05 requirements to be determined by the FY 05 Experimentation Conference scheduled for summer 04.	0	0	12058
Small Business Innovative Research/Small Business Technology Transfer Programs	0	407	0
<b>Totals</b>	<b>4416</b>	<b>13678</b>	<b>12058</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605326A - Concepts Experimentation</b>	PROJECT <b>33B</b>
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COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
33B SOLDIER-CENTERED ANALYSES FOR THE OBJECTIVE FORCE	3025	3042	2768	2705	2797	1043	1054

**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. Work is performed by the Army Research Laboratory (ARL). This system supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Provide Human Factors Engineering and Manpower and Personnel Integration (MANPRINT) support to Training and Doctrine Command (TRADOC) Centers, Schools and Battle Laboratories. In FY03, performed and transitioned 15 MANPRINT assessments (MA), 14 human factors engineering assessments (HFEA), 4 manpower, personnel, training (MPT) assessments, and 3 soldier survivability (SSv) assessments. Analyzed manpower impacts of maintenance automation and addressed potential impacts of diagnostic shortfalls. In FY04, improve and enhance fidelity of models to predict materiel readiness with direct application to support maintenance manpower estimates for the Future Combat System (FCS) equipped Unit of Action (UoA). In FY05, continue to conduct and improve HFEA, MA, MPT, and SSv assessment processes	1725	1675	1468

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605326A - Concepts Experimentation**

**PROJECT**  
**33B**

**Accomplishments/Planned Program (continued)**

Provide dedicated modeling and analysis cell for early and accurate MANPRINT estimates to Army Materiel Command (AMC), AMC Research, Development, and Engineering Centers (RDECs), TRADOC Centers, Schools and Battle Laboratories, Army Test and Evaluation Command (ATEC) and other service laboratories. Established the Future Combat System Human Dimension IPT to include soldier performance considerations in FCS analyses, modeling, simulation, and testing. Analyses provided essential soldier performance and Command and Control (C2) systems information for platform design. Determined the optimal number of FCS Mobile Combat System (MCS) crew and best allocation of tasks using task network modeling. As a result, the UoA Operations and Organizations (O&O) and FCS Operational Requirements Document (ORD) revised the MCS crew from 2 to 3. In FY04, continue to improve and transition MANPRINT tools to the acquisition and Test & Evaluation communities. In FY05, consolidate human system integration measures, methods, and modeling approaches for a common set of definitions for evaluating human-dependent systems.

FY 2003	FY 2004	FY 2005
1300	1300	1300
0	67	0
3025	3042	2768

Small Business Innovative Research/Small Business Technology Transfer Programs

Totals

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

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

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	129665	182885	181114	198690	216728	210750	215438
F30 ARMY TEST RANGES & FACILITIES	129665	176188	181114	198690	216728	210750	215438
F38 BIG CROW SUPPORT	0	6697	0	0	0	0	0

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

- White Sands Missile Range (WSMR), NM (including the Electronic Proving Ground (EPG), Fort Huachuca, Arizona)
- Aberdeen Test Center (ATC), Aberdeen Proving Ground (APG), MD
- Yuma Proving Ground (YPG), AZ (to include management of Army natural environmental testing at Cold Regions Test Center, Fort Greely and Fort Wainwright, AK, and Tropic Regions Test Center at Schofield Barracks, HI).

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

It also provides the resources for test planning and safety verification/confirmation at HQ, DTC located at APG, MD. Developmental test capabilities at the test range have been uniquely established, are in place to support test and evaluation (T&E) requirements of funded weapons programs, and are required to assure technical performance, adherence to safety requirements, reliability, logistics supportability, and quality of materiel in development and in production.

This PE finances test range operating costs not appropriately billed to test customers, replacement of test equipment, and test revitalization/upgrade projects to maintain current testing capabilities and improvements to safety, environmental protection, efficiency of test operations, and technological advances. This PE does not finance reimbursable costs directly identified to a user of these ranges. Direct costs are borne by materiel developers in accordance with DoD Directive 3200.11 and DoD Financial Management Regulation 7000.14R. This PE sustains the developmental T&E capability required to support all elements of Army Transformation, as well as Joint Service or Other Service systems, hardware, and technologies.

Increased funding reflects an Army leadership decision supporting Congressional and OSD interest in implementing the Defense Science Board recommendations to increase developmental testing to improve overall system performance in operational testing and in fielding. Historic underfunding of the Army test ranges has resulted in insufficient developmental testing, with the ultimate result being system failures and increased acquisition cost.

The PE also includes funding for the Big Crow Program Office to sustain test and evaluation capabilities to support essential testing in electronic

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

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

warfare, electronic countermeasures, electronic warfare equipment, missiles and other small object tracking, and telemetry.

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	130727	174603	172114
Current Budget (FY 2005 PB)	129665	182885	181114
Total Adjustments	-1062	8282	9000
Congressional program reductions		-1574	
Congressional rescissions			
Congressional increases		10600	
Reprogrammings	-1062	-744	
SBIR/STTR Transfer			
Adjustments to Budget Years			9000

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605601A - ARMY TEST RANGES AND FACILITIES</b>	PROJECT <b>F30</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
F30 ARMY TEST RANGES & FACILITIES	129665	176188	181114	198690	216728	210750	215438

**A. Mission Description and Budget Item Justification:** Increased funding, beginning in FY 2004 reflects an Army leadership decision supporting Congressional and OSD interest in implementing the Defense Science Board recommendations to increase developmental testing to improve overall system performance in operational testing and in fielding. Historic underfunding of the Army test ranges has resulted in insufficient developmental testing, with the ultimate result being system failures and increased acquisition cost. This program element (PE) provides the institutional funding required to operate the developmental test activities required by Department of Defense (DoD), Department of the Army (DA) weapons systems developers and Research, Development, and Engineering Centers. This funding does not pay for program specific test costs. All functions and resources associated with this PE are managed by the U.S. Army Developmental Test Command (DTC), a subordinate command of the Army Test and Evaluation Command (ATEC). This PE provides resources to operate four Army Major Range and Test Facility Bases (MRTFBs): White Sands Missile Range (WSMR), NM; Aberdeen Test Center (ATC), Aberdeen Proving Ground (APG), MD; Yuma Proving Ground (YPG), AZ (to include management of Army natural environmental testing at Cold Regions Test Center, Fort Greely and Fort Wainwright, AK, and Tropic Regions Test Center at Schofield Barracks, HI); and Electronic Proving Ground (EPG), Fort Huachuca, AZ.

This 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 funds for test planning and safety verification at HQ, DTC 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.

Two new and growing missions this PE finances are support of urgent fielding of equipment to the warfighter and support of warfighter training requirements at DTC ranges. Support in FY03 to the Global War on Terrorism included testing and safety documentation support to the Up-Armored High Mobility Multi-Wheeled Vehicle, first deployment of the Stryker Brigade to Iraq, and support for the High Mobility Artillery Rocket System Rapid Force Projection Initiative and the M26 Taser programs. This PE finances indirect test range operating costs, replacement of test equipment, and test revitalization/upgrade projects to maintain current testing capabilities and improvements to safety, environmental protection, efficiency of test operations, and technological advances. Direct costs are borne by materiel developers in accordance with DoD Directive 3200.11 and DoD Financial Management Regulation 7000.14R. While the current funding levels will support a developmental test capability, they are nowhere near the levels required for compliance with the FY 2003 National Defense Authorization Act requirement to charge customers for direct costs only. This PE sustains the developmental T&E capability required to support transformation from the current to the future force as well as Joint Service or Other Service systems, hardware, and technologies.

Unclassified systems scheduled for developmental testing that require DTC's test capabilities encompass the entire spectrum of transformation weapon systems to include the Future Combat Systems (FCS) and its Core systems (Distributed Common Ground System, Joint Tactical Radio System, Warfighter

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**6 - Management support**

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

PROJECT  
**F30**

Information Network-Tactical); Unit of Action Complementary systems (e.g. Excalibur, Family of Medium Tactical Vehicles); and Unit of Employment and Above Complementary systems (e.g. UH-60 Black Hawk, High Mobility Artillery Rocket System, Army Tactical Missile System).  
 Test facilities funded through this PE include: automotive test courses; accelerated corrosion test facility; lift and tie down facility; desert and dust mobility test areas; vibration facility; firing ranges for small arms, artillery, tank rounds and small missiles; live fire evasive target; armor/anti-armor depleted uranium containment facility; climatic test facilities; mine/countermine/demolitions complex; an electronic countermeasures vulnerability test facility; unmanned aerial vehicle test facility; electro-magnetic interference/electro-magnetic; systems interoperability and computer software testing facility; electronic realistic battlefield environmental facility; electro-optical systems test facility; inertial guidance test facilities; full spectrum nuclear effects facility; rocket motor static test facility; and lightening effects test facility. Army test capabilities are not duplicated within DoD.

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Mission Support. Funds: test equipment maintenance; test facility maintenance; administrative supplies; tools; software; spare parts; test support vehicle maintenance; host support; TDY/training of civilian and contractor personnel; utilities; communications; and GSA vehicles. In FY03 DTC supported the first deployment of the Stryker Brigade to Iraq and also the Up-Armored HMMWV program in response to an urgent need from the Warfighter. DTC also supported urgent material release requirements to support the Global War on Terrorism. Unclassified systems scheduled for future developmental testing that require DTC's test capabilities encompass the entire spectrum of future weapons systems to include the Future Combat Systems (FCS) and its Core systems (Distributed Common Ground System, Joint Tactical Radio System, Warfighter Information Network-Tactical); Unit of Action Complementary systems (e.g. Excalibur, Family of Medium Tactical Vehicles); Unit of Employment and Above Complementary systems (e.g. UH-60 Black Hawk, High Mobility Artillery Rocket System, Army Tactical Missile System); Joint Service and other Air Force/Navy programs.	19937	28232	31874
T&E Civilian Pay. Increased funding beginning in FY 2004 reflects Army leaderships recognition of this PE being historically under funded as well as the growth in the Army's RD&A budget lines driving increased workload at DTC test ranges. This funding supports 40 percent of the civilian labor costs for Program Budget Guidance (PBG) authorizations. The balance is test customer funded. The funding increase reflects Army restoration of PBG authorizations based on the exemption of the Test and Evaluation functions from private sector performance due to the risk to national security. These authorizations were requested and approved to restore and maintain core T&E skills as part of the Government civilian workforce.	66457	86524	101902

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**6 - Management support**

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

PROJECT  
**F30**

**Accomplishments/Planned Program (continued)**

	FY 2003	FY 2004	FY 2005
Contractor Pay. This funding supports 20 percent of the contractor labor costs. The balance is test customer funded. Contract labor is essential to augment core civilian T&E personnel. Functions performed include range operations, automotive testing, radar operations and maintenance, aerial cable operations, warehousing support, data collection, data reduction, project management, aircraft maintenance, and ADP support.	35071	38460	37183
Revitalization/Upgrade of test unique facilities. These funds will provide the capability to support the Army Transformation test and evaluation program through such projects as: fiber optics to live fire test ranges, increased hangar space, expand High Performance Computer (HPC) distributed test networking, modernize refrigeration and control systems of fixed and mobile environment conditioning equipment and mobile radio system, fiber optic cable for test ranges, and power upgrade for communications facilities. This funding is essential to ensure a safe test operating environment.	0	10000	10155
Cold Regions Test Center (CRTC) Congressional add. Funds are designated for CRTC infrastructure, hybrid electric vehicle and non-discarding sabot technology testing at CRTC only.	8200	10600	0
Small Business Innovative Research/Small Business Technology Transfer Programs.	0	2372	0
<b>Totals</b>	<b>129665</b>	<b>176188</b>	<b>181114</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605601A - ARMY TEST RANGES AND FACILITIES</b>	PROJECT <b>F38</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
F38    BIG CROW SUPPORT	0	6697	0	0	0	0	0

**A. Mission Description and Budget Item Justification:** Provide funding for 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. The funding provided is specifically for institutional operations and maintenance costs of maintaining baseline capabilities of two KC-135 aircraft, the Big Crow electronic equipment, and their associated ground vans that support critical test and evaluation requirements.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Provide technical contract support, reimbursement for utilities and rents, systems improvements and modernization and flying hour cost and aircrew maintenance/qualifications.	0	6498	0
Small Business Innovative Research/Small Business Technology Transfer Programs	0	199	0
<b>Totals</b>	<b>0</b>	<b>6697</b>	<b>0</b>

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

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605602A - Army Technical Test Instrumentation and Targets</b>						
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	41774	56899	52433	55586	73787	77190	81026
628 TEST TECH & SUST INSTR	32682	47223	39633	41288	47870	50117	52623
62B OPERATIONAL TESTING INSTRUMENTATION DEVELOPMENT	6415	7295	7132	7853	11098	11615	12208
62C MODELING AND SIMULATION INSTRUMENTATION	2677	2381	5668	6445	14819	15458	16195

**A. Mission Description and Budget Item Justification:** Increased funding provides sustainment and improvements to the Army's test infrastructure reflecting an Army leadership decision supporting Congressional and OSD interest in implementing the Defense Science Board (DSB) recommendations to increase developmental test funding. The DSB report indicated that testing is not being adequately conducted, resulting in latent defects that can be very costly and impact system's operational effectiveness and that the acquisition process is not delivering high quality, reliable and effective equipment to our military forces. Limited T&E instrumentation investments are a major contributor to the lack of testing and the problems described in the DSB report.

This Program Element provides critical front-end investments for development of new test methodologies, test standards, advanced test technology concepts for long range requirements, future test capabilities, and advanced instrumentation prototypes for the United States Army Developmental Test Command (DTC), which includes: Aberdeen Test Center (ATC), Aberdeen Proving Ground, Maryland; White Sands Missile Range (WSMR), New Mexico (including the 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 System (FCS), Theater High Altitude Area Defense (THAAD), Comanche, Patriot Advanced Capability Phase 3 (PAC 3), High Mobility Artillery Rocket System (HIMARS), M1A2 Main Battle Tank, Joint Service

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

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

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

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 Campaign Plan (TCP). This Program Element also includes funds transferred from the Army Test and Evaluation Command's (ATEC) Operational Testing Instrumentation line, 0605712A/987, to provide greater visibility of modeling and simulation efforts as well as to support development and sustainment of operational test assets at Airborne Special Operations Test Directorate, Fort Bragg, North Carolina; Air Defense Artillery Test Directorate, Fort Bliss, Texas; Fire Support Test Directorate, Fort Sill, Oklahoma; Intelligence Electronic Warfare Test Directorate, Fort Huachuca, Arizona; and Test and Evaluation Support Agency, Fort Hood, Texas. The development and sustainment of ATEC's Simulation Testing Operations Rehearsal Model (STORM) is also included. Systems that will benefit from this effort are Army Tactical Command and Control System (ATCCS), Battlefield Functional Area (BFA), Advanced Field Artillery Tactical Data System Service Support Control System (AFATDS), Maneuver Control System (MCS), Forward Area Air Defense Command Control and Intelligence (FAADC2I), All Source Analysis System (ASAS), and Combat Service Support Control System (CSSCS).

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	41052	54986	60018
Current Budget (FY 2005 PB)	41774	56899	52433
Total Adjustments	722	1913	-7585
Congressional program reductions		-500	
Congressional rescissions			
Congressional increases		3800	
Reprogrammings	722	-1387	
SBIR/STTR Transfer			
Adjustments to Budget Years			-7585

Change Summary Explanation  
 FY05: Funds realigned (\$7585) to higher priority requirements.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605602A - Army Technical Test Instrumentation and Targets</b>				PROJECT <b>628</b>		
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
628 TEST TECH & SUST INSTR	32682	47223	39633	41288	47870	50117	52623

**A. Mission Description and Budget Item Justification:** This program provides critical front-end investments for development of new test methodologies, test standards, advanced test technology concepts for long range requirements, future test capabilities, and advanced instrumentation prototypes for the United States Army Developmental Test Command (DTC), a subordinate command of the Army Test and Evaluation Command (ATEC), which includes: Aberdeen Test Center (ATC), Aberdeen Proving Ground, Maryland; White Sands Missile Range (WSMR), New Mexico; Electronic Proving Ground (EPG), Fort Huachuca, Arizona; Yuma Proving Ground (YPG), Arizona (including the Cold Regions Test Center (CRTC), Fort Greely, Alaska and the Tropic Regions Test Center, Hawaii); Aviation Technical Test Center (ATTC), Fort Rucker, Alabama; Redstone Technical Test Center (RTTC), Redstone Arsenal, Alabama; and Dugway Proving Ground (DPG), Utah. These capabilities are required to support the development and fielding cycle of the Army Transformation from the Current Force to the Future Force as well as Joint Vision 2020 initiatives.

Under funding of instrumentation sustainment and improvements at Army Developmental Test Ranges has contributed to a less efficient and capable technical test infrastructure. Increased funding, starting in FY 2004, provides substantial, long needed sustainment and improvements to the Army's test data collection capability and technical infrastructure.

Within this program, DTC's highest priority technology investment initiative called the Virtual Proving Ground (VPG) is building the Army's network-centric test capability to support testing of the Future Force. This capability, comprised of modern modeling, simulation and internetting technologies, uses the Department of Defense Architecture Framework to integrate live, virtual and constructive models in realistic live and synthetic environments. A network of Distributed Test Control Centers (DTCCs), each connected to the Defense Research and Engineering Network (DREN), is being installed at each Army test range to bring all of the Army's test capabilities to bear on the complex challenge of system-of-systems testing for the Future Force. This capability is on the Future Combat Systems (FCS) development critical path, and will be utilized to support the first FCS Integration Phase test in FY 04 and all future Integration Phase test events. Within the DTCC network, an Inter-Range Control Center (IRCC) is being installed at White Sands Missile Range (WSMR) to serve as the primary interface between ATEC test ranges and the FCS 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. The Virtual Proving Ground has recently been recognized as a critical capability by the Program Executive Officer for Ground Combat Systems and the FCS Combined Test Organization, and has been named as one of the Army's "Top Ten" modeling and simulation efforts by the Army Modeling and Simulation Executive Steering Committee. Continued support for the Virtual Proving Ground program and the distributed testing infrastructure that it is producing is critical to the success of the Army's Future Force.

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)**

**February 2004**

BUDGET ACTIVITY  
**6 - Management support**

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

PROJECT  
**628**

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 project develops and sustains developmental test instrumentation and capabilities that provide the data necessary to support acquisition milestone decisions for all commodity areas throughout the Army and in direct support of all Army Transformation Elements.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

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

**PROJECT**  
**628**

**Accomplishments/Planned Program**

Support of Virtual Proving Ground (VPG): provide the necessary synthetic test environments, hardware-in-the-loop capabilities and models and simulations to successfully develop and test the Army Transformation and the Future Force. This program will continue development of test control simulation tools and test beds which integrate actual field instrumentation data with existing simulations and models to conduct test range management, test setup, simulation model validation and test result validation. DTC proved with Synthetic Environment Integrated Testbed (SEIT) the ability to tie all geographically dispersed Army Test ranges and synthetic battle-space representations together for system level testing. DTC put into place a collaborative knowledge management system to provide a common access for all data/documents across ATEC. Continue development of a DTC-wide High Level Architecture (HLA) compliant architecture for integrating internal and external models, software algorithms, virtual test tools, databases, and synthetic environments; simulation model to accurately measure shock and vibration characteristics of ammunition stored on-board howitzers and acquire visualization tools (3-D graphics workstations) for real-time monitoring of missile flight testing, greatly enhancing range safety operations. Continue development and integration of fire control, ground system platforms and other simulations; ground truth databases, information system, and synthetic environments into system level models and simulation; standardization process to integrate software components for virtual testing; validated model to replicate a chemical/biological point detection system and characterization of simulant/agent properties; common synthetic environments that include digitized terrain, signature, propagation models and climatic environments, virtual battlefield, and human effects into system-level models and simulations.

FY 2003	FY 2004	FY 2005
11601	17650	16202

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# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

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

**PROJECT**  
**628**

**Accomplishments/Planned Program (continued)**

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. Continue development/acquisition of: an optical data measurement system to analyze missile flight position data and mobile video instrumentation and control equipment used for tracking and capturing event data on missiles and instrumentation for electromagnetic environment effects and vibration environments for missile testing and digital ground-to-air radios, mobile communications equipment and digital end devices. Acquire instrumentation for reliability, availability and maintainability data collection on vehicle systems, replace ballistic transducers for measuring chamber pressures during ammunition tests and acquire high bandwidth signal conditioners for on-vehicle data collection. Initiate integration of lab equipment used for testing infrared guidance systems. For missile system tests, acquire chemistry lab equipment for analyzing hazardous wastes, radar transponders for high accuracy missile tracking and upgrade to Global Positioning System equipment for position location. Support development of common instrumentation for developmental and operational testing within all test commodity areas. Continue to replace range control instrumentation and upgrade and replace radar, optics and telemetry equipment used in large missile testing. Acquire aircraft data recorders, signal conditioning equipment and data processing equipment. For artillery testing, updated the Weibel ballistic radars. Improved the air to ground weapon scoring for aircraft weapon system testing. Continuing to update survivability test capabilities in support of live fire. Continue to develop Test Operation Procedures (TOPs) and International TOPs (ITOPs) to ensure quality and consistent test results throughout Army.

FY 2003	FY 2004	FY 2005
16135	23089	17742

Provide management support across the command. Conduct strategic planning, and develop roadmaps to guide current and future programs. Provide command-level oversight and management support for the DTC instrumentation program. Technical support includes requirements development, project prioritization, and execution of investments accounts for Small Business Innovation Research, Production Base Support, Army Test Technology and Sustaining Instrumentation, Major T&E Investment, and the Central T&E Investment Program. Provide management and support costs for direct interface with the T&E Executive Agent, management of needs and solutions calls for T&E Reliance oversight, and support of the Army principal of the Test Resource Advisory Group (TRAG).

4946	5166	5689
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Small Business Innovative Research/Small Business Technology Transfer Programs

0	1318	0
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<b>Totals</b>	<b>32682</b>	<b>47223</b>	<b>39633</b>
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# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605602A - Army Technical Test Instrumentation and Targets</b>	PROJECT <b>62B</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
62B OPERATIONAL TESTING INSTRUMENTATION DEVELOPMENT	6415	7295	7132	7853	11098	11615	12208

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

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Planned projects include Multi-Media Data Transfer System Enhancements, High Speed Data Recording System, Global Positioning System Modernization, Automated Intelligence/Electronic Warfare Test System (AI/EWTS) Multiple Emitter Capability, Improved Field Data Collection Systems, Digital Terrain Database and Toolkit, Aviation Bus Recording System, High Speed Data Recording System, Quick Look Instrumentation Work Stations, and Airborne Position Location System.	6415	7078	7132
Small Business Innovative Research/Small Business Technology Transfer Programs	0	217	0
<b>Totals</b>	<b>6415</b>	<b>7295</b>	<b>7132</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605602A - Army Technical Test Instrumentation and Targets</b>	PROJECT <b>62C</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
62C MODELING AND SIMULATION INSTRUMENTATION	2677	2381	5668	6445	14819	15458	16195

**A. Mission Description and Budget Item Justification:** This project provides a critical foundation necessary to develop and sustain the Army Test and Evaluation Command's (ATEC) current and future modeling and simulation (M&S) instrumentation efforts. ATEC's M&S efforts include: Simulation Testing Operations Rehearsal Model (STORM), Fire Support Automated Test Suite (FSATS), Extensible C4I Instrumentation Suite-Fire Support Application (ExCIS), Command, Control and Communication Driver (C3Driver), Intelligence Modeling and Simulation for Evaluation (IMASE), C3I Engineering Evaluation System (CEES), and OTC Analytic Simulation-Instrumentation Suite (OASIS). Systems that will benefit from this effort include, but are not limited to Stryker, 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 Command Control and Intelligence (FAADC2I), All Source Analysis System (ASAS), and Combat Service Support Control System (CSSCS). These programs support the Current to Future transition path of the Transformation Campaign Plan.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Funds development and sustainment of high priority modeling and simulation instrumentation systems, such as STORM and OASIS	2677	2310	1468
Funds development of the C3 Driver. The C3 Driver supports the C4ISR ABCS 6.3, 6.4, FCS, JTRS, and WIN-T development and integration at the Central Technical Support Facility and contractor locations as the Army's single simulator/stimulator.	0	0	4200
Small Business Innovative Research/Small business Technology Transfer Programs	0	71	0
<b>Totals</b>	<b>2677</b>	<b>2381</b>	<b>5668</b>

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

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605604A - Survivability/Lethality Analysis</b>						
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	34921	41860	44648	42102	45079	44894	44967
675 ARMY SURVIVABILITY ANALYSIS & EVALUATION SUPPORT	34921	41860	44648	42102	45079	44894	44967

**A. Mission Description and Budget Item Justification:** Increased funding supports previous Congressional requests to increase funding for Information Operation Survivability Analysis.

This Program Element (PE) funds activities and functions to conduct objective and integrated survivability and lethality analyses (SLA) on systems of the Stryker and Future Forces of Army Transformation and other major and designated non-major Army systems as appropriate. The analyses quantify the effects of electronic warfare (EW) and ballistic battlefield threats and meteorological conditions on Army individual soldiers and systems. This PE also funds vulnerability assessments of digitized systems. The work is accomplished through threat research, theoretical and engineering analyses, signature measurements, modeling, simulations, laboratory experiments, and field investigations. Activities in progress include assessment of the effects of atmospheric, passive countermeasures, tactics, lasers, high-power microwave, electro-optical/radio frequency (EO/RF) jammers, electromagnetic environment effects (E3), information warfare (IW), decoys, and conventional ballistics on Army soldiers and systems. The PE work efforts provide U.S. Army decision makers, materiel and combat developers, system users, and the Army's Test and Evaluation Command (ATEC) critical soldier and system survivability analyses that quantify the soldier/system's survivability effectiveness in battlefield threat environments. Recommendations are provided to the materiel and combat developers on how to mitigate soldier/system deficiencies and enhance their survivability. This survivability/lethality engineering analyses is required to support the Army's vision to move to lighter more deployable systems while maintaining effectiveness. The analysis is required to properly down-select the appropriate mix of technologies for future platforms of the Transformed Forces. The proper mix of lethality and survivability provides the required force effectiveness for the Transformation Force. This PE funds civilian salaries, travel, development and maintenance of equipment and facilities, general management, administrative and contractor support required for program execution. The U.S. Army Research Laboratory (ARL) Survivability/Lethality Analysis Directorate (SLAD) conducts this effort.

This PE provides support for all transition paths of the Transformation Campaign Plan (TCP).

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605604A - Survivability/Lethality Analysis**

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	35236	39138	41647
Current Budget (FY 2005 PB)	34921	41860	44648
Total Adjustments	-315	2722	3001
Congressional program reductions		-1360	
Congressional rescissions			
Congressional increases		4200	
Reprogrammings	-315	-118	
SBIR/STTR Transfer			
Adjustments to Budget Years			3001

Change Summary Explanation: Funding - FY 2004 Funds (+4200) - Congressional funding increase provides Information Operations Survivability Analysis and Decision Related Structure methodology testbed.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605604A - Survivability/Lethality Analysis</b>	PROJECT <b>675</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
675 ARMY SURVIVABILITY ANALYSIS & EVALUATION SUPPORT	34921	41860	44648	42102	45079	44894	44967

**A. Mission Description and Budget Item Justification:** This project funds the investigation of the survivability, lethality and vulnerability (SLV) of designated Army systems to all battlefield threats. It supports transforming the Army to a highly effective mobile force depending on symmetry between Survivability, Lethality, Mobility, MANPRINT, Deployability, and Sustainability. The challenge of the Army Transformation is to examine holistically the contribution of platforms to force effectiveness. This project provides lethality and survivability data of potential systems in the Stryker and Future Forces to achieve symmetric mix of force effectiveness. The analysis is integrated across all battlefield threats (i.e., conventional ballistic, electronic warfare, and directed energy). The results are used by each Project Manager (PM) and the Program Executive Officer (PEO) to direct weapon system development efforts and structure product improvement programs; by the Army Test and Evaluation Command's Army Evaluation Center (ATEC/AEC) when they provide system evaluations in support of milestone decisions; by the user to develop survivability/lethality requirements, doctrine and tactics; and by decision makers in formulating program/production decisions.

Additionally this project supports survivability analysis, information warfare, and information operations of Army communications, electronic equipment and digitized forces against friendly and enemy threats. Provides field threat environment support for Electronic Warfare Vulnerability Analysis (EWVA). Analyzes vulnerabilities of foreign threat weapons and command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) and Intelligence Electronic Warfare (IEW) systems to U.S. Army EW systems. Provides threat weapon electronic design data to countermeasure developers and technical capability information to the intelligence community. Supports Army initiatives in vulnerability reduction of C4I/IEW systems against battlefield threats, including information warfare. Provides analysis for understanding potential vulnerabilities of Digitized Force developmental systems. Supports Army Warfighting Experiments and associated Information Operations Vulnerability Assessments for Digitized Force Architecture. Supports vulnerability analysis of situational awareness data of the Transformation Force.

Analysis includes survivability and vulnerability analysis of ground systems of the Stryker and Future Force for Army Transformation and other Army ground combat systems; Army air defense and missile defense systems; Army aviation systems and Unmanned Aerial Vehicles (UAV); Army fire support weapons (smart and conventional); Horizontal Technology Integration systems, Advanced Technology Demonstration initiatives, and proposed survivability enhancements to weapon platforms.

This PE provides support for all transition paths of the Transformation Campaign Plan (TCP).

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605604A - Survivability/Lethality Analysis**

**PROJECT**  
**675**

**Accomplishments/Planned Program**

Developed a set of analytical tools, techniques and methodologies to over come shortcomings of current Information Operations Vulnerability Survivability Assessments (IOVSA). Improved Communications Electronic Warfare Instrumentation Suite (CEWIS) to allow analysis of software based radios to complement improved threat signal capture and spoofing techniques. Conducted integrated electronic and information operations survivability analysis for U.S. Army communications systems: Warfighter Integrated Network- Terrestrial, the Near Term Digital Radio, Joint Tactical Radio System, SINCGARS ASIP, and AEHF. Conducted limited integrated electronic and information operations effects survivability analysis for U.S. Army command and control systems. Conducted information operations vulnerability analysis of the following systems: FBCB2, Advanced Field Artillery Tactical Data System, Maneuver Control System, FAAD-C2I, All Source Analysis System, the Information System Controller, Advanced Missile Defense Warning System and ABCS Foundation Products development.

Continued information warfare vulnerability assessment program to further determine exploitable weakness in the Digitized Forces to include Stryker and FCS and to recommend mitigating solutions. Focused on the Commanders Vehicle and Infantry Carrier Vehicle components of the Stryker BCT and determined the limitations of system performance in information warfare (IW) threat environment. Updated the information warfare vulnerability database, and performed vulnerability analyses of selected Tactical Internet components to radio frequency directed energy weapons (RFDEW).

Conducted electronic warfare countermeasure analysis support during NetFires PAM, LBHMMS P3I, MRM and Viper Strike field investigations. Provided detailed NetFires LAM comparative analyses on the degradation effects of weather and countermeasures on several UAV/munition pairings, supporting Congressional tasking for HQDA General Officer Steering Committee (GOSC).

Completed the main fuel subsystems test series on an operational aircraft for the Live Fire Test and Evaluation (LFT&E) of the Joint Army/Navy Black Hawk live fire program. Provided ballistic lethality analysis support for GMLRS w/DPICM, GMLRS Unitary, PGMM, NetFires LAM, CKEM and LOSAT.

Continued to support Stryker LFT&E on production 8 vehicles (provided pre-shot predictions, performed damage assessments, post-shot analyses and input to Independent Evaluation).

Continued developing a methodology to address FCS survivability from the component and platform level up through the System of System. Provided subsections to the FCS System Evaluation Plan, the FCS Test and Evaluation Master Plan and the System Evaluation Report. Completed a Soldier Survivability Assessment (MANPRINT) on the FCS for milestone B decision. Continued the Vulnerability Methodology Test Bed effort in Active Protection, structural ballistic shock analysis, hybrid electric power vulnerability, Band Track vs. wheels analysis, spall analysis of composite materials.

	FY 2003	FY 2004	FY 2005
Developed a set of analytical tools, techniques and methodologies to over come shortcomings of current Information Operations Vulnerability Survivability Assessments (IOVSA). Improved Communications Electronic Warfare Instrumentation Suite (CEWIS) to allow analysis of software based radios to complement improved threat signal capture and spoofing techniques. Conducted integrated electronic and information operations survivability analysis for U.S. Army communications systems: Warfighter Integrated Network- Terrestrial, the Near Term Digital Radio, Joint Tactical Radio System, SINCGARS ASIP, and AEHF. Conducted limited integrated electronic and information operations effects survivability analysis for U.S. Army command and control systems. Conducted information operations vulnerability analysis of the following systems: FBCB2, Advanced Field Artillery Tactical Data System, Maneuver Control System, FAAD-C2I, All Source Analysis System, the Information System Controller, Advanced Missile Defense Warning System and ABCS Foundation Products development.	8113	0	0
Continued information warfare vulnerability assessment program to further determine exploitable weakness in the Digitized Forces to include Stryker and FCS and to recommend mitigating solutions. Focused on the Commanders Vehicle and Infantry Carrier Vehicle components of the Stryker BCT and determined the limitations of system performance in information warfare (IW) threat environment. Updated the information warfare vulnerability database, and performed vulnerability analyses of selected Tactical Internet components to radio frequency directed energy weapons (RFDEW).			
Conducted electronic warfare countermeasure analysis support during NetFires PAM, LBHMMS P3I, MRM and Viper Strike field investigations. Provided detailed NetFires LAM comparative analyses on the degradation effects of weather and countermeasures on several UAV/munition pairings, supporting Congressional tasking for HQDA General Officer Steering Committee (GOSC).	2010	0	0
Completed the main fuel subsystems test series on an operational aircraft for the Live Fire Test and Evaluation (LFT&E) of the Joint Army/Navy Black Hawk live fire program. Provided ballistic lethality analysis support for GMLRS w/DPICM, GMLRS Unitary, PGMM, NetFires LAM, CKEM and LOSAT.	6392	0	0
Continued to support Stryker LFT&E on production 8 vehicles (provided pre-shot predictions, performed damage assessments, post-shot analyses and input to Independent Evaluation).	5404	0	0
Continued developing a methodology to address FCS survivability from the component and platform level up through the System of System. Provided subsections to the FCS System Evaluation Plan, the FCS Test and Evaluation Master Plan and the System Evaluation Report. Completed a Soldier Survivability Assessment (MANPRINT) on the FCS for milestone B decision. Continued the Vulnerability Methodology Test Bed effort in Active Protection, structural ballistic shock analysis, hybrid electric power vulnerability, Band Track vs. wheels analysis, spall analysis of composite materials.	7754	0	0

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605604A - Survivability/Lethality Analysis**

**PROJECT**  
**675**

<b>Accomplishments/Planned Program (continued)</b>	FY 2003	FY 2004	FY 2005
<p>Provided formal survivability characterization of Army GMD components. Integrated Army and AF component assessments to provide system-level survivability characterization. Continued to design/develop advanced EW countermeasure concepts to support Block 02-06 Patriot upgrade. Planned testing support for captive carry exercises associated with THAAD system effectiveness study to the MDA Black Team. Completed Stinger Block I HWIL simulation model. Developed MEADS Survivability Analysis Plan.</p>	5248	0	0
<p>Conduct integrated survivability, lethality, and vulnerability analyses on Army Transformation systems. Complete non-ballistic survivability/lethality analysis for Stryker variants/configurations. Support Stryker Mobile Gun System and NBC Reconnaissance vehicle Live Fire Test and Evaluation and non-ballistic survivability analysis in 04-05. 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.</p>	0	4095	4216
<p>Conduct integrated survivability, lethality, and vulnerability analyses for Army Future Combat System (FCS) and Future Force systems. Initiate modeling, analysis and simulation efforts supporting the FCS program, to include Active Protection Systems (APS) and FCS Lethality. Contribute to the Development of the Systems of Systems analysis methodology for Unit of Action (UA) survivability. Investigate the vulnerability/survivability implications of FCS advanced technologies including new armors and Hybrid Electric Propulsion systems. Develop the methodologies necessary to support the characterization and assessment of FCS platforms equipped with these systems. Aid FCS platform designers and technology suppliers to enhance the survivability of these technologies. Identify and manage Soldier Survivability related issues during FCS system design to include fratricide prevention and crew protection. Support the planning and execution of the ballistic vulnerability and Title 10 LFT&amp;E programs on the FCS, in conjunction with ATEC and DOT&amp;E. Conduct a ballistic vulnerability analysis on the initial Manned Ground Vehicle (MGV) platform design. Further support FCS program by providing documentation and briefings on survivability of concepts in support of the PDR in FY 2005.</p>	0	9104	11774

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605604A - Survivability/Lethality Analysis**

**PROJECT**  
**675**

**Accomplishments/Planned Program (continued)**

Conduct integrated survivability, lethality, and vulnerability analyses for Army Modernization/Current systems that will be in the field with newer 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. Continue Comanche Army qualification tests.

Conduct electronic warfare vulnerability assessments for developmental U.S. Army munition systems such as Precision-Guided Mortar Munition, Advanced Precision Kill Weapon System (Hydra 70 Rocket), XM 982 Excalibur, Guided Multiple Launch Rocket System x/DPICM, NetFires (NLOS LS), Joint Common Missile, Intelligent Munition System (IMS), Non Self-Destruct Alternative (NSD-A) and MRM. Conduct ballistic survivability/lethality analysis for U.S. Army munitions systems to include ATACMS (Penetrator), Excalibur, MRM, PGMM, LOSAT, Guided MLRS w/DCIPM, GMLRS Unitary, CKEM, Joint Common Missile and Medium Caliber. Conduct obscurant and atmospheric effects survivability analysis for U.S. Army munitions systems. Support LFT&E of GMLRS w/DCIPM.

Conduct integrated electronic and information warfare 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: FBCB2, Advanced Field Artillery Tactical Data System, Maneuver Control System, FAAD-C2I, All Source Analysis System, Combat Service Support Control System, and Advanced Missile Defense Warning System. Continue to expand information warfare vulnerability assessment program to determine exploitable weakness in the Digitized Forces (including FCS) and recommend mitigating solutions. Focus on processor components of the Stryker Force to determine the limitations of system performance in information warfare (IW) threat environment. Conduct integrated electronic and information operations survivability analysis for U.S. Army communications systems such as Warfighter Integrated Network-Terrestrial, the Near Term Digital Radio, Joint Tactical Radio System, and SINCGARS ASIP. 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.

FY 2003	FY 2004	FY 2005
0	7043	7347
0	10550	14012

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605604A - Survivability/Lethality Analysis**

**PROJECT**  
**675**

<b>Accomplishments/Planned Program (continued)</b>	FY 2003	FY 2004	FY 2005
Conduct integrated survivability, lethality, vulnerability analyses for developmental air defense and missile defense systems, pre-planned product improvements of current systems, and recently fielded systems. Systems to be addressed include Ballistic Missile Defense System (BMDS), Theater High Altitude Air Defense (THAAD), Patriot, Medium Extended Air Defense System (MEADS), SLAMRAAM, JLENS, M3P and Sentinel. Provide interim survivability reports. Recommend survivability enhancements. Project also funds Anti-Radiation Missile (ARM) Counter-Arm efforts that assess threat technologies against THAAD and GMD, Patriot, MEADS, and Forward Area Air Defense-C21 (FAAD-C21) ground based sensors. Includes work on Focal Plane Array Countermeasures (FPACM) (Project Agreement Partner: United Kingdom): Continue characterization and assessment of advanced focal plane array missile seekers and develop electronic countermeasures (ECM) to defeat them through simulation, modeling and lab testing. Continue development of models and simulations to analyze missile system performance in countermeasure environments. Conduct lab and field investigations to refine countermeasure techniques. Support development of GMD Evaluation Test Bed. Provide survivability analysis for THAAD Block 04 Activities.	0	6002	7299
Using Decision Related Structures (DRS), develop a System of Systems Survivability (S4) engineering model used with the Combined Arms and Support Task Force Evaluation Model (CASTFOREM) and its successor, Combat XXI. The S4 model provides details of how combat outcomes are dependant on understanding the way quality of military decision-making is conditioned by information flow on the battlefield. This model will advance the understanding of Information Operations and Information Warfare.	0	4200	0
Small Business Innovative Research/Small Business Technology Transfer Programs	0	866	0
<b>Totals</b>	<b>34921</b>	<b>41860</b>	<b>44648</b>

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

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605605A - DOD High Energy Laser Test Facility</b>	PROJECT <b>E97</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
E97     DOD HELSTF	16672	18299	15725	15525	16558	17294	18168

**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 System (FCS). Specifically, HEL weapons will be part of the Extended Area Air Defense (EAAD) system, a key component of the Future Force supporting Full Dimensional Protection. Candidate HEL programs include Mobile Tactical High Energy Laser (MTHEL) and Solid State Heat Capacity Laser (SSHCL). HELSTF is part of the DoD Major Range and Test Facility Base (MRTFB) and supports Tri-Service HEL research and development and damage, vulnerability, propagation, and lethality laser testing; and HEL weapon developmental and operational test and evaluation (DTE&OTE). The HELSTF's laser development support capabilities include a certified HEL test range, a fully integrated laser support facility, an extensive array of fully instrumented test sites, full laser meteorological support, and an approved site for above-the-horizon dynamic HEL testing certified for predictive avoidance by the Laser Clearing House. HELSTF's location on White Sands Missile Range (WSMR) provides unparalleled testing flexibility because of WSMR's 3200 square miles of controlled land mass and 7000 square miles of controlled airspace. Additionally, WSMR has a wide variety of radar and optics facilities and HEL testing expertise that can support testing at HELSTF. HELSTF facilities include the Sea Lite Beam Director (SLBD), the Mid-Infrared Advanced Chemical Laser (MIRACL), the Large Vacuum Chamber (LVC) with associated Vacuum Test System (VTS), the Laser Device Demonstration (LDD), the 10KW SSHCL testbed, the MTHEL static test site, and the Low Power Chemical Laser (LPCL). HELSTF supports the Pulsed Laser Vulnerability Test System and the MTHEL demonstrator 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 also will also develop 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 Battle-Management, Command, Control, Communication, Computer and Intelligence (BMC4I) 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 free electron level testbed, which will operate a variety of HEL weapon lasing frequencies. This modernization will create a more efficient and versatile HEL T&E facility, which will also benefit the development and testing of other Service material solutions using HEL technologies. This system supports the all transition paths of the Transformation Campaign Plan (TCP).

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

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605605A - DOD High Energy Laser Test Facility**

**PROJECT**  
**E97**

**Accomplishments/Planned Program**

	FY 2003	FY 2004	FY 2005
Perform operation, maintenance and base operations support functions in support of the Army, Department of Defense and other agencies conducting high energy laser systems concept development studies and test and evaluation on candidate high energy laser weapons systems (MTHL, SOCOM Advanced Tactical Laser (ATL), Air Force Airborne Laser, and Navy HEL Low Aspect Target Tracking (HEL-LATT), other laser programs). Continue lethality testing experiments using 10KW flash lamp pumped SSHCL in accordance with the lethality and propagation test program and support SMDC Technical Center lethality and propagation testing. Continue safety and control system upgrades to integrate other HEL technologies, and development of a mobile HEL diagnostic capability, the BMC4I testbed and the FEL 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.	16672	17789	15725
Small Business Innovative Research/Small Business Technology Transfer Programs.	0	510	0
<b>Totals</b>	<b>16672</b>	<b>18299</b>	<b>15725</b>

<b><u>B. Program Change Summary</u></b>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	16679	17806	17999
Current Budget (FY 2005 PB)	16672	18299	15725
Total Adjustments	-7	493	-2274
Congressional program reductions		-161	
Congressional rescissions			
Congressional increases		1100	
Reprogrammings	-7	-446	
SBIR/STTR Transfer			
Adjustments to Budget Years			-2274

Change Summary Explanation: Funding - FY 2005: Funds realigned (\$2274) to support higher priority requirements.

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

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605606A - AIRCRAFT CERTIFICATION</b>	PROJECT <b>092</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
092 AIRCRAFT CERTIFICATION	3555	2999	2985	2904	12529	18329	19543

**A. Mission Description and Budget Item Justification:** The Aircraft Certification program is an Army Aviation mission unique to Aviation and Missile Command that provides for an independent Airworthiness Qualification of all assigned Development and In-Production Army manned and Unmanned Aircraft systems required per AR70-62. This program performs all engineering functions (design, analysis, testing, demonstrations and system specification compliance) essential for certifying the airworthiness of assigned Army aircraft. Performs safety-of-flight investigations/assessments, evaluates system risks and develops Airworthiness Impact Statements. Evaluates and issues Airworthiness Flight Releases, Safety of Flight Messages, and Aviation Safety Action Messages to the field. Manages/executes the Army's Aeronautical Design Standards (ADS) Program. ADS is a continuously evolving process incorporating revisions for each change to the standard design of an aircraft system. Manages airworthiness approval of new vendor qualification/testing on fielded aircraft and material changes for all assigned Army aircraft systems. Provides airworthiness-engineering support to the Army Aviation Program Executive Office (PEO) and Technology Applications Program Office (TAPO) requirements for major development/modification and any future system/subsystems. Manages the test and evaluation process to support airworthiness qualification of developmental and fielded aircraft systems. This project funds activities required for general research and development support of aircraft qualifications. Current programs requiring Airworthiness Qualification support are TAPO and PEO Aviation Objective Force Systems (Comanche, Apache Longbow, Blackhawk, Chinook) and Aviation Electronics Systems (Aviation Mission Equipment, Aircrew Integrated System, Army Airborne Command and Control System, Advanced Threat Infrared Countermeasures, and Suite of Integrated Radio Frequency Countermeasures). This program supports the current to future/future transition path of the Transformation Campaign Plan.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Manage/execute technical and airworthiness qualification mission for PEO Aviation/force modernization aircraft systems.	915	1124	1140
Continue to ensure safety of flight investigations/assessments to include PEO Aviation/force modernization of aircraft systems.	1351	749	683
Manage/execute the Army Aeronautical Design Standards Program.	191	188	188
Provide continuing engineering support for technology upgrades to PEO Aviation/force modernization aircraft systems.	827	718	716
Continue to provide test management capability for PEO Aviation Program/Project/Product Managers.	271	212	258
Small Business Innovative Research/Small Business Technology Transfer Programs.	0	8	0
<b>Totals</b>	<b>3555</b>	<b>2999</b>	<b>2985</b>

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605606A - AIRCRAFT CERTIFICATION**

PROJECT  
**092**

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	3618	3098	3132
Current Budget (FY 2005 PB)	3555	2999	2985
Total Adjustments	-63	-99	-147
Congressional program reductions			
Congressional rescissions		-26	
Congressional increases			
Reprogrammings	-63	-73	
SBIR/STTR Transfer			
Adjustments to Budget Years			-147

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

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605702A - Meteorological Support to RDT&amp;E Activities</b>	PROJECT <b>128</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
128      MET SPT TO DTC ACTIVITY	6792	9359	8711	7952	8512	8828	9261

**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, testing and evaluation (RDTE) Activities provides standard and specialized weather forecasts and data for test reports to satisfy Army/DoD RDTE 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 meteorology; (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 RDTE requirements. This PE finances indirect meteorological support operating costs not billable to customers and replacement/upgrade of meteorological instrumentation. Direct costs for meteorological support services are not funded by this PE, but are borne by the customer (i.e. materiel/weapons developers and project/product managers) in accordance with DoD Directive 7000.14R, October 1999. This program is integral to the accomplishment of the Army's developmental test and evaluation mission and its support of the Army Transformation from Current to Future Force.

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

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605702A - Meteorological Support to RDT&amp;E Activities</b>	PROJECT <b>128</b>
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<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Provides indirect costs (personnel salaries) for generating weather forecasts, severe weather warnings and advisories, staff meteorological services, and atmospheric measurements in support of Army/DoD tests and projects at nine Army sites/test ranges, and alternate test sites as required. Provides full salaries for interns at each site. These new hires are essential to support increasing demands for detailed weather knowledge and technologies required to test modern weapon systems. Provides program management for meteorological support to the Army research, development, test and evaluation community and for technical review/assistance to ranges and meteorological support teams. Includes Verification, Validation and Accreditation (VV&A) for the Four-Dimensional Weather (4DWX) System.	2377	3092	3359
Provides funding for development and fielding of the 4DWX System, an advanced meteorological support system capable of providing highly accurate weather forecasts, analyses, and modeling and simulation capabilities in support of both developmental and operational testing. 4DWX provides a 3-dimensional structure of the atmosphere over time (4th dimension) used in test planning, conduct and forensics. Increased funding in FY04 allows advancement of 4DWX capabilities as well as much needed upgrades and modernization of meteorological instrumentation systems. Specifically, 4DWX development includes extending weather prediction techniques to concentrate on smaller volumes of atmosphere representative at specific test sites; providing the next generation of Linux PC clusters at the five 4DWX sites with mesoscale modeling capabilities; developing globally relocatable mesoscale modeling capability for safari operations and virtual testing; developing model links between 4DWX and other range applications such as ballistic trajectory models; and transitioning the system to the next generation Weather Research and Forecasting Model. Development and upgrade of range/site meteorological instrumentation and equipment includes upgrade and replacement of digital sensors and data analysis equipment; Surface Atmospheric Measurement System (SAMS) fixed and mobile remote automated weather station upgrades; replacement meteorological towers and sensors; replacement Doppler acoustic sounders for vertical wind profile measurements; replacement of aging laser ceilometers used to measure cloud layers; and replacement radar wind profilers which provide near-real-time measurements of wind profiles used to support test activities such as Chemical/Biological simulant releases and missile launches.	4415	6054	5352
Small Business Innovative Research/Small Business Technology Transfer Programs	0	213	0
<b>Totals</b>	<b>6792</b>	<b>9359</b>	<b>8711</b>

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

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605702A - Meteorological Support to RDT&E**  
**Activities**

**PROJECT**  
**128**

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	6795	9669	9771
Current Budget (FY 2005 PB)	6792	9359	8711
Total Adjustments	-3	-310	-1060
Congressional program reductions		-82	
Congressional rescissions			
Congressional increases			
Reprogrammings	-3	-228	
SBIR/STTR Transfer			
Adjustments to Budget Years			-1060

Change Summary Explanation: Funding - FY 2005: Funds realigned to support higher priority requirements (-1060).

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

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605706A - MATERIEL SYSTEMS ANALYSIS</b>	PROJECT <b>541</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
541      MATERIEL SYS ANALYSIS	8978	15642	18000	18489	18486	18396	18393

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

The increase in funding from FY2004 to FY2005 is due to Army Leadership's high priority requirement of AMSAA's weapons systems performance and effectiveness analyses. The increase in funding from FY2003 to FY2004 provides funding reprogrammed from PE 0605803A to pay civilian authorizations.

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

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

February 2004

BUDGET ACTIVITY

**6 - Management support**

PE NUMBER AND TITLE

**0605706A - MATERIEL SYSTEMS ANALYSIS**

PROJECT

**541**

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.

The capabilities of AMSAA in the RDT&E area are critical to the success of the Transformation Campaign Plan specifically:

- Line of Operation 2: Modernization and Re-capitalization
- Line of Operation 8: Operational Force Design
- Line of Operation 9: Deploying and Sustaining
- Line of Operation 10: Develop and Acquire Advanced Technology

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

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

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605706A - MATERIEL SYSTEMS ANALYSIS**

**PROJECT**  
**541**

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
<p>Funding directly pays DA civilians at U.S. Army Materiel Systems Analysis Activity (AMSAA) who are responsible for developing &amp; certifying system performance &amp; effectiveness data (e.g., delivery accuracy, target acquisition, probability of inflicting catastrophic damage, etc.) for U.S. &amp; foreign systems to be used during Army &amp; Joint Analyses of Alternatives (AoA), force structure studies, &amp; theater level studies. Analyses of performance &amp; combat effectiveness of materiel systems &amp; technology base programs are conducted in support of DA, AMC, RDECOM, PEOs/PMs, TRADOC, &amp; ATEC. Included in these analyses are conduct of &amp; support to: AoAs, system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, requirements analyses, technology insertion studies, reliability growth studies, &amp; physics of failure analyses. Examples of programs supported with critical analyses: Future Combat System (FCS), Comanche, Stryker, Objective Individual Combat Weapon (OICW), Objective Crew Served Weapon (OCSW), WIN-T, UAVs, Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS), Joint Tactical Radio System (JTRS), Digitization Brigade &amp; Below (DB2), APKWS, and PGMM. AMSAA develops &amp; modifies system level methodologies, models &amp; 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 &amp; target acquisition methodology improvements, sensor fusion modeling, expansion of mechanical &amp; electronic physics of failure modeling, individual combat evaluation model, synthetic aperture radar methodology, vehicle performance methodology, active protection system performance, &amp; non-lethal weapons performance &amp; effectiveness estimation methodology. AMSAA also performs verification, validation, &amp; accreditation of item/system level performance models which ensures new models &amp; simulations faithfully represent actual systems.</p>	8978	15521	18000
Small Business Innovative Research/Small Business Technology Transfer Programs.	0	121	0
<b>Totals</b>	<b>8978</b>	<b>15642</b>	<b>18000</b>

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605706A - MATERIEL SYSTEMS ANALYSIS**

PROJECT  
**541**

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	8982	15832	16209
Current Budget (FY 2005 PB)	8978	15642	18000
Total Adjustments	-4	-190	1791
Congressional program reductions		-135	
Congressional rescissions			
Congressional increases			
Reprogrammings	-4	-55	
SBIR/STTR Transfer			
Adjustments to Budget Years			1791

Change Summary Explanation: Funding - FY 2005: Funds realigned due to Army Leadership's high priority requirement of weapons systems performance and effectiveness analyses (+1791).

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605709A - EXPLOITATION OF FOREIGN ITEMS**

PROJECT  
**C28**

COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
C28	ACQ/EXPLOIT THREAT ITEMS (TIARA)	3430	3465	4740	4710	4991	5501	5857

**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). This activity supports the Current to Future transition path of the Transformation Campaign Plan.

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Acquire threat systems identified and prioritized in the Army Foreign Materiel Program (FMP) Five Year Plans.	1162	1178	1701
Initiate, continue, or complete exploitation projects on ground systems of Army interest identified in the appropriate Army FMP Exploitation Programs.	2268	2287	3039
<b>Totals</b>	<b>3430</b>	<b>3465</b>	<b>4740</b>

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605709A - EXPLOITATION OF FOREIGN ITEMS**

PROJECT  
**C28**

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	3431	3579	5465
Current Budget (FY 2005 PB)	3430	3465	4740
Total Adjustments	-1	-114	-725
Congressional program reductions		-30	
Congressional rescissions			
Congressional increases			
Reprogrammings	-1	-84	
SBIR/STTR Transfer			
Adjustments to Budget Years			-725

Change Summary Explanation: Funding - FY 05: Funds realigned in support of higher priority programs (-725).

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605712A - Support of Operational Testing**

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	83911	66995	71239	73722	70354	70420	71140
001 ATEC IOTE	21076	5339	5221	6261	6284	6244	6215
V02 ATEC ACTIVITIES	62835	61656	66018	67461	64070	64176	64925

**A. Mission Description and Budget Item Justification:** The US Army Test and Evaluation Command (ATEC) consists of three subordinate commands: the Army Evaluation Center (AEC), the Operational Test Command (OTC), and the Developmental Test Command (DTC). This program element finances the operational test and evaluation of developmental materiel systems to include support to the Army Transformation. In the past, Project 001 provided for direct operational testing and evaluation on major and non-major materiel systems (ACAT II-IV), including Multi-Service and Joint tests; excluding funds for Acquisition Category I (ACAT I) major weapons with an Army Program Manager and ACAT IA, Automated Information Systems, which have funding programmed within their own developmental PEs. However, starting in FY 2004, the acquisition community will be responsible for the planning and programming of all acquisition category Operational Test and Evaluation (OT&E), with the exception of Follow-on OT&E. Project V02 provides for the recurring costs of operating the test activities of the U.S. Army Operational Test Command as well as its 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. This project also funds similar support across the Command.

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605712A - Support of Operational Testing**

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	91566	67795	67757
Current Budget (FY 2005 PB)	83911	66995	71239
Total Adjustments	-7655	-800	3482
Congressional program reductions		-576	
Congressional rescissions			
Congressional increases			
Reprogrammings	-7655	-224	
SBIR/STTR Transfer			
Adjustments to Budget Years			3482

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605712A - Support of Operational Testing</b>	PROJECT <b>001</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
001 ATEC IOTE	21076	5339	5221	6261	6284	6244	6215

**A. Mission Description and Budget Item Justification:** Prior to FY04, this project financed costs directly attributable to conducting Operational Test and Evaluation (OT&E), Early User Tests and Evaluations (EUTE), Limited User Tests and Evaluations (LUTE), Multi-Service systems (ACAT II-III) without Army Program Managers, and Joint Tests (JT). Operational testing is conducted using typical user troops trained to operate the system. Test conditions are as close as possible to actual combat or operating circumstances. The Army Test and Evaluation Command (ATEC) provides Army leadership with an independent test and evaluation of effectiveness, suitability, and survivability of the system. Beginning in FY04, the programming and funding for OT&E of ACAT I-III programs became the responsibility of the Materiel Developer, while Army's Multi-Service OT&E (MOTE) (if no Army PM) and JT&E requirements remain an ATEC funding responsibility. This project will fund the Army's direct costs of planning and conducting Multi-service OT&E (MOTE) of programs without an Army PM, and will also fund Army requirements of Joint T&E (JT&E), to evaluate concepts and address needs and issues that occur in joint military environments. JT&E is chartered to conduct T&E and provide information required by Congress, OSD, the Unified Commands, and DoD components relative to joint operations. ATEC's mission supports the Current to Future transition path of the Transformation Campaign Program.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Close Combat operational testing and evaluation.	326	0	0
Fire Support operational testing and evaluation.	3415	0	0
Air Defense Artillery operational testing and evaluation.	5721	0	0
Aviation operational testing and evaluation.	507	0	0
Intelligence and Electronic Warfare operational testing and evaluation.	1656	0	0
Command, Control, Communications and Computer operational testing and evaluation.	291	0	0
Engineer/combat support operational testing and evaluation.	2044	0	0
Future Force operational testing and evaluation.	191	0	0
Joint Test operational testing and evaluation.	2114	3233	3414
Other-Special projects/OTE without Army PM	4811	1950	1807
Small Business Innovative Research/Small Business Technology Transfer Programs	0	156	0
<b>Totals</b>	<b>21076</b>	<b>5339</b>	<b>5221</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605712A - Support of Operational Testing</b>	PROJECT <b>V02</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
V02 ATEC ACTIVITIES	62835	61656	66018	67461	64070	64176	64925

**A. Mission Description and Budget Item Justification:** The Operational Test Command (OTC) conducts operational tests required by public law that provide significant data to the Army decision-makers on key Army systems and concepts. This project finances base recurring costs for the Operational Test Command that are essential for conducting realistic and continuous testing in the critical areas of equipment, doctrine, force design and training. These base recurring costs include civilian pay, approximately 90% of core requirements for test support contracts, temporary duty, supplies and equipment. This project funds base requirements for the Operational Test Command's nine test directorates and one support activity located at Fort Hood, TX; Fort Bragg, NC; Fort Bliss, TX; Fort Sill, OK; and Fort Huachuca, AZ. The primary mission of these test directorates is to perform detailed planning, execution, and reporting of Initial Operational Test and Evaluation (IOTE), Follow-on Test and Evaluations (FOTE), Force Development Test and Experimentation (FDTE), and Army Warfighting Experiments (AWE). OTC is also heavily involved in the Army's Transformation vision for the Stryker Brigade Combat Team (SBCT). This project also funds for requirements in support of the PM Future Combat Systems (FCS) Combined Test Organization (CTO). Project V02 also provides support for the four Test and Evaluation Coordination Offices (TECOs) located at Fort Benning, GA; Fort Knox, KY; Fort Lee, VA; and Fort Leonard Wood, MO as well as for the recurring support costs of HQ ATEC.

This project supports the Current to Future transition path of the Transformation Campaign Plan.

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Operational costs including: civilian pay, support contracts, temporary duty, supplies and equipment for subordinate elements of the Operational Test Command. A total of 397 civilian authorizations are supported in FY 2003-2004 and 398 civilian authorizations in FY 2005.	38898	40790	45403
Other operational costs include: civilian pay, support contracts, temporary duty, supplies and equipment for HQ ATEC and TECOs. A total of 62 civilian authorizations are supported in FY03, 63 civilians in FY04, and 47 civilians in FY05.	23937	20249	20615
Small Business Innovative Research/Small Business Technology Transfer Programs	0	617	0
<b>Totals</b>	<b>62835</b>	<b>61656</b>	<b>66018</b>

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

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605716A - Army Evaluation Center</b>	PROJECT <b>302</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
302 ARMY EVALUATION CENTER	43809	46527	62209	62013	72389	73097	74174

**A. Mission Description and Budget Item Justification:** Funding has been increased in this program to support the augmentation of civilian authorizations from 195 to 324 for the Army Evaluation Center (AEC). This increase and the continued sustainment of it in FY2005 reflects the Army leadership's recognition that the number of systems being evaluated is increasing as is the complexity of those systems, such as the 18 Future Combat Systems (FCS) items to be concurrently evaluated as a System of Systems. The Army leadership decision is to fully support the requirements of AEC and its role as the Army's independent evaluator for both technical and operational tests of developmental systems for all Army acquisition programs. In addition, the Army leadership recognized the various 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.

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 Acquisition Executive, other Army senior leaders and the Director of Operational Test and Evaluation for acquisition decisions. 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. ATEC's mission supports the Current to Future transition path of the Transformation Campaign Program.

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

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605716A - Army Evaluation Center</b>	PROJECT <b>302</b>
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	FY 2003	FY 2004	FY 2005
<p><b>Accomplishments/Planned Program</b></p> <p>Support 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 can 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 experiment.</p>	0	2906	4876
<p>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, such as Stryker, FCS, RAH-66 Comanche, 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), Common Missile, Suite of Integrated Infrared Countermeasures (SIIRCM), Joint Tactical Radio System Clusters 1 &amp; 5 (JTRS), Trojan Spirit- LITE (TS-LITE), Dry Support Bridge (DSB), Blackhawk Helicopter (UH-60M), Anti-Personnel Landmine Alternative (APLA), Countermine Capability Set (CMCS) Group B-2, Family of Medium Tactical Vehicles (FMTV), Hercules, High Mobility Multipurpose Wheeled Vehicle (HMMWV A4), Surface Launched Advanced Medium Range Air to Air Missile system (SLAMRAAM), and the Aerial Common Sensor (ACS). As the Army lead for Live Fire Test and Evaluation, plan and execute the Army Live Fire Test and Evaluation program for developmental systems such as the FCS, Comanche and Line of Site Anti Tank (LOSAT). Prepare integrated System Evaluation Plans and conduct integrated technical and operational evaluations for all Army weapon systems. Includes costs for 195 civilian authorizations in FY 2003 and 324 civilian authorizations in FY 2004-2005.</p>	43809	42934	57333
<p>Small Business Innovative Research/Small Business Technology Transfer Programs</p>	0	687	0
<p><b>Totals</b></p>	<b>43809</b>	<b>46527</b>	<b>62209</b>

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605716A - Army Evaluation Center**

PROJECT  
**302**

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	37923	57074	57404
Current Budget (FY 2005 PB)	43809	46527	62209
Total Adjustments	5886	-10547	4805
Congressional program reductions		-10400	
Congressional rescissions			
Congressional increases			
Reprogrammings	5886	-147	
SBIR/STTR Transfer			
Adjustments to Budget Years			4805

Change Summary Explanation: Funding - FY 2003: Funding reprogrammed to support the Continuous Evaluation mission (+5886). FY 2004: Congressional reduction due to program growth (-10000).

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

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605718A - Simulation &amp; Modeling for Acq, Rqts, &amp; Tng (SMART)</b>				PROJECT <b>S01</b>		
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
S01 INTEGRATION AND EVALUATION CENTER (IEC) SUSTAINMEN	0	2568	1935	1964	2123	2262	2348

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

This system supports the Current/Future Force transition path of the Transformation Campaign Plan (TCP).

FY05 Funding continues to provide enhanced Joint user/developer testbeds.

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

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605718A - Simulation &amp; Modeling for Acq, Rqts, &amp; Tng (SMART)</b>	PROJECT <b>S01</b>
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<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
IEC Sustainment - Funds will provide enhanced Joint user/developer testbed for rapid prototyping of new systems in C4I and weapon(s) evaluations. Support modeling and simulation synthetic operational environment for three advanced concept technology demonstrations: Theatre Precision Strike Operations (TPSO), Joint Intelligence Surveillance and Reconnaissance (JISR), and Joint Continuous Strike Environment (JCSE); and two SMART/SBA acquisition programs: Future Combat System and Aerial Common Sensor. Support planned transition of TPSO ACTD in training and simulation support for exercises. Provide stimulus in support of training for the JISR ACTD and web-based development. Provide secure communications via secret internet protocol router network (SIPRNET) to enable ACTDs to transmit software upgrades and patches in support of tests, evaluations and joint exercises. Provide a geographically distributed network to support joint warfare exercises and experiments.	0	2492	1935
Small Business Innovative Research/Small Business Technology Transfer Programs	0	76	0
<b>Totals</b>	<b>0</b>	<b>2568</b>	<b>1935</b>

<u>B. Program Change Summary</u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	0	2654	2731
Current Budget (FY 2005 PB)	0	2568	1935
Total Adjustments	0	-86	-796
Congressional program reductions		-23	
Congressional rescissions			
Congressional increases			
Reprogrammings		-63	
SBIR/STTR Transfer			
Adjustments to Budget Years			-796

Change Summary Explanation - Funding - FY 2005: Funds realigned in support of higher priority programs (-796).

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605801A - Programwide Activities**

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	59836	62966	59368	59872	88440	91391	95858
F06 OBJECTIVE FORCE TASK FORCE	7549	8649	7609	8237	8553	9052	9374
M02 MED CMD SPT (NON-AMHA)	10034	10285	11322	11535	34906	36180	37945
M15 ARI MGMT/ADM ACT	1766	1916	2193	2153	2317	2368	2478
M16 STANDARDIZATION GROUPS	3450	3597	3755	3764	4707	4979	5145
M42 ARDEC CMD/CTR SUPPORT	5700	5212	5688	5385	6043	5835	6100
M44 CECOM CMD/CTR SPT	3086	3095	3112	3583	3876	3962	4147
M45 ARL CMD/CTR SUPPORT	2898	0	0	0	0	0	0
M46 AMCOM CMD/CTR SPT	5071	5304	5551	5263	5621	5757	6045
M47 TACOM CMD/CTR SPT	2901	2533	2682	2574	2741	2781	2905
M53 DEVELOPMENTAL TEST COMMAND/CTR SPT	9770	10329	10919	10583	11420	12037	12904
M55 EDGEWOOD CHEMICAL BIOLOGICAL CENTER (ECBC)	3649	3399	3772	3623	3863	3913	4085
M58 SSCOM CMD/CTR SPT	1695	1415	1555	1967	2080	2115	2209
M75 FED WORKFORCE RESTRUCT	1377	6039	0	0	0	0	0
M76 ARMAMENT GROUP SUPPORT	890	1193	1210	1205	2313	2412	2521

**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).

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605801A - Programwide Activities**

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	57831	71555	68870
Current Budget (FY 2005 PB)	59836	62966	59368
Total Adjustments	2005	-8589	-9502
Congressional program reductions		-7053	
Congressional rescissions			
Congressional increases			
Reprogrammings	2005	-1536	
SBIR/STTR Transfer			
Adjustments to Budget Years			-9502

Change Summary Explanation: Funding - FY 2004: Reduction due to Congressional program reductions (-7053) and realignment of funds to support higher priority programs (-1536). FY 2005: Funds realigned to support higher priority programs (-9502).

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605801A - Programwide Activities</b>					PROJECT <b>F06</b>		
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	
F06      OBJECTIVE FORCE TASK FORCE	7549	8649	7609	8237	8553	9052	9374	

**A. Mission Description and Budget Item Justification:** The Objective Force Task Force (OFTF), chartered by the Secretary of the Army and Chief of Staff Army, serves as the single, overarching, integrating activity within the Department of the Army that provides the direction, means, and impetus for the Future Force. The OFTF facilitates the accelerated fielding of the Future Force by integrating and synchronizing war fighting capabilities and technologies and by providing assessments associated with the Doctrine, Training, Leader Development, Organization, Materiel, Personnel and Facilities (DTLOM-PF) process that focus Army Senior Leadership decision-making. The OFTF develops and maintains the Future Force Campaign Plan, establishing a common objective and purpose within the Army, while setting Future Force timelines for execution by the Army Staff and MACOMS. The OFTF provides the means to enable senior Army decision makers to assess progress on the journey to the Future Force, synchronize Future Force programs, and integrate the overall effort. The OFTF favorably influences multiple parts of the Army, OSD, JCS, Congress, and industry to ensure that the Army achieves Future Force capabilities this decade.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605801A - Programwide Activities**

**PROJECT**  
**F06**

**Accomplishments/Planned Program**

Professional engineering and technical support applied to all areas relative to achievement of the Future Force, including Requirements, Training, Fielding, Sustainment, Architecture Integration, Systems, Strategic Integration, and Communications. OFTF staff and contractors provide integration, coordination, assessments and management support, including technical approaches and trade-off analyses.

OFTF collaborates efforts in directing the synchronization of Army functional areas to include; however, not all inclusive: soldiers, training and leader development; human resources; battle command; command, control, communications, computers, intelligence, surveillance and reconnaissance; space; information operations; sustainment; medical; science and technology; equipping; stationing; installations; readiness; deployment; and institutions with the 13 lines of operation in the Army Transformation Campaign Plan supporting National and DoD strategies.

Small Business Innovative Research/Small Business Technology Transfer Programs

Totals

FY 2003	FY 2004	FY 2005
7549	8391	7609
0	258	0
7549	8649	7609

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605801A - Programwide Activities</b>	PROJECT <b>M02</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M02 MED CMD SPT (NON-AMHA)	10034	10285	11322	11535	34906	36180	37945

**A. Mission Description and Budget Item Justification:** This project provides continued operations of contracting and acquisition management and related administrative functions performed by the Army Medical Research Acquisition Activity (USAMRAA) in support of Army Medical Research and Materiel Command (USAMRMC) RDTE programs and its tenant organizations at Fort Detrick, Maryland, including medical materiel procurement contracts for the U.S. Army Medical Materiel Agency and the Office of the Surgeon General, Army. The project also provides funding for the headquarters activities at the USAMRMC, Fort Detrick, Maryland to: (1) develop medical RDTE program policy and guidance; (2) perform long range planning, programming and budgeting; (3) provide the management of resources; and (4) conduct program performance review and evaluation for the RDTE appropriation.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Continues to provide acquisition management functions in support of USAMRMC RDTE programs and its tenant organizations, Ft. Detrick, MD, including medical materiel procurement contracts and procurement of biological defense vaccines. Funded the operation of HQ, USAMRMC activities that administer the medical research, development, and acquisition program to sustain military medical technology superiority.	10034	10285	11322
<b>Totals</b>	<b>10034</b>	<b>10285</b>	<b>11322</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605801A - Programwide Activities</b>	PROJECT <b>M15</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M15    ARI MGMT/ADM ACT	1766	1916	2193	2153	2317	2368	2478

**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.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ARI.	1766	1910	2193
Small Business Innovative Research/Small Business Technology Transfer Programs	0	6	0
<b>Totals</b>	<b>1766</b>	<b>1916</b>	<b>2193</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605801A - Programwide Activities**

**PROJECT**  
**M16**

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M16    STANDARDIZATION GROUPS	3450	3597	3755	3764	4707	4979	5145

**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. This system supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Continue operation of six Standardization Groups in support of international research, development, interoperability, standardization, opportunities, and foreign NDI.	3450	3538	3755
Small Business Innovative Research/Small Business Technology Transfer Programs	0	59	0
<b>Totals</b>	<b>3450</b>	<b>3597</b>	<b>3755</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2004**

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605801A - Programwide Activities</b>	PROJECT <b>M42</b>
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COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M42 ARDEC CMD/CTR SUPPORT	5700	5212	5688	5385	6043	5835	6100

**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.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ARDEC.	5700	5212	5688
<b>Totals</b>	<b>5700</b>	<b>5212</b>	<b>5688</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605801A - Programwide Activities**

**PROJECT**  
**M44**

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M44 CECOM CMD/CTR SPT	3086	3095	3112	3583	3876	3962	4147

**A. Mission Description and Budget Item Justification:** Supports the non-AMHA management and administrative functions at the U.S. Army Communications-Electronics Command (CECOM), Ft. Monmouth, NJ.

<b><u>Accomplishments/Planned Program</u></b>	FY 2003	FY 2004	FY 2005
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at CECOM.	3086	3086	3112
Small Business Innovative Research/Small Business Technology Transfer Programs	0	9	0
<b>Totals</b>	<b>3086</b>	<b>3095</b>	<b>3112</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605801A - Programwide Activities**

**PROJECT**  
**M46**

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M46    AMCOM CMD/CTR SPT	5071	5304	5551	5263	5621	5757	6045

**A. Mission Description and Budget Item Justification:** Supports the non-AMHA management and administrative functions at the U.S. Army Aviation and Missile Command (AMCOM), Redstone Arsenal, AL.

<b><u>Accomplishments/Planned Program</u></b>	FY 2003	FY 2004	FY 2005
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at AMCOM.	5071	5265	5551
Small Business Innovative Research/Small Business Technology Transfer Programs	0	39	0
<b>Totals</b>	<b>5071</b>	<b>5304</b>	<b>5551</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605801A - Programwide Activities**

**PROJECT**  
**M47**

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M47 TACOM CMD/CTR SPT	2901	2533	2682	2574	2741	2781	2905

**A. Mission Description and Budget Item Justification:** Supports the non-AMHA management and administrative functions at the U.S. Army Tank-Automotive Command (TACOM), Warren, MI.

**Accomplishments/Planned Program**

	FY 2003	FY 2004	FY 2005
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at TACOM.	2901	2533	2682
<b>Totals</b>	<b>2901</b>	<b>2533</b>	<b>2682</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605801A - Programwide Activities</b>	PROJECT <b>M53</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M53 DEVELOPMENTAL TEST COMMAND/CTR SPT	9770	10329	10919	10583	11420	12037	12904

**A. Mission Description and Budget Item Justification:** Project M53 funds civilian labor and support costs for the technical direction and administrative functions of the Headquarters, U.S. Army Developmental Test Command (DTC) located at Aberdeen Proving Ground, Maryland, and is required to support accomplishment of assigned developmental test and evaluation missions not directly related to specific test and evaluation projects. This project includes staff/management functions of resource management, safety, security, environmental, strategic planning and ADPE/information/technology support for command-wide databases in support of the developmental test mission with technical direction of five Major Range and Test Facility Bases and test centers: Aberdeen Test Center, Maryland; Dugway Proving Ground, Utah; Yuma Proving Ground, Arizona; White Sands Missile Range, New Mexico, and Electronic Proving Ground, Arizona, as well as for: Redstone Technical Test Center, Alabama; Aviation Technical Test Center, Alabama; Cold Regions Test Center, Alaska; and Tropic Regions Test Center, Hawaii. This is the operating budget for DTC HQ, which provides technical direction for the annual execution of over 1800 tests, 7188 workyears, and a \$927M program.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Civilian labor and other support costs for DTC to provide technical direction and administer the assigned Army developmental test mission.	8412	9330	9934
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.	1008	780	885
Materials, Supplies, and Equipment.	350	100	100
Small Business Innovative Research/Small Business Technology Transfer Programs	0	119	0
<b>Totals</b>	<b>9770</b>	<b>10329</b>	<b>10919</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2004**

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605801A - Programwide Activities</b>	PROJECT <b>M55</b>
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COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M55    EDGEWOOD CHEMICAL BIOLOGICAL CENTER (ECBC)	3649	3399	3772	3623	3863	3913	4085

**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.

<b><u>Accomplishments/Planned Program</u></b>	FY 2003	FY 2004	FY 2005
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ECBC.	3649	3399	3772
<b>Totals</b>	<b>3649</b>	<b>3399</b>	<b>3772</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2004**

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605801A - Programwide Activities</b>	PROJECT <b>M58</b>
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COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M58    SSCOM CMD/CTR SPT	1695	1415	1555	1967	2080	2115	2209

**A. Mission Description and Budget Item Justification:** Supports the non-AMHA management and administrative functions at the Soldier and Biological Chemical Command (SBCCOM), Natick, MA.

<b><u>Accomplishments/Planned Program</u></b>	FY 2003	FY 2004	FY 2005
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at SBCCOM.	1695	1415	1555
<b>Totals</b>	<b>1695</b>	<b>1415</b>	<b>1555</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2004**

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605801A - Programwide Activities</b>	PROJECT <b>M75</b>
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COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M75 FED WORKFORCE RESTRUCT	1377	6039	0	0	0	0	0

**A. Mission Description and Budget Item Justification:** Requirements were defined by the Federal Workforce Restructuring Act of 1994. Funds are to be used to offset the expenses of Voluntary Early Retirement Authority/Voluntary Separation Incentive Pay (VERA/VSIP), and the 15% tax on the final basic pay of each employee who retired under VERA/VSIP to be remitted to the Civil Service Retirement and Disability Fund (CSRDF). Distribution will be made in the year of execution.

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Funds the transition costs associated with workforce reductions (VERA/VSIP) and required OPM taxes.	1377	6039	0
<b>Totals</b>	<b>1377</b>	<b>6039</b>	<b>0</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605801A - Programwide Activities</b>	PROJECT <b>M76</b>
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COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M76 ARMAMENT GROUP SUPPORT	890	1193	1210	1205	2313	2412	2521

**A. Mission Description and Budget Item Justification:** The goal of this program is to expand worldwide allied standardization and interoperability through cooperative research and development (R&D) and technology sharing per SECDEF guidance and especially in support of the U.S. Army. This program partially funds the travel costs and administrative support (studies, analysis, interpretation, equipment, etc.) required to participate in international fora, such as the North Atlantic Treaty Organization (NATO) Army Armaments Group (NAAG), and to pursue new cooperative R&D initiatives and international cooperative agreements such as memoranda of understanding. This program also includes: the United States' share of costs of the NATO Civil Budget, Chapter IX, which funds the NATO Industrial Advisory Group (NIAG) and the Special Fund for Cooperative Planning (U. S. Army is Executive Agent for this NATO bill); partially funds the Four Power Senior National Representatives, Army [SNR (A)], the Technical Cooperative Program, bilateral staff talks, and Army armaments working groups with many nations.

**Accomplishments/Planned Program**

	FY 2003	FY 2004	FY 2005
Fund domestic and international travel linked to scientific and technological exchanges having military application and mutual benefits to the United States and its Allies.	290	442	454
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.	600	715	756
Small Business Innovative Research/Small Business Technology Transfer Programs	0	36	0
<b>Totals</b>	<b>890</b>	<b>1193</b>	<b>1210</b>

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605803A - Technical Information Activities**

COST (In Thousands)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate
Total Program Element (PE) Cost	54182	42122	27713	28195	30212	31803	33052
720 TECH INFO FUNC ACTV	3536	2861	2614	2636	2784	2883	3011
727 TECH INFO ACTIVITIES	13319	6879	6325	6629	7237	7594	8005
729 YOUTH SCIENCE ACTIV	2260	2111	1914	1935	2083	2181	2291
730 PERS & TRNG ANALYS ACT	2149	2270	2115	2163	2312	2405	2526
731 ARMY HIGH PERFORMANCE COMPUTING CENTERS (AHPCC)	18931	21474	6319	6385	6796	7112	7475
733 ACQUISITION TECH ACT	9268	3248	5411	5408	5715	6198	6144
737 KNOWLEDGE MANAGEMENT FUSION	955	0	0	0	0	0	0
C16 FAST	2433	2507	2294	2314	2456	2561	2688
C18 BAST	1331	772	721	725	829	869	912

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

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605803A - Technical Information Activities**

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	45516	28520	28929
Current Budget (FY 2005 PB)	54182	42122	27713
Total Adjustments	8666	13602	-1216
Congressional program reductions		-371	
Congressional rescissions			
Congressional increases		15000	
Reprogrammings	8666	-1027	
SBIR/STTR Transfer			
Adjustments to Budget Years			-1216

Change Summary Explanation: Funding - FY 2003 - Funds increased to support priority efforts in Science and Technology and other acquisition strategic planning initiatives contributing to Army transformation.

FY 2004 - Increase due to a Congressional add (\$15000) to this PE to support the Army High Performance Computing Research Centers.

Projects with no R-2A:

(\$772- FY04; \$721 - FY05) BAST -- The Board on Science & Technology (BAST) provides the Department of the Army with independent advice on science and technology (S&T) issues. The board meets several times a year conducting fact finding on S&T issues, forecasting Army S&T needs and publishes its findings.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>	<b>PE NUMBER AND TITLE</b> <b>0605803A - Technical Information Activities</b>					<b>PROJECT</b> <b>720</b>	
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
720    TECH INFO FUNC ACTV	3536	2861	2614	2636	2784	2883	3011

**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 doing things that have never been done before in achieving the goals established by Senior Army Leadership for the Future Combat Systems and the Future Force. Specific activities supported include the Army support for Federal Laboratory Consortium (FLC) as required by Public Law; the Army Science Board; the Army Science Conference; and administration of the Army's Small Business Innovative Research (SBIR) and Small Business Technology Transfer Program (STTR) in accordance with the Small Business Research and Development Enhancement Act of 1992. Technology transfer activities make technical information available to both the public and private sectors to reduce duplication in R&D programs and to increase competitiveness in the U.S. business community. In addition, this project provides funding for patent legal expenses and fees for all Research, Development and Engineering Command (RDECOM) subordinate commands and laboratories. The requirement to fund patent activities is a result of the Omnibus Budget Reconciliation Act requiring the U. S. Patent and Trademark Office to become a completely user-fee funded agency. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). Work is performed by the Army Research Laboratory.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
- Provide Army funding support for Federal Laboratory Consortium as required by Public Law 104-113.	183	138	121
- Provide administrative and contractual support for the Army Science Board.	1151	839	796
- Provide administrative support for the Army's SBIR and STTR programs.	800	578	547
- Provide funding for patent fees and patent legal expenses for AMC commands and laboratories.	778	796	750
- Provide funding for S&T Strategic Planning and Support.	162	125	110
- Provide funding for the Army Science Conference.	462	311	290
Small Business Innovative Research/Small Business Technology Transfer Programs	0	74	0
<b>Totals</b>	<b>3536</b>	<b>2861</b>	<b>2614</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605803A - Technical Information Activities</b>	PROJECT <b>727</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
727    TECH INFO ACTIVITIES	13319	6879	6325	6629	7237	7594	8005

**A. Mission Description and Budget Item Justification:** This project supports development of decision aids, databases, and automation support for the management and execution of the Army Research, Development, Test and Evaluation (RDTE) Appropriation. It includes the hardware, software and contractor support required to develop and implement a set of management decision aids, databases, and hardware/software tools to support technical and budgetary decisions at the Office of the Secretary of Defense (OSD); Department of the Army (DA), including support of the Army Science and Technology Master Plan; Corps of Engineers' Engineer Research and Development Center (ERDC); and Research, Development and Engineering Command (RDECOM). Most of the efforts in this project are on-going activities to support Army Research, Development and Acquisition programs. Effective exploitation of S&T information is critical to do things that have never been done before in 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. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). Work is performed by the Army Research Laboratory.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
- Administer S&T database computer engineering support contract.	841	2053	1939
- Support Army S&T strategic planning, analysis, and prioritization.	7198	680	602
- Support RDECOM database and Defense Technology Area Plan (DTAP) management.	5280	3941	3784
Small Business Innovative Research/Small Business Technology Transfer Programs	0	205	0
<b>Totals</b>	<b>13319</b>	<b>6879</b>	<b>6325</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605803A - Technical Information Activities</b>	PROJECT <b>729</b>
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COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
729 YOUTH SCIENCE ACTIV	2260	2111	1914	1935	2083	2181	2291

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

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
- 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).	1403	1393	1335
- Sponsor joint Army/Navy Washington Regional Area SEAP and increase Army Laboratory/RDEC sponsorship of students	216	226	203
- 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.	191	197	167
- Conduct West Point cadet research internship program to enhance cadet training through field experience within Army research labs and centers.	450	232	209
Small Business Innovative Research/Small Business Technology Transfer Programs	0	63	0
<b>Totals</b>	<b>2260</b>	<b>2111</b>	<b>1914</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605803A - Technical Information Activities**

**PROJECT**  
**730**

COST (In Thousands)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate
730 PERS & TRNG ANALYS ACT	2149	2270	2115	2163	2312	2405	2526

**A. Mission Description and Budget Item Justification:** This project provides for the application of behavioral science-based data and analytical technologies by the U.S. Army Research Institute (ARI) for the Behavioral and Social Sciences to current and near-term training, leader development, and Soldier-related issues. The program is focused on policy issues to enhance Soldier performance, and provides the Army a unique capability for addressing such issues as the effects of training on individual and unit performance, the personnel costs of alternative programs and policies, and the effects of program changes on readiness and 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. 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, Alexandria, VA.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605803A - Technical Information Activities**

**PROJECT**  
**730**

**Accomplishments/Planned Program**

- In FY03, this research-based studies and analysis program identified training requirements of Battle Staff non-commissioned officers in digital units; assessed the effectiveness of the Basic Officer Leader Course; formulated a multi-skilled Soldier concept and outlined its applicability for the Stryker Brigade Combat Teams; conducted a comparative analysis of new aptitude area composites for MOS classification; validated alternative attrition screening measures for Army enlisted applicants; and evaluated different payment strategies for selective reenlistment bonuses. Studies in FY04 will assess the impacts and effectiveness of using sergeants in pay grade E-5 as drill sergeants; determine if Soldiers graduating from Basic Combat Training are adequately trained to succeed in Advanced Individual Training; assess the effectiveness of the Close Combat Tactical Trainer (CCTT) in preparing units for war; assess the impacts of the deployment for Operation Iraqi Freedom; recommend new screening tools to decrease attrition of high school diploma graduates; and evaluate the usefulness of the Non-commissioned Officer Leadership Skills Inventory (NLSI) for predicting drill sergeant duty performance and attrition. Content of the FY05 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, the Deputy Chief of Staff, G-1, and the U.S. Army Human Resources Command.

	FY 2003	FY 2004	FY 2005
	2149	2215	2115
Small Business Innovative Research/Small Business Technology Transfer Programs	0	55	0
<b>Totals</b>	<b>2149</b>	<b>2270</b>	<b>2115</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> <b>6 - Management support</b>	<b>PE NUMBER AND TITLE</b> <b>0605803A - Technical Information Activities</b>					<b>PROJECT</b> <b>731</b>		
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	
731 ARMY HIGH PERFORMANCE COMPUTING CENTERS (AHPCC)	18931	21474	6319	6385	6796	7112	7475	

**A. Mission Description and Budget Item Justification:** The work in this project directly supports Future Force requirements by providing high fidelity modeling, simulation, and analysis of materials, systems, and operational constructs to be employed within the Future Force. The project supports collaborative efforts to advance computational science and its application to critical Army technologies. The Centers work with researchers at Army laboratories to explore new algorithms in the computational sciences to address critical technology issues in numerous, diverse computational research areas. The Centers also sustain high performance computing environments and educational outreach as an integral part of their mission. The cited work is consistent with Army Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the defense Technology Area Plan (DTAP). Work is performed by the Army Research Laboratory (ARL).

<b><u>Accomplishments/Planned Program</u></b>	FY 2003	FY 2004	FY 2005
- Sustain the high performance computing environment and infrastructure in support of the US Army Tank & Automotive Research Development & Engineering Center (TARDEC)	2357	2199	2131
- Sustain the high performance computing environment and infrastructure in support of the Army High Performance Computing Research Center's (AHPCRC) research and education activities.	1214	1153	1143
- Sustain the high performance computing environment and infrastructure in support of the US Army Research Laboratory's Major Shared Research Center (MSRC)	3151	3043	3045
- Army High Performance Computing Research Center: In FY03 and FY04, Congressional funding provides funds to the Army High Performance Computer Research Center (AHPCRC) high performance computing systems and networks; user support; AHPCRC based staff scientist and research support staff; technology exchange (i.e. computational chemistry, fluid structure interactions); and summer institute programs, research activities, and outreach.	12209	14441	0
Small Business Innovative Research/Small Business Technology Transfer Programs	0	638	0
<b>Totals</b>	<b>18931</b>	<b>21474</b>	<b>6319</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605803A - Technical Information Activities</b>	PROJECT <b>733</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
733 ACQUISITION TECH ACT	9268	3248	5411	5408	5715	6198	6144

**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 supported analysis efforts at the Army Materiel Systems Analysis Activity (AMSAA) to conduct critical analyses for Army leadership in support of Army Transformation. These analyses are used by leadership in making acquisition, procurement, and logistics decisions in order to provide quality equipment and procedures to the Soldiers. In FY 2004 and beyond, these efforts will be supported in PE 0605706A, Project 541. 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).

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
- Analyzed the performance and combat effectiveness of materiel systems and technology base programs in support of Army leadership. Included are conduct of and support to analyses of alternatives (AoA). The funding directly supported efforts for the Future Combat System and Joint Tactical Radio System AoAs. Developed, modified, and maintained weapon system level methodologies, models, and simulations to be used in the conduct of systems analysis. A few examples of efforts include: modeling of military operations in urban terrain (MOUT), several aviation modeling improvements, search and target acquisition methodology improvements, signature management, and physics of failure modeling improvements.	6380	0	0

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605803A - Technical Information Activities**

**PROJECT**  
**733**

**Accomplishments/Planned Program (continued)**

- Validate simulation and logical modeling test and evaluation environment to provide a prototype development tool in support of tech base initiatives. 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, analytic/technical support for Army Science and Technology programs, 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.

- Conduct analysis and evaluation of new information technologies, and concepts and applications in integrated management activities, and support to meet the dynamic Army acquisition technology requirements.

Small Business Innovative Research/Small Business Technology Transfer Programs

Totals

FY 2003	FY 2004	FY 2005
1895	2235	3679
993	917	1732
0	96	0
9268	3248	5411

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605803A - Technical Information Activities</b>	PROJECT <b>C16</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
C16 FAST	2433	2507	2294	2314	2456	2561	2688

**A. Mission Description and Budget Item Justification:** The Field Assistance in Science and Technology (FAST) program focuses Army Materiel Command (AMC) resources to rapidly identify and solve Army field technical problems that enable the improvement of readiness, safety, training, and cut operations and support (O&S) costs. FAST tours of duty provide significant professional growth opportunities for the Army's scientists and engineers. Science advisers are recruited from RDECOM 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 the Research, Development and Engineering Command (RDECOM) subordinate commands 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 RDECOM's 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 RDECOM, Alexandria, VA.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
- 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.	2433	2441	2294
Small Business Innovative Research/Small Business Technology Transfer Programs	0	66	0
<b>Totals</b>	<b>2433</b>	<b>2507</b>	<b>2294</b>

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

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605805A - Munitions Standardization, Effectiveness and Safet**

COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost		30002	39783	14611	14558	17019	16570	17252
296	PYROTECHNIC RELIABILITY & SAFETY	862	865	791	778	823	866	908
297	MUN SURVIVABILITY & LOG	3754	7694	4156	4160	4386	4592	4817
857	DOD EXPLOSIVES SAFETY STANDARDS	745	762	695	730	1480	1548	1606
858	ARMY EXPLOSIVES SAFETY MANAGEMENT PROGRAM	473	474	421	409	430	391	452
859	LIFE CYCLE PILOT PROCESS	16056	21510	2164	2143	2254	2321	2399
862	FUZE TECHNOLOGY INTEGRATION	1883	1917	1728	1744	1836	1897	1971
F21	NATO SMALL ARMS EVAL	466	466	412	412	434	454	478
F24	CONVENTION AMMO DEMIL	5763	6095	4244	4182	5376	4501	4621

**A. Mission Description and Budget Item Justification:** This Program Element supports continuing technology investigations. It provides a coordinated tri-service mechanism for the collection and free exchange of technical data on the performance and effectiveness of all non-nuclear munitions and weapons systems in a realistic operational environment. It provides for NATO interchangeability testing (F21); joint munition effectiveness manuals used by all services; development of standardization agreements (STANAGS) and associated Manuals of Proof and Inspection (MOPI); operation of the North American Regional Test Center (NARTC); evaluation of demilitarization methods for existing conventional ammunition (F24); evaluation of useful shelf life, safety, reliability and producibility of pyrotechnic munitions; and improvement of explosives safety criteria for DOD munitions via the DOD Explosives Safety Board (857). Pyrotechnic Reliability and Safety (M296) supports pyrotechnic research, development and testing to identify, characterize and resolve reliability, safety, storage and manufacturing issues that impact production availability and field use of pyrotechnics. It will result in the development and demonstration of new, safe, reliable and environmentally acceptable munitions. Munitions Survivability and Logistics (D297) will make Army units more survivable by testing and demonstrating munitions logistics system solutions that prevent or minimize catastrophic explosive events and accelerate ammunition resupply. The Army Explosives Safety Management Program (M858) was established in FY01. The U.S. Army Technical Center for Explosives Safety use 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) (M859) will assess production base capabilities and needs over the acquisition life cycle of various ammunitions, address the producibility of ammunition, transition to type classification and production, and address the ability of the production base to cost effectively produce quality products on schedule. The Fuze Technology Integration program (D862) will improve performance and lower the cost for existing proximity fuzes and enable new applications in submunitions and medium caliber fuzes, addressing advanced proximity fuze sensor technology, Micro-electromechanical Systems (MEMS), Safe and Arms (S&A) technology, and Electronic S&A (ESA) technology for smart munitions. These systems support the Current transition path of the Transformation Campaign Pla

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605805A - Munitions Standardization, Effectiveness and Safet**

n (TCP).

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	30029	19855	19627
Current Budget (FY 2005 PB)	30002	39783	14611
Total Adjustments	-27	19928	-5016
Congressional program reductions			
Congressional rescissions		-350	
Congressional increases		21250	
Reprogrammings	-27	-972	
SBIR/STTR Transfer			
Adjustments to Budget Years			-5016

FY 2004: Funds increased (+\$21.3M) due to Congressional Adds for Life Cycle Pilot Process efforts (+\$19.8M) and Conventional Ammo Demil efforts (+\$1.5M). Funds realigned (-\$1.0M) to higher priority requirements.

FY 2005: Funds transferred (-\$2.8M) to Operations and Maintenance, Army, in accordance with Army policy to program all base operations in Operations and Maintenance, Army; these funds represent base operations cost for a Research and Development tenant activity. Funds realigned (-\$2.2M) to higher priority requirements.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605805A - Munitions Standardization, Effectiveness and Safet</b>	PROJECT <b>297</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
297      MUN SURVIVABILITY & LOG	3754	7694	4156	4160	4386	4592	4817

**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.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Develop advanced materials for munitions packaging or ballistic blankets/barriers to minimize the impact of bullets and fragments and therefore reduce reaction to unplanned stimuli. FY03-Conducted market survey and evaluated advanced materials for ballistic barriers.	100	0	0
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. FY03-Conducted IM and rough handling tests of a full-scale prototype scored container for the Modular Ammo Charge System (MACS), evaluated designs for application to tank ammunition. FY04 - Conduct additional IM and rough handling tests of a full-scale prototype scored MACS container and adapt container design for tank munitions.	436	192	0
Develop a Guided Multiple Launch Rocket System (GMLRS) Grenade High Explosive Replacement by substituting PAX2A IM explosive (a less sensitive HE replacement for Comp-A in the M85 Grenade) to enable munitions to burn rather than detonate in cook-off environments. FY03-Conducted IM, performance, and safety tests, completed HE down selection. FY04-Conduct reloaded grenade study, and IM and arena tests, transition.	418	291	0

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605805A - Munitions Standardization, Effectiveness and Safet**

**PROJECT**  
**297**

**Accomplishments/Planned Program (continued)**

	FY 2003	FY 2004	FY 2005
Develop a less sensitive high performance melt castable explosive to replace Composition B explosive in mortars, 2.75" rockets/APKWS, and other warheads for reduced sensitivity to unplanned stimuli. FY03-Completed explosive formulation and conducted small scale safety and performance tests. FY04-Conduct large scale IM testing, refine formulation. FY05-Continue large scale IM testing and performance and safety testing, on specific munition items.	365	450	433
Develop alternate low temperature gas generating mixtures that are added to explosives to 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. FY03- Refined additive formulation, conducted small scale performance, IM, and compatibility tests. FY04-Evaluate explosive and additive formulations, test to determine percentage of additive in selected high explosive warhead. FY05-Conduct bursting warhead demonstration and IM tests on selected warhead, transition.	377	413	395
Conduct reviews of munitions in development and production to determine if they meet DoD 5000.2-R requirement to withstand unplanned stimuli, recommend technical approaches to meet the requirement, update and maintain IM compliance status database. Manage the IM waiver process for the Army. FY03-Conducted quarterly IM reviews, updated IM database. FY04-Conduct quarterly IM reviews, update IM database. FY05- Conduct quarterly IM reviews, update IM database.	86	218	347
Eliminate or minimize the possibility of expelling grenades from the 155mm M864 projectile in heated or fire environment by developing IM expulsion technologies such as IM propellant and a venting system; and eliminate or reduce the violent reactions of the projectile when it is subjected to unplanned stimuli by replacing the Comp A5 with PAX 2A IM explosive. FY04- Optimize expulsion charge explosive formulations, develop propellant neutralization formulations, investigate eutectic materials, and conduct engineering and IM tests. FY05- Down select neutralization technologies, complete IM tests and system level qualification and safety tests, transition.	0	417	374
Evaluate the chemical and mechanical properties of various foreign produced less sensitive RDX explosives. Modify US developed RDX to reduce its sensitivity based on the findings. FY03 – Analyze properties of alternative foreign produced less sensitive RDX explosives FY04 - Complete IM baseline tests and evaluation of alternative foreign produced RDX explosives. FY05 - Implement candidate explosive materials in US developed RDX and conduct small scale IM tests.	114	399	347
Evaluate and develop IM technologies for the M67 Grenade including replacing Comp B explosive with new IM explosive, redesigning the fuze with less sensitive energetic material, changing the location of the fuze, and adding barrier material if necessary. FY03: Completed engineering and IM baseline evaluations. FY04: Conduct evaluation of potential IM technologies. FY05: Complete test and evaluation of final IM grenade design.	41	394	258

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605805A - Munitions Standardization, Effectiveness and Safet**

PROJECT  
**297**

**Accomplishments/Planned Program (continued)**

	FY 2003	FY 2004	FY 2005
Replace current High Explosive (HE) fill with a less sensitive HE and redesign packaging as necessary to make the 40mm M430A1 HE Dual Purpose cartridge IM compliant and enhance survivability. FY03-Conducted IM explosive evaluation. FY04-Determine best IM solutions, fabricate and test cartridges. FY05-Conduct IM and qualification tests.	134	291	258
Develop an M2A1 single container consolidator device that will eliminate the wirebound wood overwrap currently used to package two containers together. This will reduce the weight, size, and cost of the overall configuration. FY03-Completed prototype fabrication and conducted qualification testing for small caliber ammo containers. FY04 – Transition small caliber ammo container consolidator device and adapt design for mortar ammunition application.	205	127	0
Develop an advanced materials container that will hold 6 M67 Fragment Grenades and reduce hazard classification. This will enable Brigade Combat Teams to meet their requirement to ship and store these grenades in Strategic Configured Loads (SCL) with nearly all other ammunition. FY03-Fabricated prototype containers, conducted rough handling and hazard tests.	129	0	0
Redesign the rims/rings of current square rimmed cylindrical tank and artillery munitions containers to function as external cushioning and withstand stacking loads thereby eliminating the need for internal foam cushioning for shock mitigation. Develop a lightweight vented container cover. These improvements will reduce container weight and cube and improve IM performance. FY04-Design and fabricate rims/rings, fabricate covers and conduct rough handling and limited IM tests FY05-Develop prototype containers using advanced materials, conduct engineering testing, complete evaluation and final report, transition.	0	323	500
Develop 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. FY03-Completed software design of interactivity enhancements. FY04-Conduct field tests and modify software. FY05-Complete modifications, conduct final test and transition.	863	660	895
Develop robotic capability for truck or, flatrack mounted modular cranes to enable the rapid in-theater building of mission configured munition loads for improved distribution velocity and mission transition agility. FY03-Developed and integrated laser vision software and hardware, implemented performance, safety, and stability logic enhancements into controller, completed end effector development. FY04-Complete development of software based controller.	390	242	100

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605805A - Munitions Standardization, Effectiveness and Safet**

**PROJECT**  
**297**

**Accomplishments/Planned Program (continued)**

	FY 2003	FY 2004	FY 2005
Develop and demonstrate a pallet/individual munition level environmental sensor suite (shock, temperature, humidity, etc.) and reader system that will monitor and predict munitions reliability to ensure that only fully ready munitions move forward through the logistics system to the warfighter. Benefits include reduced logistics footprint, improved surveillance methodology and reduce surveillance operations and support costs. FY03-Developed data reader and completed Ammo Surveillance Information System integration. FY04-Conduct field prototype demonstrations and transition.	96	98	0
Develop and demonstrate multiple sized standardized modules for all classes of supplies including ammunition. The modules interlock with each other and cargo platforms to form a stable palletized mixed supply class configured load. They are automation friendly and rapidly re-configurable to meet changing user needs. FY04 – Develop Sustainment Module requirements and concepts. FY05 – Design modules and interlock devices	0	338	249
Base Operations Cost for a Research and Development Activity.	0	2612	0
Small Business Innovative Research/Small Business Technology Transfer Programs.	0	229	0
<b>Totals</b>	<b>3754</b>	<b>7694</b>	<b>4156</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605805A - Munitions Standardization,  
Effectiveness and Safet**

PROJECT  
**859**

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
859 LIFE CYCLE PILOT PROCESS	16056	21510	2164	2143	2254	2321	2399

**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. Total Ownership 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.

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Continue ongoing technology investigations. Develop concept designs and plans to transfer life cycle pilot process technology into the supplier base.	2756	1400	884
Perform production base readiness assessments to analyze present capabilities and identify trends in munitions and industrial technology.	500	420	480
Develop "pilot" prototype processes for critical ammunition end items and components necessary to establish quality, affordable, and environmentally safe production.	3700	700	800
Establish framework and operations for NJ Nanotechnology and Micro-Electromechanical Systems (MEMS) consortium in support of ammunition production modernization.	1400	2000	0
Establish framework and operations for Nanotechnology Manufacturing RDE Center in support of ammunition production modernization.	1400	1400	0
Under the Public Private Partnership program, establish and enhance prototype manufacturing utilizing commercially available off-the-shelf equipment.	6300	3150	0
Develop a new x-ray inspection system for munitions using a Cadmium Zinc Telluride (CZT) detector for Automated Munitions Inspections and Surveillance.	0	2400	0
Establish processes to eliminate safety concerns and achieve net-shape manufacturing of Advanced Cluster Energetic materials by developing novel coating and handling processes to support Insensitive Munitions (IM) explosive fill and castable propellant grains.	0	2100	0
Develop generic Micro-Electromechanical Systems Inertial Measurement Unit(MEMS IMU) high volume manufacturing process for precision munitions.	0	1800	0

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605805A - Munitions Standardization,  
 Effectiveness and Safet**

PROJECT  
**859**

**Accomplishments/Planned Program (continued)**

	FY 2003	FY 2004	FY 2005
Establish Government, Industry and Academia partnership to support the development of Metal Matrix Composite (MMC) prototype Technologies for Munitions application.	0	5500	0
Small Business Innovative Research/Small Business Technology Transfer Programs.	0	640	0
<b>Totals</b>	<b>16056</b>	<b>21510</b>	<b>2164</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605805A - Munitions Standardization, Effectiveness and Safet</b>	PROJECT <b>862</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
862 FUZE TECHNOLOGY INTEGRATION	1883	1917	1728	1744	1836	1897	1971

**A. Mission Description and Budget Item Justification:** This program supports technology investigations in the areas of munition fuzing and safe and arming (S&A). The program addresses four major areas: Second source development, including a battery separator material source development, a second source Monolithic Microwave Integrated Circuit (MMIC) for artillery and mortar fuzes and a second source signal processor for mortars; Block upgrades for artillery ammunition; Block upgrades for mortar ammunition, including a second environmental safety for non-spinning projectiles and a gun hardened electronic S&A for mortars; and Legacy fuze risk reduction, including battery aging studies, increased reliability of ammunition and an alternative self destruct design. Development and demonstration of second sources for fuzing systems will reduce cost by providing competition, update components with the latest technology advances and maintain production when sources or parts are no longer available. Block upgrades for artillery and mortar fuzes will enable the introduction of the latest technologies into fuzing, keep the fuzing design current to avoid obsolescence issues and add capabilities. Legacy fuze risk reduction will allow for the performance enhancement of current ammunition items by conducting aging studies of major fuze components to detect and identify latent defects and weak designs. This project supports the Legacy transition path on the Transformation campaign Plan (TCP).

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Legacy Fuze Risk Reduction: Predict/evaluate fuze stockpile, conduct fuze dud reduction effort, develop self destruct fuze alternatives. Evaluate storage reliability of current artillery batteries/determine possible solutions to battery electrolyte storage instabilities. Develop improvements to stockpiled training and war reserve fuzes to enhance capabilities and/or address deficiencies.	500	350	450
Second Source Development: Develop new sources for battery separator material, tuning fork crystal for artillery time fuzes, new source for Monolithic Microwave Integrated Circuits (MMICs) used in artillery and mortar fuzes, develop new battery and electronics sources for legacy fuzes. Purchased Non-Developmental Item (NDI) batteries for testing and battery aging study.	983	710	578
Block Upgrades for Artillery: Develop drop in proximity upgrades for current artillery fuzing. Complete breadboard design of new artillery processor. Translate medium caliber Microelectromechanical (MEMS) Safety and Arming device to artillery. Develop MEMS environmental impact sensors. Evaluate proximity sensor technologies inclusive of ultrawideband (UWB), all digital and clutter resistant air target sensors. Task order contract awarded to University of Florida to conduct designs and experiments on UWB and clutter resistant air target sensors.	0	500	700

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**6 - Management support**

PE NUMBER AND TITLE  
**0605805A - Munitions Standardization,  
 Effectiveness and Safet**

PROJECT  
**862**

**Accomplishments/Planned Program (continued)**

Block Upgrades for Mortars: Develop second safety sensors for non-spinning projectiles. RF sensors fabricated and tested on mortars. Contract awarded for testing of new magnetic sensor, additional magnetic sensor contract to be awarded in FY03. Develop proximity sensor upgrades for M734A1 and gun hardened Electronic Safety and Arming Devices (ESADs) for mortars. ESAD parts being purchased and assembled for FY03 firing tests. MEMS impact sensor development, PD/DLY fuze upgrades and insertion of inductive setting capability into mortars.

FY 2003	FY 2004	FY 2005
400	300	0
0	57	0
1883	1917	1728

Small Business Innovative Research/Small Business Technology Transfer Programs.

Totals

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

**PE NUMBER AND TITLE**  
**0605805A - Munitions Standardization, Effectiveness and Safet**

**PROJECT**  
**F24**

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
F24 CONVENTION AMMO DEMIL	5763	6095	4244	4182	5376	4501	4621

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

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Prove-out prototype plasma arc technology for conventional ammunition and resource recovery potential.	3239	1314	0
Install and prove-out Cryofracture demilitarization process for Anti-Personnel Landmines and other munitions.	1484	800	0
Development of integrated cryofracture/plasma arc technology on a mobile platform	0	1500	0
Development of recycle/reuse technology for magnesium/aluminum	260	500	1602
Development of enhanced flexible energetic material handling automation upgrade capabilities sized to real time requirements	0	0	900
Development, installation and prove out of transportable alternative materials recovery capabilities for various energetic components	780	1800	0
Multi-based propellant recovery technology application	0	0	900
Development of advanced resource recovery/reuse technology for explosives	0	0	842
Small Business Innovative Research/Small Business Technology Transfer Programs	0	181	0
<b>Totals</b>	<b>5763</b>	<b>6095</b>	<b>4244</b>

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

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

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	1794	4780	4527	4434	4424	4645	4891
031 ACQUISITION POLLUTION PREVENTION	1498	3258	2973	2967	3162	3340	3540
06E ENVIRONMENTAL RESTORATION TECH SUPPORT	153	183	190	0	0	0	0
06G ENVIRONMENTAL COMPLIANCE TECHNOLOGY SUPPORT	143	179	315	420	149	156	164
06H UNEXPLODED ORDNANCE CLEARANCE TECHNOLOGY SUPPORT	0	1160	1049	1047	1113	1149	1187

**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 Army Acquisition Pollution Prevention Project (A2P3).

The Army Acquisition Pollution Prevention Project provides support to the weapon system acquisition community; e.g., program and project managers, to integrate environmental quality analyses into system acquisition. The A2P3 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, resource management support of transfer technology 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

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

February 2004

BUDGET ACTIVITY  
**6 - Management support**

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

to the military construction process; and (3) evaluate and validate improved designs for ranges that incorporate erosion and contaminant control technologies for current range problems and to support future sustainable range designs.

The Unexploded Ordnance Detection and Clearance (JUXOCO) project will, beginning in FY2004, be overseen by the Army. The project has been overseen by office of the Secretary of Defense prior to FY2004. This project funds the Joint Unexploded Ordnance Coordination Office (JUXOCO) of the Unexploded Ordnance Center of Excellence (UXOCOE) to develop policy and provide oversight in coordinating requirements and technology in detection and clearance of unexploded ordnance (UXO) within the Department of Defense (DoD).

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	1820	4938	5217
Current Budget (FY 2005 PB)	1794	4780	4527
Total Adjustments	-26	-158	-690
Congressional program reductions		-43	
Congressional rescissions			
Congressional increases			
Reprogrammings	-26	-115	
SBIR/STTR Transfer			
Adjustments to Budget Years			-690

Change Summary Explanation: Funding - FY2005: Funds realigned (-\$690) to support higher priority requirements.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605857A - Environmental Quality Technology Mgmt Support</b>	PROJECT <b>031</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
031 ACQUISITION POLLUTION PREVENTION	1498	3258	2973	2967	3162	3340	3540

**A. Mission Description and Budget Item Justification:** The Army Acquisition Pollution Prevention Project (A2P3) provides support to the weapon system acquisition community to integrate environmental quality issues and concerns into the weapon system acquisition process. The Army Acquisition Executive, the Assistant Secretary of the Army (Acquisition, Logistics, and Technology), and the Commanding General, Army Materiel Command have defined the functions of A2P3 in coordination with the office of the Assistant Secretary of the Army for Installations and Environment. This project supports acquisition policy support for the environmental quality concerns of Program Executive Officers and Program Managers and environmental training for the weapon system acquisition community. A2P3 helps the Army achieve environmental compliance with its weapon systems directed by international treaties, Federal statutes, National Emission Standards, Executive Orders, and DoD and Army policies and regulations.

Army Acquisition Pollution Prevention Project funds weapon system acquisition support to the Army's Environmental Technology Technical Council and coordinates environmental quality related weapon systems' needs for expanded research and development efforts. A2P3 tasks are executed using appropriate Army research, development, and engineering centers; Army laboratories; and contractor facilities. Technologies are assessed for toxicity and safety risk and are implemented by weapon system Program Managers 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.

Army Acquisition Pollution Prevention Project includes Army efforts to eliminate the use of ozone-depleting substances from weapon systems and facilities, the Army Halon 1301 reserve, and Army acquisition efforts to eliminate the use of hazardous and toxic materials on Army weapon systems. A2P3 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 A2P3 is on readiness, improved acquisition processes, reduced supportability burden, and total ownership cost reduction. A2P3 includes support to the Joint Group for Pollution Prevention (JG-PP).

This project supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**6 - Management support**

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

PROJECT  
**031**

**Accomplishments/Planned Program**

- Acquisition pollution prevention RDT&E program management and oversight of technology integration efforts by Army major subordinate commands and weapon system program environmental integrated process teams. Participation and technical assistance in integrating pollution prevention technologies into system engineering activities. Technology management with weapon system environmental management teams to implement DoD/Army policies related to hazardous and toxic materials, ozone depleting substances and environmental management systems to reduce environmental risks to acquisition programs. Provided oversight to seven integrated process teams addressing environmental quality issues from Army commodities including participation in the Stryker Armored Vehicle and Comanche environment management teams. Provide technology management support across commodity areas for the Future Combat Systems and represent the Army Acquisition Community in development of Environmental Analyses related to Army Transformation.

FY 2003	FY 2004	FY 2005
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667	664	501
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# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

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

**PROJECT**  
**031**

**Accomplishments/Planned Program (continued)**

- Technical management and oversight of the Army's reserve of ozone depleting substances. Includes oversight of Army programs developing alternative substances 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 substances, 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 current weapon systems (FY 2030). Includes participation in Federal government and multi-national forums discussing use of ozone depleting substances, justifying mission critical applications, and addressing importation and use legislation throughout overseas field locations. Provided support to the warfighter for both Operation Enduring Freedom and Operation Iraq Freedom for Halon support needs. Achieved elimination of ozone depleting substances used in solvent applications; initiated retrofit of NBC Fox vehicles tactical cooling; working retrofit to tactical ambulance cooling; and currently overseeing development of CO2 alternatives and supporting implementation of non-ozone depleting substance explosion and fire suppression in the Stryker Armored Vehicle.

FY 2003	FY 2004	FY 2005
180	360	378

- Technical management and oversight of health hazard and toxicity assessment of pollution prevention technology (materials and chemicals used in weapon system configuration, production, maintenance and operation). Army regulation requires 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 performance risk decisions for implementing pollution prevention technologies. Provided technology management of toxicity assessments of alternatives to Halon 1301 used in fire suppression systems, alternatives to cadmium plating, and alternatives hexavalent chromium used in painting processes.

150	208	221
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# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**6 - Management support**

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

PROJECT  
**031**

**Accomplishments/Planned Program (continued)**

- Technical 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 assessments and revisions of contractual and operational requirements for successful technology integration, operations, and support. Accomplished through direct participation in weapon system environmental management teams located at major subordinate commands. Includes technology management and participation in documentation and review processes supporting weapon system program milestone decisions. Directly supported elimination of cadmium, hex chrome, and Halon from the Stryker Armored Vehicle and other ground combat systems. Developed an Environmental Management System for Future Combat Systems, reviewed environmental statutes and regulations affecting communications-electronic commodities, and prepared environmental documentation for operational requirements documents in preparation for milestone reviews.

FY 2003	FY 2004	FY 2005
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206	585	543
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- Technology management, technical support and representation of the Army Materiel Command (AMC) on the Joint Logistics Commander's Joint Group for Pollution Prevention. Includes coordination of technology requirements among service members, coordination of technology and operational requirements among Army program managers, management and oversight for developing joint test protocols, oversight of testing activities, and technical data analysis of test results to support systems engineering decision making.

120	132	178
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# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**6 - Management support**

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

PROJECT  
**031**

**Accomplishments/Planned Program (continued)**

- Technology management, technical support, and representation of the AMC voting member of the Army's Environmental Quality Technology program's Environmental Technology Technical Council (ETTC). Includes coordination of Technology Base (RDT&E Budget Activities 1 & 2) requirements among members of the ETTC Pollution Prevention Technology Team, coordination of technology and operational requirements in support of RDT&E Budget Activities 3 and Budget Activities 4 evaluations in support of weapon system platform integration, management and oversight for developing test plans, oversight of testing activities, and technical data analysis of test results to support weapon systems engineering decision making. Participation in performance and cost/risk assessments in support of Assistant Secretary of the Army (Installations and Environment) [ASA(I&E)] program objectives. Manage development and execution of plans for pollution prevention technology development including Sustainable Painting Operations for the Total Army (SPOTA) that addresses Army compliance with impending National Emission Standards for Hazardous Air Pollutants (NESHAPs) through pollution prevention.

FY 2003	FY 2004	FY 2005
175	576	543

175

576

543

- 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 quality issues associated with weapon system fielding (operation and support). Coordination and information transfer supporting materiel fielding. Analysis of impending legal statutes impacting production, operation and support of weapon systems. Assessment of readiness impacts to weapon systems resulting from impacts in capabilities of industrial base and garrisons to support production levels, training and operational tempo and maintenance activities. Participate with Assistant Chief of Staff for Installation Management and ASA(I&E) representatives in assessing the readiness implications of impending National Emission Standards for Hazardous Air Pollutants (NESHAP) on Army industrial base and garrison activities. Oversee evaluation of impacts of impending NESHAPs on Army Transformation and fielding of the Stryker Brigade Combat Teams. Provide Army Acquisition Community representation in development of Environmental Analyses for Army Transformation including local Environmental Impact Statements.

0

637

609

- Small Business Innovative Research/Small Business Technology Transfer Programs

0

96

0

<b>Totals</b>	<b>1498</b>	<b>3258</b>	<b>2973</b>
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1498

3258

2973

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605857A - Environmental Quality Technology Mgmt Support</b>	PROJECT <b>06H</b>					
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
06H UNEXPLODED ORDNANCE CLEARANCE TECHNOLOGY SUPPORT	0	1160	1049	1047	1113	1149	1187

**A. Mission Description and Budget Item Justification:** This project was transferred to the Army from the office of the Under Secretary of Defense for Acquisition and Technology. This project funds the Joint Unexploded Ordnance Coordination Office (JUXOCO) of the Unexploded Ordnance Center of Excellence (UXOCOE) to develop policy and provide oversight in coordinating requirements and technology in detection and clearance of unexploded ordnance (UXO) within the Department of Defense (DoD), as well as with other United States and international agencies, academia, and industry. The DoD Executive Agent for the National Defense Center for Environmental Excellence (NDCEE) will oversee and coordinate this project on behalf of the office of the Under Secretary of Defense for Acquisition and Technology. In addition, this project funds the establishment and maintenance of standards for testing, modeling, and evaluation of unexploded ordnance detection and clearance technology and gathers and maintains a database for the results of these efforts.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Conduct requirements and technology workshops to coordinate and improve the efficiency of technological thrusts of DoD UXO RDT&E.	0	120	115
Coordinate/collect/analyze UXO RDT&E information via conferences, seminars, and workshops.	0	305	347
Generate an annual UXO Clearance Report focused on UXO RDT&E efforts for countermine, explosive ordnance disposal, UXO remediation, humanitarian demining, and active range clearance).	0	187	178
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.	0	291	273
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.	0	222	136
Small Business Innovative Research/Small Business Technology Transfer Programs.	0	35	0

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**6 - Management support**

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

PROJECT  
**06H**

Accomplishments/Planned Program (continued)

	FY 2003	FY 2004	FY 2005
Totals	0	1160	1049

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

February 2004

BUDGET ACTIVITY <b>6 - Management support</b>	PE NUMBER AND TITLE <b>0605898A - Management Headquarters (Research and Development)</b>	PROJECT <b>M65</b>
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COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M65 ARMY TEST AND EVALUATION COMMAND (ATEC)	10855	11818	11575	12177	12414	12398	12548

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

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Civilian labor and other support required to manage and administer the Army test and evaluation mission at ATEC.	10855	8716	11575
Congressional Add for Domestic Preparedness Against Weapons of Mass Destruction First Responder Training at NTPI.	0	3000	0
Small Business Innovative Research/Small business Technology Transfer Programs	0	102	0
<b>Totals</b>	<b>10855</b>	<b>11818</b>	<b>11575</b>

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

February 2004

**BUDGET ACTIVITY**  
**6 - Management support**

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

**PROJECT**  
**M65**

<b><u>B. Program Change Summary</u></b>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	9991	8995	8536
Current Budget (FY 2005 PB)	10855	11818	11575
Total Adjustments	864	2823	3039
Congressional program reductions		-102	
Congressional rescissions			
Congressional increases		3000	
Reprogrammings	864	-75	
SBIR/STTR Transfer			
Adjustments to Budget Years			3039

Change Summary Explanation: Funding - FY 2004: Increase due to Congressional Add for Domestic Preparedness Against Weapons of Mass Destruction First Responder Training at NTPI which will be reprogrammed to PE 0203610A, Domestic Preparedness Against Weapons of Mass Destruction, for proper execution.  
 Funding - FY 2005: Funds realigned to address a civilian pay shortfall (+3039).

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

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)						<b>PROJECT</b> E55		
COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
E55 JNT LAND ATK MSL DEF ELEVATED NETTED SENSOR-JLENS		33489	58397	81514	110561	260253	472603	335890	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The Under Secretary of Defense (Acquisition and Technology) and the Army Acquisition Executive (AAE) directed the establishment of the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) Project Office (PO), for Land Attack Cruise Missile Defense (LACMD). This is a multiservice effort with the Army as the lead service. The JLENS PO is assigned to the Program Executive Office for Air, Space and Missile Defense. JLENS is a Future Force theater level system that meets the requirements of the Army transformation. JLENS uses advanced sensor and networking technologies to provide precision tracking and 360-degree wide-area over-the-horizon surveillance of land attack cruise missiles. A joint program, JLENS performs as a multi-role platform to enable extended range command and control linkages. A key element of the Army transformation Single Integrated Air Picture (SIAP), JLENS integrates data from multiple sensors and Command, Control, Communications, Computers Intelligence Surveillance and Reconnaissance (C4ISR) networks by providing correlated fire control and surveillance data. The JLENS system supports the future force transformation path of the Transformation Campaign Plan (TCP).

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Continue contract design and development.	23627	41715	66553
Continue work on lightweight x-band radar technology.	914	0	0
Other contracts and OGA.	4789	8069	8529
Project Management	4159	6952	6432
Small Business Innovative Research/Small Business Technology Transfer Programs	0	1661	0
<b>Totals</b>	<b>33489</b>	<b>58397</b>	<b>81514</b>

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**E55**

<b><u>B. Program Change Summary</u></b>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	28792	57549	56420
Current Budget (FY 2005 PB)	33489	58397	81514
Total Adjustments	4697	848	25094
Congressional program reductions		-556	
Congressional rescissions			
Congressional increases		1500	
Reprogrammings	4697	-96	
SBIR/STTR Transfer			
Adjustments to Budget Years			25094

FY05 - Funding increased for Cruise Missile Defense acceleration program.

<b><u>C. Other Program Funding Summary</u></b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
BZ0525 - JLENS	0	0	0	0	0	0	28389	0	28389

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

**February 2004**

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**E55**

**D. Acquisition Strategy:** An initial capability is being developed (Spiral 1) and consists of a 35-meter class aerostat with a modified SENTINEL Enhanced Tracking Range and Classification (ETRAC) sensor system employing a 360-degree fire control and surveillance capability that will be available by 4QFY05. JLENS will design, develop, fabricate, integrate and test System Development and Demonstration (SDD) systems by 4QFY10. A JLENS system consists of a Precision Track Illumination Radar (PTIR), and a Surveillance Radar (SR), each with its own aerostat platform, mobile mooring station, mobile processing station, and associated ground support equipment. This SDD system can provide a contingency capability as early as FY08 should it be required. Developmental Test and Evaluation (DT&E) and Initial Operational Test and Evaluation (IOT&E) will be conducted in FY09-FY10 culminating in a First Unit Equipped (FUE) by 4QFY10.

# ARMY RDT&E COST ANALYSIS(R3)

February 2004

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**E55**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Concept Definition	CPFF	H&R/MA & CA	2007	0		0		0		0	2007	0
b . Concept Definition	CPFF	Lockheed Martin/N.Y./OH/AL	2000	0		0		0		0	2000	0
c . Concept Definition	CPFF	Northrop Grumman/MD	1981	0		0		0		0	1981	0
d . OGAs	MIPR	Multiple	14815	472		796		637		Continue	16720	Continue
e . Risk Mitigation, Design, Development	CR/CPFF	Raytheon System Co. MA/CA/FL	84895	23627		43376		66553		Continue	218451	Continue
g . GFE			1201	0		0		0		0	1201	0
h . CEC/ SM-2 CEC	MIPR	Navy/Multiple	4219	0		0		0		0	4219	0
i . Design/Dev/Demo Support	CPFF	CAS/AL	10024	2310		3892		4561		Continue	20787	Continue
j . Misc. Contracts	SS/CPFF	Multiple	5469	842		1419		1027		Continue	8757	Continue
k . ADaM			1800	0		0		0		0	1800	0
l . AOA/ORD/TEMP/MS B Prep			2235	987		1663		1876		0	6761	0
m . Lightweight x-band radar antenna			1897	914		0		0		0	2811	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**E55**

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
n . In-House JLENS		PEO AMD, HSV, AL	16692	4159		6952		6432		0	34235	0
Subtotal:			149235	33311		58098		81086		Continue	321730	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Misc Support			2084	0		0		0		0	2084	0
Subtotal:			2084	0		0		0		0	2084	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**E55**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Maintain Test Bed	SS/CPFF	CAS-TX, NM	2450	178		299		428		0	3355	0
b . Misc. OGA&Contracts	Mul/MPR	AL/TX/NM	1656	0		0		0		0	1656	0
Subtotal:			4106	178		299		428		0	5011	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

Project Total Cost:			155425	33489		58397		81514		Continue	328825	Continue
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

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

PROJECT  
E55

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(1) ORD AROC					▲1																											
(2) ORD JROC									▲2																							
(3) MS B													▲3																			
(4) MS C																																▲4
CMD Acceleration:																																
(5) PDR																					▲5											
(6) CDR																									▲6							
71M PTIR System													Development								Elevated Test											
71M SR System													Development								Elevated Test											
Government Testing																													DT&E			

## Schedule Detail (R4a Exhibit)

**February 2004**

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)</b>	PROJECT <b>E55</b>
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<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
ORD AROC	1Q						
ORD JROC		2Q					
MS B			2Q				
MS C							4Q

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

February 2004

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	44959	28599	17994	17393	13021	11174	10550	Continuing	Continuing
322 ADV FA TAC DATA SYS/EFF CNTRL SYS (AFATDS/ECS)	40688	26704	17994	17393	13021	11174	10550	Continuing	Continuing
33C IMPROVED POSITION AZIMUTH DETERMINING SYS (IPADS)	4271	1895	0	0	0	0	0	0	6166

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

The AFATDS provides Army, Navy and Marine Corps automated fire support command, control and communications. AFATDS pairs targets to weapons to provide maximum use of fire support assets. AFATDS automates the planning, coordinating and controlling of all fire support assets (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 (CHS) 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. 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 Navy and Air Force Command and Control weapon systems, and the German, French, British, and Italian fire support systems. This system supports the Current-to-Future Force transition path of the Transformation Campaign Plan (TCP).

Improved Position Azimuth Determining System (IPADS) supports modernization of the Army's Field Artillery and Air Defense Artillery survey capabilities. This system supports Current-to-Future Force transition path of the Transformation Campaign Plan (TCP).

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	44978	28917	22551
Current Budget (FY 2005 PB)	44959	28599	17994
Total Adjustments	-19	-318	-4557
Congressional program reductions		-271	
Congressional rescissions			
Congressional increases			
Reprogrammings	-19	-47	
SBIR/STTR Transfer			
Adjustments to Budget Years			-4557

FY05 funds realigned (\$4557K) to higher priority requirements.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 0203726A - Adv Field Artillery Tactical Data System					<b>PROJECT</b> 322			
COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
322	ADV FA TAC DATA SYS/EFF CNTRL SYS (AFATDS/ECS)	40688	26704	17994	17393	13021	11174	10550	Continuing	Continuing

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

The AFATDS provides Army, Navy and Marine Corps automated fire support command, control and communications. AFATDS perform 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 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. This system supports the Current-to-Future Force transition path of the Transformation Campaign Plan (TCP).

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Prepare and Support AFATDS Version 6.4 Test and Materiel Release	2999	5568	1242
Army Battle Command System (ABCS) System Engineering and Integration Efforts.	642	0	0
Continue AFATDS Version 6.3, AFATDS Version 6.4 and subsequent software effort.	37047	20390	16752
Small Business Innovative Research/Small Business Technology Transfer Program	0	746	0
<b>Totals</b>	<b>40688</b>	<b>26704</b>	<b>17994</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**322**

<b>B. Other Program Funding Summary</b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
OPA (B28600)	75134	23349	26922	33697	16834	12658	11860	Continuing	Continuing
Spares (BS9708)	2437	2536	96	100	100	0	0	Continuing	Continuing
Mod Of In Service Equip (B28620)	2895	2044	3990	5104	5460	6045	8454	Continuing	Continuing

**C. Acquisition Strategy:** AFATDS have been fielded since 1996, with the original AFATDS Version 96 Materiel Release. It has been updated with subsequent releases reflecting the Spiral development strategy of the program. AFATDS Version 6.3.2 will be released January 2004, and AFATDS Version 6.4.0 is planned for December 2004. Future releases will include continuing joint and operational requirements resulting from Operation Iraq Freedom, Operation Enduring Freedom and future operational experience.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**322**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software Development	CPAF	Raytheon Systems Corp, Ft. Wayne, IN	142847	33975	2Q	18897	2Q	13827	2Q	Continue	Continue	0
b . ABCS System Engineering & Integration Efforts	PWD	PEO C3T, Ft Monmouth, NJ	4748	642	2Q	0		0		Continue	Continue	0
c . Peculiar Support Equipment (PSE)	C/FFP	General Dynamics, Taunton, MA	3293	600	2Q	374	2Q	380	2Q	Continue	Continue	0
<b>Subtotal:</b>			<b>150888</b>	<b>35217</b>		<b>19271</b>		<b>14207</b>		<b>Continue</b>	<b>Continue</b>	<b>0</b>

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software Development Support	MIPR	CECOM, Ft. Monmouth, NJ & Telos, Shrewsbury, NJ	3666	813	2Q	708	2Q	616	2Q	Continue	Continue	0
b . Engineering Support	MIPR	CECOM, Ft Monmouth, NJ	2086	933	2Q	622	2Q	791	2Q	Continue	Continue	0
<b>Subtotal:</b>			<b>5752</b>	<b>1746</b>		<b>1330</b>		<b>1407</b>		<b>Continue</b>	<b>Continue</b>	<b>0</b>

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Management		PM IE, Ft. Monmouth, NJ	450	135	2Q	138	2Q	140	2Q	Continue	Continue	0
b . Test Support	MIPR	Titan, Ft Sill, OK and Various	2999	1495	2Q	1100	2Q	695	2Q	Continue	Continue	0
c . Limited User Test	MIPR	Army Test & Evaluation Command	0	0		3000	2-3Q	0		Continue	Continue	0
Subtotal:			3449	1630		4238		835		Continue	Continue	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Support	T&M	CSC, Eatontown, NJ	2689	730	2Q	685	2Q	509	2Q	Continue	Continue	0
b . Program Management		PM IE, Ft Monmouth, NJ	4718	1365	2Q	1180	2Q	1036	2Q	Continue	Continue	0
Subtotal:			7407	2095		1865		1545		Continue	Continue	0

Project Total Cost:			167496	40688		26704		17994		Continue	Continue	0
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

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

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(1) Materiel Release				▲ 1 MR 6.3																												
Fielding				Fielding V6.3																												
Development				Development V6.3.2																												
(2) GCD								▲ 2 GCD 6.3.2																								
(3) Materiel Release								▲ 3 MR 6.3.2																								
Fielding								Fielding 6.3.2																								
Development								Development 6.4																								
(4) LUT												▲ 4 LUT 6.4																				
(5) Materiel Release																▲ 5 MR 6.4																
Fielding																Fielding 6.4																
(6) Materiel Release																																
Fielding																																
(7) Materiel Release																																
Fielding																																

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Government Confidence Demonstration		1Q					
Materiel Release 6.3.2		1Q					
AFATDS Version 6.4 Limited User Test (LUT)		4Q					
AFATDS Version 6.4 Materiel Release			1Q				
Maintenance Software Release 1					1Q		
Maintenance Software Release 2						3Q	

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 0203726A - Adv Field Artillery Tactical Data System					<b>PROJECT</b> 33C			
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost	
33C IMPROVED POSITION AZIMUTH DETERMINING SYS (IPADS)	4271	1895	0	0	0	0	0	0	6166	

**A. Mission Description and Budget Item Justification:** This project element supports modernization of the Army's Field Artillery survey capabilities. The current Position & Azimuth Determining System (PADS) was fielded in the early 1980s with 1970s technology. Poor Reliability (84 hours Mean Time Between Failure) and obsolete technology have resulted in a system that is no longer economically supportable. PADS inventory has begun to diminish through attrition. The Improved Position Azimuth Determining System (IPADS) is a Nondevelopmental Item (NDI) that will leverage present day technology, substantially improve reliability, and provide a digital communications capability to meet the needs of the Army of the Future. IPADS will provide a state of the art system with a Reliability that will exceed 2000 hours Mean Time Between System Abort which will save millions in operations and support costs, while preserving continued operational capability. This is a Joint Program with the USMC.

This system supports the Current to Future transition path of the Transformation Campaign Plan.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
IPADS SDD Contract for a Nondevelopmental Item	964	0	0
Program Management	269	250	0
Conduct developmental and operational testing	2277	1092	0
Engineering/Logistics Support	761	498	0
Small Business Innovative Research/Small Business Technology Transfer Programs	0	55	0
<b>Totals</b>	<b>4271</b>	<b>1895</b>	<b>0</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**33C**

**B. Other Program Funding Summary**

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
OPA-2 Improved Position & Azimuth Determining System (IPADS) - SSN M75700	1961	11045	0	0	0	0	0	0	13006

**C. Acquisition Strategy:** The IPADS program is an NDI being procured to a Performance Specification. The acquisition strategy will be a Firm Fixed Price Requirements Contract. IPADS SDD Test Articles will be used for operational testing. The AAO for IPADS is 357.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203726A - Adv Field Artillery Tactical Data System**      **PROJECT 33C**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SDD Contract for Nondevelopmental Item	FFP	L3 Communications, Budd Lake, NJ	0	964	4Q	0		0		0	964	0
b . Matrix Engineering Support	MIPR	ARDEC, Picatinny Arsenal, NJ	0	761	1-4Q	498	1-3Q	0		0	1259	0
Subtotal:			0	1725		498		0		0	2223	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Management	MIPR	JPMO LW155, Picatinny Arsenal, NJ	0	269	1Q	250	1-2Q	0		0	519	0
Subtotal:			0	269		250		0		0	519	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203726A - Adv Field Artillery Tactical Data System**      **PROJECT 33C**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Developmental and Operational Testing	MIPR	Yuma Proving Grounds, AZ	0	2277	3-4Q	1147	1-2Q	0		0	3424	0
<b>Subtotal:</b>			0	2277		1147		0		0	3424	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			0	0		0		0		0	0	0
<b>Subtotal:</b>			0	0		0		0		0	0	0

<b>Project Total Cost:</b>			0	4271		1895		0		0	6166	0
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

PE NUMBER AND TITLE  
0203726A - Adv Field Artillery Tactical Data System  
PROJECT  
33C

Event Name	FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(1) Procure Test Articles	1																															
DT&E									Production Verification/DT																							
OT																																
Independent Evaluation Report									■																							
(2) MS C					2				Type Classification																							
(3) FUE					3				FUE																							

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE** **PROJECT**  
**0203726A - Adv Field Artillery Tactical Data System** **33C**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Procure Test Articles	4Q						
Product Verification/Developmental Test	4Q	1-2Q					
Operational Test		2Q					
Independent Evaluation Report		2-3Q					
Type Classification		3Q					
First Unit Equipped		4Q					

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	81285	31336	15952	12796	13089	8709	6613	Continuing	Continuing
330 ABRAMS TANK IMPROVE PROG	80330	25205	15952	12796	13089	8709	6613	Continuing	Continuing
718 GRND COMBAT VEHICLE HTI	955	6131	0	0	0	0	0	0	15895

**A. Mission Description and Budget Item Justification:** This Program Element (PE) responds to vehicle deficiencies identified during past and present Army operations, continues technical system upgrades, and addresses needed evolutionary enhancements to tracked combat vehicles. This PE provides combat effectiveness and Operating and Support (O&S) cost reduction enhancements for the Abrams tanks through a series of product improvements. These systems support the Current and Future Force transition path of the Transformation Campaign Plan (TCP).

<b><u>B. Program Change Summary</u></b>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	82702	24486	16121
Current Budget (FY 2005 PB)	81285	31336	15952
Total Adjustments	-1417	6850	-169
Congressional program reductions		-299	
Congressional rescissions	-950		
Congressional increases		7200	
Reprogrammings	-467	-51	
SBIR/STTR Transfer			
Adjustments to Budget Years			-169

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0203735A - Combat Vehicle Improvement Programs</b>						<b>PROJECT</b> <b>330</b>		
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
330 ABRAMS TANK IMPROVE PROG	80330	25205	15952	12796	13089	8709	6613	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project funds improvements to the Abrams Main Battle Tank (M1 series). 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 or survivability enhancements. The Abrams engine improvement program is the most significant of these efforts in the Abrams Recapitalization Program. All M1A2 SEP tanks will be equipped with the improved engine. The objective is a more reliable and easier-to-repair engine that significantly reduces both the Operations and Support (O&S) burden and the armored forces logistics footprint. The Abrams Product Manager also plans to explore a variety of armor package configurations and auxiliary power unit designs to the M1A2 SEP tank that will permit it to become more survivable and to effectively run the tank's on-board computer systems. The auxiliary power unit designs considered will replace previous program efforts on the Under Armor Auxiliary Power Unit (UAAPU); previous efforts on an UAAPU were discontinued when they were found not to meet M1A2 SEP tank operational requirements. Congress added funds for Abrams light weight track development to the President's FY2004 budget request. This system supports the current transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Abrams Engine Improvement Program	58776	18398	2640
Abrams Legacy Fleet Embedded Diagnostics	2321	0	0
Parts Obsolescence and System Technical Support	4300	3612	4800
Alternative Armor Solution	7433	1500	1500
Alternative Auxiliary Power Unit	7500	0	7012
Abrams Track	0	962	0
Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR).	0	733	0
<b>Totals</b>	<b>80330</b>	<b>25205</b>	<b>15952</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**330**

<b>B. Other Program Funding Summary</b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
Abrams Upgrade Program (GA0750)	384238	3317	0	0	0	0	0	0	974590
Abrams Vehicle Modification (GA0700)	159449	106885	116917	451379	366147	339899	297584	519300	2438179
System Enhancement Pgm (GA0730)	85183	180050	292152	0	0	0	0	0	656012
Abrams Training Devices (GB1302)	11858	0	3624	3709	1073	1074	1075	0	34059
Training Device Mod (GA5208)	5411	6206	3643	3754	1073	1074	1075	0	27702
Initial Spares (GE0161)	9882	5350	11442	5363	0	0	0	0	47527

**C. Acquisition Strategy:** Honeywell is the prime contractor for the Abrams engine improvement program. General Dynamics Land Systems Division (GDLS) is the prime contractor for the vehicle integration effort.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Prior Contracts	Various	Various	621329	0		0		0		0	621329	621329
b . Abrams Engine Improvement	C-CPAF	Honeywell International Phoenix, AZ	141424	39115	3Q	8398	2-3Q	2640		0	191577	191659
c . Integration of improved engine into vehicle	SS-CPFF	General Dynamics Sterling Heights, MI	68221	16565	2-4Q	0	2-3Q	0		0	84786	84786
d . Other Contracts	Various	Various	34710	22329	2-4Q	6807	2-3Q	13312	1-4Q	Continue	77158	0
<b>Subtotal:</b>			865684	78009		15205		15952		Continue	974850	897774

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Embedded Diagnostics	MIPR	Various	17023	2321		0		0		0	19344	0
<b>Subtotal:</b>			17023	2321		0		0		0	19344	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Various Test Sites	MIPR	Aberdeen Proving Ground, MD; Yuma Proving Ground, AZ; White Sands Missile Range, NM	55601	0		10000	3Q	0		0	65601	0
Subtotal:			55601	0		10000		0		0	65601	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			0	0		0		0		0	0	0
Subtotal:			0	0		0		0		0	0	0

Project Total Cost:			938308	80330		25205		15952		Continue	1059795	897774
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

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

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09																			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																
Abrams Engine Improvement Program (AEIP) In-Vehicle Test																																																
(1) AEIP Production Decision																																																
(2) AEIP Production Contract Award																																																
(3) Alternative Armor Contract Award																																																
(4) Alternative Auxiliary Power Unit Award																																																

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**330**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
First In-Vehicle Testing of Improved Engine	2Q						
Complete Engine Improvement Contract		2Q					
Complete GDLS Integration Contract			1Q				
Alternative Armor Contract Award	4Q						
Alternative Auxiliary Power Unit Award		2Q					

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development	<b>PE NUMBER AND TITLE</b> 0203735A - Combat Vehicle Improvement Programs						<b>PROJECT</b> 718		
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
718 GRND COMBAT VEHICLE HTI	955	6131	0	0	0	0	0	0	15895

**A. Mission Description and Budget Item Justification:** Project D718, Ground Combat Vehicle Horizontal Technology Integration (HTI), is a project initiated for the purpose of developing technology improvements which have application to or insertion opportunities across multiple Ground Combat System (GCS) vehicles, both current and future (e.g. Future Combat Systems (FCS)).

- 1) This project supports the maturation of the Hybrid Electric M113 into a production representative system configuration.
- 2) The Strategic Focus Group and Automotive Electronics/Architecture Trade Study examines electronics and software architecture growth to determine the best path to position architecture programs to support current P3I efforts and future combat system developments.  
This PE supports the Current and Future Force transition path of the Transformation Campaign Plan (TCP)

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Program Management	955	0	0
Hybrid Electric Engineering, Logistics, and Test	0	3071	0
Strategic Focus Group and Automotive Electronic / Architecture	0	1922	0
Digitization Support	0	960	0
Small Business Innovative Research / Small Business Technology Transfer Programs (SBIR/STTR).	0	178	0
<b>Totals</b>	<b>955</b>	<b>6131</b>	<b>0</b>

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

**C. Acquisition Strategy:** This Project will work towards the resolution of technology concerns that impact current and future GCS systems.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0203735A - Combat Vehicle Improvement Programs**

PROJECT

**718**

1) M113 Hybrid Electric development.

2) The Strategic Focus Group and Automotive Electronics/Architecture Trade Study for Common Ground Architecture was awarded in FY03 to a GSA approved Contractor, a follow on effort is programmed for FY04.

3) Digitization Support at Ft. Hood

This project supports the Current and Future Force transition path of the Transformation Campaign Plan (TCP)

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203735A - Combat Vehicle Improvement Programs**      **PROJECT 718**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . LWR Development	MIPR	Booz Allen Hamilton	2685	0		0		0		0	2685	0
b . FBCB2 Architecture Study	Fixed Price	Carnegie Mellon	75	0		0		0		0	75	0
c . Common Ground Architecture Study	Fixed Price	Veridian Engineering	381	0		0		0		0	381	0
d . RTCOE Exp	CPIF	UDLP, Minn, MD	1265	0		0		0		0	1265	0
e . Objective IC3	CP	Open Competition	1312	0		0		0		0	1312	0
f . FY00 effort			7638	0		0		0		0	7638	0
g . New Generation Electronics	CPFF	Camber, Huntsville, AL	0	955	3Q	0		0		0	955	0
h . M113 Hybrid Electric Development	CPIF	UDLP, San Jose, CA	0	0		2287	1-2Q	0		0	2287	0
i . Combat Vehicle Electronic	TBD	TBD	0	0		1978	2-3Q	0		0	1978	0
j . Digitization Support	MIPR	Ft. Hood, TX	0	0		989	2Q	0		0	989	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203735A - Combat Vehicle Improvement Programs**      **PROJECT 718**

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			13356	955		5254		0		0	19565	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Tech Spt. - LWR	MIPR	CECOM	201	0		0		0		0	201	0
b . Objective IC3 ABRAMS STS	CP	GDLS	934	0		0		0		0	934	0
c . Objective IC3 BRADLEY STS	CP	UDLP	934	0		0		0		0	934	0
d . Objective IC3 ABRAMS Training Device Upgrade	CP	GDLS	0	0		0		0		0	0	0
e . Objective IC3 BRADLEY Training Device Upgrade	CP	UDLP	0	0		0		0		0	0	0
f . M113 Hybrid Electric Development	CPIF	UDLP, San Jose, CA	0	0		553	1-2Q	0		0	553	0
Subtotal:			2069	0		553		0		0	2622	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203735A - Combat Vehicle Improvement Programs**      **PROJECT 718**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . M113 Hybrid Electric Development	CPIF	UDLP, San Jose, CA	0	0		324	1-2Q	0		0	324	0
Subtotal:			0	0		324		0		0	324	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In House Spt PEO GCSS PM's	MIPR	TARDEC	489	0		0		0		0	489	0
b . Camber Support for Objective IC3	CP	Camber Corp.	533	0		0		0		0	533	0
Subtotal:			1022	0		0		0		0	1022	0

<b>Project Total Cost:</b>			16447	955		6131		0		0	23533	0
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# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 0203740A - Maneuver Control System					<b>PROJECT</b> 484			
COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
484	MANEUVER CONTROL SYSTEM (MCS)	40612	39145	24753	16388	11774	6900	6894	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This program element funds the evolutionary development, integration and testing of the Maneuver Control System (MCS). 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 Systems Agency (DISA) 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.

This system supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Conduct MCS software development and support	33662	30402	16853
Plan and participate in test events, and prepare for the MCS Operational Tests	6950	2300	2055
Conduct MCS IOT&E	0	5400	5845
Small Business Innovative Research/Small Business Technology Transfer Programs	0	1043	0
<b>Totals</b>	<b>40612</b>	<b>39145</b>	<b>24753</b>

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203740A - Maneuver Control System**

PROJECT  
**484**

<b><u>B. Program Change Summary</u></b>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	42229	39581	17883
Current Budget (FY 2005 PB)	40612	39145	24753
Total Adjustments	-1617	-436	6870
Congressional program reductions		-372	
Congressional rescissions			
Congressional increases			
Reprogrammings	-1617	-64	
SBIR/STTR Transfer			
Adjustments to Budget Years			6870

FY05: Funds increased to cover MCS IOT&E and development/support required in FY05 (\$6.870M).

<b><u>C. Other Program Funding Summary</u></b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
BA9320 - Maneuver Control System (MCS)	7378	40836	29136	43352	40005	2505	1536	Continue	Continue
BS9710 - MCS Spares	3044	1952	1926	1834	1860	1461	1489	Continue	Continue

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

**February 2004**

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203740A - Maneuver Control System**

PROJECT  
**484**

**D. Acquisition Strategy:** The MCS acquisition strategy is based on modular development of application software, integrated with the common system software, hosted on the ruggedized commercial off-the-shelf Common Hardware/ Software (CHS) computers and peripheral hardware that are procured under the Army CHS ordering contract. Software will be developed, tested, integrated and trained as necessary to meet warfighter tactical and training requirements. Upon completion of the base capability that is to be fielded, development will continue for Joint Interoperability, Common Operating Environment and Safety requirements as necessary to continue the life of the software in the field. A competitive follow-on contract is planned for the continued development of these type requirements.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203740A - Maneuver Control System**

**PROJECT**  
**484**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . MCS Software Development	C/CPAF	Lockheed Martin Corp., Tinton Falls, NJ	130082	21809	1-3Q	19476	1-3Q	5371	1-2Q	0	176738	173434
b . Follow-on Software Upgrades (e.g., joint interoperability, COE compliance, etc.)	C	TBD	0	0		0		1000	1-3Q	Continue	Continue	0
c . Misc Contracts	Various	Various	10563	2112	2Q	1656	1-2Q	1212	1-2Q	Continue	Continue	0
d . Software Development & Technical Support	MIPR	CECOM, NJ	13014	5500	1-2Q	5775	1-2Q	4800	1-2Q	Continue	Continue	0
e . Technical Support	In House	PM GC C2, NJ	8111	1915	1-4Q	2011	1-4Q	2079	1-4Q	Continue	Continue	0
f . PSE H/W & S/W	Various	Various	2155	210	2Q	210	2Q	200	2Q	Continue	Continue	0
g . MITRE System Engineering	CPFF	MITRE Corp., Eatontown, NJ	6536	990	1Q	1089	1Q	894	1Q	Continue	Continue	0
h . ABCS SE&I	MIPR	PEO C3T, NJ	1830	0		0		0		0	1830	0
Subtotal:			172291	32536		30217		15556		Continue	Continue	173434

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203740A - Maneuver Control System**

**PROJECT**  
**484**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Misc Support	In House	PM GC C2, NJ	2498	433	1-4Q	455	1-4Q	478	1-4Q	Continue	Continue	0
b . Misc Contracts	Various	Various	1713	100	1-2Q	150	1-2Q	165	1-2Q	Continue	Continue	0
Subtotal:			4211	533		605		643		Continue	Continue	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . OGA	MIPR	Various	1400	750	1-2Q	788	1Q	977	1Q	Continue	Continue	0
b . Misc Contracts	Various	Various	3021	500		550	1-2Q	578	1-2Q	Continue	Continue	0
c . Operational Test/Planning	MIPR	Various	4401	5700	1-2Q	6362	1-2Q	6345	1-2Q	Continue	Continue	0
Subtotal:			8822	6950		7700		7900		Continue	Continue	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203740A - Maneuver Control System**

**PROJECT**  
**484**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Office Mgmt	In House	PM GC C2, NJ	889	593	1-4Q	623	1-4Q	654	1-4Q	Continue	Continue	0
<b>Subtotal:</b>			889	593		623		654		Continue	Continue	0
<b>Project Total Cost:</b>			186213	40612		39145		24753		Continue	Continue	173434

# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

PE NUMBER AND TITLE  
0203740A - Maneuver Control System

PROJECT  
484

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
S/W Development	Software Development and COE/Interoperability Upgrades																															
Fielding	Fielding (Purchase of CHS)																															
CTSIF Integration/Certification																																
(1) LRIP Approval																																
(2) MCS MS III																																
(3) , (4) , (5) , (6) CHS Orders																																
(7) FBCB2 FT4 & DCX 2																																
(8) FT5																																
(9) JROC																																
(10) Customer Test																																
(11) IOT&E																																

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203740A - Maneuver Control System**

**PROJECT**  
**484**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Participation in Field Test 5	1Q						
Customer Tests	1-3Q						
LRIP Approval		1Q					
CTSF Integration/Certification		3-4Q					
Complete MCS Initial Operational Test & Evaluation			1Q				
MCS Milestone III Decision			3Q				
Initial Operational Capability			3Q				
Evolving Software Upgrades (e.g., joint interoperability, COE compliance, etc.)			1-4Q	1-4Q	1-4Q	1-4Q	1-4Q

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

February 2004

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	206500	276191	224368	201295	309107	149246	249160	Continuing	Continuing
028 AERIAL COMMON SENSOR (ACS) (TIARA)	46835	103811	143865	150025	242728	23038	26157	0	764097
179 CH-47D PRODUCT IMPRV	1	0	0	0	0	0	0	0	3451
430 IMPR CARGO HELICOPTER	3271	14102	12935	6902	0	126208	223003	Continuing	Continuing
504 BLACK HAWK RECAPITALIZATION/MODERNIZATION	111998	156597	67568	24729	5742	0	0	0	464890
508 APACHE 2ND GENERATION FLIR	44395	0	0	0	0	0	0	0	135719
D12 LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP	0	1681	0	19639	60637	0	0	0	81957

**A. Mission Description and Budget Item Justification:** This PE provides for development of modifications and improvements for the Guardrail Common Sensor/Aerial Common Sensor, the Improved Cargo Helicopter (ICH), the UH-60A/L Black Hawk Recapitalization/Modernization, the Apache 2nd Generation Forward Looking Infrared (FLIR), and Longbow Apache Operational Systems Development.

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	204562	187959	167274
Current Budget (FY 2005 PB)	206500	276191	224368
Total Adjustments	1938	88232	57094
Congressional program reductions		-2612	
Congressional rescissions	-2423		
Congressional increases	16000	89800	
Reprogrammings	-7017	-451	
SBIR/STTR Transfer	-4622		
Adjustments to Budget Years			57140

FY 2004: Increases provided for UH-60 prototype development (+\$75.0 million transfer from procurement), MAST program (+\$5.1 million), and HUMS demonstration (\$7.0 million).

FY 2005: Increases provided for the Aerial Common Sensor geolocation precision COMINT subsystem (\$4.0 million), engine and rotor hub upgrades for the CH-47 (\$11.0 million), and to support the restructure of the UH-60 Black Hawk modernization program (\$28.9 million).

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 0203744A - Aircraft Modifications/Product Improvement Program					<b>PROJECT</b> 028			
COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
028	AERIAL COMMON SENSOR (ACS) (TIARA)	46835	103811	143865	150025	242728	23038	26157	0	764097

**A. Mission Description and Budget Item Justification:** The Aerial Common Sensor (ACS) is the airborne intelligence collection system required to provide critical support to U.S.-based early entry, forward deployed forces, and to support the Army's seamless intelligence architecture. ACS is the future force system that will satisfy the Army's critical need for a responsive worldwide, self-deployable, airborne reconnaissance, intelligence, surveillance and target acquisition (RISTA) capability that can immediately begin operations when arriving in theatre. The ACS will merge the current Airborne Reconnaissance Low (ARL) and Guardrail Common Sensor (GRCS) capabilities into a single airborne system capable of providing a rapid response information dominance capability dedicated to the Land Component Commander's need for precision real-time geolocation of the enemy on the future force battlefield. ACS will be composed of a family of modular sensors mounted on an airborne platform that is capable of operating independently or remotely via SATCOM or line-of-sight datalinks from a ground processor. 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 infosphere". The primary mission will be standoff Signals Intelligence (SIGINT) collection, with a secondary mission of stand-off and overflight Imagery Intelligence (IMINT). ACS ground functionality will be an element of the Distributed Common Ground Station-ARMY(DCGS-A). ACS is primarily targeted against threat maneuver forces, logistic areas, rocket and artillery forces, air defense artillery, and command control communications and intelligence nodes (C3I). ACS will satisfy unique Army/Land Force Commander Intelligence, Surveillance and Reconnaissance (ISR), reporting and targeting requirements, and those of the Land Force Component of Joint and Combined Task Forces (JTF and CTF) across the full spectrum of Operations.

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

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

FY05 funding supports the System Integration (SI) portion of the System Demonstration and Development (SDD) Phase. The SDD phase will conclude the development and design of the Prime Mission Equipment (PME). Aircraft will be purchased and the PME will be integrated and tested on the aircraft. Air Worthiness Release (AWR) studies and testing will be conducted along with initial flight tests.

ACS is considered a "complimentary system" to the Future Combat System and designated as a required Future Force capability.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**028**

**Accomplishments/Planned Program**

	FY 2003	FY 2004	FY 2005
Awarded and executed ACS TD contract(s) which transitioned virtual system concept and vetted it into a system architecture and relevant integration environment; supported the MS B process	36851	0	0
System Integration (SI) Phase performance specification analysis	414	0	0
Completed the prototype efforts required to validate Data Transport Systems performance capabilities.	733	0	0
Developed an Airborne Tactical Common Data Link (TCDL) for GRCS under a Total Ownership Cost Reduction initiative. RDTE funding for GR/CS terminates in FY03.	1236	0	0
Development of Modern Communications Exploitation	1000	0	0
Modeling, Program office and Milestone B Decision support for entry into the SDD Phase.	6601	0	0
Award and execute contract for System Integration Phase which will integrate technologies developed and demonstrated during the CAD phase	0	87379	123827
Contract selection support for SDD phase, Modeling, Program Office and Test support for the SDD Phase	0	16432	20038
<b>Totals</b>	<b>46835</b>	<b>103811</b>	<b>143865</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**028**

<b>B. Other Program Funding Summary</b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
ACS DCP	15528	15124	14249	17545	19056	12331	12320	Continuing	Continuing
CHALS DCP	4334	4190	2931	2032	1541	4458	4455	Continuing	Continuing
GRCS DCP	8087	7525	7109	3835	3845	2478	2476	Continuing	Continuing
0305206/DK98 Tactical Reconnaissance	11433	4706	5284	5517	5501	5409	5745	Continuing	Continuing
A02005 Aerial Common Sensor- Aircraft Procurement, Army	0	0	0	0	0	232549	225484	Continuing	Continuing
Navy Funding for ACS Baseline	0	0	20400	50000	0	5600	49100	0	125100

FY04-FY05 DCP provides funding for the development of ACS technologies and technologies needed to ensure applicability of ACS in the evolving objective force architecture. Tactical Reconnaissance funds MASINT/IMINT technologies that will be integrated into ACS during SDD Phase.

**C. Acquisition Strategy:** The Technology Demonstration (TD) Phase is complete. A MS B ASARC was completed in Aug03 and a DAB is projected in 2Q FY04 for entry into the System Development and Demonstration (SDD) phase. The SDD phase will be a competitive solicitation with contract award scheduled in 3Q04 and will take the ACS program through Development Testing, Limited User Test (LUT) and IOT&E in 2Q09. A MS C LRIP phase will be sole source to the SDD contractor and used to establish a manufacturing capability in support of a Full Rate Production Decision.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**028**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Data Transport Contract (Includes FY03 TOCR initiative)	SS-CPFF	L3Comm, Salt Lake City, Utah	3000	813	2-3Q	0		0		0	3813	3813
b . Penguin Type 4	SS-	Applied Signals Tech, Sunnyvale, CA	0	1000	4Q	0		0		0	1000	1000
c . Omnibus contract	SS-FP	NG, Sacramento, California	695	335	2Q	0		0		0	1030	1030
d . ACS CAD Contract(s)	C-CPAF	Lockheed Martin, Littleton, CO & Northrup Grumman, Baltimore, MD	5204	36851	1-4Q	0		0		0	42055	39636
e . ACS SI Contract	C-CPAF	TBD	0	0		87379	3Q	123827	1-2Q	Continue	211206	Continue
Subtotal:			8899	38999		87379		123827		Continue	259104	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**028**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . ACS Operational Performance Model	SS-CPFF	Raytheon System Dev. Marlborough, MA	7420	785	3Q	1000	2Q	1910	2Q	Continue	11115	Continue
b . Model Evaluation Support		Multiple	2390	1477	1-3Q	2002	1-3Q	2010	1-3Q	Continue	7879	Continue
c . ASARC Support	C-CPFF	Multiple	270	217	1-3Q	0		0		0	487	697
Subtotal:			10080	2479		3002		3920		Continue	19481	Continue

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Engineering Support	C-CPFF	Multiple	1924	200	1-3Q	1426	1-3Q	2000	1-3Q	Continue	Continue	Continue
b . AEC Support	C-CPFF	Multiple	260	465	1-3Q	772	1-2Q	858	1-2Q	Continue	2355	Continue
c . Analysis and Evaluation of CAD Products	C-CPFF	Multiple	0	573	1Q	0		0		0	573	573
Subtotal:			2184	1238		2198		2858		Continue	Continue	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**028**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Management	MIPR	PM, Signals Warfare	1379	2598	1-2Q	7931	1-2Q	8842	1-2Q	Continue	20750	Continue
b . Matrix Support	MIPR	HQ, CECOM	2180	1521	1-2Q	3301	1-2Q	4418	1-2Q	Continue	11420	Continue
Subtotal:			3559	4119		11232		13260		Continue	32170	Continue
Project Total Cost:			24722	46835		103811		143865		Continue	Continue	Continue

# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

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

PROJECT  
028

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
CE	■ Concept Exploration																															
(1) Tech Dev (TD) Decision Review	▲ 1 TD Decision Review																															
Technology Development	■ TD																															
TD Contractor Demonstrations					■ TD Contractor Demos																											
(2) MS B									▲ 2 MS B																							
System Dev & Demo (SD&D)									■ SD&D																							
(3) Interim Decision Review													▲ 3 Interim Decision Review																			
DT&E 1													■ DT&E 1																			
DT&E 2																	■ DT&E 2															
Limited User Test (LUT)																	■ LUT															
(4) MS C																					▲ 4 MS C											
LRIP																					■ LRIP											
Operational Readiness Demonstration																					■ Op Demo											
IOT&E																									■ IOT&E							
(5) Full Rate Prod (FRP) Decision																									▲ 5 FRPD							
Production and Deployment (P&D)																									■ P&D							
(6) FUE																									▲ 6 FUE							

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**028**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
GRCS upgrade contracts (to include FY 03 TOCR initiative) RDTE funding terminates for GR/CS in FY03	1-4Q						
TD Contract(s)	1-4Q						
Conduct TD Contractor Tests	3-4Q						
ACS Milestone B Decision		2Q					
ACS System Dev and Demo (SD&D) Phase Contract		3-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-2Q
DT&E 1				1-2Q			
DT&E 2					3-4Q		
ACS LUT						3-4Q	
MS C LRIP Decision					4Q		
LRIP Phase Contract						1-4Q	1-4Q
Operational Readiness Demo						4Q	
IOT&E							2-3Q
Full Rate Production Decision							3Q
Production and Development Phase							3-4Q
FUE							4Q

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203744A - Aircraft Modifications/Product Improvement Program</b>						PROJECT <b>430</b>			
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost	
430 IMPR CARGO HELICOPTER	3271	14102	12935	6902	0	126208	223003	Continuing	Continuing	

**A. Mission Description and Budget Item Justification:** The CH-47F, Improved Cargo Helicopter (ICH), is a recapitalization program to extend the useful life of the CH-47D Cargo helicopter. This funding will assure heavy lift capability into the 21st century. This program awarded a contract for Engineering Manufacturing Development (EMD) which includes decreasing operation and support costs through vibration reduction/airframe stiffening, incorporating a new electronics/architecture system for compatibility with the digital battlefield and structural modifications as necessary to extend the life of the airframe. This program is the basis for establishing remanufacture, modernization, and upgrade program to meet the readiness needs of the future for heavy lift capability. The CH-47F (ICH) Program includes testing of the two engineering development models plus component testing for Live Fire. Developmental improvements to the T55-L-714A engines are funded as part of a shared, cooperative effort with the Component Improvement Program Office. Developmental improvements are also included for the Low Maintenance Rotor Hub (LMRH). This system supports the Current-to-Future transition path of the Transformation Campaign Plan (TCP).

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Continue Engineering Manufacture Development (EMD).	0	0	0
Provide product technical support	2574	3833	0
Continue Contract Live Fire Test & Evaluation	97	0	0
Continue in-house and program management administration.	250	300	300
Continue Government Test & Evaluation.	350	4800	0
Test Analysis	0	1500	0
714B Engine	0	3259	4375
DT&E for Low Maintenance Rotor Hub	0	0	8260
Small Business Innovative Research/Small Business Technology Transfer Programs	0	410	0
<b>Totals</b>	<b>3271</b>	<b>14102</b>	<b>12935</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**430**

**B. Other Program Funding Summary**

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
APA, SSN AA0252, CH-47 CARGO HELICOPTER MODS (MYP) (Including Adv Proc)	728002	510226	542672	605494	520983	538498	842043	4917968	9473734

**C. Acquisition Strategy:** The CH-47F (ICH) will recapitalize an aging fleet and bridge the gap until the development of a follow-on aircraft. This will be achieved in a cost effective manner as the program will be based on a four-pronged approach which will include rebuilding the airframe, recapitalizing dynamic components, improving mission capability, and reducing vibrations to provide for long term O&S cost reductions. There will be two Low Rate Initial Production (LRIP) lots to ramp up to full rate production.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**430**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . EMD	CPIF	Various	117221	0		0		0		0	117221	117098
b . TOCR	CPIF	Various	1600	0		0		0		0	1600	1600
c . Technical Support	CPFF	Various	0	2574	1Q	4243	1Q	0		Continue	6817	0
d . 714B Engine	CPIF	Various	0	0		3259	1-2Q	4375	1-2Q	Continue	7634	0
e . Low Maintenance Rotor Hub	CPIF		0	0		0		8260	2-3Q	Continue	8260	0
Subtotal:			118821	2574		7502		12635		Continue	141532	118698

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PMO/OGA	Reimbursable	Various government	11814	250	2-3Q	300	2-3Q	300	2-3Q	0	12664	0
Subtotal:			11814	250		300		300		0	12664	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**430**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . DT/OT	Reimbursable	Various government	9071	350	1Q	4800	1Q	0		0	14221	0
b . Live Fire Test & Eval	Reimbursable	Contract/Govt	6268	97	1Q	0		0		0	6365	0
c . Live Fire Test & Eval	Contract		50	0		0		0		0	50	0
d . Test Analysis	Reimbursable	Various Government	0	0		1500	2-3Q	0		0	1500	0
<b>Subtotal:</b>			<b>15389</b>	<b>447</b>		<b>6300</b>		<b>0</b>		<b>0</b>	<b>22136</b>	<b>0</b>

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . CAMBER/Westar	SS/FP	Huntsville, AL	3901	0		0		0		0	3901	3901
<b>Subtotal:</b>			<b>3901</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	<b>3901</b>	<b>3901</b>

<b>Project Total Cost:</b>			<b>149925</b>	<b>3271</b>		<b>14102</b>		<b>12935</b>		<b>Continue</b>	<b>180233</b>	<b>122599</b>
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

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

PROJECT  
430

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(1) Long Lead Contract Award	▲1																															
Long Lead	Long Lead																															
(2) LRIP Decision			▲2																													
(3) LRIP Contract Award				▲3																												
Low Rate Initial Production				LRIP																												
(4) LRIP Lot 2 RFP				▲4																												
(5) LRIP Lot #2 Contract Award								▲5																								
(6) Full Rate Production RFP								▲6																								
IOT&E										▲7																						
(7) MS III											▲7																					
Full Rate Production											Full Rate Production																					
(8) FUE																																▲8

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**430**

<u>Schedule Detail</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
EMD Contract & Funding Increments							
Initial Production Facilitization (IPF)							
LL Award For LRIP I							
Initial Oper Test & Eval (IOTE)							
LRIP I Award	1Q						
LL Award For LRIP 2	1Q						
LRIP 2 Award		1Q					
MS C			1Q				

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 0203744A - Aircraft Modifications/Product Improvement Program					<b>PROJECT</b> 504			
COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
504	BLACK HAWK RECAPITALIZATION/MODERNIZATION	111998	156597	67568	24729	5742	0	0	0	464890

**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 a recapitalization/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 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. Block 1 recapitalizes the oldest UH-60A BLACK HAWKS to the UH-60M configuration. The UH-60M selected upgrade includes airframe service life extension, structural improvements, upgrade of the propulsion system (UH-60A/L T700-GE-700/701C engine and drive train to T700-GE-701D engine and drive train), and a digital cockpit. 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. This system supports the Current-to-Future transition path of the Transformation Campaign Plan (TC).

FY 02-04 includes funding to demonstrate the benefits of an on-board Integrated Mechanical Diagnostic (IMD) – Health Usage Monitoring System (HUMS). The Army entered into a Commercial Operational Support Sharing (COSSI) Program with the Navy and Goodrich to explore the IMD-HUMS concept from the Navy's SH-60 and for the Army's UH60-L. The demonstration includes data collection and analysis to determine which features of an IMD-HUMS/Cockpit Voice/Flight data Recorder is beneficial to the Army. Data collected will be processed from field units to decision makers through an automated Maintenance Management Information System (MMIS). As a result of this demonstration program the Army will determine the configuration of the IMD-HUMS that will be installed on the UH-60 fleet.

The Maintenance Analysis Safety Program (MAST) will integrate a Smith Industries HUMS variant into the MH-60 and MH-47 and analyze the data for improvements to maintenance, training and safety.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2004**

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
<b>7 - Operational system development</b>	<b>0203744A - Aircraft Modifications/Product Improvement Program</b>	<b>504</b>		
<b><u>Accomplishments/Planned Program</u></b>		<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>
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.		16313	28379	7260
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.		12489	20094	4406
Continue Producibility Engineering and Planning (PEP) as well as manufacturing planning and control.		7099	14732	2255
Prototype build and delivery to support Development Testing (DT).		26703	32756	27129
Test planning to include update and approval of Test & Evaluation Master Plan.		1409	0	0
Testing (Conduct flight testing, EME testing and ground testing).		30051	36056	13870
Preparation of training documentation for Logistics Demonstration Familiarization Course, Government Test Pilot Familiarization Course and Test Data Collection Training Course.		3245	5535	1979
Conduct training course to support test.		201	418	661
Maintain Continuous Acquisition and Life Cycle Support (CALS)/Contractor Integrated Technical Information Service (CITIS) and deliver Interface Control Documents (ICD's).		493	665	486
Depot Study		832	0	0
Support Equipment		0	308	108
Performance Support System (NG)		0	1000	0
IMD-HUMS demonstration program.		13163	7000	0
MAST demonstration program.		0	5100	0
Common Avionics Architecture Initiation		0	0	9414
Small Business Innovative Research/Small Business Technology Transfer Programs.		0	4554	0
<b>Totals</b>		<b>111998</b>	<b>156597</b>	<b>67568</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**504**

<b>B. Other Program Funding Summary</b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
AA0492 UH-60 MODS	47370	36225	137806	138232	299294	677104	693067	Continuing	Continuing

**C. Acquisition Strategy:** The UH-60 BLACK HAWK will serve as the Army's utility helicopter in the Future Force. The recapitalization/upgrade of the Current UH-60 fleet for the interim/future force will be accomplished using an evolutionary, block approach to transform the system. The Block 1 program will selectively upgrade the UH-60A/L fleet to the UH-60M configuration. This includes airframe structural improvements, a propulsion upgrade, and a digital cockpit that will meet lift, range, survivability, and interoperability requirements while decreasing O&S costs. This will extend the useful life of these aircraft another 20 years. These improvements will be accomplished through integration of existing technologies, by upgrading the UH-60A propulsion system to that currently in the UH-60L, and by adding the UH-60Q advanced MEDEVAC medical equipment package (MEP) to the air ambulance fleet. This program addresses current UH-60 fleet aging problems such as decreasing operational readiness (OR) and increasing O&S costs, including all top-ten cost drivers, and provides a common, modernized platform for the UH-60 utility and MEDEVAC fleet of the future. The program will be executed over four phases: pre-System Development/Demonstration Phase (FY00-01), System Development/Demonstration Phase (FY01-07), Production/Readiness Phase (FY05-27), and Operations and Sustainment Phase (FY06-FY46).

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**504**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Design, Integration & Qualification Contract	SS/CPAF	Sikorsky Aircraft Co 30 Moffitt Street Stratford, CT 06601	73302	89988	1-4Q	121491	1-2Q	44359	1-2Q	13602	342742	0
b . Development Support - Organic	MIPR	UH PMO/matrix	2962	2613	1-4Q	5690	1-3Q	3830	1-3Q	3756	18851	0
c . Development Support - Contractor	C/FP	Support Contractors	4049	3400	1-3Q	555	1-3Q	523	1-3Q	931	9458	0
d . IMD-HUMS Development Support - Organic	MIPR	Aviation Applied Tech Directorate (AATD) Matrix	2994	1754	1-4Q	836		0		0	5584	0
e . IMD-HUMS Development Support - Contractor	C/FP	Goodrich, 100 Panton Road, Vergennes, Vermont 05491	10534	11409	3-4Q	6164		0		0	28107	0
f . MAST Development Support - Organic	MIPR'S	Other Government Agency Support	0	0	2-4Q	350		0		0	350	0
g . MAST Development Support - Contractor	MIPR	Smith Industries Clear Water , FLI	0	0	3-4Q	4750		0		0	4750	0
h . Performance Support System - NF	MIPR	Other Government Agency Support	0	0	2-4Q	1000		0		0	1000	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**504**

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
i . Common Avionics Architecture Initiation - Organic	MIPR		0	0		0	1-4Q	941		0	941	0
j . Common Avionics Architecture Initiation - Organic	CPAF		0	0		0	1-4Q	8473		0	8473	0
<b>Subtotal:</b>			93841	109164		140836		58126		18289	420256	0

Remarks: IMD-HUMS demonstration program was funded in FY02-04 and is separate from the UH-60M program.  
MAST demonstration program was funded in FY04 and is separate from the UH-60M and the HUMS programs.

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Cost Analysis Support	MIPR	AMCOM Matrix	288	77	1-3Q	212	2Q	212	1-3Q	424	1213	0
b . Logistics Analysis Support - Organic	MIPR	AMCOM Matrix	0	0	1-4Q	280	1-3Q	297	1-3Q	529	1106	0
c . Logistics Analysis Support - Support Contractor	MIPR	Support Contractor	0	0	1-3Q	247	1-3Q	523	1-3Q	699	1469	0
<b>Subtotal:</b>			288	77		739		1032		1652	3788	0

# ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**504**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Planning, Test and Evaluation	MIPR	Various Activities	1920	1238	1-4Q	7787	1-3Q	6162	1-3Q	6273	23380	0
b . Test Planning, Test and Evaluation	MIPR	Various Activities	0	0	1-4Q	123	1-3Q	131	1-3Q	233	487	0
Subtotal:			1920	1238		7910		6293		6506	23867	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Support - Organic	MIPR	UH PMO/matrix	1683	1261	1-4Q	1291	1-3Q	1413	1-3Q	2818	8466	0
b . PM Support - Contract	C/FP	O2K Contractor	613	258	1-3Q	1267	1-3Q	704	1-3Q	1206	4048	0
c . SIBR/STTR			0	0		4554		0		0	4554	0
Subtotal:			2296	1519		7112		2117		4024	17068	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

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

PROJECT

**504**

Project Total Cost:

98345

111998

156597

67568

30471

464979

0

# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

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

PROJECT  
504

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UH-60A RECAP (REBUILD)	[Red shaded area]																															
UH-60A RECAP (REBUILD)	UH-60A RECAP (REBUILD) PRODUCTION																															
UH-60L	[Red shaded area]																															
UH-60M RECAP (UPGRADE)	[Red shaded area]																															
MYP VII PRODUCTION (UH-60M NEW)	MYP VII PRODUCTION																															
(1) MS C, (2) FRP, (3) FUE	<div style="display: flex; justify-content: space-around;"> <span>▲<sub>1</sub> MS C</span> <span>FRP ▲<sub>2</sub></span> <span>▲<sub>3</sub> FUE</span> </div>																															
Test Article Fab/Checkout	Test Article Fab/Checkout																															
DT/Flight Test	DT/Flight Test																															
LRIP	LRIP																															
OT	OT																															
UH-60M RECAP (UPGRADE)	UH-60M RECAP (UPGRADE) PRODUCTION																															
HH-60M MED Kit	MED KIT																															

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**504**

<u>Schedule Detail</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Depot Partnership Study (UH-60M)	1-4Q						
IMD-HUMS: Completion of demonstration program					2Q		
System Critical Design Review (UH-60M)	3Q						
Test article delivery for testing (UH-60M)	4Q	1Q	4Q	1-3Q			
OT preparation and conduct				1-4Q	1Q		
Closeout of Integration and Qualification					2Q		
Depot Partnership Prove-out (UH-60M)				1-4Q	1-4Q		
Milestone C (UH-60M)			2Q				
LRIP Lot 1 Contract Award (UH-60M)			2Q				
LRIP Lot 2 Contract Award (UH-60M)				2Q			
Full Rate Production IPR (UH-60M)					3Q		
First Unit Equipped (FUE) (UH-60M)						1Q	
Mast Demonstration Program		2-4Q					
Performance Support System		2-4Q					
Note: Schedule reflects program restructure							

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 0203744A - Aircraft Modifications/Product Improvement Program					<b>PROJECT</b> D12			
COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
D12 LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP		0	1681	0	19639	60637	0	0	0	81957

**A. Mission Description and Budget Item Justification:** As enabled by the Congressional supplemental, the FY 04 add will fund an Army Distributed Mission Training System (ADMTS) that will provide the US Army and USAF attack aircraft with a training capability to develop the skills needed to conduct coordinated attacks on enemy targets. This is known as the Joint Air Attack Team (JAAT). The ADMTS will utilize the existing USAF DMT network and Army and Air Force flight simulators in a synthetic environment. This effort would introduce the AH-64A Combat Mission Simulator (CMS) as the first rotary-wing member of the ADMTS and identify the database constraints that have to be overcome for AH-64A pilots to participate in JAAT training scenarios.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Contract modification for ADMTS by PEO STRI (PM CATT)	0	1632	0
Small Business Innovative Research/Small Business Technology Transfer Programs	0	49	0
<b>Totals</b>	<b>0</b>	<b>1681</b>	<b>0</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**D12**

<b>B. Other Program Funding Summary</b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
APA, SSNs: AA6606, -6607, -6608 & -0978	1026783	834692	599113	637032	536371	466535	295868	2193200	4396394
RDTE, PE: 0203744A, Project 508	44395	0	0	0	0	0	0	0	44395

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

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**D12**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . MIPR to PEO STRI (PM CATT) for Contracting	C, FFP	Northrop Grumman Space & Mission Systems	0	0		1681	2-3Q	0		0	1681	1681
<b>Subtotal:</b>			0	0		1681		0		0	1681	1681

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

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
<b>Subtotal:</b>			0	0		0		0		0	0	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**D12**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

<b>Project Total Cost:</b>			0	0		1681		0		0	1681	1681
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

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

PROJECT  
D12

Event Name	FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11								
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4					
(1) ADMTS Contract Award			▲1																																		Army Distributed Mission Training System (ADMTS)
(2) CMS Standards Update				▲2																																	
(3) CMS Interface Installation							▲3																														
(4) CMS Demo								▲4																													

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**D12**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Contract Award		3Q					
CMS Standards Recommendation			1Q				
CMS External Interface Installation			2Q				
CMS/JAAT Connectivity Demonstration			3-4Q				

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

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

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 0203752A - Aircraft Engine Component Improvement Program					<b>PROJECT</b> 106			
COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
106	A/C COMPON IMPROV PROG	6759	5339	2427	2575	7717	9433	10388	Continuing	Continuing

**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. This system supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**106**

<u>Accomplishments/Planned Program</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
<p>T700 Engine: Continue addressing flight safety and readiness problems that arise in the field by providing timely engineering support.</p> <p>Continue the development of the T700-GE-701D, an essential upgrade required for the UH-60M aircraft. Continue the engineering support of fielded engines to enhance war fighting capability and improve durability and reliability while reducing cost of ownership.</p> <p>2003: Continued the development of the 701D engine to reduce engine O&amp;S costs and improve engine on-wing life. Completed the Gas Generator Turbine (GGT) Life Validation effort to compare recent life predictions versus commercial turboprop validated lives. Continued work on the Enhanced Digital Electronic Control Unit (EDECU) program [funded separately via Congressional directive] to reduce costs and improve safety.</p> <p>2004: Evaluate LCF test results and perform life analysis work on the 701D engine to reduce engine O&amp;S costs, increase flight safety, and improve engine on-wing life. Complete development of the Enhanced Digital Electronic Control Unit and support flight testing on the UH-60L to reduce O&amp;S costs and improve safety. Perform life analysis of cooling plates to improve flight safety.</p> <p>2005: Complete analysis of 701D Combustor and qualify alternate HMU vendor for T700-GE-701D engine qualification. Initiate 701D altitude test to improve readiness and reduce O&amp;S costs. Anticipate start of EDECU Phase II to reduce O&amp;S costs and improve safety.</p>	1673	1657	1044

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

February 2004

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0203752A - Aircraft Engine Component Improvement Program</b>	<b>PROJECT</b> <b>106</b>
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<b>Accomplishments/Planned Program A(continued)</b>	FY 2003	FY 2004	FY 2005
<p>T55 Engine: Continue applying engineering effort to unanticipated flight safety problems revealed in the field &amp; provide timely support. Continue development of T55-GA-714B for CH-47 D/F aircraft. Continue the engineering support of fielded engines to enhance war-fighting capability, improve durability &amp; reliability while reducing cost of ownership.</p> <p>2003:Continued with the design &amp; quality of an improved bleed system to reduce O&amp;S costs. Continued Safety Enhanced Plumbing to improve engine safety. Design &amp; Quality of the Enhanced tailpipe to reduce O&amp;S costs. Continue efforts on N2 Speed Sensor to reduce amount of hardware O&amp;S. Start the design effort &amp; drafted the Prime Item Development Specification (PIDS) for the T55-GA-714B engine upgrade program, program will increase temp margin &amp; reduce O&amp;S costs.</p> <p>2004:Complete the quality of the Safety Enhanced Plumbing &amp; submit the ECP. Continue with the design &amp; quality of the N2 Speed Sensor Program to reduce amount of Accessory Gearbox hardware reliability &amp; reducing O&amp;S Costs. Increase activity on the Design efforts &amp; finalize the PIDS for the T55-GA-714B engine program to increase engine temp margin &amp; reduce O&amp;S costs (engines remain on-wing longer). Continue the design of the Improved Bleed System to reduce O&amp;S costs by improving reliability of the system.</p> <p>2005:Continue with design work &amp; start the quality effort for the T55-GA-714B increase engine temp margin &amp; reduce O&amp;S costs (engines remain on-wing longer). Complete the quality effort to include flight-testing of the Enhanced tailpipe to reduce O&amp;S costs, submit the ECP for incorporation. Complete quality efforts for the Improved Bleed System to reduce O&amp;S costs and submit the ECP for incorporation. Continue quality efforts for the N2 Speed Sensor Program to reduce the amount of accessory Gearbox hardware, increasing reliability &amp; reducing O&amp;S costs.</p>	1363	1137	950

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

February 2004

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203752A - Aircraft Engine Component Improvement Program</b>	PROJECT <b>106</b>
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	FY 2003	FY 2004	FY 2005
<b>Accomplishments/Planned Program A(continued)</b>			
GTCP36 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. 2003: Initiated effort to qualify barrier filters that will prevent sand erosion damage resulting in increased APU life. Conducted engineering analysis of service revealed deficiencies. Continued life analysis of critical rotating components. Completed design and testing of fuel solenoid kickplate bracket. 2004: 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. 2005: Develop new repairs and extend wear limits, new repair tools and techniques to reduce O&S costs. Develop a dual alloy turbine wheel to ensure safety, improved reliability, and decrease O&S costs. Conduct engineering analysis of service revealed deficiencies.	101	165	150
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 2003: 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. 2004: 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. 2005: Develop new repairs and extend wear limits, new repair tools and techniques to reduce O&S costs. Conduct engineering analysis of service revealed deficiencies.	100	155	125
IN HOUSE: In-house support for the CIP engineers. Contracting support for CIP contracts.	449	226	158
Continued development of Universal Full Authority Digital Engine Control (FADEC)	2012	1847	0
Continued development of Variable Displacement Vane Pump (VDVP) and Liquid or Light End Air (LOLA) Equipped Fuel Delivery Unit (FDU) Reprogramming	938	0	0
Prior year closed account funding	118	0	0
Small Business Innovative Research/Small Business Technology Transfer Programs	5	0	0
	0	152	0
<b>Totals</b>	<b>6759</b>	<b>5339</b>	<b>2427</b>

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**106**

<b><u>B. Program Change Summary</u></b>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	6767	3399	3451
Current Budget (FY 2005 PB)	6759	5339	2427
Total Adjustments	-8	1940	-1024
Congressional program reductions		-51	
Congressional rescissions	-91		
Congressional increases	3400	2000	
Reprogrammings	-3125	-9	
SBIR/STTR Transfer	-192		
Adjustments to Budget Years			-1024

FY 2005: Funds realigned (-\$1.0 million) to higher priority Army programs.

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

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

February 2004

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0203752A - Aircraft Engine Component  
Improvement Program**

PROJECT

**106**

**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 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**106**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . T700 Engine	SS/CPFF	GE-Air, Lynn, MA	53438	1670	1-3Q	1657	1-2Q	1044	1-2Q	Continue	57809	Continue
b . T55 Engine	SS/CPFF	Honeywell, Phoenix, AZ	24428	1363	1-3Q	1137	1-3Q	950	1-2Q	Continue	27878	Continue
c . APU's	MIPR	Air Force, Kelly AFB, TX	13557	0		0		0		0	13557	13557
d . FADEC/FDU	MIPR	CECOM, Ft. Monmouth, NJ	5577	1908	2-4Q	1999	2-4Q	0		0	9484	5716
e . APU's	MIPR	Air Force, Hill AFB, UT	724	201	3Q	320	3Q	275	3Q	Continue	1520	Continue
f . LOLA	MIPR	CECOM, Ft. Monmouth, NJ	0	938		0		0		0	938	0
Subtotal:			97724	6080		5113		2269		Continue	111186	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**106**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contract Engineering	SS/CPFF	Westar, St. Louis, MO	10	0		0		0		0	10	10
b . Contract Engineering	SS/CPFF	Camber, Huntsville, AL	199	0		0		0		0	199	199
c . Contract Engineering	SS/CPFF	AMS, Huntsville, AL	0	107	3Q	0		0		0	107	107
Subtotal:			209	107		0		0		0	316	316

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Redstone Avn Prop Test Res (RAPTR) Facility Data Reduction Prog	MIPR	Redstone Technical Test Center, RSA, AL	561	0		0		0		0	561	Continue
Subtotal:			561	0		0		0		0	561	Continue

Remarks: Not Applicable

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**106**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-house Engineering		ATCOM, St. Louis, MO	10342	0		0		0		0	10342	10342
b . In-house Engineering	NA	AMCOM, Redstone Arsenal, AL	407	449	1-4Q	226	1-4Q	158	1-4Q	Continue	1240	Continue
c . DA Withhold			0	118		0		0		0	118	0
d . Prior Year Closed Account Funding			0	5		0		0		0	5	0
Subtotal:			10749	572		226		158		Continue	11705	Continue
Project Total Cost:			109243	6759		5339		2427		Continue	123768	Continue

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

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 0203758A - Digitization					<b>PROJECT</b> 374			
COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
374	HOR BATTLEFLD DIGITIZN	27727	18049	24506	23390	15835	10103	11432	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) Unit Set Fielding (USF) operationally releases, fields, and incorporates materiel systems as part of the whole C4ISR system of systems architecture associated with the critical mission threads the Army requires to support Strategic National Tasks. USF serves as the synchronizing process, ensuring that fieldings are implemented in an integrated and complimentary fashion and support a unit's modernization with minimum disruption to unit readiness. 4) Software Blocking to synchronize system developments in order to support SOS interoperability for legacy, interim and objective forces. Horizontal Battlefield Digitization supports the Future/Current to Future transition path of the Army Transformation Plan

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
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.	4688	2052	1253
Provide technical, analytical, and management support for implementation of information operations on the digitized battlefield.	1689	1100	1130
Coordinate, integrate, and synchronize all aspects of material system fieldings to include tracking, recording, and resolving issues for system of systems synchronization and database management, the TCP priorities.	6452	5566	5189

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

**February 2004**

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
<b>7 - Operational system development</b>	<b>0203758A - Digitization</b>	<b>374</b>		
<b>Accomplishments/Planned Program B(continued)</b>		<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>
Provide through validation of evolving digital requirements/architecture to ensure realistic/adequate data flows, mission thread analysis, interoperability, human resource engineering, security and physical layout of the Transformation Campaign Plan.		1505	900	500
Develop C4I systems software baselines and manage Horizontal Technology Integration efforts. Provide assessments for risk, interoperability, performance, and scheduling. Perform System Integration functions for baselining and process improvements.		175	0	0
Synchronize system/platform integration, through the use of common components, across ground and aviation programs.		1000	500	500
Migrate full Joint interoperability and integration standards, including the robust near real time network integration of Aviation systems with Ground systems, and robust networked and databased integration of Weapon systems with Command & Control (C2) systems. Provide synergistic operational capabilities to the force.		2500	2500	1500
Improve network management across all fielded digitized systems to support increased activity.		2639	0	0
Integrate and synchronize interoperability across C4ISR programs in support of testing, training, and fielding system of systems developments to the force. Provide efforts in architecture to strengthen and leverage S&T advanced capabilities, like flexibility and extensibility.		4210	3000	3000
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 Situational Awareness of the battlespace, enabling the Warfighters to more precisely and decisively command and control that battlespace.		0	0	10434
Apply university academic and research resources to the integration of Army modeling, simulation, and training in support of modernized forces.		2000	1000	0
Support Joint and Coalition interoperability programs to improve operational integration in accordance with JV 2010, including C4I Coalition Warfare, interoperability database developments, operational system architectures and the Multilateral Interoperability Program (MIP).		869	986	1000
Small Business Innovative Research/Small Business Technology Transfer programs.		0	445	0
<b>Totals</b>		<b>27727</b>	<b>18049</b>	<b>24506</b>

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0203758A - Digitization**

PROJECT  
**374**

<b><u>B. Program Change Summary</u></b>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	32158	18251	18716
Current Budget (FY 2005 PB)	27727	18049	24506
Total Adjustments	-4431	-202	5790
Congressional program reductions		-172	
Congressional rescissions			
Congressional increases			
Reprogrammings	-4431	-30	
SBIR/STTR Transfer			
Adjustments to Budget Years			5790

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

**C. Other Program Funding Summary:** Not Applicable

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)****February 2004**

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0203758A - Digitization**

PROJECT

**374**

**D. Acquisition Strategy:** To validate/demonstrate concepts and requirements, near term efforts are focused on developing a seamless battlefield software architecture and digitized appliqué 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 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 and Joint Battlefield Situational Awareness.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203758A - Digitization**

**PROJECT**  
**374**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . System Integration/Software Blocking	MIPR/PWD	Various	59186	16474	1Q	12848	2-3Q	11422	1Q	Continue	99930	0
b . International Digitization	MIPR/PWD	Various	11001	0	1Q	0	1Q	0	1Q	0	11001	0
c . Technical Analysis	MIPR	MITRE, McLean, VA	4028	1090	1Q	1329	1Q	1200	1Q	Continue	7647	0
d . Other Government Agencies	MIPR	Various	6022	500	1Q	0	1Q	0		0	6522	0
e . Single Integrated Ground Picture	MIPR		0	0		0		10434	2-3Q	8000	18434	0
<b>Subtotal:</b>			80237	18064		14177		23056		Continue	143534	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203758A - Digitization**

**PROJECT**  
**374**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Directorate of Integration Office Operations	In House	Pentagon, Arlington, VA	6192	1400	1-4Q	1615		1450	1-4Q	0	10657	0
b . Digitization Planning, Internet and graphics support	MIPR	Veridian Corp. Pentagon, Arlington, VA	5299	1700	1Q	0		0		0	6999	0
c . Info Ops, System Eng. Integration & Ops Spt.	PWD	Quantum Res International, Pentagon, Arlington, VA, Ft. Monroe, VA, & Ft. Hood, TX and others	11026	4100	1Q	1257		0		0	16383	0
d . Other Integration Support	MIPR	L3Com, Pentagon	1923	196	1Q	0		0		0	2119	0
Subtotal:			24440	7396		2872		1450		0	36158	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0203758A - Digitization**

**PROJECT**  
**374**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Other Govt. Agencies	MIPR	Various	4935	127	1Q	0		0		0	5062	0
b . University XXI Initiatives	PWD	Univ. of Texas and Texas A&M	8692	2000	1Q	1000		0		0	11692	0
c . Studies/Analyses	MIPR	Pentagon, Arlington, VA	1976	140	1Q	0		0		0	2116	0
d . DISM Battalion Test	MIPR/PWD		1000	0		0		0		0	1000	0
Subtotal:			16603	2267		1000		0		0	19870	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			0	0		0		0		0	0	0
Subtotal:												

Remarks: Not Applicable

Project Total Cost:			121280	27727		18049		24506		Continue	199562	0
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# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0203759A - Force XXI Battle Command, Brigade and Below (FBCB2</b>					<b>PROJECT</b> <b>120</b>			
COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
120	FORCE XXI BATTLE CMD, BRIGADE & BELOW (FBCB2)	59887	47901	23510	14744	8010	8333	8335	Continuing	Continuing

**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.

FY05 funds complete Type I Encryption and interoperability between TI and L-Band based FBCB2 systems. FBCB2 is an Army designated Horizontal Technology Integration (HTI) program. This system supports the Current/Stryker Brigade Combat Team (SBCT) transition path of the Transformation Campaign Plan (TCP).

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Support Govt testing (IE Cold Region Test Center, NTC 03/03 - 03/10, Stryker demo and Stryker Certex	3588	0	0
Development of OEF Software Enhancements and Database Adjustments for Blue Force Tracking	14880	0	0
Support to Joint Blue Force Tracking Situational Awareness (JBFS) Advanced Concept Technology Demonstration (ACTD)	1494	0	0
Future Communications Study	928	0	0
Complete Army Battle Command System (ABCS) architecture and system of systems network engineering and integration efforts in support of v6.4.1 and Software Block Functionality	25424	14900	0
PM FBCB2 Program Management.	6180	3932	2124
Type I Encryption and NSA Endorsement	310	8100	5700

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

February 2004

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203759A - Force XXI Battle Command, Brigade and Below (FBCB2</b>	PROJECT <b>120</b>
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<b>Accomplishments/Planned Program B(continued)</b>	FY 2003	FY 2004	FY 2005
Conduct Development Test/Operational Test for Block I Capability of FBCB2-BFT at Electronic Proving Ground (EPG) and multiple FORSCOM unit NTC rotation at Ft. Irwin, CA	4883	6200	500
Develop/Maintain Joint Interoperability (USMC, Land Warrior/Dismount) and implement Coalition (UK) interoperability	2200	8088	9700
Develop Satellite Spectrum and Tactical Internet Interoperability, Data Loading/Management initialization to synchronize updates	0	5312	5486
Small Business Innovative Research/Small Business Technology Transfer Programs	0	1369	0
<b>Totals</b>	<b>59887</b>	<b>47901</b>	<b>23510</b>

<b>B. Program Change Summary</b>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	61961	48436	20224
Current Budget (FY 2005 PB)	59887	47901	23510
<b>Total Adjustments</b>	<b>-2074</b>	<b>-535</b>	<b>3286</b>
Congressional program reductions		-456	
Congressional rescissions			
Congressional increases			
Reprogrammings	-2074	-79	
SBIR/STTR Transfer			
Adjustments to Budget Years			3286

FY03 \$1M Reprogramming to higher priority program.  
 FY05 represents increased integration cost to support additional production in support of Operation Iraqi Freedom (OIF).

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**120**

<b>C. Other Program Funding Summary</b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
Other Procurement Army Activity 2 SSN	182231	84883	120073	142329	139376	0	0	0	752736
<del>061900</del> Other Procurement Army Activity 4 SSN BS9736 (Spares)	1904	4179	3361	3549	3553	2791	6075	0	26646

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

A Low Rate Initial Production (LRIP) Fixed Price Incentive Fee (FPIF) contract was awarded in January 2000 for the production of 5,952 systems with OPA funds. An LRIP Contingency Option for an additional 6,774 FBCB2 Systems was authorized in Nov 2002 and an Acquisition Decision Memorandum was approved Sept 22, 2003 for an additional one-year of LRIP. A Full Rate Production (FRP) decision is planned following Developmental Test/Operational Test, 2QFY04.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**120**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software/Systems Engineering	CPIF/CPAF	Northrup Grumman, CA	135621	17080	1Q	15305	1Q	5400	1Q	Continue	Continue	0
b . Hardware Development	FFP	Northrup Grumman, CA	27645	0		0		0		0	27645	0
c . Software Development	CPIF/CPAF	Northrup Grumman, CA	184929	31744	1Q	22464	1Q	15486	1Q	Continue	254623	0
d . TACNAV	CPIF	TRW CA	1000	0		0		0		0	1000	0
<b>Subtotal:</b>			349195	48824		37769		20886		Continue	Continue	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Office Support	N/A	CECOM, Ft. Monmouth	10937	1300	1Q	1200	1-4Q	750	1-4Q	Continue	Continue	0
b . Matrix Support	MIPR	CECOM, Ft. Monmouth	3941	176	1Q	313	1-2Q	350	1-2Q	Continue	Continue	0
c . Misc. Contracts Support	MIPR/PWD	CECOM, Ft. Monmouth	18307	4704	1Q	2409	1-2Q	1024	1-2Q	Continue	Continue	0
<b>Subtotal:</b>			33185	6180		3922		2124		Continue	Continue	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**120**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . CTSF	MIPR	CTSF	2133	190	2Q	0		0		0	2323	0
b . ATEC	MIPR	ATEC	32610	370	1Q	2300	1Q	500	1Q	Continue	Continue	0
c . EPG	MIPR	EPG	14739	795	1Q	3910	1Q	0		Continue	Continue	0
d . CRTC	MIPR	CRTC	0	1040	1Q	0		0		0	1040	0
e . Misc Contract Support			0	2488	1-3Q	0		0		0	2488	0
Subtotal:			49482	4883		6210		500		Continue	Continue	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**120**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			0	0		0		0		0	0	0
Subtotal:												
Project Total Cost:			431862	59887		47901		23510		Continue	Continue	0

# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**120**

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09																			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																
SYSTEM DEV & DEMO (SDD)/LOW RATE INITIAL PROD (LRIP)																																																
LRIP Contract Phase																																	LRIP (Basic, Opt 1, 2, Cont. +Ext.)															
(1) LRIP Contingency Option Contract Award																																	▲ 1															
(2) LRIP Extension (Beyond FY03) Contract Award																																	▲ 2															
SE & I Contract Phase																																	SE & I															
(3) Follow-On SE & I Contract Award																																	▲ 3															
(4) Field Test #5, (5) Limited User Test #3, (6) FBCB2-BFT Developmental/ Operational Test (DT/OT)																																	▲ 4	▲ 5	▲ 6 Feb/Mar 04													
(7) FRP DR																																	▲ 7 DAB															
FULL RATE PRODUCTION & DEPLOYMENT																																	FRP															
Full Rate Production (FRP) Contract Phase																																																
(8) Full Rate Production Contract Award	▲ 8																																															
(9) Software Version 6.4x Operational Evaluation	▲ 9																																															

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**120**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Climatic (Extreme Cold) Testing Ft. Greely, AK	2Q						
Developmental Test/Operational Test		2Q					
Award Follow-on SE&I Contract		4Q					
Full Rate Production Decision Review			1Q				
Full Rate Production Contract Award			2Q				
FBCB2 Software v6.4.1 Delivery			1Q				
Operational Test on v6.4.1 software			3Q				
FBCB2 SW Upgrade and Test				3Q			
FBCB2 SW Upgrade and Test						1Q	
FBCB2 SW Upgrade and Test							3Q

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

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

February 2004

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203801A - Missile/Air Defense Product Improvement Program</b>									
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost	
Total Program Element (PE) Cost	39262	46055	31690	16576	10785	11054	11291	Continuing	Continuing	
036 PATRIOT PROD IMP PGM	39262	46055	31690	16576	10785	11054	11291	Continuing	Continuing	

**A. Mission Description and Budget Item Justification:** PATRIOT is an advanced Surface-to-Air guided missile system with a high single shot kill probability capable of operation in the presence of Electronic Countermeasures (ECM) and able to conduct multiple simultaneous engagements against high performance air breathing targets and ballistic missiles likely to be encountered by US Forces. The Patriot Product Improvement Program provides for the upgrade of the Patriot System through individual materiel changes culminating in the attainment of the Patriot Advanced Capability-3 (PAC-3) System. Program objective will be to define and implement software changes necessary to enhance system capabilities against advanced Air Breathing Threat (ABT), Tactical Ballistic Missile (TBM) and Cruise Missile threats. Recapitalization development efforts address Mode V/S Identify Friend or Foe (IFF), launcher and design improvements. Single Integrated Air Picture (SIAP) continues efforts associated with Block 0 improvements initiated in FY03. This system supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

<b><u>B. Program Change Summary</u></b>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	41787	44468	32025
Current Budget (FY 2005 PB)	39262	46055	31690
Total Adjustments	-2525	1587	-335
Congressional program reductions		-438	
Congressional rescissions			
Congressional increases		2100	
Reprogrammings	-2525	-75	
SBIR/STTR Transfer			
Adjustments to Budget Years			-335

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

**February 2004**

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

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

FY04 funds were increased by \$1.0 million by Congress for Patriot Light Weight Antenna Mast Group (LAMG), \$1.1 million for Advanced Composite RADOME and reduced by \$.438 million for undistributed Congressional reductions and \$.075 million was realigned to higher Army priorities.

FY05 funds (\$.335 million) were realigned to higher Army priorities.

\* On January 23, 2004, The OUSD(C) submitted to the Congressional Committees a prior approval reprogramming request to fund Patriot Modifications needed to address Operation Iraqi Freedom Lessons Learned. The reprogramming includes \$17.7 million for development efforts and \$24.0 million for procurement. The \$24.0 million is not reflected in the column above.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203801A - Missile/Air Defense Product Improvement Program</b>						PROJECT <b>036</b>			
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost	
036 PATRIOT PROD IMP PGM	39262	46055	31690	16576	10785	11054	11291	Continuing	Continuing	

**A. Mission Description and Budget Item Justification:** The Patriot Product Improvement Program provides for the upgrade of the Patriot System through individual materiel changes culminating in the attainment of the Patriot Advanced Capability-3 (PAC-3) System. Program objective will be to define and implement software changes necessary to enhance system capabilities against advanced Air Breathing Threat (ABT), Tactical Ballistic Missile (TBM) and Cruise Missile threats. Recapitalization development efforts address Mode V/S Identify Friend or Foe (IFF), launcher and design improvements. Single Integrated Air Picture (SIAP) continues efforts associated with Block 0 improvements initiated in FY03. This system supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Continue Post PDB 5	4485	6652	7604
Recapitalization	26527	30019	19234
Special Program (PIP)	4250	0	0
SIAP	4000	6000	4852
Advanced Composite RADOME	0	1100	0
LAMG	0	1000	0
Small Business Innovative Research/Small Business Technology Transfer Programs	0	1284	0
<b>Totals</b>	<b>39262</b>	<b>46055</b>	<b>31690</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**036**

**B. Other Program Funding Summary**

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
Budget Activity 3 - Patriot Mod (C50700)	148617	201072	87948	77411	79619	74169	66299	0	759954
Budget Activity 3 - Patriot Mod Initial Spares CA0267	39946	31817	14730	14813	9569	9043	8151	0	128791

**C. Acquisition Strategy:** The design objective of the Patriot system was to provide a baseline system capable of modification to cope with the evolving threat. This alternative minimizes technological risks and provides a means of enhancing system capability through planned upgrades of deployed systems. The Patriot program consists of two interrelated acquisition programs - the Patriot growth program and the PAC-3 missile program. Growth program modifications are grouped into configurations, which are scheduled to be fielded in the same timeframe. Configuration groupings are convenient for managing block changes of hardware and software and are not a performance-related grouping. However, incremental increases in performance will be determined for each configuration in order to provide benchmarks for configuration testing and for the development of user doctrine and tactics.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**036**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . RLCEU Link 16 Phase I			1226	0		0		0		0	1226	0
b . Post PDB 5	PO	MRDEC, AL	2760	1402		3786		2618		Continue	10566	Continue
c . Recapitalization	SS-FP	Raytheon, MA	5273	26527	2Q	30019	2Q	19234	2Q	Continue	81053	0
d . Special Program (PIP)			0	4250	2Q	0		0		0	4250	0
e . SIAP	MIPR		0	4000	3Q	6000	3Q	4852	3Q	Continue	14852	0
f . Advanced Composite RADOME	SS-CPIF	LMMFC - D, TX	0	0	3Q	1100		0		0	1100	0
g . LAMG	SS-FP	Raytheon, MA	0	0	3Q	1000		0		0	1000	0
Subtotal:			9259	36179		41905		26704		Continue	114047	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**036**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support		RSA/AL	14961	450		500		810		Continue	16721	Continue
b . Matrix Support		RSA/AL	3347	320		550		520		Continue	4737	Continue
Subtotal:			18308	770		1050		1330		Continue	21458	Continue

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Missile Command	1095	RSA/AL	15221	800		1300		1000		Continue	18321	Continue
b . White Sands Missile Range	MIPR	WSMR/NM	12758	234		375		400		Continue	13767	Continue
c . RDEC and Other Govt Agent	1095/MIPR	RSA/AL	95732	1279		1425		2256		Continue	100692	0
Subtotal:			123711	2313		3100		3656		Continue	132780	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**036**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0
Project Total Cost:			151278	39262		46055		31690		Continue	268285	Continue

# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**036**

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09																			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																
PAC-3 MISSILE PROGRAM MILESTONES																																																
(1) DAB IPR PATRIOT/MEADS COMBINED PROG, (2) PATRIOT/MEADS COMBINED PROG MILESTONE B, (3) PAC-3 Missile IOC									▲ 1				▲ 2																																			
PAC-3 EMD	PAC-3 EMD																																															
MISSILE SEGMENT ENHANCEMENT													PAC-3 MISSILE SEGMENT ENHANCEMENT																																			
LOW-RATE INITIAL PRODN													PAC-3 LRIP																																			
(4) PAC-3 BLOCK 2002 PRODN DECISION (DAB)					▲ 4																																											
BLOCK 2002 PRODUCTION													PAC-3 BLOCK 2002																																			
(5) PAC-3 BLOCK 2004 PRODN DAB													▲ 5																																			
BLOCK 2004 PRODUCTION																					PAC-3 BLOCK 2004 PRODUCTION																											
(6) PAC-3 BLOCK 2006 PRODN DAB																									▲ 6																							
BLOCK 2006 PRODUCTION																													PAC-																			
RECAPITALIZATION	RECAPITALIZATION (SYNCHRONIZED WITH PAC-3 UPGRADES)																																															

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**036**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
PAC-3 Missile Block 02 Production DAB	1Q						
PAC-3 Missile Block 04 Production DAB		4Q					
PAC-3 IOC			4Q				
PAC-3 Missile Block 06 Production DAB					4Q		
DAB IPR PAC-3/MEADS Combined Program		3Q					

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

February 2004

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0203802A - Other Missile Product Improvement Programs</b>							
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	12229	1061	4863	9858	8987	22916	21623	Continuing	Continuing
785    LONGBOW HELLFIRE PIP	12229	1061	0	0	0	0	0	0	42549
786    APKWS SIMULATOR UPGRADE	0	0	4863	9858	8987	22916	21623	Continuing	Continuing

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

The Advanced Precision Kill Weapon System (APKWS) Training Simulator upgrades will consist of the development, testing, and installation of the software/hardware necessary for pilot training. These software upgrades will be developed, tested, and installed on the AH-64 Apache, and the RAH-66 Comanche helicopter simulators. These training simulator upgrades will aid the pilot in the initial and annual training required for firing the APKWS munition. The training simulator upgrades will significantly reduce the number of munitions required for initial and annual training. The APKWS Simulator Upgrade program supports the Current to Future Force transition path of the Transformation Campaign Plan (TCP).

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	12445	9822	4915
Current Budget (FY 2005 PB)	12229	1061	4863
Total Adjustments	-216	-8761	-52
Congressional program reductions		-10	
Congressional rescissions			
Congressional increases			
Reprogrammings	-216	-8751	
SBIR/STTR Transfer			
Adjustments to Budget Years			-52

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203802A - Other Missile Product Improvement Programs</b>	PROJECT <b>785</b>
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COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
785      LONGBOW HELLFIRE PIP	12229	1061	0	0	0	0	0	0	42549

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

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Implement design changes; formal hardware qualification; hardware in the loop; complete critical/final design; complete guidance section and rocket ball design evaluation.	10229	1032	0
Conduct missile ground flight test, low speed captive flight test, and aircraft system flight test.	1193	0	0
Conduct tower, wind tunnel, and hardware in the loop testing.	0	0	0
Perform government engineering support.	807	0	0
Small Business Innovative Research/Small Business Technology Transfer Programs	0	29	0
<b>Totals</b>	<b>12229</b>	<b>1061</b>	<b>0</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**785**

<b><u>B. Other Program Funding Summary</u></b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
C70300 Longbow Hellfire/LBHF	181183	24875	15575	2519	0	0	0	0	2080548
C71500 HELLFIRE Modifications	0	0	9770	0	0	0	0	0	9770

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

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**785**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Prime Contract	LC/CPIF-AF	Longbow Limited Liability Company, Orlando, FL	21576	8970	1Q	1061	1Q	0		0	31607	0
b . Support Contracts	Various	Various	2120	622	1-4Q	0	1-4Q	0		0	2742	0
c . Development Engineering	Various	Various	1944	637	1-4Q	0	1-4Q	0		0	2581	0
Subtotal:			25640	10229		1061		0		0	36930	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**785**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	Various	Various	1074	1193	1-4Q	0		0		0	2267	0
Subtotal:			1074	1193		0		0		0	2267	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	Various	Various	2545	807	1-4Q	0		0		0	3352	0
Subtotal:			2545	807		0		0		0	3352	0

<b>Project Total Cost:</b>			29259	12229		1061		0		0	42549	0
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

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

PROJECT  
785

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
P3I																																
HOJ/AJ RDTE																																
HOJ/AJ ECP Fielding																																

## Schedule Detail (R4a Exhibit)

**February 2004**

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203802A - Other Missile Product Improvement Programs</b>	PROJECT <b>785</b>
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<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Test and Evaluation							
Missile firings LBHF HOJ/AJ	2Q						
Engineering Change Proposal LBHF HOJ/AJ	3Q						

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0203802A - Other Missile Product Improvement Programs</b>	PROJECT <b>786</b>
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COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
786    APKWS SIMULATOR UPGRADE	0	0	4863	9858	8987	22916	21623	Continuing	Continuing

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

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Define system requirements for training simulator hardware and software.	0	0	4263
Develop test plans.	0	0	212
Perform government engineering support.	0	0	388
<b>Totals</b>	0	0	4863

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**786**

<b><u>B. Other Program Funding Summary</u></b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
PE 604802/705 Advanced Precision Kill Weapon System (APKWS) SD&ED	21366	46870	12450	6241	5054	0	0	0	91981

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

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**786**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Prime Contract	CPIF/AF	TBD	0	0		0		3713	1Q	92688	96401	0
b . Support Contracts	Various	Various	0	0		0		125	1-4Q	3063	3188	0
c . Developmental Engineering	Various	Various	0	0		0		425	1-4Q	8679	9104	0
Subtotal:			0	0		0		4263		104430	108693	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**786**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	Various	Various	0	0		0		212	1Q	6046	6258	0
Subtotal:			0	0		0		212		6046	6258	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	Various	Various	0	0		0		388	1Q	8404	8792	0
Subtotal:			0	0		0		388		8404	8792	0

Project Total Cost:			0	0		0		4863		118880	123743	0
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## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**786**

<u>Schedule Detail</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Award APKWS Simulator Contract			1Q				
APKWS Simulator PDR			3Q				
APKWS Simulator CDR				2Q			
APKWS Simulator Testing				3Q			
APKWS Simulator Refit				4Q			

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	13281	16362	18177	16719	5877	1497	897	Continuing	Continuing
01D TACTICAL INTERNET MANAGEMENT SYSTEM	4601	7612	18168	16710	5867	1497	897	Continuing	Continuing
107 ISYSCON DEVELOPMENT	8680	8750	9	9	10	0	0	0	78495

**A. Mission Description and Budget Item Justification:** A requirement exists to automate Signal Corps units' capability to manage multiple tactical communications systems in support of battlefield operations. The Integrated System Control (ISYSCON) facility will provide centralized management of the tactical communications network, establish an interface with each technical control facility in the Army Battlefield Command System (ABCS) architecture, and enable automated configuration and management in a dynamic battlefield data network, provided by MSE and the ACUS MOD Programs. ISYSCON is being developed with incremental software releases to support blocked requirements in accordance with the ORD. The ISYSCON Program serves as a baseline foundation to support future network management initiatives tied to and part of the digitized division and the Warfighter Information Network (WIN) Architecture.

The ISYSCON (V)4 Tactical Internet Management System (TIMS) is also being developed to facilitate network planning and management of the Tactical Internet at Brigade and Below, as well as the Tactical Operations Centers (TOC) and Command Posts (CP) Local Area Network (LAN) at all required Echelons.

This system supports the Current Force transition path of the Transformation Campaign Plan (TCP).

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

<u>B. Program Change Summary</u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	13506	16543	18664
Current Budget (FY 2005 PB)	13281	16362	18177
Total Adjustments	-225	-181	-487
Congressional program reductions		-155	
Congressional rescissions			
Congressional increases			
Reprogrammings	-225	-26	
SBIR/STTR Transfer			
Adjustments to Budget Years			-487

FY02 \$4.186M Reprogrammed from 363 JNMS to 01D ISYSCON/TIMS(V)4 to support Block 4 Software (SW) Development.  
 FY04 Adjustment reflects: \$1M plus up for 01D TIMS (V)4 to support Block 5 software development, \$2.2M realigned from OPA to RDT&E TIMS to finance a rescheduled Joint Initial Operational Test and Evaluation (IOT&E), and \$2.8M plus up for D107 ISYSCON (V)1&2 for SW Development Block 3.  
 FY05 Adjustment reflects increase for 01D TIMS (V)4 to support Block 5 software development.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2004**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0208010A - Joint Tactical Communications Program (TRI-TAC)</b>					<b>PROJECT</b> <b>01D</b>			
COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
01D TACTICAL INTERNET MANAGEMENT SYSTEM		4601	7612	18168	16710	5867	1497	897	Continuing	Continuing

**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)
- In FY03, funding transitioned to Project 01D from ISYSCON (V)1/(V)2 Project D107
- The TIMS system supports the Current Force transition path of the Transformation Campaign Plan (TCP)

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Requirement Analysis, System Engineering, and Software Development Blk 4	4601	0	0
Test & Evaluation Blk 4	0	556	700
Requirement Analysis, System Engineering, and Software Development ABCS 6.4	0	6834	0
Requirement Analysis, System Engineering Data Load, Data Maintenance "Must Have Beyond Good Enough" requirements	0	0	17468
Small Business Innovative Research/Small Business Technology Transfer Programs	0	222	0
<b>Totals</b>	<b>4601</b>	<b>7612</b>	<b>18168</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**01D**

<b>B. Other Program Funding Summary</b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
B93900 TIMS	12565	12967	11363	14142	8730	6360	0	0	66127

**C. Acquisition Strategy:** The Tactical Internet Management System (ISYSCON (V)4/TIMS) was developed from Army Warfighter Experiments that showed tactical network management and planning to be extremely time consuming. A DD-2028 change to the ISYSCON Requirement Operational Capability (ROC) identified the need for Tactical Internet and Tactical Operation Command (TI and TOC) Local Area Network management. An Operational Requirements Document (ORD), superceding the ISYSCON ROC/2028 Change, was approved in May 02. Milestone C Limited Deployment was approved June 21, 2001 and amended June 17, 2002. Blocks 2 and 4 of the ISYSCON (V)4 ORD requirements have been deployed to 4ID, 1CD and SBCTs 1 & 2. The Block 5 KPP will be developed as part of the CSA approved ABCS 6.4 "Good Enough" initiative. The next ISYSCON (V)4 release will satisfy the CSA approved ABCS 6.4 "Good Enough" requirements. The release 6.4 IOTE will be conducted during the ABCS 6.4 Graduation exercise in early 1QFY05. FRP IPR and MR will follow in 2-3QFY05.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**01D**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . TIMS Software Development	CPIF	TRW, Carson, CA	0	2447	2Q	6213	2Q	16168	2Q	Continue	24828	0
Subtotal:			0	2447		6213		16168		Continue	24828	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . TIMS Contractor Engr	MIPR/PWD	Various	0	364	2Q	100	2Q	390	2Q	Continue	854	0
b . TIMS Government Engr	MIPR	Various	0	540	2Q	487	2Q	660	2Q	Continue	1687	0
Subtotal:			0	904		587		1050		Continue	2541	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**01D**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . TIMS IOT&E	MIPR	AEC-Various	0	0		556	2Q	700	1Q	0	1256	0
Subtotal:			0	0		556		700		0	1256	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . MITRE	MIPR/PWD	Eatontown, NJ	0	1250	2Q	256	2Q	250	2Q	Continue	1756	0
Subtotal:			0	1250		256		250		Continue	1756	0

Project Total Cost:			0	4601		7612		18168		Continue	30381	0
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**01D**

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(1) Full Rate Prod IPR													▲1																			
(2) CSA Approved ORD, (3) Mat'l Rel/Init Oper Capab		▲2													▲3																	
ISYSCON V(4)/TIMS Build Schedule																																
(4) Block 4, (5) Block 5, (6) Block 5							▲4				▲5									▲6												
Test Schedule																																
(7) LUT2A, (8) FT 5 Block 4, (9) STRYKER IOT&E, (10) CTSF Certification, (11) Block 5 Operational Test		▲7				▲8		▲9			▲10												▲11									
(12) IOT&E																																
Fielding and NET																																
(13) SBCT 1, (14) SBCT 2, (15) 1st Cav Div, (16) SIGCEN Ft Gordon, (17) SBCT 3							▲13				▲14				▲15																	
IAW ABCS 6.4 Fielding Strategy/OIF Rotations																																

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**01D**

<u>Schedule Detail</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
TIMS Delivery of V6.4		3Q					
TIMS V6.4 IOT&E			1Q				
TIMS Full Rate Production IPR 6.4			1Q				
TIMS Material Release (IOC) 6.4			4Q				
TIMS Block 5 Award				4Q			
TIMS Block 5 OT					1Q		

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0208010A - Joint Tactical Communications Program (TRI-TAC)</b>	PROJECT <b>107</b>							
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
107 ISYSCON DEVELOPMENT	8680	8750	9	9	10	0	0	0	78495

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

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

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Block 3 Development (P2 Increment 2.0)	6139	900	0
Block 3 Development (P2 Increment 2.1)	0	7451	9
Army COMSEC Engineering System Interface	420	0	0
System Security Accreditation	150	150	0
TIMS S/W Development	1971	0	0
Small Business Innovative Research/Small Business Technology Transfer Program	0	249	0
<b>Totals</b>	<b>8680</b>	<b>8750</b>	<b>9</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**107**

<b>B. Other Program Funding Summary</b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
BX0007 ISYSCON	30518	21368	0	0	0	0	0	0	84108
028010/01D Tactical Internet Management System	4673	7696	9642	9804	2288	0	0	0	34103

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

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

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**107**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . ISYS SW Development	CPAF/CPF F	GDC4S, Taunton, MA	140793	5437	2Q	7404		9		0	153643	0
b . TI MGR (1) Software Development	IDIQ	Raytheon, Fullerton, CA	650	0		0		0		0	650	0
c . TI MGR (2) Software Development	CPFF/TM/ CPIF	TRW, Carson, CA	40458	1971	2Q	0		0		0	42429	0
d . JNMS Development	CPFF/TM/ FFP	SAIC, McLean, VA	10408	0		0		0		0	10408	0
<b>Subtotal:</b>			<b>192309</b>	<b>7408</b>		<b>7404</b>		<b>9</b>		<b>0</b>	<b>207130</b>	<b>0</b>

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
<b>Subtotal:</b>			<b>0</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	<b>0</b>	<b>0</b>

# ARMY RDT&E COST ANALYSIS(R3)

February 2004

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**107**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . ISYS Test Support	MIPR	ATEC	2950	200	2Q	88		0		Continue	3238	0
b . ISYS Accreditation	MIPR	Software Engineering Center, CECOM, Fort Monmouth, NJ	350	125	2Q	147		0		Continue	622	0
c . TI MGR (V)4 Test Support	MIPR	ATEC	1935	0		0		0		0	1935	0
d . JNMS Accreditation	MIPR	Software Engineering Center, CECOM, Fort Monmouth, NJ	100	0		0		0		0	100	0
<b>Subtotal:</b>			<b>5335</b>	<b>325</b>		<b>235</b>		<b>0</b>		<b>Continue</b>	<b>5895</b>	<b>0</b>

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**107**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . ISYS PM Support	MIPR	Various	33891	947	1Q	1111		0		Continue	35949	0
b . TI MGR PM Support	MIPR	Various	3138	0		0		0		0	3138	0
c . JNMS PM Support	MIPR	Various	1356	0		0		0		0	1356	0
Subtotal:			38385	947		1111		0		Continue	40443	0
<b>Project Total Cost:</b>			236029	8680		8750		9		Continue	253468	0

# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**107**

Event Name	FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
S/W Development, INC 2.1 (Block 3), INC 3.0 (Block 6), INC 3.1 (Block 6)	[Redacted]				INC 2.1 (Block 3)				[Redacted]				INC 3.0 (Block 6)				[Redacted]				INC 3.1 (Block 6)				[Redacted]							
Software DT, INC 2.1 FQT, INC 3.0 FQT	[Redacted]				INC 2.0 FQT				[Redacted]				INC 2.1 FQT				[Redacted]				INC 3.0 FQT				[Redacted]							
OT, OT, OT	[Redacted]				LUT 2.0				[Redacted]				OA 2.1				[Redacted]				OA 3.0				[Redacted]							
Production	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
Training	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
PDSS	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE** **PROJECT**  
**0208010A - Joint Tactical Communications Program** **107**  
**(TRI-TAC)**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
ISYSCON Block 3 Phase 2 - Increment 2.0 FQT	3Q						
ISYSCON Block 6 and Objective Phase 2 - Increment 2.1 Award		2Q					
ISYSCON Block 6 and ObjectivePhase 2 -- Increment 2.1 FQT			4Q				

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

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 0208053A - Joint Tactical Ground System					<b>PROJECT</b> 635			
COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
635	JOINT TACT GRD STATION-P3I(TIARA)	2811	9659	9967	13356	15033	39781	16561	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This program element supports development of critical improvements to the Joint Tactical Ground Station (JTAGS). JTAGS is a transportable information processing system which receives and processes in-theater, direct down-linked data from Defense Support Program (DSP) satellites and the follow-on Space Based Infrared System (SBIRS) 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 Space Command's Theater Event System. JTAGS supports all Theater Missile Defense pillars and by being located in-theater, provides the shortest sensor to shooter connectivity. The objectives of the improvements are to upgrade JTAGS to the Multi-Mission Mobile Processor (M3P) for operation with the next generation of the space based infrared satellites and improve system accuracy and timeliness. The M3P development for the Space Based Infrared System is a combined development effort with the U.S. Air Force. This system supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Continue Block I M3P Integrated Product and Process Development (IPPD)	1841	6703	8949
Continue Block I M3P Development	380	878	6
Continue Block I M3P Test and Evaluation Support	590	2078	1012
<b>Totals</b>	<b>2811</b>	<b>9659</b>	<b>9967</b>

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0208053A - Joint Tactical Ground System**

PROJECT  
**635**

<b><u>B. Program Change Summary</u></b>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	2812	9767	35064
Current Budget (FY 2005 PB)	2811	9659	9967
Total Adjustments	-1	-108	-25097
Congressional program reductions		-92	
Congressional rescissions			
Congressional increases			
Reprogrammings	-1	-16	
SBIR/STTR Transfer			
Adjustments to Budget Years			-25097

Decrease in FY05 -\$24805M to fund higher priority requirements.

<b><u>C. Other Program Funding Summary</u></b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
BZ8420 Joint Tactical Ground Station Mods (JTAGS)	0	0	0	7654	317	0	0	Continue	Continue
BZ8430 JTAGS M3P Institutional Training Equipment	0	0	0	4994	9170	0	0	Continue	Continue

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

February 2004

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0208053A - Joint Tactical Ground System**

PROJECT

**635**

**D. Acquisition Strategy:** Critical JTAGS improvements under this program element will be developed making maximum use of Non-Developmental Items/Commercial Off-The-Shelf elements. After design and integration, the system will be subject to thorough developmental and operational testing to verify performance and operational effectiveness and suitability. Block I DSP Only M3P (DM3P) is a joint interest development effort with the U.S. Air Force and involves cost sharing of the acquisition effort.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0208053A - Joint Tactical Ground System**

**PROJECT**  
**635**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Primary Hardware Development	C/CPAF	Lockheed / Sunnyvale, CA	25510	380	1Q	878	1Q	6	1Q	Continue	26774	Continue
b . Engineering Services	C/CPFF	Northrup Grumman/ Azusa, CA	3886	260	1Q	310	1Q	312	1Q	0	4768	0
c . In-House IPPD	N/A	Various	10077	626		2624		3304		Continue	16631	Continue
d . Contractor Engineering IPPD Support	C/CPFF	Various	8277	0	2Q	1490	2Q	2300	2Q	Continue	12067	Continue
e . Government Engineering IPPD	N/A	Various	8910	955		2079		2825		Continue	14769	Continue
f . Government Furnished Equipment	N/A	Various	311	0		200		208		0	719	0
Subtotal:			56971	2221		7581		8955		Continue	75728	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0208053A - Joint Tactical Ground System**

**PROJECT**  
**635**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . WSMR			0	290		300		312		Continue	902	Continue
b . ATEC			0	300		1420		400		0	2120	0
c . JITC			0	0		358		300		0	658	0
Subtotal:			0	590		2078		1012		Continue	3680	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0208053A - Joint Tactical Ground System**

**PROJECT**  
**635**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0
Project Total Cost:			56971	2811		9659		9967		Continue	79408	Continue

# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

PE NUMBER AND TITLE  
0208053A - Joint Tactical Ground System

PROJECT  
635

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
<b>Major Milestones</b>																																				
(1) OT Complete																	▲ 1																			
(2) Materiel Release Approval																	▲ 2																			
(3) (DSP Only) Multi-Mission Mobile Processor (DM3P) FUE																	▲ 3																			
<b>P3I Block I (DM3P)</b>																																				
DM3P Development	Design, Development & Deployment (DSP Only)																																			
SBIRS System Test (SST)-9000 Combined DT/OT																	SST-9000 Combined DT/OT																			
Operational Test Unit 3																	OT																			
DM3P Production Unit 2 Fielding (Army) (Ft. Bliss)																					DM3P Production Unit 2 Fielding (Army)															
DM3P Production Unit 3 Fielding (Army) (CENTCOM)																					DM3P Production Unit 3 Fielding (Army)															
DM3P Production Unit 4 Fielding (Army) (Colorado Springs)																					DM3P Production Unit 4 Fielding (Army)															
DM3P Unit 5 Fielding (Army) (EUCOM)																					DM3P Unit 5 Fielding (Army)															
DM3P Production Unit 1 Fielding (Army) (PACOM)																					DM3P Production Unit 1 Fielding (Army)															

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0208053A - Joint Tactical Ground System**

**PROJECT**  
**635**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Continue P3I Block I Development	1-4Q						
Continue P3I Block I Development		1-4Q					
Continue P3I Block I Development / DM3P DT/OT / DM3P Fielding			1-4Q				
Continue P3I Block I Development / DM3P Fielding				1-4Q			
Start P3I Block II Development					1-4Q		
Continue P3I Block II Development / Geosynchronous (GEO) M3P (GM3P) DT/OT						1-4Q	
Continue P3I Block II Development / GM3P Fielding							1-4Q

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

February 2004

BUDGET ACTIVITY <b>7 - Operational system development</b>		PE NUMBER AND TITLE <b>0303140A - Information Systems Security Program</b>							
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	22153	20500	24725	25684	26522	23663	24776	Continuing	Continuing
491 INFORMATION ASSURANCE DEVELOPMENT	20940	7362	8155	9108	9963	7267	8025	Continuing	Continuing
501 ARMY KEY MGT SYSTEM	1213	1347	1410	1497	1540	999	1037	Continuing	Continuing
50B ARMY COMMON ACCESS CARD/PUBLIC KEY INFRASTRUCTURE	0	11791	15160	15079	15019	15397	15714	Continuing	Continuing

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

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0303140A - Information Systems Security Program**

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	22163	20728	24845
Current Budget (FY 2005 PB)	22153	20500	24725
Total Adjustments	-10	-228	-120
Congressional program reductions		-195	
Congressional rescissions	-110		
Congressional increases	8500		
Reprogrammings	-8124	-33	
SBIR/STTR Transfer	-276		
Adjustments to Budget Years			-120

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0303140A - Information Systems Security Program</b>	<b>PROJECT</b> <b>491</b>
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COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
491 INFORMATION ASSURANCE DEVELOPMENT	20940	7362	8155	9108	9963	7267	8025	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project implements National Security Agency (NSA) developed security technology in Army information systems. Project objectives are to provide systems security mechanisms through encryption, trusted software or standard operating procedures, and to integrate these mechanisms into specified systems, securing operations in as transparent a manner possible. This entails architecture studies, modeling, system integration and testing, installation kits, and certification and accreditation of Automation Information Systems. Project will also assess, develop, integrate and demonstrate C2 Protect Common tools (hardware and software) providing protection for fixed infrastructure post, camp and station networks as well as efforts on tactical networks. The cited work is consistent with Strategic Planning Guidance, and the Army Modernization Plan. Work is performed by the Communications-Electronics Research Development and Engineering Center, Ft. Monmouth NJ.

**Accomplishments/Planned Program**

	FY 2003	FY 2004	FY 2005
<ul style="list-style-type: none"> <li>- Support development of Secure Gateway and begin testing of the developing products.</li> <li>- Conduct in-house evaluation of new Non Developmental Item (NDI) and NSA information security products and continue the development of installation kits for Network Security Equipment.</li> <li>- Investigate Low Probability of Intercept (LPI)/Low Probability of Detection (LPD) techniques for integration in very short range radios.</li> <li>- Support Inline Networking Encryption (INE) installation and integration through installation kit development.</li> <li>- Provide Tech Support on Army CRYPTO modernization program.</li> </ul>	2500	4799	4907
Develop and evaluate information assurance tools for the tactical warfighter. <ul style="list-style-type: none"> <li>- Select, assess, develop, integrate, stress and demonstrate advanced commercial off-the-shelf/government off-the-shelf (COTS/GOTS) information assurance tools for tactical and/or sustaining base security requirements.</li> <li>- Tailor tool enhancements for unique tactical applications.</li> <li>- Evaluate/enhance secure Wireless LAN technologies targeted for the tactical warfighter.</li> <li>- Evaluate IA tactical solutions in a joint test environment.</li> </ul>	5074	2395	3248

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303140A - Information Systems Security Program</b>	PROJECT <b>491</b>
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<u>Accomplishments/Planned Program (continued)</u>	FY 2003	FY 2004	FY 2005
- Conducted test and evaluation of Biometric commercial off-the-shelf hardware and software to determine suitability for use within DOD.	13366	0	0
-Conducted modeling and simulation efforts to support operational evaluation.			
-Enhanced CECOM prototype Biometric platform delivered to Biometrics Management Office.			
-Implemented biometric access control on personal digital assistant suitable for military and dual-use application.			
-Supported biometric integration in existing command and control and MIS systems.			
Small Business Innovative Research/Small Business Technology Transfer Program	0	168	0
<b>Totals</b>	<b>20940</b>	<b>7362</b>	<b>8155</b>

<u>B. Other Program Funding Summary</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
OPA TA0600	51320	118017	114188	72994	56382	47400	47444	Continuing	Continuing

**C. Acquisition Strategy:** The objective of this project is to develop, integrate and validate hardware and software solutions that will secure current and objective architecture and electronic business/commerce transactions. FY03 and beyond focuses on completing development and evaluation of C2 Protect tools and the procurement and institutionalization of information assurance related hardware and software, as well as techniques and procedures. The objective of the DOD CRYPTO Modernization Program is to provide adaptive, flexible, and programmable cryptographic systems using best practices, lessons learned and programmatic management to meet the challenge of modernizing the Army's aging cryptographic systems.

# ARMY RDT&E COST ANALYSIS(R3)

February 2004

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303140A - Information Systems Security Program**

**PROJECT**  
**491**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . System Engineering		CECOM, RDEC	20913	4431	1Q	5620	1Q	7568	1Q	Continue	38532	Continue
b . Hardware/Software Engineering	Various	CECOM, RDEC	5224	0		0		0		0	5224	0
c . C2 Protect Common Tools	Subcontracts reflected in d. through k. below	Subcontracts reflected in d. through k. below	4504	0		0		0		0	4504	0
d . Concept Development	Various	CECOM, RDEC	7847	0		0		0		Continue	7847	0
e . Secure Management System	T&M	CSC, Eatontown, NJ	140	1208	2Q	0		0		0	1348	0
f . Secure Management System	C-Reimburs	MITRE, McLean, VA	713	400	2Q	0	2Q	0		0	1113	0
g . Malicious Mobile Code Analysis	T&M	ILEX Tinton Falls, NJ	500	77	2Q	0	2Q	0		0	577	0
h . C2 Protect ATD Engineering Support	T&M	Booz Allen Hamilton, McLean, VA	0	373	2Q	0		0		0	373	0
i . Tactical/Strategic Interface Development	T&M	Lockheed Martin, Tinton Falls, NJ	0	180	2Q	190		0		0	370	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303140A - Information Systems Security Program**

**PROJECT**  
**491**

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
j . Tactical Intrusion Detection System	T&M	MIT, Cambridge, MA	0	135	2Q	0		0		0	135	0
k . Model & Simulation for Information Assurance Trainer	T&M	Atlantic Consulting Services, GA	900	120	2Q	0		0		0	1020	0
l . DHIAP	Various	CIO/G6 BMO	12027	0	1-4Q	0		0		0	12027	0
m . DoD Biometrics Program	TBD	CIO/G6 BMO	4914	13366	1-4Q	0		0		0	18280	0
n . Crypto Mod	Various	CECOM, RDEC	0	0		455	1-4Q	587	1Q	0	1042	0
o . SEGATE	CPFF	VIASAT, Carlsbad, CA	0	650	2Q	850	1-4Q	0		0	1500	0
p . Maden Technologies			0	0	3Q	247	2Q	0		0	247	0
Subtotal:			57682	20940		7362		8155		Continue	94139	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303140A - Information Systems Security Program**

**PROJECT**  
**491**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

<b>Project Total Cost:</b>			57682	20940		7362		8155		Continue	94139	Continue
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## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303140A - Information Systems Security Program**

**PROJECT**  
**491**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
· Full fielding of AIRTERM (KY-100) TISM (Laboratory Testing)							
· Field Testing (Prototype Development Initiation)	1-4Q	1-4Q					
C2 Protect							
- Network Access Control	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
- Intrusion Detection Control	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
- Host Machine Vulnerabilities	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
- Risk Management	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
- Malicious Code Detectors	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
- Purge Tools	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
- Audit Analysis	1-4Q	1-3Q	1-4Q	1-4Q	1-4Q		
- Automated Distributed Firewall	1-4Q	1-4Q					
- Protect Tool Porting to Linux and other Operating Systems	1-4Q	1-4Q					
- Security Management	1-4Q	1-3Q					
TACLANE							
Type Classification (conditional)							
Acquisition of Installation Kits		1-4Q	1-4Q				
Type Classification Standard (TC Standard)	1-4Q	1-4Q	1-4Q				
INE Upgrades		1-4Q	1-4Q	1-4Q			
LPI Techniques - Investigate Techniques	1-4Q	1-4Q					
LPI - Prototype & Test			1-4Q	1-4Q	1-4Q		

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 0303140A - Information Systems Security Program					<b>PROJECT</b> 501			
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost	
501 ARMY KEY MGT SYSTEM	1213	1347	1410	1497	1540	999	1037	Continuing	Continuing	

**A. Mission Description and Budget Item Justification:** Provides Commander with an automated capability to plan, engineer, distribute, and manage all systems that employ Electronic Key, Electronic Protection (EP), and Signal Operating Instructions (SOI).

- AKMS consists of two Workstations, one hosting Local COMSEC Management Software (LCMS) for COMSEC Management, one hosting Automated Communication Engineering System (ACES) for Cryptonet Planning and the Data Transfer Device (DTD)/Simple Key Loader (SKL).
- LCMS is the COMSEC accounting and generation software that provides Information Systems with Cryptographic Key capability.
- ACES provides Information Systems with Cryptonet Planning & SOI/EP Fill for Combat Net.
- DTDs/SKLs move the ACES/LCMS data to End Crypto Units (ECUs).

This system supports the Future transition path of the Transformation Campaign Plan (TCP) and the Warfighter Information Network-Tactical (WIN-T).

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Continue development of next set of software tools for the AKMS workstation development environment to include TCP and WIN-T	1097	1019	1112
Government Engineering	116	289	298
Small Business Innovative Research/Small Business Technology Transfer Programs	0	39	0
<b>Totals</b>	<b>1213</b>	<b>1347</b>	<b>1410</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0303140A - Information Systems Security Program**

PROJECT  
**501**

**B. Other Program Funding Summary**

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
BA1201 TSEC - AKMS	9875	2682	2834	3069	3164	3390	3424	Continuing	Continuing

**C. Acquisition Strategy:** Direction was provided to separate LCMS from ACES. 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 was updated in an Acquisition Decision Memorandum (ADM) approved by the PEO C3T Milestone Decision Authority (MDA) on 10 JUN 02. NSA is pursuing the Simple Key Loader (SKL) as the upgrade to the DTD.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303140A - Information Systems Security Program**

**PROJECT**  
**501**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software development	C/T&M	SYPRIS, Tampa, FL	21009	0		0		0		0	21009	0
b . Software development	C/T&M	ISS, Tinton Falls, NJ	2029	1097	2Q	1228	2Q	1289	2Q	Continue	5643	0
c . EKMS	MIPR	Navy, Washington	3900	0		0		0		0	3900	0
Subtotal:			26938	1097		1228		1289		Continue	30552	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303140A - Information Systems Security Program**

**PROJECT**  
**501**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Testing	MIPR	SPAWAR, San Diego, CA	25	0		0		0		0	25	0
Subtotal:			25	0		0		0		0	25	0

Remarks: Not Applicable

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contractor Engineering	C/T&M	TELOS System Integration, Ashburn, VA	154	0		0		0		0	154	0
b . Government Engineering	MIPR	CECOM, Fort Monmouth, NJ	550	116	2Q	119	2Q	121	2Q	Continue	Continue	0
Subtotal:			704	116		119		121		Continue	Continue	0

Project Total Cost:			27667	1213		1347		1410		Continue	Continue	0
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

PE NUMBER AND TITLE  
0303140A - Information Systems Security Program

PROJECT  
501

Event Name	FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(1) Local COMSEC Management Software					▲																											
LCMS Tier 2 Phase 4					Software Development/Fielding																											
ACES					New Army System Software - Upgrade																											
Simple Key Loader/Data Transfer Device (SKL/DTD) (Tier 3)					Prototypes																											
SKL/DTD (Tier 3), SKL/DTD (Tier 3)					NET/Fielding																											

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303140A - Information Systems Security Program**

**PROJECT**  
**501**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Materiel Release (ACES)							
ACES IOC							
AKMS Materiel Release for new Army Acquisition Programs	1-4Q						

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 0303140A - Information Systems Security Program					<b>PROJECT</b> 50B			
COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
50B ARMY COMMON ACCESS CARD/PUBLIC KEY INFRASTRUCTURE		0	11791	15160	15079	15019	15397	15714	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** SA is the Executive Agent for the DoD Biometrics Program. Under HQDA, the DoD Biometric Management Office is vested with the responsibility of researching and establishing policy for Collection, Access, Retrieval, Use, and Storage of Biometric Data in a central biometric repository. 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).

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Conduct test and evaluation of Biometric commercial off-the-shelf hardware and software to determine suitability for use within DOD. Conduct modeling and simulation efforts to support operational evaluation. Conduct DoD-wide working groups to synthesize Enterprise Biometric requirements and abilities into Biometrics Technology Demonstrations. Support biometric integration in existing command and control and MIS systems.	0	11448	15160
Small Business Innovative Research/Small Business Technology Transfer Programs	0	343	0
<b>Totals</b>	<b>0</b>	<b>11791</b>	<b>15160</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0303140A - Information Systems Security Program**

PROJECT  
**50B**

<b>B. Other Program Funding Summary</b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
TA0600 - Information Systems Security Program	12341	4965	1462	0	0	0	0	0	27706

**C. Acquisition Strategy:** The objective of this project is to develop, integrate and validate COTS/GOTS hardware and software solutions that will secure current and objective architecture by utilizing centrally stored biometrics. FY03 focuses on completing development and evaluation of C2 Protect tools and the procurement and institutionalization of biometric hardware and software, as well as techniques and procedures, and energizing the acquisition arm of DoD Biometrics Management Office. The objective of the Biometric Management program is to deploy Commercial-Off-The-Shelf (COTS) products that ensure positive identification for access control to critical information systems, enhancing security and improving business processes. FY 2004 and beyond will continue to support the testing and evaluation of COTS products and other analysis and evaluation of applicable technologies, as well as finalize and synthesize the Biometrics Enterprise Solution.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303140A - Information Systems Security Program**

**PROJECT**  
**50B**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Enterprise Development	Various	Various	0	0		11448	1-4Q	15160	1-4Q	Continue	26608	0
b . SBIR/STTR			0	0		343		0		0	343	0
Subtotal:			0	0		11791		15160		Continue	26951	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . N/A			0	0		0		0		0	0	0
Subtotal:			0	0		0		0		0	0	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303140A - Information Systems Security Program**

**PROJECT**  
**50B**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . N/A			0	0		0		0		0	0	0
Subtotal:			0	0		0		0		0	0	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . N/A			0	0		0		0		0	0	0
Subtotal:			0	0		0		0		0	0	0

Project Total Cost:			0	0		11791		15160		Continue	26951	0
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## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303140A - Information Systems Security Program**      **PROJECT**  
**50B**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Enterprise Development		1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q

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

**February 2004**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0303141A - Global Combat Support System</b>					<b>PROJECT</b> <b>083</b>			
COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
083	GLOBAL COMBAT SUPPORT SYS - ARMY (GCSS-ARMY)	49273	55217	94215	68729	54349	48097	8919	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Global Combat Support System Army (GCSS Army) is the primary enabler of the Army's Combat Support/Combat Service Support (CS/CSS) transformation providing a seamless, integrated and interactive information management and operations system at all force support levels. The GCSS Army Operational Requirements Document (ORD) requires an enterprise approach to replace thirteen current Standard Army Management Information Systems (STAMIS). GCSS Army will provide the warfighter with a seamless flow of timely, accurate, accessible and secure information that gives combat forces a decisive edge. GCSS Army will provide the best business processes and streamline procedures and accountability for all users in support of the Stryker Force and support of the Army's Transformation to the Future Force. GCSS Army supports the Future Force transition path of the Transformation Campaign Plan (TCP).

Product Life-Cycle Management Plus (PLM +) will link the logistic information systems together in an integrated environment (GCSS-A and the Logistics Modernization Program (LMP)) to achieve an end-to-end logistics process within the Army Logistics Enterprise.

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Successfully completed Software Acceptance Tests on the Property Book Unit Supply Enhanced (PBUSE) enhancement. Completed Business Process Reengineering of the Maintenance and Management Modules requirements. Began Evaluation and Project Preparation Phases of the Enterprise Resource Planning (ERP) implementation.	27513	0	0
GCSS-Army ERP	5634	34578	76460
Product Life-Cycle Mangement Plus (PLM +) development.	0	6000	7000
PM operations	16126	13117	10755
Small Business Innovative Research/Small Business Technology Transfer Programs	0	1522	0
<b>Totals</b>	<b>49273</b>	<b>55217</b>	<b>94215</b>

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0303141A - Global Combat Support System**

PROJECT  
**083**

<u>B. Program Change Summary</u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	49360	58983	65158
Current Budget (FY 2005 PB)	49273	55217	94215
Total Adjustments	-87	-3766	29057
Congressional program reductions		-3675	
Congressional rescissions			
Congressional increases			
Reprogrammings	-87	-91	
SBIR/STTR Transfer			
Adjustments to Budget Years			29057

FY05 fully fund GCSS Army to Army Cost Position.

<u>C. Other Program Funding Summary</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
OPA SSN: W00800, STACOMP	42632	37166	36127	112765	111948	114285	42089	Continue	Continue
OMA APE: 432612	2574	7934	3543	15053	11482	21557	30198	Continue	Continue
OPA SSN: BZ8889, LOGTECH	0	0	7146	7091	49094	62105	21147	Continue	Continue
OMA APE: 135197000	2140	0	0	0	0	0	0	0	2140

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

February 2004

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0303141A - Global Combat Support System**

PROJECT

**083**

**D. Acquisition Strategy:** For GCSS Army, the Program Manager (PM) Enterprise Logistics Systems (ELS) will follow commercially proven ERP phases for project lifecycle. The lifecycle contains evaluation and preparation on the front end and after all cycles are completed, sustainment of the project is the final action. The phases making up the ERP lifecycle follow:

-Evaluation. Complete ERP solution scope, outline business benefits, refine system development, finalize change management and training & knowledge transfer strategy.

-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.

-Blueprinting. Blueprinting is a phase in the ERP project lifecycle in which the Business Blueprint document is created. 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.

-Realization. This Phase realizes and transforms 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. This phase completes preparation and validation of the production system, including end user training, system management, and cutover activities; which includes test and evaluation of data conversion, training plans, and Joint Interoperability. 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.

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 August 2003. 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 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303141A - Global Combat Support System**

**PROJECT**  
**083**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software Engineering, Development, Testing, Program Management	C/CPIF	Northrop Grumman, Los Angeles, CA	88175	22554	3Q	0		0		0	110729	0
b . Enterprise Resource Planning (ERP) Implementation	C/FP	Northrop Grumman, Chester, VA	16900	5634	1-3Q	31531	1-4Q	71235	1-4Q	Continue	125300	Continue
c . Tactical Combat Developer	MIPR	CASCOM, Ft Lee, VA	3064	2200	1Q	1399	1Q	1552	1Q	Continue	8215	Continue
d . PLM + Development	TBD	TBD	0	0		6000	3Q	7000	1-4Q	0	13000	0
<b>Subtotal:</b>			108139	30388		38930		79787		Continue	257244	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303141A - Global Combat Support System**

**PROJECT**  
**083**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Support	C/FP	Titan Corp, Colonial Heights, VA	7200	2472	1-3Q	2546	1-3Q	2622	1-3Q	Continue	14840	Continue
b . Engineering and Security	MPIR	ISEC, Ft Huachuca, AZ	6248	2000	1-3Q	2000	1-3Q	2000	1-3Q	Continue	12248	Continue
c . Technical Services/Testing	C/FP	L3 Govt Svcs Inc., Ft Hood, TX	4200	2400	1-3Q	2436	1-3Q	2527	1-3Q	Continue	11563	Continue
d . Technical Services	C/FP	Log Mgt Institute, McLean, VA	2960	2000	1-3Q	2868	1-3Q	2868	1-3Q	Continue	10696	Continue
e . Technical Services	C/FP	Cherry Road G-T Inc., Vienna, VA	1700	2960	2-3Q	1960	1-3Q	1960	1-3Q	0	8580	0
<b>Subtotal:</b>			22308	11832		11810		11977		Continue	57927	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303141A - Global Combat Support System**

**PROJECT**  
**083**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Army Test & Evaluation Center/Operational Test Command	MIPR	ATEC/OTC, Ft Hood, TX	8600	359	1-3Q	734	1-3Q	1146	1-2Q	Continue	10839	Continue
<b>Subtotal:</b>			8600	359		734		1146		Continue	10839	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PMO Operations	NA	NA	11881	3300	1-4Q	3743	1-3Q	1305	1-3Q	Continue	20229	Continue
b . SATCOM Proof of Concept	FFP	Veridian, Virginia	0	1426	4Q	0		0		0	1426	0
c . SATCOM Proof of Concept	FFP	Verestar, Virginia	0	683	4Q	0		0		0	683	0
d . SATCOM Proof of Concept	T&M	TAMSCO, New Jersey	0	1285	4Q	0		0		0	1285	0
<b>Subtotal:</b>			11881	6694		3743		1305		Continue	23623	Continue

<b>Project Total Cost:</b>			150928	49273		55217		94215		Continue	349633	Continue
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## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303141A - Global Combat Support System**

**PROJECT**  
**083**

<u>Schedule Detail</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Enterprise Resource Planning (ERP) Vendor Selection	1-3Q						
Evaluation	4Q	1Q					
Project Preparation		1-2Q					
Blueprinting		3-4Q	1-2Q				
MS B			3Q				
Realization			2-4Q	1-2Q			
Final Preparation				3-4Q			
Go Live IPR					1Q		
Fielding					1-4Q	1-4Q	1-3Q

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	67716	86389	51959	58566	95101	55253	57620	Continuing	Continuing
253 DSCS-DCS (PHASE II)	11416	13396	9339	13673	12627	9318	9493	Continuing	Continuing
384 SMART-T	16307	25912	16189	1874	0	0	0	0	95330
456 MILSATCOM SYSTEM ENGINEERING	39993	47081	12578	11379	10751	10674	10603	Continuing	Continuing
562 MBAND INT SAT TERM MIST	0	0	13853	31640	71723	35261	37524	Continuing	Continuing

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

This program is designated as a DoD Space Program.

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	68915	87352	64538
Current Budget (FY 2005 PB)	67716	86389	51959
Total Adjustments	-1199	-963	-12579
Congressional program reductions		-822	
Congressional rescissions			
Congressional increases			
Reprogrammings	-1199	-141	
SBIR/STTR Transfer			
Adjustments to Budget Years			-12579

FY05 funds realigned 12.579M to higher priority Army requirements.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development	<b>PE NUMBER AND TITLE</b> 0303142A - SATCOM Ground Environment (SPACE)						<b>PROJECT</b> 253		
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
253 DSCS-DCS (PHASE II)	11416	13396	9339	13673	12627	9318	9493	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** This project provides funds to develop strategic and tactical Ground Subsystem equipment in support of Joint Chiefs of Staff (JCS) validated Command, Control, Communications and Intelligence (C3I) requirements for the worldwide Super High Frequency (SHF) Defense Satellite Communications System (DSCS), Wideband Gapfiller System (WGS), and the Transformational Communications (TC) SATCOM programs. Continuing upgrades for the DSCS, WGS, and TC SATCOM are vital to support the emerging power projection and rapid deployment role of the Armed Forces. DSCS, WGS, and TC SATCOM provide warfighters multiple channels of tactical connectivity as well as interfaces with strategic networks and national decision-makers. This system supports the current to future transition path of the Transformation Campaign Plan (TCP). No Defense Emergency Response Funds (DERF) were provided to this project.

<b><u>Accomplishments/Planned Program</u></b>	FY 2003	FY 2004	FY 2005
Continue the development of the DSCS Integrated Management System (DIMS) Interface Software program	3975	4692	3588
Continue the development of the Common Network Planning Software (CNPS) program	5117	5750	3133
Transformational Communications - Control	0	191	180
Continue SATCOM Engineering Lab (SEL), PM Admin, and Systems Engineering Technical Assistance (SETA) efforts	2324	2396	2438
Small Business Innovative Research / Small Business Technology Transfer Programs	0	367	0
<b>Totals</b>	<b>11416</b>	<b>13396</b>	<b>9339</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**253**

<b><u>B. Other Program Funding Summary</u></b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
DSCS Other Procurement Army	93516	98163	99775	55381	51587	85242	95499	Continuing	Continuing

**C. Acquisition Strategy:** The DSCS Integrated Management System (DIMS) and Common Network Planning Software (CNPS) are software programs and will not have follow-on production programs. DIMS provides the capability to electronically disseminate network plans to the monitoring and controlling DSCS Operations Control System (DOCS) subsystems, and retrieve and display subsystem monitoring data. It also provides a comprehensive view of network operations at DSCS Operations Centers and DISA management sites. CNPS will plan strategic and Ground Mobile Forces (GMF) satellite communication networks for DSCS, Wideband Gapfiller, and commercial satellites. DIMS and CNPS will be installed at DSCS Operations Centers and DISA Management Sites at worldwide locations. Development of Transformational Communications (TC) SATCOM equipment will be accomplished in accordance with a TC SATCOM architecture.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303142A - SATCOM Ground Environment (SPACE)**      **PROJECT 253**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . DIMS Software	C / CPFF	JHU/APL, Laurel, MD	15838	3672	2Q	4138	2Q	3038	1-2Q	Continue	Continue	Continue
b . CNPS	C / FFP	Logicon, Winter Park, FL	14418	4276	2Q	5025	2Q	2043	1-2Q	Continue	25762	Continue
Subtotal:			30256	7948		9163		5081		Continue	Continue	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Matrix Support	MIPR	Fort Monmouth, NJ	2279	869	1-2Q	1069	1-2Q	1124	1-2Q	Continue	Continue	Continue
b . SETA Support	C / CPFF	Fort Monmouth, NJ	774	330	1-2Q	760	1-2Q	715	1-2Q	Continue	Continue	Continue
c . Engineering Support	C / CPFF	JHU/APL, Laurel, MD	100	100	1-2Q	150	1-2Q	150	1-2Q	Continue	Continue	Continue
d . Core Support	Various	Fort Monmouth, NJ	1404	542	1-4Q	563	1-4Q	569	1-4Q	Continue	Continue	Continue
Subtotal:			4557	1841		2542		2558		Continue	Continue	Continue

# ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0303142A - SATCOM Ground Environment (SPACE)** PROJECT  
**253**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SEL	MIPR	Fort Monmouth, NJ	3241	1027	2Q	1091	2Q	1100	2Q	Continue	Continue	Continue
Subtotal:			3241	1027		1091		1100		Continue	Continue	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Admin	Various	Fort Monmouth, NJ	2384	600	1-4Q	600	1-4Q	600	1-4Q	Continue	Continue	Continue
Subtotal:			2384	600		600		600		Continue	Continue	Continue

Project Total Cost:			40438	11416		13396		9339		Continue	Continue	Continue
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0303142A - SATCOM Ground Environment (SPACE)** PROJECT  
**253**

Event Name	FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				FY 10							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
CNPS Testing V1.0, CNPS Testing V1.1  (1) CNPS Materiel Release V1.0, (2) CNPS Materiel Release V 1.1, (3) CNPS Materiel Release V 1.2, (4) CNPS Materiel Release V 1.3					<b>V1.0</b>				<b>V1.1</b>																											
												▲1								▲2																
DIMS Testing V5.0, DIMS Testing V5.1, DIMS Testing V6.0  (5) DIMS Materiel Release V 5.0, (6) DIMS Materiel Release V 5.1, (7) DIMS Materiel Release V 6.0	<b>V 5.0</b>								<b>V 5.1</b>								<b>V 6.0</b>																			
				▲5								▲6												▲7												

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303142A - SATCOM Ground Environment (SPACE)**      **PROJECT 253**

<u>Schedule Detail</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Start CNPS V1.0 Testing	4Q						
Complete CNPS V1.0 Testing		3Q					
CNPS V1.0 Materiel Release		4Q					
DIMS Version 5.0 Software Testing - Ending	2Q						
DIMS Version 5.0 Materiel Release	4Q						
DIMS Version 5.1 Software Testing - Beginning			1Q				
DIMS Version 5.1 Software Testing - Ending			3Q				
DIMS Version 5.1 Materiel Release			4Q				
DIMS Version 6.0 Software Testing - Beginning				4Q			
DIMS Version 6.0 Software Testing - Ending					2Q		
DIMS Version 6.0 Materiel Release					3Q		
CNPS V1.1 Testing - Beginning			2Q				
CNPS V1.1 Testing - Ending			4Q				
CNPS V1.1 Materiel Release				1Q			
CNPS V1.2 Materiel Release					1Q		
CNPS V1.3 Materiel Release						1Q	

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303142A - SATCOM Ground Environment (SPACE)</b>	PROJECT <b>384</b>							
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
384 SMART-T	16307	25912	16189	1874	0	0	0	0	95330

**A. Mission Description and Budget Item Justification:** The Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T) provides a range extension capability for the Army's Mobile Subscriber Equipment (MSE) and emerging Warfighter Information Network - Tactical. Specifically, the SMART-T provides a satellite interface to permit uninterrupted communications as our advancing forces move beyond the line-of-sight of terrestrial systems. The SMART-T communicates at both low and medium data rates (LDR/MDR) over the MILSTAR satellite constellation. It is compatible with the UHF Follow-On (UFO), the Navy Fleet SATCOM EHF satellite packages, and MIL-STD-1582C compatible payloads. SMART-T provides the security, mobility, and anti-jam capability required to defeat the threat to assured communications and satisfy the critical need for robust, secure, beyond line of sight communications. The SMART-T provides Low Probability of Interception and Low Probability of Detection (LPI/LPD), avoiding being targeted for destruction, jamming, or intercept. The prime mover is a High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) configured with all the electronics and the self-erectable antenna.

This program is the developmental effort to allow SMART-T to operate over the Advanced Extremely High Frequency (AEHF) satellite constellation. The AEHF upgrade modification is under development. The upgrade provides a four-fold increase in communication capacity over the current SMART-T. Three satellite payload simulators are being developed to support the AEHF RDTE activities. A simulator will also be developed to facilitate the training mission. This system supports the Current transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Payload specification change development	505	1073	476
Development of AEHF satellite payload simulators	2095	2119	562
AEHF development efforts	13707	21970	15151
SBIR/STTR	0	750	0
<b>Totals</b>	<b>16307</b>	<b>25912</b>	<b>16189</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**384**

**B. Other Program Funding Summary**

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
BC4002 - SMART-T	11935	52624	73354	69857	49193	51058	5079	Continuing	Continuing
BS9720 - Spares	14	1025	2939	4618	5655	10283	7095	Continuing	Continuing

**C. Acquisition Strategy:** The SMART-T terminal is currently being upgraded to be compatible with the emerging Advanced EHF (AEHF) satellites being developed by the Air Force. The SMART-T AEHF terminal development effort is synchronized with the Air Force satellite development effort to insure that AEHF terminals are available when the AEHF satellites are operationally available. As part of the AEHF upgrade effort, satellite simulators are being developed for testing of the AEHF waveform and terminal integration efforts. A total of 210 SMART-T terminals (129 Army, 29 Air Force, 36 Marines, 4 JCSE and 12 other DoD) have been procured to date. A Follow-on Production contract is currently in place to procure the remaining Army and other Service requirements. Contract options can be exercised through FY06. All SMART-T terminals currently being procured will be upgraded to provide the AEHF capability following completion of the development effort.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303142A - SATCOM Ground Environment (SPACE)**      **PROJECT 384**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Dual Development Contracts	C / CPIF	Rockwell - Richardson, TX / Raytheon - Marlborough, MA	117173	0		0		0		0	117173	0
b . Baseline Mods	SS / CPFF	Raytheon - Marlborough, MA	85255	13795	2Q	21260	1Q	11610	1Q	0	131920	0
c . Transmitter Development	SS / CPFF	Raytheon - Marlborough, MA	0	0		2074	1Q	2719	1Q	0	4793	0
d . Govt Support	MIPR	Various	14321	159	2Q	168	1Q	184	1Q	Continue	Continue	0
e . GFE	MIPR	Various	149	0		0		0		0	149	0
<b>Subtotal:</b>			216898	13954		23502		14513		Continue	Continue	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303142A - SATCOM Ground Environment (SPACE)**      **PROJECT 384**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Other Contracts	MIPR	Various	11290	0		0		0		0	11290	0
b . Core Support	N/A	PM WIN-T - Fort Monmouth, NJ	5347	111	1Q	109	1Q	122	1Q	Continue	Continue	0
c . Lab Activities	MIPR	Various	7340	202	2Q	228	1Q	249	1Q	Continue	Continue	0
Subtotal:			23977	313		337		371		Continue	Continue	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Simulator Development	MIPR	MIT Lincoln Labs - Lexington, MA	20775	2040	1Q	2073	1Q	544	1Q	0	25432	0
b . DT&OT Test Support	MIPR	Various	6700	0		0		761	1Q	Continue	Continue	0
c . Test Bed Development	MIPR	MIT Lincoln Labs Lexington, MA	2980	0		0		0		0	2980	0
Subtotal:			30455	2040		2073		1305		Continue	Continue	0



# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

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

PROJECT  
384

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
FRP	Production																															
Fielding	Fielding																															
AEHF Development	Development																															
AEHF Production	Production																															
AEHF Fielding	Retrofit Fielding																															
MOT&E	MOT&E																															

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE** **PROJECT**  
**0303142A - SATCOM Ground Environment (SPACE)** **384**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Continue AEHF Simulator Development	1-4Q	1-3Q					
AEHF Simulator Development Completed		4Q					
Continue AEHF Development	1-4Q	1-4Q	1-4Q				
AEHF Development Completed				1Q			
Developmental Testing Completed				1Q			
Award Production AEHF Mod Contract				2Q			
Interoperability Testing Events				1-4Q	1-4Q		
Fielding of AEHF Retrofit Kits						1-4Q	1-4Q
Multi Service Operational Test & Evaluation (MOT&E)						3-4Q	

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2004**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0303142A - SATCOM Ground Environment (SPACE)</b>						<b>PROJECT</b> <b>456</b>		
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
456 MILSATCOM SYSTEM ENGINEERING	39993	47081	12578	11379	10751	10674	10603	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** MIL SYS ENG provides centralized funding for advanced systems engineering, product support and analysis, experimentation of new and emerging communication / network architectures and technologies. Contributes to the development of Capability Requirements Documents (CRDs), system and technical requirements definitions for Army's Future force and to ensure joint interoperability.

MIL SYS ENG supports the end to end system engineering and technology assessment efforts associated with the integration of network systems (WIN-T/FCS) with the SATCOM Roadmap in support of Transformational Communications for the Joint Warfighter. Supporting documentation and requirements are SATCOM CRD, GIG CRD, TC CDD / TRDs and the WIN-T/FCS ORDs. This system supports the Current transistion path of the Transformation Campaign Plan(TCP)

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Conduct various developmental efforts or analysis and trades to provide enhanced system/network capability and joint interoperability in support of Transformational Communications and Joint Interoperability	3184	4334	3355
System Engineering in support of technology assessment and transistion for WIN-T network / communication systems	2037	1581	1348
Experimentation and prototyping of critical technologies	1752	3283	2800
AEHF and WGS System Engineering in support of network system / terminal acquisition and joint interoperability	1932	2932	2575
Army technology development IAW DoD Transformation Communication System (TCS)	5000	13000	0
Development of SHF Ka band augmentation (KaSAT)	15800	9600	2500
Development of an integrated Ka band capability for Army SHF terminals	9000	11000	0
ABCS System Engineering and Integration Efforts (SE&I)	1288	0	0
Small Business Innovative Research / Small Business Technology Transfer Programs (SBIR/STTR)	0	1351	0
<b>Totals</b>	<b>39993</b>	<b>47081</b>	<b>12578</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**456**

<b>B. Other Program Funding Summary</b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
BB8417 - MOD OF IN-SVC (TAC SAT)	16203	10589	198	199	200	200	0	0	38979
BA9350 - SHF TERM	77093	17362	30621	22059	19227	0	0	0	175902
BC4002 - SMART-T	11935	52624	73354	69857	49193	51058	5079	Continuing	Continuing

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

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303142A - SATCOM Ground Environment (SPACE)**      **PROJECT 456**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Terminal Upgrades	Various	Various	1524	0		0		0		0	1524	0
b . Ka Band Integration	Various	L-3 Communications - West - Salt Lake City, UT	0	9000	2Q	11000	2Q	0		0	20000	0
c . Ka Band Augmentation	SS/CPAF	Titan Corporation - San Diego, CA	5300	15800	2Q	8600	2Q	2000	2Q	0	31700	0
d . Advanced Wideband/TCS	Various	Various	0	5000	2Q	14351	2Q	0		0	19351	0
e . ABCS SE&I	MIPR	Various	0	1288	2Q	0		0		0	1288	0
<b>Subtotal:</b>			<b>6824</b>	<b>31088</b>		<b>33951</b>		<b>2000</b>		<b>0</b>	<b>73863</b>	<b>0</b>

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303142A - SATCOM Ground Environment (SPACE)**      **PROJECT 456**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Engineering (In-House)	MIPR	Various	6467	2052	2Q	2459	2Q	1400	2Q	Continue	Continue	0
b . Engineering (Contract)	Various	Various	6561	2119	2Q	2821	2Q	3107	2Q	Continue	Continue	0
c . System Architecture & Analysis	Various	MIT Lincoln Labs, Lexington, MA; MITRE	900	2442	2Q	3200	2Q	2121	2Q	Continue	Continue	0
<b>Subtotal:</b>			13928	6613		8480		6628		Continue	Continue	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	MIPR	MIT Lincoln Labs, Lexington, MA	2669	500	1Q	0		700	2Q	Continue	Continue	0
b . Test Support	Various	Various	2194	1292	2Q	4000	1Q	1400	1Q	Continue	Continue	0
<b>Subtotal:</b>			4863	1792		4000		2100		Continue	Continue	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303142A - SATCOM Ground Environment (SPACE)**      **PROJECT 456**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Advanced EHF & Architecture	MIPR	MIT Lincoln Labs Lexington, MA	6190	0		0		500	1Q	Continue	Continue	0
b . Advanced Wideband System Architecture	MIPR	Various	500	500	2Q	650	2Q	1350	1Q	Continue	Continue	0
Subtotal:			6690	500		650		1850		Continue	Continue	0
<b>Project Total Cost:</b>			32305	39993		47081		12578		Continue	Continue	0

# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0303142A - SATCOM Ground Environment (SPACE)** PROJECT  
**456**

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Transformational Communication MILSATCOM (TCM)	[Red bar]																															
AEHF Sys Eng and Analysis	[Red bar]																															
AEHF Mission Planning Element	[Red bar]																															
Wideband Gapfiller & Ka Band Sys Eng	[Red bar]																															
Advanced Component Experimentation/Prototyping	[Red bar]																															
Technology Assessment	[Red bar]																															
Joint Interoperability Test	[Red bar]																															

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE** **PROJECT**  
**0303142A - SATCOM Ground Environment (SPACE)** **456**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Transformational Communication MILSATCOM (TCM)	1-4Q						
AEHF System Engineering and Analysis	1-4Q						
AEHF Mission Planning Element (AMPE)	1-4Q	1-4Q	1-4Q	1-3Q	1-4Q	1-4Q	
Wideband Gapfiller and Ka Band System Engineering	1-4Q						
Advanced Component Experimentation / prototyping	3-4Q						
Technology Assessment /MUOS	1-4Q						
Joint Interoperability Tests	1-4Q						
Support MPE Upgrade for AEHF					2-4Q		
Support AEHF AEST 8000 (System Test)					1Q		
Conduct Transformation Communication (TC) System Engineering Studies/Analysis	1-4Q						
TC Technical Requirement Document / Interface Control Document Development	1-4Q	1-4Q	1-4Q	1-4Q			
TC Design Review SDR / PDR / CDR	1-4Q	1-4Q	3Q	2Q	4Q		
Network Plan / Integration			1-4Q	1-4Q	1-4Q	1-4Q	1-4Q

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development	<b>PE NUMBER AND TITLE</b> 0303142A - SATCOM Ground Environment (SPACE)						<b>PROJECT</b> 562		
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
562 MBAND INT SAT TERM MIST	0	0	13853	31640	71723	35261	37524	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Multi-band Integrated Satellite Terminal (MIST) high capacity communications capability efforts were initiated in FY03/04 under the PE/Proj 0303142A/D456 MILSATCOM System Engineering line, using funds identified for DoD Transformational Communication MILSATCOM (TCM). The vision for TCM is to build and operate a network of networks which inter-connect at selected points in space and on the ground to improve interoperability and redundancy while still protecting sensitive classified information that flows in portions of the system.

MIST will develop the high capacity communications capability for the Future Force and will be pervasively integrated into the Army's Future Force communication architecture, as well as the other service's and joint communication architectures. The high capacity communications capability is fully synchronized with the Warfighter Information Network-Tactical (WIN-T), Future Combat System (FCS) and Transformational Communications MILSATCOM/Architecture (TCM/TCA). The high capacity communications capability is envisioned to be integrated into a family of tactical Multi-band communications terminals that will provide inter-network and reach back communications services across the Army's Future Force tactical networks while on the move and on the quick halt. It will also provide low, near zero, probability of detection, interception (LPD/LPI) and exploitation. The high capacity communications capability family consists of a Mobile embedded terminal that will provide Communications-on-the-Move (COTM), as well as Communications-on-the-Quick-Halt (COTQH) and Transportable configurations. The terminals will be multi-band and network (IP) capable and will be compliant with JTRS Software Communication Architectures (SCA) requirements.

The high capacity communications capability System Development and Demonstration (SDD) phase will commence in FY06. Prior to the start of SDD, various studies will be initiated that will ensure the tri-service community is well poised to execute a cost effective and streamlined acquisition program that is properly integrated within emerging communication frameworks. The program will be structured to allow for block enhancements, and to introduce enhanced capabilities and configurations that will support these evolving architectures. This system supports the Future transition path of the Transformation Campaign Plan (TCP).

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Competitive high capacity communications capability studies that include Waveform definitions for Multi-band SCA compliant terminals and Modeling and Simulation	0	0	3750
Antenna and Architecture design efforts	0	0	4353
Milestone B preparation and PRE-SDD contract efforts to include RFP and SSEB	0	0	5750

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0303142A - SATCOM Ground Environment (SPACE)</b>	PROJECT <b>562</b>
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<u>Accomplishments/Planned Program (continued)</u>	FY 2003	FY 2004	FY 2005						
Totals	0	0	13853						
<u>B. Other Program Funding Summary</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
0303142A D456 - MILSATCOM SYSTEM ENG	39993	47081	12578	11379	10751	10674	10603	Continuing	Continuing
BC4150 - MIST	0	0	0	0	0	40000	74990	Continuing	Continuing

Multi-band Integrated Satellite Terminal (MIST) high capacity communications capability efforts were initiated in FY03/04 under the PE/Proj 0303142A/D456 MILSATCOM System Engineering line, using funds identified for DoD Transformational Communication MILSATCOM (TCM).

**C. Acquisition Strategy:** A competitive high capacity communications capability SDD contract will be awarded in FY06, following competitive studies that will be performed by a minimum of 2 contractors in FY04/05. The SDD phase will be structured to maximize competitive opportunities throughout Low Rate Initial Production and Full Rate Production. The SDD phase will also ensure synchronization with the Transformational Communications MILSATCOM (TCM), the Future Force based, Future Combat System (FCS) and Warfighter Information Network-Tactical (WIN-T).

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303142A - SATCOM Ground Environment (SPACE)**      **PROJECT 562**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . System Development	MIPR	MIT Lincoln Labs, Lexington MA	0	0		0		2623	1Q	Continue	2623	0
b . Contracts	CPFF	TBD	0	0		0		5020	1Q	Continue	Continue	0
c . Government Engineering Support	Various	PM WIN-T, Fort Monmouth, NJ	0	0		0		910	1-2Q	Continue	Continue	0
Subtotal:			0	0		0		8553		Continue	Continue	0

Remarks: In FY05, various high capacity communications capability studies will continue that will ensure the Army is well poised to execute a cost effective and streamlined acquisition program that is properly integrated within emerging communication frameworks.

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Core Support	N/A	PM WIN-T, Fort Monmouth, NJ	0	0		0		970	1-2Q	Continue	Continue	0
b . Other Contracts	Various	Various	0	0		0		1740	1-2Q	Continue	Continue	0
Subtotal:			0	0		0		2710		Continue	Continue	0



# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

PE NUMBER AND TITLE  
0303142A - SATCOM Ground Environment (SPACE) PROJECT 562

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Pre-Milestone B Activities																																
High Capacity Communications Capability Studies																																
(1) RFP																																
SSEB																																
(2) MS B																																
(3) SDD Contract Award																																
System Design/Demonstration																																
EUTE																																

**Note: Pre-Milestone B activities through FY04 funded under another PE/Proj 0303142A/D456.**

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE** **PROJECT**  
**0303142A - SATCOM Ground Environment (SPACE)** **562**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
High capacity communications capability studies		2-4Q	1-4Q				
Pre-Milestone B Activities	3-4Q	1-4Q	1-4Q	1Q			
SDD RFP Release			4Q				
Milestone B				1Q			
SDD Contract Award				1Q			
SDD Phase				1-4Q	1-4Q	1-4Q	1-4Q
SDD EUTE							3-4Q

Pre Milestone B activities thru FY04, and FY04 study efforts are funded under PE/Proj 0303142A/D456.

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

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 0303150A - WWMCCS/Global Command and Control System					<b>PROJECT</b> C86			
COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
C86	ARMY GLOBAL C2 SYSTEM	16704	16934	19204	17607	15430	18146	17548	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). This system supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Perform Systems Engineering	2427	2572	2726
Software Development	11724	11704	14191
Perform Data Engineering	756	797	797
Conduct Test and Evaluation	395	418	444
Perform Program Support and Management Efforts	942	992	1046
Army Battle Command System (ABCS) System Engineering and Integration Efforts	460	0	0
SBIR/STTR	0	451	0
<b>Totals</b>	<b>16704</b>	<b>16934</b>	<b>19204</b>

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0303150A - WWMCCS/Global Command and Control System**

PROJECT  
**C86**

<b><u>B. Program Change Summary</u></b>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	16999	20124	19206
Current Budget (FY 2005 PB)	16704	16934	19204
Total Adjustments	-295	-3190	-2
Congressional program reductions		-3162	
Congressional rescissions			
Congressional increases			
Reprogrammings	-295	-28	
SBIR/STTR Transfer			
Adjustments to Budget Years			-2

<b><u>C. Other Program Funding Summary</u></b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
BA8250 Global Command & Control System-Army (GCCSA)	23676	16377	19790	18103	17299	20678	22343	Continue	Continue

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

February 2004

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0303150A - WWMCCS/Global Command and Control System**

PROJECT

**C86**

**D. Acquisition Strategy:** The GCCS-A Acquisition Decision Memorandum (ADM) dated 28 May 2002 directed development of a Block Implementation Plan (BIP), which identifies the Block 4-Operational requirements that will be developed from the GCCS-A unblocked 16 November 2000 Operational Requirement Document (ORD). GCCS-A Strategic Block 4 and the Operational Block 4 will coincide with the GCCS-J Blocks 4 and 5 [which begins the transition to Global Information Grid (GIG) Enterprise Services (GES)] Common Operating Environment (COE) 4.X, and Army Battle Command System (ABCS) 6 Delta (Army Software Block 1). The next major block for GCCS-A will be Block 1 of Joint Command and Control (JC2). GCCS-A utilizes Commercial-Off-The-Shelf (COTS) and Government-Off-The-Shelf (GOTS) software products, in addition to developed software. Common Hardware (HW) platforms will be used within the Army to implement GCCS-A/GCCS-J, and include products from the Army's Common Hardware/Software-2 (CHS-2) contract. Seven major incremental software releases are planned for GCCS-A. There have been four major releases to date, the Strategic Capability Package 1 (CP1), and the Theater Delivery 1 (D1), Delivery 2 (D2), and Delivery 3 (D3). GCCS-A Block 4-Operational will be the next release and will coincide with GCCS-J Block 4.x, COE 4.7, and ABCS 6 Delta. PM GCCS-A also plans development of a Block 4-Strategic and Block 5-Operational which will coincide with GCCS-J Blocks V and Net-Centric Enterprise Services (NCES) Block I/II. An additional consideration for GCCS Block IV is the Deployable Joint Command and Control (DJC2) capability. DJC2 will provide a responsive and deployable joint C2 weapons system to fully command, control, and direct Combatant Command and JTF operations. It includes the hardware and software that will become the C2 materiel solution for a Standing Joint Force Headquarters (SJF HQ).

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303150A - WWMCCS/Global Command and Control System**

**PROJECT**  
**C86**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software Development	HYBRID	Lockheed Martin Corp, Springfield, VA	80959	11724	1-2Q	12155	1-2Q	14191	1-2Q	Continue	119029	Continue
b . COE Support	MIPR	Various	1766	0		0		0		0	1766	1766
c . GFE	MIPR	Various	1464	0		0		0		0	1464	1465
d . ABCS System Engineering & Integration Efforts	MIPR	PEO C3S, NJ	1054	460	2Q	0		0		0	1514	1514
e . Matrix	MIPR	CECOM, NJ	3336	756	1-2Q	797	1-2Q	797	1-2Q	Continue	Continue	Continue
f . Product Studies	MIPR	SAIC, VA	2391	0		0		0		0	2391	2391
g . Project Management	In House	PM ATCCS, NJ	21215	2427	1-4Q	2572	1-4Q	2726	1-4Q	Continue	Continue	Continue
Subtotal:			112185	15367		15524		17714		Continue	Continue	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303150A - WWMCCS/Global Command and Control System**

**PROJECT**  
**C86**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . FCBS/CSC	MIPR/Del Ord	Various	2389	0		0		0		0	2389	2389
b . INRI	MIPR	Various	200	0		0		0		0	200	200
Subtotal:			2589	0		0		0		0	2589	2589

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Government	MIPR	Various	2754	295	2Q	318	2Q	344	2Q	Continue	Continue	Continue
b . EPG	MIPR	Various	786	0		0		0		0	786	786
c . ATEC	MIPR	Various	602	100	1Q	100	1Q	100	1Q	Continue	Continue	Continue
Subtotal:			4142	395		418		444		Continue	Continue	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303150A - WWMCCS/Global Command and Control System**

**PROJECT**  
**C86**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Office Management	In House	PM GC C2, NJ	2059	942	1-4Q	992	1-4Q	1046	1-4Q	Continue	5039	Continue
Subtotal:			2059	942		992		1046		Continue	5039	Continue
Project Total Cost:			120975	16704		16934		19204		Continue	Continue	Continue

# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

PE NUMBER AND TITLE  
0303150A - WWMCCS/Global Command and Control System

PROJECT  
C86

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
IT - IPT	IT-OIPT Review and Family of Systems (FOS) / Clinger-Cohen Certification																															
Software Development	CP1 and DEL ORD Updates																															
Software Development Block 4	Block 4																															
(1) Block 4 I&T	▲ 1																															
(2) Block 4 Site Test	▲ 2																															
(3) Block 4 Delivery	▲ 3																															
Block 4 Hardware Fielding	Block 4																															
Software Development JC2-A Block 1	JC2-A Block 1																															
(4) MS B JC2-A Block 1	▲ 4																															
(5) JC2-A Block 1 I&T	▲ 5																															
(6) JC2-A Block 1 Site Test	▲ 6																															
(7) JC2-A Block 1 Delivery	▲ 7																															
JC2-A Block 1 Hardware Fielding	JC2-A Block 1																															

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0303150A - WWMCCS/Global Command and Control System**

**PROJECT**  
**C86**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
ABCS/FDD Interoperability	1-4Q						
GCCS-A Delivery 3 Development Complete							
GCCS-A Block 4 Development	1-4Q	1-4Q	1-2Q				
JC2A Block 1 Development			1-4Q	1-4Q	1-4Q		
JC2A Block 2 Development					2-4Q	1-4Q	1-4Q
JC2A Block 3 Development							2-4Q

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

February 2004

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0305114A - Traffic Control, Approach and Landing System-FY 19</b>						PROJECT <b>711</b>			
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost	
711 JPALS	934	945	0	0	0	0	0	0	3269	

**A. Mission Description and Budget Item Justification:** The Joint Precision Approach and Landing System (JPALS) is a precision approach and landing system providing joint operational capability for U.S. forces assigned to conventional and special operations missions including those operating from fixed base, ship, tactical, and austere environments. This effort evaluates technical approaches for incorporating JPALS into Army aircraft while considering aircraft environment, electrical power, system space, weight, antenna placement, and electromagnetic compatibility without nullifying low observable capability requirements; also procures fixed base and tactical Local Differential Global Positioning System (LDGPS) ground stations. This Program Element supports research efforts in the Architecture and Requirements Definition phase of the modified acquisition life cycle approved by the Defense Acquisition Executive in September of 1998. JPALS supports the Current-to-Future transition path of the Transformation Campaign Plan (TCP).

Beginning in FY05 this PE have been combined with PE 0604201A - Aircraft Avionics.

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Continue to provide system engineering, logistics, programmatic, and technical documentation for JPALS development effort and execute joint Army/Navy/Air Force effort to develop a JPALS capable Embedded GPS Inertial (EGI) receiver.	887	874	0
Continue Program Management Support	47	43	0
Small Business Innovative Research/Small Business Technology Transfer Programs	0	28	0
<b>Totals</b>	<b>934</b>	<b>945</b>	<b>0</b>

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0305114A - Traffic Control, Approach and Landing System-FY 19**

PROJECT  
**711**

<b><u>B. Program Change Summary</u></b>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	935	956	1903
Current Budget (FY 2005 PB)	934	945	0
Total Adjustments	-1	-11	-1903
Congressional program reductions		-9	
Congressional rescissions	-10		
Congressional increases			
Reprogrammings	36	-2	
SBIR/STTR Transfer	-27		
Adjustments to Budget Years			-1903

FY 2005: Funding combined with PE 0604201A - Aircraft Avionics

<b><u>C. Other Program Funding Summary</u></b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
Airborne Avionics, SSN: AA0700	90876	74052	49091	59381	124493	145269	136268	Continue	Continue
Aircraft Avionics, 64201 C97	35971	47155	68857	59571	38651	54234	55684	Continue	Continue

**C. Other Program Funding Summary:** JPALS is a joint program with the Air Force as the lead Service. The Army will procure Local Differential GPS (LDGPS) JPALS tactical and fixed base ground stations through an Air Force contract and Shipboard Relative GPS (SRGPS) through the Navy.

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

February 2004

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0305114A - Traffic Control, Approach and Landing System-FY 19**

PROJECT

**711**

**D. Acquisition Strategy:** The JPALS acquisition strategy is to complete the current risk reduction and Technology Development (TD) Phase followed by the development of a JPALS LDGPS specification. Using this specification, a JPALS prototype LDGPS ground station will be tested in both benign and jamming environments prior to MS B in Dec 2004. JPALS functionality will be integrated on a GPS card which will be inserted into the Army's existing avionics. JPALS integration will be synchronized with the integration of M Code into Army platforms in the FY 2010 timeframe.

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

February 2004

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	68650	68629	27127	30113	47627	42442	18003	Continuing	Continuing
114 TACTICAL UNMANNED AERIAL VEHICLE (TUAV) (JMIP)	48501	20414	14103	14342	8619	8733	8932	Continuing	Continuing
11A ADVANCED PAYLOAD DEVELOP & SPT (JMIP)	17887	17419	1803	959	958	961	969	Continuing	Continuing
11B TSP DEVELOPMENT (JMIP)	0	5708	8952	12455	7114	0	0	0	34229
123 JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (JMIP)	2262	2233	2269	2357	2359	2187	2283	Continuing	Continuing
D09 EXTENDED RANGE UAV (JMIP)	0	22855	0	0	28577	30561	5819	0	87812

**A. Mission Description and Budget Item Justification:** The Tactical Unmanned Aerial Vehicle (TUAV) provides the Army with dedicated day/night reconnaissance, surveillance and target acquisition (RSTA) and intelligence. TUAV provides the tactical warfighting commander with critical battlefield information in the rapid cycle time required for success at the tactical level. The TUAV system consists of multiple air vehicles, each configured with an electro-optic (EO)/infrared (IR) sensor payload, ground control equipment (including communications equipment, launch and recovery equipment), remote video terminal, and High Mobility Multipurpose Wheeled Vehicles with trailer(s). Each system is supported by a Maintenance Section-Multifunctional (MSM). Each division is supported by a Mobile Maintenance Facility (MMF). Near term RDT&E includes C4I interoperability and testing, BIT/BITE integration and testing, and initiation of a Small UAV Program. The Shadow UAV system has proven itself under combat conditions while deployed in support of OIF. Continued fielding and war time lessons learned have identified critical areas for improvement. These areas include enhanced C4I, survivability enhancement (noise and signature reduction), Automatic landing system enhancements, software optimization including increased JTAA-A compliance, and reduction of Total Ownership Cost through design enhancements. Future initiatives will focus on the transition of technologies that directly support the Army's Future Force, such as counter camouflage, and other specialty payloads as appropriate. The Advanced Payload Development & Support efforts will establish the infrastructure to evaluate the maturity of the technology efforts and transition an employable TUAV capability. Development and fielding of the TRADOC System Manager (TSM) UAV's top 5 priorities include Synthetic Aperture Radar/Moving Target Indicator, Communication Relay Payload, Laser Designation, and Objective EO/IR. The Joint Technology Center/System Integration Lab (JTC/SIL) is a joint integration center that develops the Multiple Unified Simulation Environment (MUSE), which provides simulations of tactical UAVs and strategic Intelligence, Surveillance and Reconnaissance (ISR) assets. The simulation is used with a broad range of joint systems, including the Army Tactical Exploitation Station, the Navy Joint Fires Network, and the Air Force ISR-Manager and Distributed Common Ground Station. The MUSE provides for the development of real-time interoperable hardware and operator-in-the-loop simulations of multiple intelligence systems, and is routinely employed in warfighter exercises throughout the world.

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0305204A - Tactical Unmanned Aerial Vehicles**

This system supports the Current to Future transition path of the Transformation Campaign Plan (TCP). The TUAV is a Future Force System.

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	67435	60493	66730
Current Budget (FY 2005 PB)	68650	68629	27127
Total Adjustments	1215	8136	-39603
Congressional program reductions		-633	
Congressional rescissions			
Congressional increases		8900	
Reprogrammings	1215	-131	
SBIR/STTR Transfer			
Adjustments to Budget Years			-39603

FY 04: Plus-up for Shadow 200 TUAV Airframe is +\$5.3M and for Tactical Common Data Link it is \$3.6M for Project 114. In December, 2003, ER/MP program was approved in an Army, AROC. FY04 ER/MP funds will cover requirements for both FY04 and FY05.

FY 05: Since ER/MP program's pace has been slowed, FY 05 funding was deleted for Project D09 in the amount of \$33,629.

FY 05: \$8,952 restored for Tactical Sigint Payload (TSP) development, Project 11B.

## Schedule Detail (R4a Exhibit)

February 2004

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0305204A - Tactical Unmanned Aerial Vehicles**

PROJECT

**0305204A**

**Schedule Detail:** Not applicable for this item.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 0305204A - Tactical Unmanned Aerial Vehicles						<b>PROJECT</b> 114	
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
114 TACTICAL UNMANNED AERIAL VEHICLE (TUAV) (JMIP)	48501	20414	14103	14342	8619	8733	8932	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The Tactical Unmanned Aerial Vehicle (TUAV), provides the Army with dedicated day/night reconnaissance, surveillance and target acquisition (RSTA) and intelligence. TUAV provides the tactical warfighting commander with critical battlefield information in the rapid cycle time required for success at the tactical level. The TUAV system consists of multiple air vehicles, each configured with an electro-optic (EO)/infrared (IR) sensor payload, ground control equipment, (including communications equipment, and launch and recovery equipment), remote video terminal, and High Mobility Multipurpose Wheeled Vehicles with trailer(s). Each system is supported by a Maintenance Section-Multifunctional. Each divisional is supported by a Mobile Maintenance Facility. RDT&E activities include Army System Acquisition Review Council (ASARC) approved path forward to include C4I interoperability and test, and BIT/BITE. This system supports the Current to Future transition path of the Transformation Campaign Plan (TCP). The TUAV is a Future Force system.

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Program Management Support	3844	1596	1068
Development Testing / Risk Reduction Testing / ST&E	1504	790	600
Target Location Error (TLE) / Digital Data Link development efforts, Tactical Common Data Link (TCDL) and Joint Tactical Radio System (JTRS)	10000	4700	3800
Corrective action efforts and associated engineering support	2661	0	0
C4I Maintenance / Improvements (ABCS 4.3, 6.2, ...)	0	1000	1000
TAFT System Support	3375	0	0
ER / MP	5600	0	0
I-GNAT	9709	0	0
Ground Control Station and Trailers	11808	0	0
OIF Reliability Upgrade 1	0	4100	0
OIF Reliability Upgrade 2	0	2100	0
OIF Reliability Upgrade 3	0	928	3835
OIF Reliability Upgrade 4	0	0	3800
Airframe Optimization	0	5200	0

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**114**

**Accomplishments/Planned Program (continued)**

	FY 2003	FY 2004		FY 2005
Totals	48501	20414		14103

**B. Other Program Funding Summary**

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
TUAV Procurement (BA0330)	105415	73217	58556	38733	22878	0	0	Continuing	Continuing
Initial Spares - TUAV (BS9738)	15267	14957	9822	15098	15090	15101	9521	Continuing	Continuing
TUAV - Extended Range/ Multi-purpose (B00305)	0	0	0	0	22627	101299	155055	Continuing	Continuing

**C. Acquisition Strategy:** A System Capability Demonstration (SCD) was conducted with four contractors. The results from the SCD in conjunction with proposal evaluations resulted in the competitive down select of a Best Value TUAV system. A successful Milestone II ASARC was conducted on 21 December 1999, and a TUAV LRIP contract was awarded to the AAI Corporation on 27 December 1999. In order to accelerate fielding of the TUAV system, a second LRIP for four systems was awarded on 30 March 2001 following a successful OPTEMPO test. In order to maintain accelerated fielding and continue ramp up to full rate production, a third LRIP was awarded in March 2002. A successful LRIP program led to a MS III decision on 25 September 2002 and award of a full rate production contract on 27 December 2002. Continued development of the selected TUAV system will be accomplished through a series of upgrades to incorporate improvements such as extended range and endurance, increased payload weight space and power capability, Tactical Common Data Link and advanced sensor payloads as they mature and are operationally proven.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**114**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . TUAV LRIP Program	Comp / FPIF	AAI Corporation, MD	63965	0		0		0		0	63965	63676
b . C4I Maintenance / Improvements	MIPR / PWD	Various	0	0		1000	1-3Q	1000	1-3Q	0	2000	0
c . TAFT System Support	CPFF	AAI Corporation, MD	0	3375	2-3Q	0		0		0	3375	0
d . Ground Control Station and Trailers	Unknown	AAI Corporation, MD & Northrop Grumman, CA	0	11808	2-3Q	0		0		0	11808	0
e . I-GNAT	Unknown	General Atomics	0	9709	2-3Q	0		0		0	9709	0
f . Government Furnished Equipment	MIPR	Various	2036	0		0		0		0	2036	2036
g . SIL/MUSE	MIPR	Sys Integration Lab, AMCOM Redstone, AL	1500	0		0		0		0	1500	1500
h . Tactical Control System	PWD	AMCOM RDEC Redstone, AL	700	0		0		0		0	700	700
i . Advanced Payload Development/Modification/Integration	MIPR	PM UAV Payloads, Huntsville, AL	4118	0		0		0		0	4118	4118
j . Institutional Mission Simulator	MIPR	Sys Integration Lab, AMCOM Redstone, AL	2910	0		0		0		0	2910	2910

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**114**

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
k . Objective Capability Assessment/Development / C4I	Comp/FPIF	AAI Corporation, MD	3044	0		0		0		Continue	Continue	Continue
l . Improved EO/IR Payload Modification/Integration Assessment for Demo on Hunter	Comp/Opt	AMCOM RDEC Redstone, AL	200	0		0		0		0	200	200
m . TUAV Ground Control Station Architecture	MIPR	Sys Integration Lab, AMCOM Redstone, AL	7275	0		0		0		0	7275	7275
n . Outrider Advance Concept Technology Demonstration Bridge Contract	SS/FPIF	Alliant Techsystems, Hopkins, MN	10600	0		0		0		0	10600	10600
o . TUAV Source Selection/System Capabilities Demo	MIPR/PWD	Various	7200	0		0		0		0	7200	7200
p . Target Location Error (TLE) / Digital Data Link, TC DL/JTRS	CPFF	AAI Corporation, MD	342	10000	2-3Q	4700	2-3Q	3800	2-3Q	0	18842	0
q . Army Apache/UAV Interoperability Demonstration	MIPR	AMCOM RDEC Redstone, AL	350	0		0		0		0	350	350
r . Corrective Actions/Engineering Support	CPFF / PWD	AAI Corporation, MD	7714	2661	2Q	0		0		0	10375	7714

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**114**

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
s . Hunter UAV non-recurring support	SS/FPIF	TRW, Sierra Vista, AZ	4140	0		0		0		0	4140	4140
t . Hardware cost for GCS's (2) to be integrated into the selected AV's for the ER req.	CPFF	Northrop Grumman, CA	0	2000	1-3Q	0		0		0	2000	0
u . OIF Reliability Upgrade 1	CPFF / PWD	AAI Corporation, MD	0	0		4100	2-3Q	0		0	4100	0
v . OIF Reliability Upgrade 2	CPFF / PWD	AAI Corporation, MD	0	0		2100	2-3Q	0		0	2100	0
w . OIF Reliability Upgrade 3	CPFF / PWD	AAI Corporation, MD	0	0		928	2-3Q	3835	2-3Q	0	4763	0
x . OIF Reliability Upgrade 4	CPFF / PWD	AAI Corporation, MD	0	0		0		3800	2-3Q	0	3800	0
y . Airframe Optimization	CPFF / PWD	AAI Corporation, MD	0	0		5200	2-3Q	0		0	5200	0
Subtotal:			116094	39553		18028		12435		Continue	Continue	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**114**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contractor Engineering Support	CPFF	Various	5015	2389	2Q	796	1Q	450	1-4Q	Continue	8650	Continue
b . Government Engineering Support	PWD	AMCOM Redstone, AL	3950	562	1-2Q	300	1Q	250	1-4Q	Continue	5062	Continue
c . Contractor Engineering Support - Extended Range	CPFF	Various	0	2124	2Q	0		0		0	2124	0
d . Government Engineering Support - Extended Range	PWD	AMCOM Redstone, AL	0	1476	1-2Q	0		0		0	1476	0
Subtotal:			8965	6551		1096		700		Continue	17312	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**114**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Risk Reduction Testing/ST&E	MIPR	Various	13531	0		790	1-2Q	600	1-2Q	0	14921	13531
b . Development Testing/ OPTEMPO Testing / Risk Reduction Testing / ST&E	MIPR	Various	2850	1504	2Q	0		0		Continue	4354	Continue
c . C4I Testing	MIPR	Various	1980	0		0		0		0	1980	1980
d . OPTEMPO Demo	MIPR	Various	1000	0		0		0		0	1000	1000
e . Data Acquisition System (DAS) Instrumentation Van	MIPR	Redstone Technical Test Center, AL	810	0		0		0		0	810	810
f . IOT&E Preparation and Support/Travel	MIPR	ATEC/PM/OGA Ft. Hood, TX	750	0		0		0		0	750	750
Subtotal:			20921	1504		790		600		Continue	23815	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**114**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Mgt Personnel	MIPR	PM UAV Redstone, AL	6030	893	1-4Q	500	1-4Q	368	1-4Q	Continue	7791	Continue
Subtotal:			6030	893		500		368		Continue	7791	Continue
Project Total Cost:			152010	48501		20414		14103		Continue	Continue	Continue

# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

PE NUMBER AND TITLE  
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT  
114

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	(1) Milestone				▲	MS III																										
Engineering & Material Development (EMD)/Low Rate Initial Production (LRIP)	█																															
Initial Operation Test & Evaluation (IOT&E)			█																													
LRIP			FY 01																													
LRIP			FY 02																													
Production (Sys/Att. AV's)					█																											

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**114**

<u>Schedule Detail</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
OPTEMPO Demonstration							
Special In-Process Review / LRIP II/ III Decision							
IOT&E Preparation and IOT&E							
Field IOT&E LRIP System to IOT&E User							
Milestone III / Production Decision							
Award Full Rate Production	1Q						
C4I Maintenance/ Improvements (ABCS 4.3, 6.2, .....)	1-4Q	1-4Q	1-4Q				

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

**February 2004**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>				<b>PE NUMBER AND TITLE</b> <b>0305204A - Tactical Unmanned Aerial Vehicles</b>				<b>PROJECT</b> <b>11A</b>	
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
11A    ADVANCED PAYLOAD DEVELOP & SPT (JMIP)	17887	17419	1803	959	958	961	969	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Development of Payloads to support the Army's Unmanned Air Vehicles (UAV) in accordance with the 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 sensor that provides essential all-weather surveillance and increased situational awareness. The SAR/GMTI Payload is a core complementary system of the Army's Future Combat System (FCS) and will meet the recently approved Extended Range/Multi-Purpose (ER/MP) UAV. Future initiatives will continue to focus on the transition of technologies directly supporting emerging UAV requirements and the Army's Future Force. The Light Detection and Ranging (LIDAR) payload provides high-resolution elevation data for detailed mapping. Funding provides for up to four LIDAR payloads to be downsized for use on the Hunter UAV.

The SAR/GMTI payload supports the Future Force transition path of the Transformation Campaign Plan (TCP).

FY05 funds provide for the development and testing of the SAR/GMTI payload.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
SAR/GMTI Development and Integration - includes Development Test.	11687	15419	1803
Initiate EO/IR Development and Integration for UAV.	200	0	0
Light Detection and Ranging (LIDAR) sensor package development efforts.	6000	2000	0
<b>Totals</b>	<b>17887</b>	<b>17419</b>	<b>1803</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0305204A - Tactical Unmanned Aerial Vehicles**

PROJECT  
**11A**

**B. Other Program Funding Summary**

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
Advanced TUAV Payloads (B00302)	0	0	0	8513	24426	18052	19662	0	70653
Night Vision Systems - Engineering Development (654710A)	6143	10338	10333	17462	17770	14421	10670	0	87137

**C. Acquisition Strategy:** The System Development and Demonstration (SDD) contract for the SAR/GMTI Payload was competitively awarded 1QFY04 for the design/modification and fabrication of SDD articles. The SAR/GMTI SDD articles will be refurbished and provided to FCS for integration and testing and participation in FCS LUT 1. Additional capabilities will be added via spiral development depending on need, technology maturity and funding availability.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**11A**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SAR/GMTI Program MUA (MDAF) and Technical Assessment		Various	2856	264	1-2Q	0		0		0	3120	3120
b . SAR/GMTI System Development & Demonstration	COMP/CPI F	General Atomics, San Diego, CA	0	7100		9496	1-2Q	0		0	16596	16596
c . Advanced EO/IR Operational Capabilities Assessment	MIPR	CECOM NVESD Ft. Belvoir, VA	2800	200	1-2Q	0		0		0	3000	3000
d . Develop Miniaturized Light Detection and Ranging Sensor Package	MIPR	PO JPSD Fort Belvoir, VA	0	6000	1-3Q	2000	1Q	0		0	8000	8000
e . Payload plug-and-play	MIPR	NSWC, Crane, IN	300	0		0		0		0	300	300
f . Advanced Payload Modeling & Simulation	MIPR	WSMR/TBE	360	0		0		0		0	360	360
g . TUAV GCS Integration	MIPR	PM UAVS, Huntsville, AL	1400	0		2200	3Q	0		0	3600	3600
Subtotal:			7716	13564		13696		0		0	34976	34976

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**11A**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Engineering Support	MIPR	Various	1857	3240	1-3Q	3171	1-3Q	0		Continue	8268	Continue
Subtotal:			1857	3240		3171		0		Continue	8268	Continue

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . MDAF Demo Support	MIPR	Various	0	333	1-3Q	0		0		0	333	333
b . Payload Test Support	MIPR	DTC, Aberdeen Proving Grounds, MD	0	70	1Q	0		1300	2-3Q	Continue	1370	1370
Subtotal:			0	403		0		1300		Continue	1703	1703

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**11A**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Mgt Personnel	In House	PM RUS, Ft. Monmouth, NJ	247	680	1-4Q	552	1-4Q	503	1-4Q	Continue	1982	Continue
<b>Subtotal:</b>			247	680		552		503		Continue	1982	Continue

<b>Project Total Cost:</b>			9820	17887		17419		1803		Continue	46929	Continue
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

PE NUMBER AND TITLE  
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT  
11A

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Perform SAR/GMTI Military Utility Assessment																																
Develop LIDAR Sensor Package																																
(1) SAR/GMTI MS B																																
SAR/GMTI SDD																																
SAR/GMTI DT																																
FCS UAV Systems Integration & Test Support																																
(2) SAR/GMTI MS C																																
(3) Award SAR/GMTI FRP																																

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**11A**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Perform SAR/GMTI Military Utility Assessment	1-3Q						
Develop Miniaturized Light Detection and Ranging (LIDAR) Sensor Package	1-4Q	1-4Q	1-2Q				
Milestone B for SAR/GMTI		1Q					
SAR/GMTI System Development and Demonstration (SDD) Contract		1-4Q	1-4Q	1-3Q			
SAR/GMTI DT			3-4Q	1Q			
FCS UAV Systems Integration & Test Support				2-4Q	1-4Q	1Q	
MS C for SAR/GMTI				4Q			
Award SAR/GMTI FRP					1Q		

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0305204A - Tactical Unmanned Aerial Vehicles</b>						<b>PROJECT</b> <b>11B</b>		
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
11B TSP DEVELOPMENT (JMIP)	0	5708	8952	12455	7114	0	0	0	34229

**A. Mission Description and Budget Item Justification:** Tactical SIGINT Payload (TSP) is a UAV mounted SIGINT/Electronic Warfare (EW) sensor that detects enemy and gray radio frequency (RF) emitters. TSP, a potential key Future Combat System (FCS) component, is capable of providing the Unit of Action/Unit of Employment (UA/UE) Land Commander with an overwatch and a penetrating SIGINT/EW system capable of detecting, identifying, locating, and providing geo-location targeting information on RF emitters throughout the Area of Operations (AO). The UA/UE commander will deploy TSP to provide sensor coverage where FCS ground vehicles cannot perform the SIGINT/EW mission due to radio line of sight blockage. TSP is initially developing sensors for UA applications to detect low-power radio emitters. The SIGINT payload is scalable and designed to provide maximum flexibility for the UA/UE mission profile and the UAV selected to transport the sensors. TSP will provide this information to the Distributed Common Ground System-Army (DCGS-A) where the data will be analyzed and translated into near real time (NRT) actionable intelligence that can immediately be used in the commanders' decision cycle. The TSP electronic emitter information will be correlated with data from other systems, e.g. Prophet and Aerial Common Sensor (ACS) to provide precise targeting information for immediate engagement. The TSP sensors are critical to providing full coverage Intelligence, Surveillance and Reconnaissance (ISR) information for Future Force capabilities for Future Combat Systems and contributing to the Joint Intelligence, Surveillance and Reconnaissance (ISR) net.

This project supports the Future transition path of the Transformation Campaign Plan (TCP).

FY05 funding supports continuation of TSP System Development and Demonstration (SDD), where demonstration of the payload in a laboratory environment and live airborne calibration on rotary aircraft demonstrations will be performed. Payload integration tasks will be initiated to support FY06 flight demonstrations.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
TSP SDD Contract Planning and Solicitation	0	500	0
SDD Contract Phase	0	5008	8752
Modeling and Simulation	0	200	200
<b>Totals</b>	<b>0</b>	<b>5708</b>	<b>8952</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0305204A - Tactical Unmanned Aerial Vehicles**

PROJECT  
**11B**

<b><u>B. Other Program Funding Summary</u></b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
RDTE PE 0603774 131 Night Vision Systems Advanced Development - (TSP only)	6670	0	0	0	0	0	0	0	20180
Project 030588G Defense Cryptologic Program Funds - TSP	1657	1497	2091	3963	4346	7382	7376	0	28312
WTCV G86100 Future Combat Systems	0	0	0	0	752324	3187371	3153325	Continuing	Continuing

FY04 funding for the TSP program was established under 0305204 11B. The program was previously funded as part of 63774 131.

**C. Acquisition Strategy:** A competitively awarded SDD contract will be initiated to develop and deliver SIGINT payload prototypes to PM FCS.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**11B**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . TSP SDD Contract	C/CPAF	TBS	0	0		2171	3Q	5077	1Q	10519	17767	0
b . UAV Integration Spt	MIPR	PM UAV, Huntsville, AL	0	0		100	3Q	500	2Q	1200	1800	0
c . Modeling and Simulation	MIPR	TBD, Ft Monmouth, NJ	0	0		200	2Q	200	1Q	400	800	0
d . SDD Engineering Spt	MIPR	Various, Ft Monmouth, NJ	0	0		500	2Q	200	1Q	750	1450	0
Subtotal:			0	0		2971		5977		12869	21817	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Engineering Support	FFP	MITRE, McLean, VA	0	0		423	2Q	435	2Q	870	1728	0
b . Matrix Support	MIPR	CECOM, Fort Monmouth NJ	0	0		1010	2Q	1000	2Q	2200	4210	0
c . Engineering Support	FFP	CACI, Eatontown, NJ	0	0		614	1Q	625	1Q	1250	2489	0
Subtotal:			0	0		2047		2060		4320	8427	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**11B**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Flight Demo Spt	MIPR	TBD	0	0		0		375	2Q	1300	1675	0
b . Continuous Evaluation	MIPR	ATEC, Ft Belvoir, VA	0	0		100	2Q	100	2Q	200	400	0
Subtotal:			0	0		100		475		1500	2075	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Management	In House support	PM, Signals Warfare, Fort Monmouth, NJ	0	0		400	1-4Q	350	1Q	700	1450	0
b . Program Support	C/T&M	Various	0	0		190	2Q	90	1Q	180	460	0
Subtotal:			0	0		590		440		880	1910	0

<b>Project Total Cost:</b>			0	0		5708		8952		19569	34229	0
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

PE NUMBER AND TITLE  
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT  
11B

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Tactical SIGINT Payload (TSP) Development																																	
TSP																																	
(1) MS B																																	
SDD																																	
(2) Contract Award, (3) Flight Demo, (4) Delivery - 1 Prototype, (5) Delivery - 2 Prototypes, (6) Delivery - 1 Prototype																																	
									MS B ▲1																								
													Award ▲2				Flight Demo ▲3																

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**11B**

<u>Schedule Detail</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
FCS Milestone B for Block I	4Q						
CAD I Flight Demos	1-4Q						
TSP Milestone B		2Q					
TSP SDD Contract		3-4Q	1-4Q	1-4Q	1-4Q		
Flight Demo				1Q			
Prototype Deliveries					1-3Q		

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>7 - Operational system development</b>				PE NUMBER AND TITLE <b>0305204A - Tactical Unmanned Aerial Vehicles</b>				PROJECT <b>123</b>	
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
123 JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (JMIP)	2262	2233	2269	2357	2359	2187	2283	Continuing	Continuing

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

This system supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Develop and integrate Tactical Common Data Link into MUSE in support TUAV ORD	0	0	0
Incorporate new technology sensors and platforms into the MUSE	200	200	150
Develop and upgrade Terrain and Target databases	290	234	230
Initial effects-based fixed target behavior model	0	190	0
Initial VTUAV/UCARS Vehicle models	0	165	0
Initial ATARS and TARPS simulation model	0	235	0
Link Fixed Target Database with DIA MIDB	0	207	0
Integrate Weapon Employment Capabilities into MUSE	124	0	0
MUSE Remote Support Capability	0	0	0
Upgrade HLA Certification and DITSCAP	120	120	214
Evaluate and integrate New Visualization Technologies into MUSE	105	0	0
Technical support of MUSE integration with IEWTPT	50	0	0
Initiate MUSE TUAV Flight Performance Model Verification and Validation Process	120	0	0
Provide MUSE Configuration Management and Help Desk Services	240	240	240

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**123**

<b>Accomplishments/Planned Program (continued)</b>	FY 2003	FY 2004	FY 2005
MUSE Equipment	720	300	346
JTC/SIL Management	293	342	259
Initial development of Multi-Spectral and Hyper-Spectral simulations	0	0	245
Prototype FIA interfaces and capabilities	0	0	120
Imagery generation upgrade conversion	0	0	160
Enhance IR abd SAR model sets	0	0	90
Update interfaces to DoD models	0	0	215
<b>Totals</b>	<b>2262</b>	<b>2233</b>	<b>2269</b>

<b>B. Other Program Funding Summary</b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
PE 0305204N Navy	1700	1700	1700	1700	1700	0	0	0	10200
PE 0305205F Air Force	2000	2000	2000	2000	2000	0	0	0	12000

**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 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**123**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Initiate MTI/FTI Sensor Sim Develop/Upgrade SAR	SS/CPFF	AMC/AMCOM/AMRD EC/SED/Redstone Arsenal, AL	143	0		0		0		0	143	143
b . MUSE Remote Support Capability	SS/CPFF	GDIS/Arlington, VA	415	0		0		0		0	415	415
c . Develop MUSE Fixed Target Damage Site Visualization	SS/CPFF	GDIS/Arlington, VA	235	0		0		0		0	235	235
d . Upgrade HLA Certification and DITSCAP	SS/CPFF	AMC/AMCOM/AMRD EC/SED/Redstone Arsenal, AL	239	120	1Q	120	1Q	214	1Q	318	1011	677
e . MUSE Equipment	C/FFP	Various	1059	570	1Q	146	1Q	146	1Q	1611	3532	3278
f . MUSE Hardware Consolidation into Single PC-Based Platform	SS/CPFF	GDIS/Arlington, VA	237	0		0		0		0	237	237
g . Develop & Integrate TCDL into MUSE in Support of TUAV ORD	SS/CPFF	GDIS/Arlington, VA	150	0		0		0		0	150	150
h . Develop & Upgrade Terrain & Target Databases	SS/CPFF	Quality Research Institute/HSV, AL	323	290	1Q	196	1Q	230	1Q	768	1807	1381

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**123**

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
i . Incorporate New Technology Sensors & Platforms into the MUSE	SS/CPFF	GDIS/Arlington, VA	0	100	1Q	100	1Q	75	1Q	1324	1599	1424
j . Integrate Weapon Employment Capabilities into MUSE	C/FFP	TBD	0	124	1Q	0		0		596	720	721
k . Evaluate and Integrate New Visualization Technologies into MUSE	C/FFP	TBD	0	105	1Q	0		0		530	635	635
l . Link Fixed Target Database with DIA MIDB	SS/CPFF	TBD	0	0		245	1Q	0		0	245	0
m . Initial VTUAV/UCARS Vehicle models	SS/CPFF	TBD	0	0		165	1Q	0		0	165	0
n . Initial ATARS & TARPS Simulation model	SS/CPFF	SAIC/HSV, AL.	0	0		235	1Q	0		0	235	0
o . Initial effects-based fixed target behavior model	SS/CPFF	SAIC/HSV, AL.	0	0		190	1Q	0		0	190	0
p . Initial development of Multi-spectral & Hyper-spectral simulation	SS/CPFF	GDIS/Arlington, VA	0	0		0		206	1Q	0	206	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**123**

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
q . Prototype FIA interfaces & capabilities			0	0		0		120	1Q	0	120	0
r . Imagery generation upgrade conversion	SS/CPFF	GDIS/Arlington, VA	0	0		0		160	1Q	0	160	0
s . Enhance IR & SAR model sets	SS/CPFF	GDIS/Arlington, VA	0	0		0		90	1Q	0	90	0
Subtotal:			2801	1309		1397		1241		5147	11895	9296

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Provide Direct JSTARS CGS Interface	SS/CPFF	GDIS/Arlington, VA	75	0		0		0		0	75	75
b . Technical Support of MUSE Integration with IEWTPT	C/CPFF	GDIS/Arlington, VA	125	50	1Q	0		0		132	307	307
c . Initiate MUSE TUAV Flight Performance Model Verification & Validation Process	C/CPFF	Dynetics/Huntsville, AL	345	120	1Q	0		0		530	995	995

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**123**

II. Support Cost (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
d . Provide MUSE Configuration Mgt and Help Desk Services	C/CPFF	GDIS, Arlington, VA	460	240	1Q	240	1Q	240	1Q	795	1975	1495
e . JTC/SIL Management	C/CPFF	TBD	60	60	1-3Q	80	1-3Q	80	1-3Q	238	518	358
f . MUSE Equipment	C/CPFF	AMC/AMCOM/AMRD EC/SED/Redstone Arsenal, AL	268	150	1Q	200	1Q	200	1Q	424	1242	842
g . Incorporate New Technology Sensors & Platforms into the MUSE	C/CPFF	SAIC/Huntsville, AL	0	100	1Q	100	1Q	75	1Q	530	805	630
h . Update interfaces to DoD models	C/CPFF	GDIS/Arlington, VA	0	0		0		215	1Q	0	215	0
Subtotal:			1333	720		620		810		2649	6132	4702

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**123**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Product Evaluation	TBD	TBD	0	0		0		0		132	132	132
<b>Subtotal:</b>			0	0		0		0		132	132	132

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . JTC/SIL Management Personnel	In House	JTC/SIL/Redstone Arsenal, AL	419	233	1-4Q	216	1-4Q	218	1-4Q	1324	2410	1999
<b>Subtotal:</b>			419	233		216		218		1324	2410	1999

<b>Project Total Cost:</b>			4553	2262		2233		2269		9252	20569	16129
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# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**D09**

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
D09 EXTENDED RANGE UAV (JMIP)	0	22855	0	0	28577	30561	5819	0	87812

**A. Mission Description and Budget Item Justification:** The U.S. Army has a requirement for UAV systems that will provide near real time reconnaissance, surveillance, and target acquisition information to Army maneuver commanders. The Extended Range/Multipurpose (ER/MP) program was initiated to fulfill ORD requirements for a Division/Corps/Unit of Employment Medium Altitude Endurance UAV. ER/MP will utilize the One System ground equipment with an extended range air vehicle. This system supports the Current to Future transition paths of the Transformation Campaign Plan (TCP).

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Target Location Error / TUAV Enhancements	0	2350	0
Acquisition Simulation & Demonstration (SMART)	0	1000	0
Long Lead Items for One System Integration & Testing	0	7633	0
Program Management	0	1962	0
Tactical Common Data Link Initial Integration	0	4113	0
One System Initial Integration with Prime Air Vehicle Vendor	0	3651	0
Source Selection	0	2146	0
<b>Totals</b>	<b>0</b>	<b>22855</b>	<b>0</b>

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

**C. Acquisition Strategy:** The ERMP ORD was approved by the AROC on 16 December 2003. Development/Integration of an extended range air vehicle will include a two phased approach. Phase I involves a paper downselect to two vendors. Phase II involves a competition and downselect with a flyoff to one qualified airframe vendor. This vendor will be integrated into the 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 order

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0305204A - Tactical Unmanned Aerial Vehicles**

PROJECT  
**D09**

ed.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**D09**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Target Location Error / OIF TUAV Enhancements	TBD	AAI, MD	0	0		2350	1-3Q	0		0	2350	Continue
b . Acquisition Simulation & Demonstration	TBD	Camber, Huntsville, AL	0	0		1000	2-4Q	0		0	1000	0
c . Long Lead Items for One System Integration & Test	TBD	Various Contractors	0	0		7595	3-4Q	0		0	7595	0
d . Tactical Common Data Link Initial Integration	TBD	Various Contractors	0	0		4113	3-4Q	0		0	4113	0
e . One System Initial Integration with Prime AV Vendor	TBD	Various Contractors	0	0		3651	3-4Q	0		0	3651	0
f . Source Selection	TBD	Other Government Agencies	0	0		2146	3-4Q	0		0	2146	0
Subtotal:			0	0		20855		0		0	20855	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**D09**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contractor Engineering Support	MIPR / PWD	Various Contractors	0	0		1000	2-4Q	0		0	1000	0
b . Government Engineering Support	MIPR / PWD	Other Government Organizations	0	0		500	2-4Q	0		0	500	0
Subtotal:			0	0		1500		0		0	1500	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**D09**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program management	MIPR / PWD	PM UAV, Redstone Arsenal, AL	0	0		500	2-4Q	0		0	500	0
Subtotal:			0	0		500		0		0	500	0

Project Total Cost:			0	0		22855		0		0	22855	Continue
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## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305204A - Tactical Unmanned Aerial Vehicles**

**PROJECT**  
**D09**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Paper Downselect to two Venders		2-3Q			1-2Q		
Downselect to one Vender		4Q			3-4Q		
P3I		1-3Q			1-4Q	1-4Q	1-4Q

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

February 2004

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0305206A - Airborne Reconnaissance Adv Development</b>					<b>PROJECT</b> <b>K98</b>			
COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
K98	MASINT SENSOR INTEGRATION (JMIP)	11433	4699	5128	5412	5502	5223	5509	0	58680

**A. Mission Description and Budget Item Justification:** This project continues development of advanced tactical reconnaissance and surveillance sensor technologies and develops technology for the on-board fusion of multidiscipline intelligence sensors, i.e. Signals Intelligence (SIGINT), Moving Target Indicator/Synthetic Aperture (MTI/SAR) Radar, and Measure and Signature Intelligence (MASINT). Hyperspectral, multi-spectral, interferometric synthetic aperture radar sensors, advanced target and image exploitation software will be developed for imagery intelligence (IMINT) and MASINT applications. The Hyperspectral Longwave Imager for the Tactical Environment (HyLITE) develops the next generation airborne day/night hyperspectral reconnaissance sensor for the countermine mission, and detection and identification of camouflaged and concealed targets in all terrain environments. The Signals Warfare Project Office will develop MASINT/IMINT technologies for Aerial Common Sensor (ACS). Efforts will be directed toward the development of advanced multi-mode Electroptical/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. MASINT was provided a supplemental fund called Defense Emergency Response Fund (DERF), as a non-add, for \$2.6M in FY 2002.

FY05 funds continue MTI/SAR and MSI/HSI technology development and supports the integration of these for system demonstrations.

This system supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
-Conducted Critical Design Review (CDR)of the Hyperspectral Long Wave Imager for the Tactical Environment (HyLITE) sensor. Completed system integration and initial testing. Participated in joint spectral data collection and exercises of various terrain and environmental backgrounds for algorithm development. Developed and integrated multiple algorithm exploitation and processing techniques for advanced spectral detection and recognition.	1691	0	0
-Spiral development and integration of multi-mode MTI/SAR/MSI/HSI/EO/IR capabilities for the ACS program	4726	4699	5128
- Sensor development and improvements of the HyLITE system for application in the tactical environment. Conduct integration of HyLITE with the Night Vision Electronic Sensor Directorate test bed aircraft. Conduct lab characterization, flight tests, data collections, and field experimentations.	1924	0	0

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

February 2004

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305206A - Airborne Reconnaissance Adv  
 Development**

**PROJECT**  
**K98**

**Accomplishments/Planned Program B(continued)**

	FY 2003	FY 2004	FY 2005
-Addressed the Supportability/obsolesence issues for AN/PPS-5D Ground Sensor Radar	970	0	0
-Provided ILS and engineering support for REMBASS II system	1028	0	0
Initiated effort for imaging capability for Military Utility Assessment at the 2nd SBCT	1094	0	0
<b>Totals</b>	<b>11433</b>	<b>4699</b>	<b>5128</b>

**B. Program Change Summary**

	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	11438	4751	5094
Current Budget (FY 2005 PB)	11433	4699	5128
Total Adjustments	-5	-52	34
Congressional program reductions			
Congressional rescissions		-44	
Congressional increases			
Reprogrammings	-5	-8	
SBIR/STTR Transfer			
Adjustments to Budget Years			190

**C. Other Program Funding Summary**

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	ToComp	TotalCost
0203744A/028 ACS	46835	102316	143911	150071	242772	23088	26224	Continue	Continue
A02005 Aerial Common Sensor	0	0	0	0	0	232549	225484	Continue	Continue

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

February 2004

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0305206A - Airborne Reconnaissance Adv  
Development**

PROJECT

**K98**

**D. Acquisition Strategy:** The HyLITE system acquisition strategy provided for the award of an R&D effort beginning in FY 1999 under best value full and open competition procedures. Data collection efforts to support analytic studies began in FY1998 using existing sensor and hardware integrated on a NVESD testbed aircraft.

The ACS Technology Demonstration (TD) phase completed in 3QFY03. The System Development and Demonstration (SDD) phase, which will be a competitive solicitation with contract award scheduled in 3QFY04, will develop MTI/SAR/MSI/HSI and multi-sensor technologies identified and found critical to the Aerial Common Sensor (ACS) program based upon the ACS Concept Exploration (CE) and TD phase.

PM Robotic and Unmanned Sensors received a FY03 Congressional Plus-up and awarded multiple FFP contracts to address the following: AN/PPS-5D Ground Sensor Radar (GSR) supportability/obsolescence issues; engineering support for the REMBASS II system; and awarded a TM contract to provide an imaging capability for a Military Utility Assessment being conducted by 2nd SBCT.

# ARMY RDT&E COST ANALYSIS(R3)

February 2004

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305206A - Airborne Reconnaissance Adv  
 Development**

**PROJECT**  
**K98**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Night Vision Development Support; HyLITE	C/CPFF	BAE Systems, NY	10086	1456	3Q	0		0		0	11542	11542
b . ACS Development Support; Hyperspectral Imagery	C-CPFF	BAE Systems, NY	0	1444	3Q	0		0		0	1444	1444
c . ACS Technology contract for MTI/SAR/MIS/HSI/EO/IR	C-CPAF	Lockheed Martin, Denver, CO	2201	2240	1-2Q	0		0		0	4441	4443
d . ACS Technology contract for MTI/SAR/MIS/HSI/EO/IR	C-CPAF	Northrup Grumman, Baltimore, MD	2202	2239	1-2Q	0		0		0	4441	4444
e . ACS Technology contract for MTI/SAR/MIS/HSI/EO/IR	C-CPAF	TBD	0	0		4241	3Q	4624	1-2Q	Continue	8865	Continue
f . AN-PPS-5D	FFP	Lockheed Martin (SRC), Syracuse, NY	0	599	3Q	0		0		0	599	599
g . REMBASS II	FFP	Lockheed Martin (L3Comm) Camden, NJ	0	304	4Q	0		0		0	304	304
h . REMBASS II Laptops	FFP	GTSI Corp, Chantilly, VA	0	27	3Q	0		0		0	27	27
i . EO/IR	T&M	Custom Man & Engr, St. Petersburg, FL	0	1009	3Q	0		0		0	1009	1009

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305206A - Airborne Reconnaissance Adv  
Development**

**PROJECT**  
**K98**

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			14489	9318		4241		4624		Continue	32672	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . ACS System Engineering; Hyperspectral Imagery	C/T&M	EOIR, Fredricksburg VA	1615	125	2Q	0		0		0	1740	1740
b . ACS Technical Support; Hyperspectral Imagery	C/T&M	IDA; Washington, DC	260	50	3Q	0		0		0	310	310
c . NV Technical Support HyLITE	C/T&M	Northrop Grumman, Los Angeles, CA	0	100	2Q	0		0		0	100	100
d . ACS Technical Support; Hyperspectral Imagery	C/T&M	Northrop Grumman, Los Angeles, CA	0	100	2Q	0		0		0	100	100
e . CME/REMBASS II	MIPR	CECOM, I2WD	0	95	3Q	0		0		0	95	95
f . Program & Eng Spt	MIPR	TSM Prophet	0	150	4Q	0		0		0	150	150
Subtotal:			1875	620		0		0		0	2495	2495

# ARMY RDT&E COST ANALYSIS(R3)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0305206A - Airborne Reconnaissance Adv  
Development**

PROJECT  
**K98**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . ACSTest & Demonstration; Hyperspectral Imagery	MIPR	CECOM; NVSED, NJ	922	305	2Q	0		0		0	1227	1227
b . ACS Integration and Demonstration of MTI/SAR/MSI/HSI/EO/IR technologies	C-CPAF and MIPR	Multiple	0	108	1-2Q	288	1-2Q	317	1Q	Continue	Continue	Continue
c . REMBASS II DT & Reliability	MIPR	Aberdeen Test Center, Aberdeen, MD	0	606	3Q	0		0		0	606	606
d . REMBASS II DT Test Spt	MIPR	Multiple	0	108	3-4Q	0		0		0	108	108
Subtotal:			922	1127		288		317		Continue	Continue	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305206A - Airborne Reconnaissance Adv  
 Development**

**PROJECT**  
**K98**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . NV Program & Engineering Support; HyLITE	MIPR	CECOM; NVESD	1265	35	2Q	0		0		0	1300	1300
b . ACS Program & Engineering Support; MTI/SAR/MSI/HSI/EO/IR	MIPR	CECOM; I2WD	468	333	1-2Q	170	2Q	187	1Q	Continue	Continue	Continue
Subtotal:			1733	368		170		187		Continue	Continue	Continue
<b>Project Total Cost:</b>			19019	11433		4699		5128		Continue	Continue	Continue

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0305206A - Airborne Reconnaissance Adv  
 Development**

**PROJECT**  
**K98**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
HyLITE Algorithm Design/Implementation (day/night) and Analysis	1-4Q						
HyLITE Aircraft Integration	4Q						
HyLITE Test and Demonstrate	1-4Q						
Imaging Capability for Military Utility Assessment effort	3-4Q	1-4Q					
Support to REMBASS II effort	3-4Q	1-3Q					
Supportability/obsolescence issues addressed concerning AN/PPS-5D (GSR)	3-4Q	1-3Q					
ACS MTI/SAR/MSI/HSI/EO/IR technology demos	3-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q

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

February 2004

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	44805	37375	43254	87329	111247	112105	116244	0	632067
956 DISTRIBUTED COMMON GROUND SYSTEM (DCGS) (JMIP)	44805	13654	9751	10136	10643	11104	11603	0	191371
D06 DCGS-A ASAS INTEGRATION (JMIP)	0	1323	7719	14832	19792	9895	9887	0	63448
D07 DCGS-A COMMON MODULES (JMIP)	0	21364	18140	54623	72711	79654	83278	0	329770
D08 DCGS-A SENSOR INTEGRATION (JMIP)	0	1034	6995	7090	7452	10803	10829	0	44203
D15 MUSE & TES TADSS (TIARA)	0	0	649	648	649	649	647	0	3275

**A. Mission Description and Budget Item Justification:** Distributed Common Ground System - Army (DCGS-A) will serve as the primary ground system of systems for airborne and ground sensor platforms defined as Future Force systems. DCGS-A enables the commander to achieve situational understanding by leveraging multiple sources of data, information, and intelligence to synchronize the elements of Joint and Combined Arms combat power (maneuver, maneuver support and maneuver sustainment support). The core functions of DCGS-A are: receipt and processing of space, airborne, ground and maritime ISR sensor data; control of select Army and joint ISR sensor systems; intelligence synchronization; ISR planning, reconnaissance and surveillance (R&S) integration; fusion of sensor information, and direction and distribution/dissemination of sensor information. It draws information from a wide variety of automated and manual sources; on-board sensors, space platforms, unattended air and ground vehicles, existing and new ISR capabilities, and an assortment of databases to enable the land component commander to execute battle command, synchronize fires and effects, rapidly shift battle focus, achieve situational understanding, protect the force, and employ his forces more effectively. DCGS-A allows commanders at all levels to visualize and understand the threat and environment, predict threat intentions, execute targeting through targeting support, conduct ISR integration and support Information Operations. DCGS-A includes hardware for multiple configurations (Fixed, mobile, and Embedded) and common software that is interoperable with sensors, other Battlefield Operating Systems (BOS), and the DoD Distributed Common Ground/Surface System (DCG/SS) Family of Systems (FoS). The DCGS-A software is tailored by echelon and to the requirements of each mission, task, and purpose. Within the Unit of Action (UA), DCGS-A is an embedded software application on the Future Combat System (FCS) FoS and other select platforms. At the Unit of Employment (UE) and above, DCGS-A is composed of hardware and software in Mobile and Fixed site configurations. As a system of systems, DCGS-A will consolidate and replace the capabilities found in the following Current Force systems: All Source Analysis System (ASAS), CI/HUMINT Single Source Workstation, Tactical Exploitation System (TES), Guardrail Information Node (GRIFN), Guardrail Common Sensor (GRCS) Intelligence Processing Facility (IPF), Prophet Control, and Joint Surveillance Target Attack Radar System (JSTARS) Common Ground Station (CGS). DCGS-A will also contain Digital Topographic Support System (DTSS) and Integrated Meteorological System (IMETS), like capabilities, sensor control and processing capabilities of select DCGS baseline and Army organic UAV and Enhanced Trackwolf processing capabilities. DCGS-A will migrate these capabilities into an integrated system of systems that is modular, scaleable, and with a reduced footprint over Current Force systems; a key component of Transformation and a top Army priority.

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

This system supports the Future Force transition path of the Transformation Campaign Plan (TCP).

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	44823	32292	42377
Current Budget (FY 2005 PB)	44805	37375	43254
Total Adjustments	-18	5083	877
Congressional program reductions		-356	
Congressional rescissions			
Congressional increases		5500	
Reprogrammings	-18	-61	
SBIR/STTR Transfer			
Adjustments to Budget Years			877

FY2004: Congressional Add of 5,500 covers the following:  
     1,500 Asymmetric Warfare Intelligence Analysis Advance Tool Set (AW-IAATS)  
     2,800 Distributed Data Visualization & Management  
     1,200 National Defense Imagery Processing (NDIP) Program

FY2005:

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 0305208A - Distributed Common Ground Systems (JMIP)					<b>PROJECT</b> 956			
COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
956	DISTRIBUTED COMMON GROUND SYSTEM (DCGS) (JMIP)	44805	13654	9751	10136	10643	11104	11603	0	191371

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

FY 05 funding supports design and development of a DCGS-A prototype.

This system supports the Future Force transition path of the Transformation Campaign Plan (TCP).

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Develop a COMINT workstation and Fusion Cell.	6700	0	0
Field a DCGS-A capability to establish a 513th Military Intelligence BDE Echelons Above Corps (EAC) Home Station Operations Center (HSOC).	2700	0	0
Evaluate and integrate visualization and MASINT sensor tools for data sharing and collaboration of multi-INT platforms.	2000	0	0

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**956**

<b>Accomplishments/Planned Program (continued)</b>	FY 2003	FY 2004	FY 2005
System integration and test support for Spirals 1, 2 & 3.	3400	0	0
Assess CDL and MP-RTIP alternatives.	6468	0	0
DCGS-A system integration to support Wideband ISR Network.	10750	0	0
Development of ISR modules to support FCS.	1515	0	0
Asymmetric Warfare Intelligence Analysis Advanced Tool Set (AW-IAATS)	0	1500	0
Distributed Data Visualization and Management	0	2800	0
National Defense Imagery Processing (NDIP) Program	0	1200	0
DCGS-A Milestone B preparation.	1150	0	0
DCGS-A design and development in support of ACS and other Future Force systems. This includes current system migration to DCGS-A capabilities.	0	0	9751
SAIP prototype single vehicle development, fielding, integration, and evaluation. Starting in FY03 shared funding with PE 0604766, Project D957.	1561	1000	0
DTES Production, Interoperability and Upgrade Spirals. Starting in FY03 DTES costs shared with PE, 0604766, Project D957, and SSNs BZ7316 and BZ7317. FY04 and beyond funded by BZ7316 and this Project.	6622	69	0
Field Motivated Fixes, Baseline Builds, and Configuration Control Boards. FYs 03 and 04 funding supplemented within 0305208, D957. FY 05 supplemented with BZ7316. FY 06 and beyond covered by this PE only.	439	2000	0
TES Forward or MAIN Systems' upgrades and interoperability builds.	1500	4145	0
Ensure data link interoperability across Services and other programs.	0	940	0
<b>Totals</b>	<b>44805</b>	<b>13654</b>	<b>9751</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
7 - Operational system development

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

**PROJECT**  
956

<b>B. Other Program Funding Summary</b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
PE 0604766A TES/DCGS-A Project D909	1770	0	0	0	0	0	0	0	1770
<del>PE 0604766A</del> DCGS-A (JMIP)	11303	2687	9647	9958	24634	33576	34211	Continuing	Continuing
BZ7317 Tactical Exploitation System (TIARA) *1	17100	0	0	0	0	0	0	0	51234
APA AZ2000 Guardrail Mods (TIARA) (DCGS-A GRIFN MDEP FPDP Only) *2	0	0	0	0	0	0	0	0	5000
PE 0604766A Tactical Exploitation System (TES) / DCGS-A 957 *3	55485	19695	22016	0	0	0	0	0	156864
PE 0604770 Army Common Ground Station (CGS) (202)	4509	4705	0	0	0	0	0	0	16699
BA1080, Army Common Ground Station (CGS)	9587	8200	0	0	0	0	0	0	38943
PE 0604321 CI/HUMINT Software Products (B41) (TIARA)	2322	2134	949	1842	3232	1733	1812	Continuing	Continuing
BK5275 CI HUMINT Info Management System	9490	14543	2924	729	6547	3280	5911	Continuing	Continuing

\*1 By direction of Congress, in FY03 reprogrammed \$7.5 M from PE 305208, Project 956 into OPA BZ7317 for DCGS-A capability.

\*2 By direction of Congress, reprogrammed \$5.0 M from PE 305208, Project 956 into APA AZ2000 for DCGS-A capability.

\*3 Funding decremented for TES starting FY04.

**C. Acquisition Strategy:** DCGS-A will be executed via an evolutionary acquisition approach, providing incremental milestone decisions throughout the System Development and Demonstration (SDD) phase. Each incremental milestone will validate/approve requirements for DCGS-A capabilities and those DCGS-A capabilities inherent to other Future Force programs such as Aerial Common Sensor and Future Combat System. The program emphasizes migration of current force capabilities into a common baseline, multiple prototype deliveries, integrated testing and continuous evaluation opportunities.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**956**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Visualization/Data Sharing Studies, Analysis and M&S	T&M	Booz-Allen, Eatontown, NJ	4023	1500	3-4Q	0		0		0	5523	0
b . Block II ACE to DCGS-A Interface	MIPR	PM SW	7360	0		0		0		0	7360	0
c . GRIFN DCGS-A	CPFF	Northrup Grumman, Linthicum, MD	14390	0		0		0		0	14390	0
d . III Corps TES Main, TES upgrades, integration and evaluation.	CPFF	Northrup Grumman, Linthicum, MD	15536	1600	3Q	893	1Q	0		0	18029	0
e . TES DCGS-A Interoperability	CPFF	Northrup Grumman, Linthicum, MD	22936	6449	2Q	3500	1Q	0		0	32885	0
f . MIES CIG/SS	CPFF	DBA, Melbourne, FL	4187	0		0		0		0	4187	0
g . ETRAC CIG/SS	CPAF	Northrup Grumman, Linthicum, MD	5527	0		0		0		0	5527	0
h . COMINT Workstation and Fusion Cell	MIPR	PM IE	3080	5700	1Q	0		0		0	8780	5741
i . CHIMS Upgrades for HUMINT Operator Multi-INT	MIPR	PM CHIMS	2310	0		0		0		0	2310	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**956**

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
j . INSCOM Home Station Nodes	MIPR	INSCOM	1200	2700	1Q	0		0		0	3900	0
k . System Integration and test support for Spirals 1,2,3	MIPR	INSCOM	0	3400	2Q	0		0		0	3400	0
l . Evaluate and Integrate Visualization and MASINT Tools	MIPR	NRO	0	1500	3-4Q	0		0		0	1500	0
m . Assess CDL and MP- RTIP Alternatives	MIPR	Wright Patterson Air Force Base	0	2768	2Q	0		0		0	2768	0
n . DCGS-A Integration to support Wideband ISR Network	MIPRs	PM IE/PM SW	0	9750	2Q	0		0		0	9750	0
o . Development of ISR modules to support SIGINT migration	MIPR	PM SW	0	1533	2Q	0		0		0	1533	0
p . DCGS-A prototype development	CP	TBD	0	0		0		6814	1-3Q	0	6814	0
q . AWIAATS	MIPR	Battlelabs, Ft. Huachuca	0	0		1500	2Q	0		0	1500	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**956**

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
r . Distributed Data Vis	MIPR	Battlelabs, Ft. Huachuca	0	0		2800	2Q	0		0	2800	0
s . NDIP	MIPR	Battlelabs, Ft. Huachuca	0	0		1200	2Q	0		0	1200	0
Subtotal:			80549	36900		9893		6814		0	134156	5741

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Objective Doctrine/TTP Development To Support a Milestone B for ODCGS-A	MIPR	Ft. Huachuca, AZ	4600	1023	2Q	0		0		0	5623	0
b . Matrix Support	MIPR	CECOM, Fort Monmouth NJ	1401	1500	1Q	873	1Q	1000	1Q	Continue	4774	Continue
Subtotal:			6001	2523		873		1000		Continue	10397	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**956**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test support for DCGS-A development	MIPR	INSCOM	0	1500	2Q	0		0		0	1500	0
b . Test support for DCGS-A development	MIPR	TBD	0	0		2150	2-3Q	1099	2-3Q	0	3249	0
Subtotal:			0	1500		2150		1099		0	4749	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Project Management	In-House	PM, DCGS-A	500	3882	1-4Q	738	1-4Q	838	1-4Q	Continue	5958	Continue
Subtotal:			500	3882		738		838		Continue	5958	Continue

Project Total Cost:			87050	44805		13654		9751		Continue	155260	Continue
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**956**

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
(1) Milestone B for FCS and ACS									▲ 1																											
Spirals 1-3 Fieldings																	Spirals 1-3 Fieldings																			
DCGS-A Incremental SDD Phase																	DCGS-A Incremental SDD Phase																			
DT/OT 1																					DT/OT 1															
(2) Fixed Site Upgrades																					▲ 2															
DT/OT 2																					DT/OT 2															
(3) Milestone C LRIP																									▲ 3											
FCS Limited User Test 1																					FCS Limited User Test															
DCGS-A IOT&E																									DCGS-A IOT&E											
(4) DCGS-A Full Rate Production Decision																													▲ 4							

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**956**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Development of TES Main to III Corps	1-4Q						
GRIFN component of DCGS-A	1-4Q						
Integration of Common Ground Station (CGS) /CHIMS capability into Interim DCGS-A	1-2Q						
TES and GRIFN integration	1-4Q	1-2Q					
DCGS-A Milestone B for FCS and ACS	3-4Q						
Spirals 1-3 Fieldings	4Q	4Q	2Q				
DCGS-A Incremental SDD Phase	4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
DT/OT 1				1-2Q			
Fixed Site Upgrades				4Q			
DT/OT 2					2-4Q		
Milestone C LRIP (Mobile)						1Q	
FCS Limited User Test (LUT)						1Q	
DCGS-A IOT&E							1-3Q
DCGS-A Full Rate Production Decision							4Q

\* The majority of TES system funding is under PE 0604766A (TES/DCGS-A)

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0305208A - Distributed Common Ground Systems (JMIP)</b>						<b>PROJECT</b> <b>D06</b>		
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
D06 DCGS-A ASAS INTEGRATION (JMIP)	0	1323	7719	14832	19792	9895	9887	0	63448

**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 algorithms and on-going Future Combat System (FCS) developmental efforts. This includes both developed and transitioned from existing systems to meet the requirements for All Source 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 be an All Source process that addresses 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 All Source sensor fusion capability will support all types of units of employment/action across a broad spectrum of both traditional and non-traditional (e.g., SASO, SSC, NEO) operations, and improved interoperable with Joint, Allied, and Coalition forces.

This system supports the Future Force transition path of the Transformation Campaign Plan (TCP).

FY05 funds the transition of the All Source sensor fusion products and technologies and design and prototype development of DCGS-A.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0305208A - Distributed Common Ground Systems (JMIP)</b>	PROJECT <b>D06</b>
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<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Enhance interface between All Source sensor fusion process and SIGINT single sources for design and prototype development.	0	200	1750
Enhance interface between All Source sensor fusion process and CI/HUMINT single source for design and prototype development.	0	200	1000
Enhance All Source sensor fusion processing of MASINT for design and prototype development.	0	200	1250
Enhance controlled interface technology for improved product distribution at multiple security levels via web.	0	277	0
Studies, analysis, and prototyping for porting All Source sensor fusion mission applications to FCS environment.	0	248	1156
Transition of All Source sensor fusion processes and Current Force systems capabilities to DCGS-A.	0	198	2563
<b>Totals</b>	<b>0</b>	<b>1323</b>	<b>7719</b>

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

**C. Acquisition Strategy:** The transition of ASAS all-source production capabilities into DCGS-A builds upon and expands the capabilities and functionality developed and produced in the ASAS Block II program. Additional software capabilities will include enhanced intelligence and command and control functionality; degraded mode, distributed and reach operations; enhanced network communications; improved reliability, supportability and survivability. The all-source production domain in DCGS-A will be smaller, lighter, and cheaper, as well as more flexible and mobile than that of the Block II ASAS. The program emphasizes multiple prototype deliveries, integrated testing, and continuous evaluation opportunities. This effort builds upon the experience and feedback gained from fielded Block II ASAS modules as well as the All Source Correlation Element – Light (ACE-Light) prototype which began under the Block II ASAS program, and integration of fusion capabilities developed under the FCS program.

DCGS-A will be executed via an evolutionary acquisition approach, providing incremental milestone decisions throughout the System Development and Demonstration (SDD) phase based on validated/approved requirements for DCGS-A capabilities and those DCGS-A capability needs inherent in other Future Force programs such as Aerial Common Sensor and Future Combat System. The program emphasizes migration of current force capabilities into a common baseline, multiple prototype deliveries, integrated testing and continuous evaluation opportunities.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**D06**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Prototype Development and transition of Current Force systems	TBD	TBD	0	0		923	2Q	6236	1Q	Continue	7159	Continue
Subtotal:			0	0		923		6236		Continue	7159	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Systems Engineering	MIPR	TBD	0	0		100	1Q	100	1Q	Continue	Continue	Continue
Subtotal:			0	0		100		100		Continue	Continue	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**D06**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Prototype Test & Evaluation	MIPR	EPG, Ft. Huachuca, AZ	0	0		0		500	1Q	Continue	Continue	Continue
Subtotal:			0	0		0		500		Continue	Continue	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contractor	TBD	TBD	0	0		150	1Q	450	1Q	Continue	Continue	Continue
b . Govt In House		PM I&E, Ft. Belvoir, VA	0	0		150	1-4Q	433	1-4Q	Continue	583	Continue
Subtotal:			0	0		300		883		Continue	Continue	Continue

Project Total Cost:			0	0		1323		7719		Continue	Continue	Continue
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

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

PROJECT  
D06

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(1) Milestone B for FCS and ACS								▲																								
Spirals 1-3 Fieldings									Spirals 1-3 Fieldings																							
DCGS-A Incremental SDD Phase									DCGS-A Incremental SDD Phase																							
DT/OT 1													DT/OT 1																			
(2) Fixed Site Upgrades																					DT/OT 2											
DT/OT 2																																
(3) Milestone C LRIP																																
FCS Limited User Test 1																																
DCGS-A IOT&E																																
(4) DCGS-A Full Rate Production Decision																																▲

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**D06**

<u>Schedule Detail</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
All-source Sensor Fusion Development		1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
DCGS-A Milestone B for FCS and ACS	3-4Q						
Spirals 1-3 Fieldings	4Q	4Q	2Q				
DCGS-A Incremental SDD Phase	4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-3Q
DT/OT 1				1-2Q			
Fixed Site Upgrades				4Q			
DT/OT 2					2-4Q		
Milestone C LRIP (Mobile)						1Q	
FCS Limited User Test (LUT)						1Q	
DCGS-A IOT&E							1-3Q
DCGS-A Full Rate Production Decision							4Q

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0305208A - Distributed Common Ground Systems (JMIP)</b>						PROJECT <b>D07</b>			
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost	
D07 DCGS-A COMMON MODULES (JMIP)	0	21364	18140	54623	72711	79654	83278	0	329770	

**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 will assess (or develop as necessary) existing Best of Breed candidate capabilities from Current Force and Future Force systems and integrate common data management, visualization and exploitation tools into the DCGS-A Service Based Architecture (SBA) baseline configuration. This will create the software and hardware baseline for seamless multi-INT Tasking, Posting, Processing and Using (TPPU). This common set of automated collaboration, exploitation, fusion and collection management tools, applied at every echelon from the Unit of Action (UA) to Echelons Above Corps (EAC) will be the knowledge hub of the DCGS-A Enterprise. DCGS-A will maximize the use of common hardware/software to ease training burden, reduce logistics footprint, and decrease sustainability requirements. The DCGS-A Enterprise will include common, GIG-enabled, networking modules that provide reach and split based capability to minimize forward footprint and maximize data access. DCGS-A visualization and dissemination applications will be embedded into FCS and the Future Force to provide tailored access to actionable information. DCGS-A application - programs, applets, and toolsets – will be based on Network Centric Enterprise Service (NCES) and DoD standards and common throughout DCGS-A. This system supports the Future Force transition path of the Transformation Campaign Plan (TCP).

FY 05 funds support completion of Spirals 2 & 3 integration and test efforts, and development/migration of new and existing capabilities onto a DCGS Integration Backbone (DIB), developed by the Air Force Distributed Common Ground System (DCGS) 10.2 program.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

**BUDGET ACTIVITY**  
7 - Operational system development

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

**PROJECT**  
D07

**Accomplishments/Planned Program**

	FY 2003	FY 2004	FY 2005
System integration and test support for Spirals 1, 2 & 3.	0	1700	4000
10.2 DIB implementation.	0	2700	2000
Design and prototype development.	0	8800	5702
Develop/select/modify/integrate new and existing Best of Breed DCGS-A common modules.	0	3000	1500
FCS/UA (Embedded) Augmentation	0	3263	0
Transition of Current Force systems to DCGS-A	0	1901	4938
<b>Totals</b>	<b>0</b>	<b>21364</b>	<b>18140</b>

**B. Other Program Funding Summary**

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
RDTE (PE 35208, Proj 956) DCGS-A JMIP	44805	13504	9652	9935	10232	11060	11645	Continuing	Continuing
RDTE (PE 35208, Proj D08) DCGS-A JMIP	0	1036	7209	7227	7450	11185	11293	Continuing	Continuing
RDTE (PE 35208, Proj D06) DCGS-A JMIP	0	1325	7956	15121	19789	10244	10311	Continuing	Continuing
BZ7316 DCGS-A Unit of Employment	15803	2667	9575	9946	24632	33579	34287	Continuing	Continuing
AZ2000 Guardrail Mods (GRIFIN only)	0	0	0	0	0	0	0	0	5000

**C. Acquisition Strategy:** DCGS-A will be executed via an evolutionary acquisition approach, providing incremental milestone decisions throughout the System Development and Demonstration (SDD) phase. Each incremental milestone will validate/approve requirements for DCGS-A capabilities and those DCGS-A capabilities inherent to other Future Force programs such as Aerial Common Sensor and Future Combat System. The program emphasizes migration of current force capabilities into a common baseline, multiple prototype deliveries, integrated testing and continuous evaluation opportunities.

# ARMY RDT&E COST ANALYSIS(R3)

February 2004

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**D07**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Embedded DCGS-A scalability study for FCS	Competitive CPIF/CPAF	Boeing Corp, CA	0	0		2000	1Q	0		Continue	2000	Continue
b . System integration and test support for Spirals 1, 2 & 3	Sole Source CPIF/CPAF	Northrup Grumman, Linthicum, MD	0	0		1700	1Q	4000	1Q	Continue	5700	Continue
c . Establishment of federated NCES System Integration Lab	Competitive CPIF/CPAF	TBD	0	0		2000	2Q	3526	1Q	0	5526	0
d . 10.2 DIB implementation	Competitive FFP	Air Force, Hanscom, MA	0	0		2700	2Q	2000	1Q	Continue	4700	Continue
e . DCGS-A Modeling and Simulation	Competitive CPIF/CPAF	TBD	0	0		1100	2Q	1000	1Q	0	2100	0
f . DCGS-A fixed configuration supportability enhancements	Competitive CPIF/CPAF	TBD	0	0		1000	2Q	0		Continue	1000	Continue
g . Continue DCGS-A prototype development	Competitive CPIF/CPAF	TBD	0	0		5874	2Q	1343	1Q	Continue	7217	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**D07**

I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
h . Develop/select/integrate Best of Breed common modules	Competitive CPIF/CPAF	TBD	0	0		2710	2Q	1500	1Q	Continue	4210	Continue
i . Spiral capability migration to Current Force ISR ground stations	Competitive CPIF/CPAF	TBD	0	0		0		1600	1Q	0	1600	0
Subtotal:			0	0		19084		14969		Continue	34053	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Matrix Support	MIPR	CECOM	0	0		532	1Q	592	1Q	Continue	1124	Continue
Subtotal:			0	0		532		592		Continue	1124	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**D07**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test support	MIPR	TBD	0	0		0		795	1Q	Continue	795	Continue
Subtotal:			0	0		0		795		Continue	795	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Project Management	In House	PM DCGS-A	0	0		1748	1Q	1784	1Q	Continue	3532	Continue
Subtotal:			0	0		1748		1784		Continue	3532	Continue

Project Total Cost:			0	0		21364		18140		Continue	39504	Continue
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**D07**

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(1) Milestone B for FCS and ACS									▲ 1																							
Spirals 1-3 Fieldings																	Spirals 1-3 Fieldings															
DCGS-A Incremental SDD Phase																	DCGS-A Incremental SDD Phase															
DT/OT 1																									DT/OT 1							
(2) Fixed Site Upgrades																													▲ 2			
DT/OT 2																													DT/OT 2			
(3) Milestone C LRIP																																
FCS Limited User Test 1																																
DCGS-A IOT&E																																
(4) DCGS-A Full Rate Production Decision																																

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**D07**

<u>Schedule Detail</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Milestone B for FCS and ACS	3-4Q						
Spirals 1-3 Fieldings	4Q	4Q	4Q				
DCGS-A Incremental SDD Phase	4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-3Q
DT/OT 1				1-2Q			
Fixed Site Upgrades				4Q			
DT/OT 2					2-4Q		
Milestone C LRIP (Mobile)						1Q	
FCS Limited User Test 1						1Q	
DCGS-A IOT&E							1-3Q
DCGS-A Full Rate Production Decision							4Q

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 0305208A - Distributed Common Ground Systems (JMIP)					<b>PROJECT</b> D08			
COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
D08	DCGS-A SENSOR INTEGRATION (JMIP)	0	1034	6995	7090	7452	10803	10829	0	44203

**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 establishes sensor integration transitioned from existing systems and developed for new systems 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.

This system supports the Future Force transition path of the Transformation Campaign Plan (TCP).

FY 05 funds transition and integration of new and Current Force sensor integration into the DCGS-A network utilizing the System Integration Lab (SIL) Best of Breed selection process.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Integrate Current Force Multi-INT sensor (HUMINT, IMINT, SIGINT, MASINT) modules into the DCGS-A network.	0	0	3069
Transition and integrate Current Force components and capabilities into the DCGS-A network.	0	0	3000
Selection of sensor integration modules utilizing SIL/Best of Breed selection process.	0	1034	926
<b>Totals</b>	<b>0</b>	<b>1034</b>	<b>6995</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

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

PROJECT  
**D08**

<b>B. Other Program Funding Summary</b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
RDTE (PE 35208, Proj 956) DCGS-A JMIP	44805	13504	9652	9935	10232	11060	11645	Continuing	Continuing
RDTE (PE 35208, Proj D07) DCGS-A JMIP	0	21603	9594	21373	40759	44280	44698	Continuing	Continuing
RDTE (PE 35208, Proj D06) DCGS-A JMIP	0	1325	7956	15121	19789	10244	10311	Continuing	Continuing
BZ7316 DCGS-A Unit of Employment	15803	2667	9575	9946	24632	33579	34287	Continuing	Continuing
AZ2000 GRCS Mods (DCGS-A GRIFIN only)	0	0	0	0	0	0	0	0	0

**C. Acquisition Strategy:** DCGS-A will be executed via an evolutionary acquisition approach, providing incremental milestone decisions throughout the System Development and Demonstration (SDD) phase. Each incremental milestone will validate/approve requirements for DCGS-A capabilities and those DCGS-A capabilities inherent to other Future Force programs such as Aerial Common Sensor and Future Combat System. The program emphasizes migration of current force capabilities into a common baseline, multiple prototype deliveries, integrated testing and continuous evaluation opportunities.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**D08**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Develop and Integrate DCGS-A Multi-INT Sensor Modules	Competitive CPIF/CPAF	TBD	0	0		0		2786	1Q	Continue	2786	Continue
b . Develop and Integrate components for sensor data distribution in DCGS-A	Competitive CPIF/CPAF	TBD	0	0		0		2578	1Q	Continue	2578	Continue
Subtotal:			0	0		0		5364		Continue	5364	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Matrix Support	MIPR	CECOM	0	0		75	2Q	139	1Q	Continue	Continue	Continue
Subtotal:			0	0		75		139		Continue	Continue	Continue

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**D08**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SIL/Best of Bredd Testbed	Competitive CPIF/CPAF	TBD	0	0		844	2Q	935	1Q	0	1779	0
Subtotal:			0	0		844		935		0	1779	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Management	In House	PM DCGS-A	0	0		115	1Q	557	1Q	Continue	672	Continue
Subtotal:			0	0		115		557		Continue	672	Continue

Project Total Cost:			0	0		1034		6995		Continue	Continue	Continue
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

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

PROJECT  
D08

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
(1) Milestone B for FCS and ACS									▲ 1																											
Spirals 1-3 Fieldings																	Spirals 1-3 Fieldings																			
DCGS-A Incremental SDD Phase																	DCGS-A Incremental SDD Phase																			
DT/OT 1																					DT/OT 1															
(2) Fixed Site Upgrades																					▲ 2															
DT/OT 2																					DT/OT 2															
(3) Milestone C LRIP																									▲ 3											
FCS Limited User Test 1																					FCS Limited User Test															
DCGS-A IOT&E																									DCGS-A IOT&E											
(4) DCGS-A Full Rate Production Decision																													▲ 4							

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

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

**PROJECT**  
**D08**

<u>Schedule Detail</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Milestone B for FCS and ACS	3-4Q						
Spirals 1-3 Fieldings	4Q	4Q	2Q				
DCGS-A Incremental SDD Phase	4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-3Q
DT/OT 1				1-2Q			
Fixed Site Upgrades				4Q			
DT/OT 2					2-4Q		
Milestone C LRIP (Mobile)						1Q	
FCS Limited User Test 1						1Q	
DCGS-A IOT&E							1-3Q
DCGS-A Full Rate Production Decision							4Q

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	94584	83903	97422	127347	54718	23190	16841	Continuing	Continuing
090 MLRS HIMARS	28776	20621	10526	0	0	0	0	0	159928
093 MLRS JOINT TECH ARCHITECTURE	6423	8364	5011	2261	594	5820	4412	Continuing	Continuing
784 GUIDED MLRS	59385	54918	81885	125086	54124	10716	971	0	449474
787 HIMARS P3I	0	0	0	0	0	6654	7503	0	0
789 GUIDED MLRS (GMLRS) ROCKET P3I	0	0	0	0	0	0	3955	0	0

**A. Mission Description and Budget Item Justification:** The High Mobility Artillery Rocket System (HIMARS), M270A1, Guided MLRS (GMLRS) and GMLRS Unitary are Current to Future Force systems that provide precision strike capability. The GMLRS P3I and HIMARS P3I will support the Army Future Force.

The High Mobility Artillery Rocket System (HIMARS), is a C-130 Transportable launcher mounted on a Family of Medium Tactical Vehicles (FMTV) chassis. HIMARS is capable of firing either 6 MFOM rockets or 2 AFOM missiles, 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 Multiple Launch Rocket System (MLRS) launcher is mounted on a Bradley Fighting Vehicle chassis, and is capable of firing the MLRS Family of Munitions (MFOM) and the Army Tactical Missile System (ATACMS) Family of Munitions (AFOM), including precision munitions, to a range of 300KM. The M270A1 is capable of firing either 12 MFOM rockets of 2 AFOM missiles from a single launcher.

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

HIMARS Preplanned Product Improvement (P3I) adds future force technologies to the base HIMARS launcher.

GMLRS P3I adds future force technologies to improve the accuracy and lethality.

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	94623	84839	110537
Current Budget (FY 2005 PB)	94584	83903	97422
Total Adjustments	-39	-936	-13115
Congressional program reductions		-798	
Congressional rescissions			
Congressional increases			
Reprogrammings	-39	-138	
SBIR/STTR Transfer			
Adjustments to Budget Years			-13115

FY05 funds were realigned to support a higher priority requirement.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>						<b>PROJECT</b> <b>090</b>		
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
090 MLRS HIMARS	28776	20621	10526	0	0	0	0	0	159928

**A. Mission Description and Budget Item Justification:** The High Mobility Artillery Rocket System (HIMARS) fully supports the Army Transformation to a more deployable, affordable, and lethal expeditionary force. It provides MLRS capability to Joint, Current and Future Forces through a lighter weight, more deployable system in both early and forced entry scenarios. Mounted on a medium tactical wheeled vehicle, HIMARS is transportable on a C-130 aircraft, is self-locating and self-loading. It provides full MLRS and Army TACMS (ATACMS) Family of Munitions capability yet requires significantly reduced airlift resources to transport a battery as opposed to a MLRS tracked battery. HIMARS as part of the Unit of Employment will provide fires that shape, shield and isolate the battle space.

HIMARS meets Army's modernization goals for the 21st century, is designated the Army's Current to Future Force Rocket/Missile delivery system, and was selected by Army strategic planners as one of the Army's core systems of Unit of Employment.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Continue system design, conduct Functional Configuration Audit (FCA), and develop Integrated Logistics Products (ILP); integrate and test Horizontal Technology Insertion (HTI) upgrades including Guided MLRS capability.	16856	10540	3706
Completed Extended System Integration Test (ESIT), flight test series 1 & 2 and automotive ground test, resupply vehicle and resupply trailer integration test (3 test articles); performed technical assessments.	2099	0	0
Conduct cold region testing, nuclear testing, Production Qualification Test (PQT) 2 testing, ESIT II and ballistic survivability analysis, Command, Control, Communications, Computers and Intelligence (C4I) and Analysis of Alternatives (AOA) , perform technical assessments and prepare milestone documentation; integrate Advanced Field Artillery Tactical Data System (AFATDS); conduct ground and flight tests.	9821	9504	6820
Small Business Innovative Research/Small Business Technology Transfer Programs	0	577	0
<b>Totals</b>	<b>28776</b>	<b>20621</b>	<b>10526</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

PROJECT  
**090**

<b>B. Other Program Funding Summary</b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
HIMARS Launcher (C03000)	133621	123269	169249	190611	229564	231799	242711	2836730	4157554
HIMARS Modifications (C67501)	0	464	474	8001	11744	16108	8331	321880	367002
HIMARS Modifications: Initial Spares (CA0289)	0	69	71	688	1266	1210	1018	131200	135522
Initial Spares, HIMARS (CA0288)	0	7454	4032	8452	7633	13070	10521	128068	179230

**C. Acquisition Strategy:** The HIMARS program completed System Development and Demonstration (SDD) in FY03. The Path through Operational Test (OT) contract was awarded 3QFY03 to complete DT/OT requirements to enter full rate production testing as an OT risk mitigator. HIMARS had a successful Milestone C decision in 2QFY03 with a Low Rate Initial Production (LRIP) contract awarded in Mar 03 for 28 Army Launchers. The HIMARS LRIP II contract was awarded Dec 03.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

**PROJECT**  
**090**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Risk Reduction/ Maturation Contract	SS/CPIF & CPAF	LMMFC, TX	101472	11252	1-3Q	0		0		0	112724	0
b . Path through Operational Test	SS/CPFF	LMMFC, TX	0	8813	3Q	10794	1Q	2413	1Q	0	22020	0
c . Work Directives	N/A	TACOM (S&S)	4531	21	1-4Q	149	1-4Q	101	1-2Q	0	4802	0
d . GFE, Comm,Trks & Trls	N/A	TACOM & CECOM	4040	0		0		0		0	4040	0
e . Government Support	N/A	AMCOM/ GSA, RSA,TSM & PM	12882	2219	1-4Q	1534	1-4Q	885	1-4Q	0	17520	0
<b>Subtotal:</b>			122925	22305		12477		3399		0	161106	0

Remarks: TACOM - Tank Automotive & Armaments Command  
 AMCOM - Aviation & Missile Command  
 RSA - Redstone Arsenal, AL  
 S&S - Stewart & Stevenson  
 GSA - General Services Administration  
 LMMFC - Lockheed Martin Missile and Fire Control  
 TSM - TRADOC System Manager  
 CECOM - US Army Communication - Electronics Command  
 GFE - Government Furnished Equipment  
 SS - Sole Source  
 CPIF - Cost Plus Incentive Fee  
 CPAF - Cost Plus Award Fee  
 CPFF - Cost Plus Fixed Fee

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

**PROJECT**  
**090**

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Support Contract	C /CPFF	Camber Research/S3, AL	988	250	2Q	299	1Q	301	1Q	0	1838	0
<b>Subtotal:</b>			988	250		299		301		0	1838	0

Remarks: S3 - Systems Studies Simulation, Inc.  
 C - Competitive

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	N/A	APG MD, WSMR NM & RTTC RSA	13488	5995	1-4Q	7043	1-4Q	6423	1Q	0	32949	0
<b>Subtotal:</b>			13488	5995		7043		6423		0	32949	0

Remarks: APG MD - Aberdeen Proving Ground, Maryland  
 WSMR NM - White Sands Missile Range, New Mexico  
 RTTC RSA - Redstone Technical Test Center, Redstone Arsenal, AL

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

**PROJECT**  
**090**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	N/A	PFRMS Project Office, Redstone Arsenal, AL	5667	226	1-4Q	802	1-4Q	403	1-4Q	0	7098	0
<b>Subtotal:</b>			5667	226		802		403		0	7098	0

Remarks: PFRMS - Precision Fires Rocket and Missile Systems

Project Total Cost:			143068	28776		20621		10526		0	202991	0
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

PE NUMBER AND TITLE  
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT  
090

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Production Qualification Test (PQT)	PQT																															
(1) Long Lead Item CA					▲ 1 LLI CA																											
(2) MS C					▲ 2 MS C																											
(3) LRIP 1 CA					▲ 3 LRIP 1 CA																											
(4) Path thru Operational Testing CA					▲ 4 Path thru OT CA																											
PQT II Flight/Ground Testing									PQT II																							
(5) LRIP 2 CA									▲ 5 LRIP 2 CA																							
IOT Ground Test													■ IOT Grnd																			
IOT Flight Test													■ IOT Flts Test																			
(6) LRIP 3 CA													▲ 6 LRIP 3 CA																			
(7) FUE													▲ 7 FUE																			
(8) FRP Decision																	▲ 8 FRP IPR															
(9) FRP Contract Award																					▲ 9 FRP CA											

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

**PROJECT**  
**090**

<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Functional Configuration Audit (FCA)	2Q	4Q					
Launchers 2-6 upgraded	3-4Q	1Q					
LLI IPR, Milestone C	1-2Q						
Conduct PQT II	4Q	1-3Q					
IOT Ground Test		4Q					
IOT Flight Test		4Q	1Q				
First Unit Equipped (FUE)			2Q				
FRP I				1Q			

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>	PROJECT <b>093</b>							
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
093 MLRS JOINT TECH ARCHITECTURE	6423	8364	5011	2261	594	5820	4412	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** Compliance with the Joint Technical Architecture (JTA) supports the HIMARS and M270A1 MLRS launcher programs, and is required by both the Department of the Army and Office of the Secretary of Defense. 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) for both the HIMARS and M270A1 launchers. Other JTA activities planned include the development of an Integrated Core Processor (ICP) as part of the OSD approved Reduction in Total Ownership Cost (RTOC) effort from FY03 to FY06. This effort reduces the total number of Executive Processor Circuit Card Assemblies used in the launcher which increases reliability, decreases unit cost, and mitigates future obsolescence issues. Additionally, ICP supports/meets current JTA requirements.

**Accomplishments/Planned Program**

	FY 2003	FY 2004	FY 2005
Develop platform infrastructure requirements to support situational awareness.	0	2421	0
Develop, integrate, and test SAASM and Joint Variable Message Format (DCOMMS).	1350	567	284
Perform developmental testing (software blocking).	326	203	0
Reduction in Total Ownership Cost (ICP/Card Consolidation Development).	3895	4168	4148
Develop anti-jamming hardware (analysis).	396	423	456
Perform technical assessments, concept studies, and risk reduction.	456	348	123
Small Business Innovative Research/Small Business Technology Transfer Programs.	0	234	0
<b>Totals</b>	<b>6423</b>	<b>8364</b>	<b>5011</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

PROJECT  
**093**

<b>B. Other Program Funding Summary</b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
MLRS Launcher (C65900)	134742	39857	41200	21237	0	0	0	0	3044048
MLRS Mods(C67500)	22181	19770	18970	14579	6643	5349	1804	27000	382820
MLRS Initial Spares (CA0257)	6613	6473	6375	0	0	0	0	0	202288
MLRS Mod Initial Spares (CA0265)	5546	1260	5055	5229	500	1001	1003	9000	44868
HIMARS Launcher (C03000)	133621	123269	169249	190611	229564	231799	242711	2836730	4157554

**C. Acquisition Strategy:** The Joint Technical Architecture-Army (JTA-A) standards will be implemented for the M270A1 and HIMARS launchers which support the Current to Future Force transition path of the Transformation Campaign Plan (TCP). The Joint Variable Message Format 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 ICP and SAASM efforts.

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

**PROJECT**  
**093**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contract (ICP Development and SAASM)	CPFF	LMMFC-D, Dallas, TX	3538	3895	3Q	6832	3Q	4148	2Q	4510	22923	0
b . Government Support	N/A	AMCOM/GSA, RSA	2767	1676	1-3Q	761	1-3Q	284	1-3Q	4538	10026	0
Subtotal:			6305	5571		7593		4432		9048	32949	0

Remarks: ICP-Integrated Core Processor SAASM - Selective Availability/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  
 RSA - Redstone Arsenal, AL

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

**PROJECT**  
**093**

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	N/A	CTSF, Ft. Hood, TX	492	0		0		0		111	603	0
b . Test Support		AMCOM, RSA	0	0		0		0		1789	1789	0
c . Test Support		WSMR, NM	0	159	1-2Q	143	1-3Q	143	1-3Q	951	1396	0
Subtotal:			492	159		143		143		2851	3788	0

Remarks: CTSF - Central Test Support Facility AMCOM, RSA - Aviation and Missile Command, Redstone Arsenal, Alabama  
WSMR, NM - White Sands Missile Range, New Mexico

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	N/A	PFRMS Proj Ofc, RSA	1058	693	1-4Q	628	1-4Q	436	1-4Q	1188	4003	0
Subtotal:			1058	693		628		436		1188	4003	0

Remarks: PFRMS - Precision Fires Rocket and Missile Systems

Project Total Cost:			7855	6423		8364		5011		13087	40740	0
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

PE NUMBER AND TITLE  
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT  
093

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
DCOMMS Integration																																				
Integrated Core Processor (ICP) Development																																				
SAASM																																				
Anti-jamming Hardware																																				

## Schedule Detail (R4a Exhibit)

**February 2004**

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM</b>	PROJECT <b>093</b>
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<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Develop, integrate and test DCOMMS.	2-4Q	1-4Q					
ICP development	3-4Q	1-4Q	1-4Q	1-3Q			
Develop, integrate and test SAASM black key capability.		2-4Q	1-4Q	1-4Q	1-3Q		
Develop anti-jamming hardware.	3-4Q	1-4Q	1-3Q				

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					<b>PROJECT</b> 784			
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost	
784 GUIDED MLRS	59385	54918	81885	125086	54124	10716	971	0	449474	

**A. Mission Description and Budget Item Justification:** The Guided Multiple Launch Rocket System (GMLRS) is a precision strike, artillery rocket system. Coupled with the High Mobility Artillery Rocket System (HIMARS) launcher platform, the GMLRS provides the joint warfighter with unprecedented expeditionary capability as a highly mobile, rapidly deployable, precision guided munition with a reduced logistics burden effective against counterfire, air defense, light materiel, and personnel targets. The GMLRS is a major upgrade to the M26 series rocket and replaces the aging M26 inventory. GMLRS integrates a guidance and control package and a new rocket motor to achieve greater range and precision accuracy requiring fewer rockets to defeat targets than current artillery rockets, thereby reducing the logistics burden. In addition to HIMARS, the GMLRS will also be the primary munition for artillery units fielded with the M270A1 launcher. The GMLRS Dual Purpose Improved Conventional Munition (DPICM) System Development and Demonstration (SDD) was a five nation cooperative program among France, Germany, Italy, United Kingdom and the United States. FY03 initiated efforts to develop a new high explosive warhead and fuzing system for GMLRS known as GMLRS Unitary. The GMLRS Unitary is an all weather, low collateral damage, precision rocket which addresses an expanded MLRS target set to include point targets within urban and complex environments. It is a modification to the existing M26 through increments (GMLRS DPICM and Unitary) with spiral technology insertion that will integrate a multi-mode fuze and high explosive insensitive munition into a warhead of the same GMLRS DPICM dimensions. GMLRS Unitary development efforts will also provide an insensitive munition (IM) rocket motor that will be cut into all GMLRS production once it is qualified. GMLRS Unitary satisfies a validated user requirement and will be fielded to support early entry forces, Stryker brigades and the Unit of Action in the Future Force. Future technologies will be assessed for spiral development and potential insertion into GMLRS to provide operational flexibility and capability against an expanded target set including moving targets. The GMLRS supports the Current to Future Force transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2003	FY 2004	FY 2005
Conduct Development Engineering, Functional Configuration Audit, Final Product Definition Data Package (PDDP), and System Integration Test	9799	101	0
Perform Integration and Test of Alternative Self Destruct Fuze and Improved Mechanical Fuze	2498	3421	0
Develop Advanced Field Artillery Tactical Data System (AFATDS) Interface	502	201	204
Procure assets for System Integration, Cold Region Test, Pre OT Live Fire and SDF Qual Tests	4219	0	0
Conduct system test and evaluation activities to include Initial Operational Test (IOT), Ground and Flight Test.	2277	1489	3813
Procure rockets for Operational Test (30 test articles)	3203	0	0

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

PROJECT  
**784**

**Accomplishments/Planned Program (continued)**

	FY 2003	FY 2004	FY 2005
Perform technical assessments, concept studies, prepare milestone documentation and risk reduction	1402	103	105
Conduct HIMARS/GMLRS DT Flight Test, Cold Region Test	2698	0	0
Conduct Development and Engineering for Insensitive Munitions (IM) Program	0	96	2326
Conduct Development Engineering, Design and Develop Warheads and Multi Mode Fuzes for Unitary	23974	18491	26608
Initiate Initial Common Hardware Buy for Test Activities for Unitary	5789	0	0
Perform Anti-Jamming Analysis and System Engineering/Integration for DPICM and Unitary	2001	4013	3002
Conduct EDT Flight Test, Production Qualification Testing (PQT) Ground and Flight Tests, Test Analysis for Unitary	1023	14507	33595
Conduct Functional Configuration Audit, Final Product Definition Data Package (PDDP), and System Integration Test for Unitary	0	6046	8125
Perform Integration and Test of Alternative Multi-Mode Fuze for Risk Reduction for Unitary	0	3002	0
Conduct system test and evaluation activities for Unitary	0	1952	4107
Small Business Innovative Research/Small Business Technology Transfer Programs	0	1496	0
<b>Totals</b>	<b>59385</b>	<b>54918</b>	<b>81885</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

PROJECT  
**784**

<b>B. Other Program Funding Summary</b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
Missile Procurement Army - GMLRS (C64400)	130450	106959	112302	129445	249573	488207	572832	9951566	11741334

**C. Acquisition Strategy:** The GMLRS DPICM is currently in Low Rate Production (LRIP). After a successful operational test, the program will move into full rate production in FY06. The primary objective of the GMLRS DPICM System Development Demonstration (SDD) was to develop a rocket with greater range and significantly enhanced accuracy with minimum impact on existing MLRS companion hardware and software. Other GMLRS development efforts include an improved mechanical fuze, a self-destruct fuze, and desired new rocket motor capabilities related to insensitive munition compliance and increased range.

GMLRS Unitary Acquisition Strategy is a streamlined product improvement program employing a spiral development approach. Initial configuration will maximize commonality with GMLRS DPICM with 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, GPS Anti-Jam capability and other technology opportunities (e.g., payloads, trajectory shaping, guidance, CAIV initiatives).

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

**PROJECT**  
**784**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SDD Contract	SS/CPAF	LMMFCS Dallas, TX	84058	16250	1Q	601	1Q	336	1-2Q	0	101245	0
b . SDD Unitary Contract	SS/CPAF	LMMFCS Dallas, TX	0	25537	1Q	33094	1Q	53501	1Q	89155	201287	0
c . Government Support	N/A	AMCOM/GSA,RSA	18536	6228	1-4Q	83	1-4Q	0		0	24847	0
d . Government Support for Unitary	N/A	AMCOM/GSA,RSA	0	2414	1-4Q	3353	1-4Q	5160	1-4Q	18007	28934	0
<b>Subtotal:</b>			102594	50429		37131		58997		107162	356313	0

Remarks: SS/CPAF - Sole Source/Cost Plus Award Fee  
 LMMFCS - Lockheed Martin Missile and Fire Control System; TX - Texas  
 GSA-General Services Admin;AMCOM-Aviation & Missile Command;RSA-Redstone Arsenal, Alabama

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Support Contract	C /CPFF	Camber Research, AL	3052	258	1-3Q	120	1-3Q	104		0	3534	0
b . Support Contract for Unitary	C /CPFF	Camber Research, AL	0	1506	1-3Q	1094	1-3Q	2224	1-3Q	9876	14700	0
c . Concept Studies	N/A	Various	0	0		2003	1-3Q	1960	1-3Q	18556	22519	0

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

**PROJECT**  
**784**

II. Support Cost (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			3052	1764		3217		4288		28432	40753	0

Remarks: C/CPFF - Competitive/Cost Plus Fixed Fee  
 TBD - To Be Determined; AL - Alabama

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	N/A	WSMR, NM & Meppen,GE	7746	2563	1-4Q	3451	1Q	2716		0	16476	0
b . Test Support for Unitary	N/A	WSMR, NM	0	1611	1Q	5005	1-4Q	8929	1-4Q	37207	52752	0
Subtotal:			7746	4174		8456		11645		37207	69228	0

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

# ARMY RDT&E COST ANALYSIS(R3)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

**PROJECT**  
**784**

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	N/A	PFRMS Proj Ofc, RSA	7136	1299	1-4Q	1060	1-4Q	966	1-4Q	0	10461	0
b . In-House Support for Unitary	N/A	PFRMS Proj Ofc, RSA	0	1719	1-4Q	5054	1-4Q	5989	1-4Q	18096	30858	0
Subtotal:			7136	3018		6114		6955		18096	41319	0

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

Project Total Cost:			120528	59385		54918		81885		190897	507613	0
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# Schedule Profile (R4 Exhibit)

February 2004

BUDGET ACTIVITY  
7 - Operational system development

PE NUMBER AND TITLE  
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT  
784

Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(1) DPICM MS C					▲ 1																											
DPICM LRIP I									LRIP I																							
DPICM PQT									PQT																							
DPICM LRIP II													LRIP II																			
(2) DPICM OT													▲ 2 OT																			
(3) DPICM IOT Flts													▲ 3 IOT Flts																			
DPICM LRIP III																	LRIP III															
(4) DPICM FRP																	▲ 4 FRP															
(5) DPICM IOC																	▲ 5 IOC															
(6) UNITARY MS B					▲ 6 MS B																											
(7) UNITARY MS C													▲ 7 MS C																			
UNITARY LRIP I																	LRIP I															
(8) UNITARY OT																	▲ 8 OT															
(9) UNITARY FRP																					▲ 9 FRP											

## Schedule Detail (R4a Exhibit)

**February 2004**

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM**

**PROJECT**  
**784**

<u>Schedule Detail</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
DPICM PQT Ground and Flight Test	1-4Q	1-2Q					
DPICM Functional Configuration Audit (FCA)	1Q						
DPICM Facilitization IPR, Final PDDP, MS C	1-3Q						
DPICM LRIP Contract Award	3Q						
HIMARS/DPICM GMLRS DT Flgt Test, Cold Reg Test		2-3Q					
DPICM Initial Operational Test (IOT), Ground and Flight Test		4Q	1Q				
DPICM Full Rate Production Decision, FRP Contract, Initial Operational Capability (IOC)				2Q			
Unitary MS B	2Q						
Unitary SDD Contract Award	4Q						
Unitary Configuration EDT, PQT Grnd and Flight Tests		3-4Q	1-4Q				
Unitary MS C				4Q			
Unitary LRIP I Contract Award					1Q		
Unitary Operational Test (OT)					4Q		
Unitary Full Rate Production Decision						4Q	

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

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 1001018A - NATO Joint STARS					<b>PROJECT</b> C35			
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost	
C35 NATO AGS - TIARA	503	498	595	591	688	675	698	Continuing	Continuing	

**A. Mission Description and Budget Item Justification:** The United States is a major participant in a cooperative venture to select and procure a ground surveillance capability for North Atlantic Treaty Organization (NATO) forces. In May 1997, a Conference of National Armament Directors invited member nations to offer Alliance Ground Surveillance (AGS) solutions. Currently, work continues to establish a solution for a NATO AGS system. The Army will support US Government activities in providing a NATO AGS system, focusing on the ground station segment of any solution. Once NATO members agree upon an AGS solution, Army efforts will shift from defining an acceptable solution to the necessary development of data formats, interoperability, and ground station hardware and software requirements. The three Army imperatives with regard to participation in NATO AGS are interoperability, technology re-use, and technology feedback.

The Army will provide personnel and resources to the NATO Alliance Ground Surveillance Support Staff (AGS3), contributing to interoperability among allied nations and supporting US participation in pertinent exercises such as "Clean Hunter". Other primary support to NATO AGS will include the development of a Concept of Operations (CONOPS) and Tactics, Techniques, and Procedures (TTP). The Army will support both working level meetings and executive oversight groups such as the AGS3 Management Board, the AGS Steering Committee, and the Conference of National Armament Directors.

This system supports both the Current/Stryker Brigade Combat Team (SBCT) and the Future Force transition path of the Transformation Campaign Plan (TCP).

FY05 Funding supports the NATO AGS3 Air and Ground Segments.

<b>Accomplishments/Planned Program</b>	FY 2003	FY 2004	FY 2005
Continue to support necessary meetings and conferences.	16	18	20
Develop Ground Station software to meet coalition operations requirements.	196	216	284
Conduct Developmental Tests and Demonstrations.	164	137	153
Support the NATO AGS3 in the preparation of acquisition documentation for development/procurement of NATO AGS Air and Ground Segments.	127	127	138
<b>Totals</b>	<b>503</b>	<b>498</b>	<b>595</b>

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

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**1001018A - NATO Joint STARS**

PROJECT  
**C35**

<b><u>B. Program Change Summary</u></b>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	503	503	601
Current Budget (FY 2005 PB)	503	498	595
Total Adjustments	0	-5	-6
Congressional program reductions		-4	
Congressional rescissions			
Congressional increases			
Reprogrammings		-1	
SBIR/STTR Transfer			
Adjustments to Budget Years			-6

<b><u>C. Other Program Funding Summary</u></b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
BA1080 Joint STARS (TIARA)	9587	8200	0	0	0	0	0	0	38943
BS9724 Joint STARS Spares	3287	293	0	0	0	0	0	0	7429
64770/202 Joint Stars(TIARA)	4509	4705	0	0	0	0	0	0	16699

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

**February 2004**

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**1001018A - NATO Joint STARS**

PROJECT  
**C35**

**D. Acquisition Strategy:** NATO AGS is currently in the Program Definition phase. The Army will support this activity with both requirements and acquisition personnel. The objective is to prepare for the eventual NATO procurement of an AGS capability. Based on extensive background knowledge obtained through the development of the Army's Common Ground Station (CGS), the Army intends to support the AGS effort with the expertise of individuals already involved with CGS. The Army intends to contract with the CGS manufacturer as necessary to support the development of an AGS ground segment, and to support exercises and demonstrations as they pertain to the US Government objectives and the Army AGS imperatives.

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

February 2004

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0708045A - End Item Industrial Preparedness Activities**

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	79066	85853	67236	76945	80149	82119	84013	Continuing	Continuing
E25 MFG SCIENCE & TECH	58602	65313	67236	76945	80149	82119	84013	Continuing	Continuing
E27 RELIABILITY, MAINTAINABILITY & SUSTAINABILITY(RMS)	7849	0	0	0	0	0	0	0	49928
EA1 VENTURE CAPITAL	12615	0	0	0	0	0	0	0	25000
EA2 MANTECH INITIATIVES (CA)	0	20540	0	0	0	0	0	0	20558

**A. Mission Description and Budget Item Justification:** The goal of this program element (PE) is to improve readiness and reduce Total Ownership Cost for the Army through new manufacturing technologies and enhancements/improvements to future systems. The technologies introduced through this PE support the Army transition to the Future Combat Systems (FCS) and Future Force. This program element comprises four projects: E25 Manufacturing Technology (ManTech), E27 Reliability, Maintainability and Supportability (RM&S), E1A Venture Capital, and E2A ManTech Initiatives CA. The objective of the Army ManTech program is to provide essential manufacturing technologies that will enable affordable production and sustainment of future weapons systems. Objectives include development of advanced manufacturing processes, equipment and systems; enhancement in quality while achieving reduction in cost of Army materiel; and transferring improved manufacturing technologies to the industrial base. The ManTech program assists the Army in meeting its FCS and Future Force timetable and goals by reducing manufacturing risks and costs in the transition of new technologies into weapons systems. Projects selected for funding under this program have the potential for high payoff across the spectrum of Army weapon systems and in particular FCS as well as significant impact on national manufacturing issues and the U.S. industrial base. The major thrust of this PE is to reduce the manufacturing cost and risk of FCS technologies. Army ManTech projects are aligned into major investment areas to support Army Transformation to FCS and the Future Force. These major investment areas are Aviation Systems, Fire Support Systems, Armor, Sensors, Electronics/Power Systems, Munitions and Flexible Display Initiative. The RM&S program, which is focused on cost reduction of legacy systems, does not support these major investments and terminates after FY2003 and funds are reapplied to the ManTech effort. The Venture Capital initiative is an opportunity provided by Congress to engage small innovative companies that normally do not do business with the Army. The ManTech Initiatives CA program consists of ManTech efforts mandated by the Congress.

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 PE contains no duplication with any effort within the Military Departments.

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

February 2004

**BUDGET ACTIVITY**  
**7 - Operational system development**

**PE NUMBER AND TITLE**  
**0708045A - End Item Industrial Preparedness Activities**

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	74728	65981	67706
Current Budget (FY 2005 PB)	79066	85853	67236
Total Adjustments	4338	19872	-470
Congressional program reductions		-737	
Congressional rescissions			
Congressional increases		20750	
Reprogrammings	4338	-141	
SBIR/STTR Transfer			
Adjustments to Budget Years			-470

**Significant Change Explanation.**

FY04 - Ten FY04 Congressional Adds totaling \$20750 were added to this PE.

**FY04 Congressional Adds with no R-2A:**

(\$2018) Lean Munitions, Project EA2: The Lean Munitions Congressional add is to demonstrate in three phases, the prototype functionality for model-driven, standards-based, web-enabled business process, along with advanced toolsets for more timely and effective creation, distribution and management of munitions. No additional funding is required to complete this project.

(\$961) Conformal and Advanced Optics Manufacturing Technology, Project EA2: The purpose of this one year Congressional add will introduce new technology in the development of complex conformal and advanced optical elements for advanced DoD optical systems and weapon platforms by using superfine deterministic micro grinding and jet magnetorheological finishing. No additional funding is required to complete this project.

(\$961) Industrial Preparedness Manufacturing Science and technology, Project EA2: The purpose of this one year Congressional add is to validate dual-band focal plane array system readiness and demonstrate long-term reliability. No additional funding is required to complete this project.

(\$1153) Microwave Wastewater treatment System, Project EA2. The purpose of this one year Congressional add is to improve Force Provider System logistics through advanced treatment reduction and filtration methods for waste products. No additional funding is required to complete this project.

**ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)****February 2004**

## BUDGET ACTIVITY

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(\$962) 21st Century High Tech, Legacy Parts Reinvention, Project EA2: The purpose of this one year Congressional add is to mature the processes to develop three dimensional (3D) computer assisted modeling/computer assisted design (CAM/CAD) models to define a virtual part to replace obsolete structural parts. No additional funding is required to complete this project.

(\$1442) 21st Century High Tech, Legacy Parts Reinvention -- Watervliet, Project EA2: The purpose of this one year Congressional add is to mature the processes to develop three dimensional (3D) computer assisted modeling/computer assisted design (CAM/CAD) models to define a virtual part to replace obsolete structural parts. No additional funding is required to complete this project.

(\$5767) Femtosecond Laser, Project EA2: The purpose of this one year Congressional add is to mature specification for first generation micro machine tool for fuel injectors to improve diesel engine efficiency. No additional funding is required to complete this project.

(\$3267) National Center for Defense Manufacturing and Machining, Project EA2: The purpose of this one year Congressional add is to develop, mature and deploy to industry advanced processes in manufacturing and machining related to advanced material development. No additional funding is required to complete this project.

(\$2451) Reactive Atom Plasma (RAP) Processing, Project EA2: The purpose of this one year Congressional add is to mature the technology for a new form of polishing at the micron/nano level to achieve unprecedented finishes. No additional funding is required to complete this project.

(\$961) Bipolar Wafer-Cell NiMH Battery for Army Vehicles, Project EA2: The purpose of this one year Congressional add is to continue development of larger batteries used in vehicles for the silent watch program. No additional funding is required to complete this project.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

<b>BUDGET ACTIVITY</b> 7 - Operational system development		<b>PE NUMBER AND TITLE</b> 0708045A - End Item Industrial Preparedness Activities					<b>PROJECT</b> E25			
COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost	
E25 MFG SCIENCE & TECH	58602	65313	67236	76945	80149	82119	84013	Continuing	Continuing	

**A. Mission Description and Budget Item Justification:** The major thrust of the Army Manufacturing Technology (ManTech) program is to reduce manufacturing cost and risk of FCS technologies. This project provides essential manufacturing technologies that will enable the affordable production and sustainment of future weapon systems including FCS and Future Force. ManTech also enables the affordable transition of new technologies as enhancements to current systems. Objectives include development of advanced manufacturing processes, equipment and systems; enhancement in quality while achieving reduction in cost of Army materiel; and transferring improved manufacturing technologies to the industrial base. The ManTech program assists the Army in meeting its FCS and Future Force timelines and goals by reducing manufacturing risks and costs in the transition of new technologies into weapons systems. Projects selected for funding under this program have the potential for high payoff across the spectrum of Army weapon systems as well as significant impact on national manufacturing issues and the U.S. industrial base. Other factors considered for project selection include cost share with both industry and the program managers as well as return on investment. Major programs are identified as Manufacturing Technology Objectives (MTOs). Army ManTech projects are aligned into major investment areas to support Army Transformation to FCS and the Future Force. These major investment areas are Aviation Systems, Fire Support Systems, Armor, Sensors, Electronics/Power Systems, Munitions and Flexible Display Initiative. The ManTech program is a critical enabler of affordable Transformation Programs that support the Critical Operational Goals (COGs) of Project and Sustain U.S. Forces (PSUSF), Deny Enemy Sanctuary (DES), Conduct Information Operations (CIO), and Leverage Information Technology (LIT). These Transformation Programs also directly support the Joint Operating Concepts (JOCs) of Major Combat Operations (MCO), Strategic Defense (SD), Homeland Security (HLS), and Stability Operations (SO).

The cited work is consistent with the Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP).

This project contains no duplication with any effort within the Military Departments.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0708045A - End Item Industrial Preparedness  
 Activities**

PROJECT  
**E25**

**Accomplishments/Planned Program**

	FY 2003	FY 2004	FY 2005
<p>Aviation Systems – In FY03, the Power Transfer Systems Manufacturing Demonstrations (MD) demonstrated increased durability on CH-47 gears and transitioned technology to the program manager for implementation; the Knowledge and Process Tools for Manufacturing of Affordable Composites MTO demonstrated and documented reduction in fabrication labor and weight of AH-64 and advanced rotary wing platforms, and thick section composite structures and matured advanced design and manufacturing concepts for airframe integration within FCS; the Low Cost Light Weight Structures MTO conducted tests on critical joints and ballistic panels to reduce manufacturing risk of new technologies being considered for current rotorcraft fuselage structures; and the Affordable Drive Train Housings MTO conducted material and process selection for housings. The planned program for FY04 and FY05 will construct tooling and complete the manufacturing process plan for CH-47 and UH-60 helicopter fuselage sections and demonstrate fabrication using soft tooling, new resin injection techniques and preforms to reduce O&amp;S costs; and conduct material and process selection for housings that reduce weight, increase performance, and demonstrate rapid affordable manufacturing processes for composite housings to reduce the number of AH-64 housings lost and UH-60 housing unit weight. Supports the Project and Sustain U.S. Forces (PSUSF) Critical Operational Goal.</p>	6495	5831	1687
<p>Fire Support Systems – In FY03, the Uniform Cannon Tube Reshaping MTO conducted proof tests and demonstrated a fully automated cannon tube reshaping machine at Watervliet Arsenal; the Large Caliber Cannon Life Extension MTO completed construction of a 120mm large caliber cylindrical magnetron sputtering process for depositing refractory metal tantalum onto the bore surfaces of large caliber cannon barrels. The planned program for FY04 and FY05 will deliver the Shop Floor Cannon Tube Reshaping System, and Centerline and Erosion Measurement System to improve firing accuracy; mature forensic evaluation of full-length barrels, and complete post-firing of 120mm Abrams barrels and transition barrels for production and increase gun barrel wear resistance for the 120mm and 155mm cannon. Supports the PSUSF Critical Operational Goal.</p>	5000	1500	0

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**BUDGET ACTIVITY**  
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**0708045A - End Item Industrial Preparedness**  
**Activities**

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**Accomplishments/Planned Program (continued)**

Armor – In FY03, Improved Manufacturing Methods of Titanium in Ultra-Lightweight Armament and Ground Vehicle Systems MTO developed and demonstrated advanced welding and single melt processing of titanium which has enabled this material to be a replacement to high cost aerospace-grade titanium; the Knowledge and Process Tools for Manufacturing of Affordable Composite Structures (Ground Vehicles) MTO matured low cost composite tooling, implemented lay-up techniques with robotic equipment and demonstrated potential cost savings for several thick section composite parts; and the Low Cost Affordable ManTech for FCS Structural and Appliqué Armor MTO baseline armor material processes. The planned program for FY04 and FY05, will optimize titanium single melt process, test and apply robotic welding to XM777 lightweight howitzer and FCS components and transfer processes to contractor locations to reduce cost and weight; develop and mature manufacturing processes to enable affordable transition of armor material required for FCS ground vehicles to provide protection from ballistic threat, enhance vehicle running loads and contribute to weight reduction. The Durable Gun Barrel and Armaments MTO begins in FY04 and will demonstrate advanced lightweight large caliber manufacturing processes and medium caliber gun barrel coatings to enable lethality and enhanced weapon life; in FY05 this project will develop profiles and construct demonstration articles utilizing advanced steel alloys, composite barrel overwrap and thin wall cladding to meet requirements of FCS gun barrels. Supports the PSUSF Critical Operational Goal.

FY 2003	FY 2004	FY 2005
5922	10268	13330

Sensors – In FY03, the Military Lasers MTO baseline existing laser diode manufacturing processes and improved base material growth and processing to enable lightweight, reliable solid state laser systems; the Dual Band Focal Plane Array(FPA) MTO began optimization of manufacturing processes to include material growth, small pixel fabrication and read-out integrated circuits; Uncooled Focal Plane Array MTO began packaging improvement design, wafer level testing and bolometer fabrication to improve producibility and reduce cost of high resolution uncooled Infrared (IR) sensors. The planned program for FY04 and FY05 will increase laser diode power from 2 watts to 4 watts for Objective Individual Combat Weapon laser and improve epitaxial growth and other fabrication processes; increase wafer fabrication to 25 cm<sup>2</sup>, increase detector growth by 15% and process yield by 25% for dual band focal plane arrays; increase yield by 15%, reduce unit man-hours by 156 and reduce cycle time by (2) weeks to increase yield, performance, production cycle time, and reliability for uncooled focal plane arrays. Supports the PSUSF and Deny Enemy Sanctuary (DES) Critical Operational Goals.

15722	21994	20949
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# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

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**BUDGET ACTIVITY**  
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<b>Accomplishments/Planned Program (continued)</b>	FY 2003	FY 2004	FY 2005
<p>Electronic/Power Systems – In FY03, the Silicon Carbide Switches MTO documented baseline processes, and began improved base material yield and fabrication processes to enable affordable, high power density power converters which are necessary for electronic guns and electromagnetic armor. Power Storage Systems MTOs (Power Storage Manufacturing, Very High Power Batteries and Energy Storage Manufacturing, High Energy Density Capacitors) are scheduled to begin in FY04. The planned program for FY04-FY05, will mature manufacturing processes in the area of silicon carbide production technology; provide manufacturing technology processes to reduce risk and cost associated with electronically scanned array (ESA) phase array shifting switches; and will address advanced power storage technologies and model manufacturing processes with a focus on batteries and capacitors for FCS robotics and sensors. The Flexible Assembly for Software Defined Radios MTO begins in FY05 and will provide chip scale packaging and aggressive power management design reducing volume/size and weight by 85% for FCS manned, Unmanned, and Soldier Systems Communications. Supports PSUSF and DES Critical Operational Goals.</p>	2087	11222	16196
<p>Munitions– In FY03, the Low Cost, High G, Micro-Electro-Mechanical Systems (MEMS) Inertial Measurement Units (IMU) developed improved process flow, automated equipment, and improved control software for first generation IMUs. The planned program for FY04 and FY05 will evaluate equipment and software concerns and complete processes improvements and testing for second generation IMUs. The Micro-Electro-Mechanical Systems (MEMS) Safe and Arm (S&amp;A) MTO begins in FY04 and will use micro-injection molding, hot embossing, and loading technologies to provide a low cost medium-caliber fusing solution for XM29 (OICW) and XM307 (OCSW) combat weapons, and in FY05 will improve MEMS S&amp;A fabrication, demonstrate loading processes and fire from the XM29 platform. Supports PSUSF and DES Critical Operational Goals.</p>	9088	10642	12074
<p>Flexible Display Initiative – This project begins in FY04 and is supported by science and technology in PE 62705. This technology will develop and demonstrate, light, low powered, rugged, miniature flexible displays for FCS and soldier systems. This project will address the affordability and manufacturing yield issues required to transition this technology to soldier systems. Efforts will focus on the design and manufacturing concepts for complex transparent conductive and emissive material, manufacturing processes, fabrication, assembly, quality control, and manufacturing yield. Supports PSUSF, Conduct Information Operations (CIOO, and Leveraging Information Technology (LIT) Critical Operational Goals.</p>	0	2000	3000

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
<b>7 - Operational system development</b>	<b>0708045A - End Item Industrial Preparedness Activities</b>	<b>E25</b>		
<b>Accomplishments/Planned Program (continued)</b>		<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>
Rechargeable Bipolar Wafer Cell NiMH Battery for SINCGARS Congressional add included nickel and hydride electrodes, separator, single cell testing, bipolar packing, ten cell stack, battery fabrication and testing, and improving performance at low temperatures and higher rates of discharge. In FY 03 the program matured processes for larger batteries used in vehicles for the silent watch program. No additional funding is required to complete this project.		940	0	0
Industrial Applications of Femtosecond Laser Technology Congressional add matured specification for first generation micro machine tool for fuel injectors to improve diesel engine efficiency. No additional funding is required to complete this project.		3948	0	0
Continuous Manufacturing for Metal Matrix Composites Congressional add produced and evaluated improved strength mortar tubes and artillery shells, conducted projectile firing, and demonstrated a metal matrix composites tape manufacturing line. No additional funding is required to complete this project.		423	0	0
Modular Extendable Rigid Wall Shelter (MERWS) Congressional add addressed manufacturing and design issues to reduce shelter costs associated with panel construction, leveling jacks and roof trusses. No additional funding is required to complete this project.		4559	0	0
Reactive Atom Plasma Processing Congressional add matured the technology for a new form of polishing at the micron/nano level to achieve unprecedented finishes. No additional funding is required to complete this project.		2068	0	0
21st Century High Technology for Legacy Parts Reinvention Congressional add matured the processes to develop 3D CAM/CAD models to define a virtual part to replace obsolete structural parts. It leveraged computer numerical control manufacturing (material removal) and sintering (material addition) to produce first article parts for testing and production. No additional funding is required to complete this project.		940	0	0
National Center for Defense Manufacturing and Machining Congressional add developed and matured advanced processes in manufacturing and machining related to advanced material development. No additional funding is required to complete this project.		1410	0	0
Small Business Innovative Research/Small Business Technology Transfer Programs		0	1856	0
<b>Totals</b>		<b>58602</b>	<b>65313</b>	<b>67236</b>

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

**C. Acquisition Strategy:** Not applicable for this item.