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Supporting Data FY 2004/2005 President's Budget
Submitted to OSD – February 2003

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 2004/2005
PRESIDENT'S BUDGET SUBMISSION
FEBRUARY 2003**

**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 2004/2005 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) and R-3 (Army RDT&E Cost Analysis) Exhibits, which provide narrative information on all RDT&E program elements and projects for FY 2002 through FY2005.

2. Relationship of the FY 2004/2005 Budget Submission to the FY 2003 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.

OLD		NEW
<u>PE/PROJECT</u>	<u>NEW PROJECT TITLE</u>	<u>PE/PROJECT</u>
0601103D	University Research Initiative	0601103A/D55
0602720A/F25	Pollution Prevention	0602720A/895
0603004A/43A	Advanced Munitions Demonstration	0603004A/232
0603006A/592	High Altitude Airship ACTD	0603006A/588
0603238A/177	Joint Virtual Battlespace	0603015A/S30
0603001A/545	Force Projection Logistics	0603015A/S31
0603104D	Explosives Demil Tech	0603103A/D51
0603734A/T08	Base Camp Protection	0603125A/DF1
0603308A/99A	Army SIAP Systems Engineering	0603327A/S24
0603305A/TR4	Army SIAP Operational Integration	0603327A/S25
0603305A/TR6	Joint Distributed Engineering Plant (JDEP)	0603327A/S27
0603879N	Joint SIAP System Engineering	0603327A/S32
0603006A/592	Overwatch ACTD	0603710A/590

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0603711BR	Nuclear Arms Control Tech – Sensor & Network Mon	0603782A/F98
0603801A/B33	Adv Maint Concepts/EQ	0603801A/B32
0603869C	Medium Extended Air Defense System (MEADS)	0603869A/01B
BA0510	Ground CID (BCIS)	0604817A/482
0604818A/C12	Standard Integrated Command Posts (SICPS)	0604818A/C39
0605605A	Big Crow Support	0605601A/F38
0603858D	Unexploded Ordnance Clearance Technology Spt	0605857A/06H
0303140A/491	Army Common Access Card/Public Key Infrastructure	0303140A/50B
0305204A/114	Extended Range UAV (JMIP)	0305204A/D09
0305208A/956	DCGS-A Sensor Integration (JMIP)	0305208A/D08
0305208A/956	DCGS-A Common Modules (JMIP)	0305208A/D07
0604321A/B19	DCGS-A ASAS Integration (JMIP)	0305208A/D06
0708045A/E27	MFG Science and Technology	0708045A/E25

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

FROM		TO
<u>PE/PROJECT</u>	<u>PROJECT TITLE</u>	<u>PE/PROJECT</u>
0602308A/D02	Institute for Creative Technology (ICT)	0603015A/S28
0602308A/C90	Modeling & Simulation	0603015A/S29
0602308A/C90	RDEC Federation	0603015A/S31
0602303A/214	Advanced Missile Demonstration	0603313A/704
0603607A/627	Adv Crew Svc Wpn	0604601A/033
0603854A/F47	Objective Force Indirect Fires	0604645A/F50
0603802A/AS3	Obj Ind Cbt Wpn Eng Dev	0604802A/134
0603009A/B34	Z02	0203806A/Z02

C. Establishment of New FY 2004/2005 Program Elements/Projects. There are no major system new starts. Minor new initiatives for FY 2004/2005 are shown below with asterisks. The remaining programs listed are outyear initiatives, restructures beyond FY 2004/2005, or were previously funded from other Defense appropriations.

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<u>TITLE</u>	<u>PE/PROJECT</u>
National Aerospace Initiative*	0602303A/G02*
AC60*	0602786A/C60*
High Energy Laser Technology Demo	0603004A/L96
DB96*	0603020A/B96*
National Aerospace Initiative – Adv Dev*	0603313A/G03*
Smoke/Obscurant System*	0603627A/E79*
Comanche Companion UAV	0604223A/C79
Trailer Development*	0604622A/E50*
Army Tactical Missile System – Penetrator*	0604768A/MD6*
NAVSTAR GPS Equip*	0604778A/168*
Maintenance Support Equipment*	0604804A/L46*
Surf Lnch Adv Med Rng Air-to-Air Msl (SLAMRAAM)*	0604802A/S23*
DTSP Development (JMIP)*	0305204A/11B*
MLRS Smart Tactical Rocket*	0603778A/783*
HIMARS P3I	0603778A/787

D. FY 2004/2005 programs for which funding existed in the FY 2003 Amended President’s Budget Submit (July 2002), but which are no longer funded beginning in FY 2004.

<u>PE/PROJECT</u>	<u>TITLE</u>	<u>BRIEF EXPLANATION</u>
0602308A/D03	JMASS	Program Terminated
0604619A/088	Wide Area Mine Engineering Development	Program Terminated
0604738A/J11	Alliance Executive Development & Integration	Program Terminated
0604746A/L66	Embedded Diagnostics/Prognostics Dev	Program Completed
0604768A/687	BAT P3I	Program Terminated
0604768A/2NT	BAT Operational Test	Program Terminated
0303028A/H13	Information Dominance Center (IDC)	Program Terminated

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

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* 0203735A/C64	0602601A/C84	0603020A/B77/B84/B85/B96
0203806A	0602786A/C60	0603322A/B92
0203808A/E11	0603005A/C66	0603710A/C65/C67
0301359A	0603009A/B18/B31/B34	0603851A/C75
0602122A/B72/622	0603017A/B69	0604328A/C71

*Funding ends in FY02

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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Department of the Army
FY 2004 RDT&E Program

Exhibit R-1

Summary

03-Feb-2003

Summary Recap of Budget Activities	Thousands of Dollars			
	FY 2002	FY 2003	FY 2004	FY 2005
Basic research	220,960	244,411	343,037	344,398
Applied Research	865,270	857,766	641,263	654,784
Advanced technology development	906,920	1,040,392	805,696	829,188
Advanced Component Development and Prototypes	859,300	856,512	784,347	694,361
System Development and Demonstration	2,141,017	2,512,282	4,737,771	5,243,019
Management support	928,420	950,090	860,457	872,978
Operational system development	1,096,365	1,073,396	950,254	899,963
Total RDT&E, Army	7,018,252	7,534,849	9,122,825	9,538,691

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Department of the Army
FY 2004 RDT&E Program

Exhibit R-1

03-Feb-2003

Appropriation: 2040 A RDT&E, Army

Line No	Program Element Number	Act	Item	Thousands of Dollars			
				FY 2002	FY 2003	FY 2004	FY 2005
Basic research							
1	0601101A	01	IN-HOUSE LABORATORY INDEPENDENT RESEARCH	13,726	20,608	24,121	24,256
2	0601102A	01	DEFENSE RESEARCH SCIENCES	135,535	140,493	128,798	129,586
3	0601103A	01	UNIVERSITY RESEARCH SCIENCES (H)	0	0	71,642	77,166
4	0601104A	01	UNIVERSITY AND INDUSTRY RESEARCH CENTERS	71,699	83,310	84,816	79,750
5	0601105A	01	FORCE HEALTH PROTECTION	0	0	9,847	9,796
6	0601114A	01	DEFENSE EXPERIMENTAL PROGRAM TO STIMULATE COMPETIT	0	0	9,730	9,614
7	0601228A	01	HISTORICALLY BLACK COLLEGES AND UNIVERSITIES/MINOR	0	0	14,083	14,230
Total: Basic research				220,960	244,411	343,037	344,398
Applied Research							
8	0602105A	02	MATERIALS TECHNOLOGY	20,206	33,621	15,186	14,881
9	0602120A	02	SENSORS AND ELECTRONIC SURVIVABILITY	31,635	21,820	22,765	25,510
10	0602122A	02	TRACTOR HIP	7,197	8,006	5,835	6,097
11	0602211A	02	AVIATION TECHNOLOGY	41,295	39,693	39,459	41,886
12	0602270A	02	EW TECHNOLOGY	16,427	17,303	17,029	17,923
13	0602303A	02	MISSILE TECHNOLOGY	58,855	53,308	43,269	50,407
14	0602307A	02	ADVANCED WEAPONS TECHNOLOGY	25,460	19,976	14,189	17,560
15	0602308A	02	ADVANCED CONCEPTS AND SIMULATION	30,319	30,150	15,941	15,643
16	0602601A	02	COMBAT VEHICLE AND AUTOMOTIVE TECHNOLOGY	109,394	79,952	80,910	71,108
17	0602618A	02	BALLISTICS TECHNOLOGY	60,646	62,458	53,478	52,392
18	0602622A	02	CHEMICAL, SMOKE AND EQUIPMENT DEFEATING TECHNOLOGY	6,079	15,643	3,540	3,553
19	0602623A	02	JOINT SERVICE SMALL ARMS PROGRAM	5,088	5,468	5,835	5,979
20	0602624A	02	WEAPONS AND MUNITIONS TECHNOLOGY	62,914	72,504	39,485	45,598
21	0602705A	02	ELECTRONICS AND ELECTRONIC DEVICES	48,000	59,682	33,694	42,005
22	0602709A	02	NIGHT VISION TECHNOLOGY	22,172	19,696	22,233	22,420
23	0602712A	02	COUNTERMINE SYSTEMS	21,995	16,857	21,291	21,422
24	0602716A	02	HUMAN FACTORS ENGINEERING TECHNOLOGY	20,144	20,516	16,749	16,357
25	0602720A	02	ENVIRONMENTAL QUALITY TECHNOLOGY	16,692	26,747	18,252	17,157

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Appropriation: 2040 A RDT&E, Army

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Line No	Program Element Number	Act	Item	Thousands of Dollars			
				FY 2002	FY 2003	FY 2004	FY 2005
26	0602782A	02	COMMAND, CONTROL, COMMUNICATIONS TECHNOLOGY	22,130	21,150	18,728	18,696
27	0602783A	02	COMPUTER AND SOFTWARE TECHNOLOGY	3,895	4,001	4,142	4,102
28	0602784A	02	MILITARY ENGINEERING TECHNOLOGY	56,911	55,304	45,407	46,034
29	0602785A	02	MANPOWER/PERSONNEL/TRAINING TECHNOLOGY	14,367	15,358	15,548	15,607
30	0602786A	02	LOGISTICS TECHNOLOGY	31,650	34,239	29,421	21,375
31	0602787A	02	MEDICAL TECHNOLOGY	122,121	124,314	58,877	61,072
32	0602805A	02	DUAL USE SCIENCE AND TECHNOLOGY	9,678	0	0	0
Total: Applied Research				865,270	857,766	641,263	654,784
Advanced technology development							
33	0603001A	03	WARFIGHTER ADVANCED TECHNOLOGY	59,815	57,014	63,882	68,763
34	0603002A	03	MEDICAL ADVANCED TECHNOLOGY	169,598	166,406	35,168	38,686
35	0603003A	03	AVIATION ADVANCED TECHNOLOGY	37,290	41,924	72,083	70,327
36	0603004A	03	WEAPONS AND MUNITIONS ADVANCED TECHNOLOGY	34,244	63,230	47,752	72,404
37	0603005A	03	COMBAT VEHICLE AND AUTOMOTIVE ADVANCED TECHNOLOGY	220,196	264,795	210,856	205,245
38	0603006A	03	COMMAND, CONTROL, COMMUNICATIONS ADVANCED TECHNOLO	33,272	6,814	10,379	13,073
39	0603007A	03	MANPOWER, PERSONNEL AND TRAINING ADVANCED TECHNOLO	3,077	7,663	4,931	7,158
40	0603008A	03	ELECTRONIC WARFARE ADVANCED TECHNOLOGY	0	26,931	40,347	41,982
41	0603009A	03	TRACTOR HIKE	12,027	17,141	8,781	10,094
42	0603015A	03	NEXT GENERATION TRAINING & SIMULATION SYSTEMS	0	0	18,649	20,379
43	0603017A	03	TRACTOR RED	300	0	0	0
44	0603020A	03	TRACTOR ROSE	8,952	4,602	2,872	3,284
45	0603103A	03	EXPLOSIVE DEMILITARIZATION TECHNOLOGY	0	0	9,349	9,860
46	0603105A	03	MILITARY HIV RESEARCH	5,697	0	6,733	6,746
47	0603125A	03	COMBATING TERRORISM, TECHNOLOGY DEVELOPMENT FOR	0	41,842	4,916	3,436
48	0603238A	03	GLOBAL SURVEILLANCE/AIR DEFENSE/PRECISION STRIKE T	34,963	29,788	12,660	8,833
49	0603270A	03	EW TECHNOLOGY	23,537	18,756	11,273	9,213
50	0603313A	03	MISSILE AND ROCKET ADVANCED TECHNOLOGY	76,979	99,695	111,321	94,062
51	0603322A	03	TRACTOR CAGE	3,078	2,939	7,592	9,165
52	0603606A	03	LANDMINE WARFARE AND BARRIER ADVANCED TECHNOLOGY	24,718	28,595	24,552	25,476

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				FY 2002	FY 2003	FY 2004	FY 2005
53	0603607A	03	JOINT SERVICE SMALL ARMS PROGRAM	4,264	12,998	6,193	5,979
54	0603654A	03	LINE-OF-SIGHT TECHNOLOGY DEMONSTRATION	72,530	26,955	8,847	0
55	0603710A	03	NIGHT VISION ADVANCED TECHNOLOGY	54,913	73,609	47,088	54,635
56	0603728A	03	ENVIRONMENTAL QUALITY TECHNOLOGY DEMONSTRATIONS	7,026	12,846	15,776	14,897
57	0603734A	03	MILITARY ENGINEERING ADVANCED TECHNOLOGY	4,554	13,696	3,441	3,926
58	0603772A	03	ADVANCED TACTICAL COMPUTER SCIENCE AND SENSOR TECH	15,890	22,153	20,255	31,565
Total: Advanced technology development				906,920	1,040,392	805,696	829,188
Advanced Component Development and Prototypes							
59	0603305A	04	ARMY MISSILE DEFENSE SYSTEMS INTEGRATION	0	37,233	51,547	51,802
60	0603308A	04	ARMY MISSILE DEFENSE SYSTEMS INTEGRATION (DEM/VAL)	68,481	57,429	9,632	9,649
61	0603327A	04	AIR AND MISSILE DEFENSE SYSTEMS ENGINEERING	0	0	79,959	71,887
62	0603619A	04	LANDMINE WARFARE AND BARRIER - ADV DEV	20,300	9,716	36,976	42,262
63	0603627A	04	SMOKE, OBSCURANT AND TARGET DEFEATING SYS-ADV DEV	0	2,323	10,262	12,972
64	0603639A	04	TANK AND MEDIUM CALIBER AMMUNITION	52,252	26,492	11,249	1,943
65	0603653A	04	ADVANCED TANK ARMAMENT SYSTEM (ATAS)	98,145	143,296	61,377	52,429
66	0603747A	04	SOLDIER SUPPORT AND SURVIVABILITY	14,939	19,558	13,987	12,213
67	0603766A	04	TACTICAL SUPPORT DEVELOPMENT - ADV DEV (TIARA)	16,225	16,107	17,068	16,079
68	0603774A	04	NIGHT VISION SYSTEMS ADVANCED DEVELOPMENT	10,662	11,170	5,283	5,227
69	0603779A	04	ENVIRONMENTAL QUALITY TECHNOLOGY DEM/VAL	39,047	31,121	11,514	9,454
70	0603782A	04	WARFIGHTER INFORMATION NETWORK-TACTICAL - DEM/VAL	12,140	48,556	90,774	75,332
71	0603790A	04	NATO RESEARCH AND DEVELOPMENT	6,202	4,559	4,779	5,263
72	0603801A	04	AVIATION - ADV DEV	12,807	10,767	9,968	9,320
73	0603802A	04	WEAPONS AND MUNITIONS - ADV DEV	33,567	34,257	31,856	4,868
74	0603804A	04	LOGISTICS AND ENGINEER EQUIPMENT - ADV DEV	7,412	9,243	12,008	10,713
75	0603805A	04	COMBAT SERVICE SUPPORT CONTROL SYSTEM EVALUATION A	8,395	8,415	8,682	8,658
76	0603807A	04	MEDICAL SYSTEMS - ADV DEV	19,270	13,340	11,042	10,012
77	0603850A	04	INTEGRATED BROADCAST SERVICE (JMIP/DISTP)	1,960	1,927	2,097	1,901
78	0603851A	04	TRACTOR CAGE (DEM/VAL)	3,566	0	0	0
79	0603854A	04	ARTILLERY SYSTEMS - DEM/VAL	427,273	356,651	0	0

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Appropriation: 2040 A RDT&E, Army

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				FY 2002	FY 2003	FY 2004	FY 2005
80	0603856A	04	SCAMP BLOCK II	6,657	14,352	28,028	15,107
81	0603869A	04	MEADS CONCEPTS - DEMVAL	0	0	276,259	267,270
Total: Advanced Component Development and Prototypes				859,300	856,512	784,347	694,361
System Development and Demonstration							
82	0604201A	05	AIRCRAFT AVIONICS	48,999	39,559	64,650	44,685
83	0604220A	05	ARMED, DEPLOYABLE OH-58D	1,764	1,790	0	0
84	0604223A	05	COMANCHE	754,381	874,018	1,079,257	1,181,563
85	0604270A	05	EW DEVELOPMENT	53,411	38,309	33,214	19,526
86	0604280A	05	JOINT TACTICAL RADIO SYSTEM	72,742	62,921	134,693	91,583
87	0604321A	05	ALL SOURCE ANALYSIS SYSTEM	44,242	54,366	20,168	15,548
88	0604328A	05	TRACTOR CAGE	4,967	9,309	16,215	15,147
89	0604329A	05	COMMON MISSILE	16,075	28,602	183,790	182,932
90	0604601A	05	INFANTRY SUPPORT WEAPONS	0	0	21,637	28,515
91	0604604A	05	MEDIUM TACTICAL VEHICLES	1,883	1,866	4,366	2,879
92	0604609A	05	SMOKE, OBSCURANT AND TARGET DEFEATING SYS-ENG DEV	7,611	7,654	12,094	4,223
93	0604611A	05	JAVELIN	2,870	467	956	952
94	0604619A	05	LANDMINE WARFARE	22,165	0	0	0
95	0604622A	05	FAMILY OF HEAVY TACTICAL VEHICLES	2,510	14,521	9,200	10,756
96	0604633A	05	AIR TRAFFIC CONTROL	1,116	2,199	2,514	2,596
97	0604641A	05	TACTICAL UNMANNED GROUND VEHICLE (TUGV)	1,439	1,146	0	0
98	0604642A	05	LIGHT TACTICAL WHEELED VEHICLES	1,920	7,531	15,700	10,022
99	0604645A	05	ARMORED SYSTEMS MODERNIZATION (ASM)-ENG. DEV.	0	239,213	1,701,331	2,458,373
100	0604649A	05	ENGINEER MOBILITY EQUIPMENT DEVELOPMENT	8,902	7,786	0	0
101	0604710A	05	NIGHT VISION SYSTEMS - ENG DEV	24,783	36,581	29,022	22,399
102	0604713A	05	COMBAT FEEDING, CLOTHING, AND EQUIPMENT	90,579	86,449	67,283	66,748
103	0604715A	05	NON-SYSTEM TRAINING DEVICES - ENG DEV	29,010	56,002	71,616	62,634
104	0604716A	05	TERRAIN INFORMATION - ENG DEV	7,779	8,096	6,977	5,965
105	0604726A	05	INTEGRATED METEOROLOGICAL SUPPORT SYSTEM	1,899	3,361	3,309	3,300
106	0604738A	05	JSIMS CORE PROGRAM	29,758	19,213	0	0

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Department of the Army
FY 2004 RDT&E Program

Exhibit R-1

03-Feb-2003

Appropriation: 2040 A RDT&E, Army

Line No	Element Number	Program Act	Item	Thousands of Dollars			
				FY 2002	FY 2003	FY 2004	FY 2005
107	0604741A	05	AIR DEFENSE COMMAND, CONTROL AND INTEL - ENG	16,669	27,262	29,297	32,415
108	0604742A	05	CONSTRUCTIVE SIMULATION SYSTEMS DEVELOPMENT	64,279	43,813	16,994	1,155
109	0604746A	05	AUTOMATIC TEST EQUIPMENT DEVELOPMENT	12,751	12,899	4,634	4,707
110	0604760A	05	DISTRIBUTIVE INTERACTIVE SIMULATIONS (DIS) - ENGIN	21,333	18,128	26,358	20,567
111	0604766A	05	TACTICAL EXPLOITATION SYSTEM/DCGS (TIARA)	59,668	57,255	19,695	16
112	0604768A	05	BRILLIANT ANTI-ARMOR SUBMUNITION (BAT)	106,860	42,942	55,075	9,836
113	0604770A	05	JOINT SURVEILLANCE/TARGET ATTACK RADAR SYSTEM	7,485	4,511	4,705	0
114	0604778A	05	POSITIONING SYSTEMS DEVELOPMENT (SPACE)	0	0	1,574	2,065
115	0604780A	05	COMBINED ARMS TACTICAL TRAINER (CATT)	11,799	8,247	3,998	5,596
116	0604783A	05	JOINT NETWORK MANAGEMENT SYSTEM	21,225	7,677	9,437	10,811
117	0604801A	05	AVIATION - ENG DEV	5,365	3,481	2,379	2,390
118	0604802A	05	WEAPONS AND MUNITIONS - ENG DEV	16,546	50,341	129,409	133,444
119	0604804A	05	LOGISTICS AND ENGINEER EQUIPMENT - ENG DEV	31,204	64,808	86,288	88,153
120	0604805A	05	COMMAND, CONTROL, COMMUNICATIONS SYSTEMS - ENG DEV	112,970	89,546	219,088	162,970
121	0604807A	05	MEDICAL MATERIEL/MEDICAL BIOLOGICAL DEFENSE EQUIPM	17,070	18,790	12,202	11,715
122	0604808A	05	LANDMINE WARFARE/BARRIER - ENG DEV	55,502	123,314	90,396	90,126
123	0604814A	05	SENSE AND DESTROY ARMAMENT MISSILE - ENG DEV	59,329	102,188	133,994	153,389
124	0604817A	05	COMBAT IDENTIFICATION	2,892	4,985	3,541	0
125	0604818A	05	ARMY TACTICAL COMMAND & CONTROL HARDWARE & SOFTWARE	59,276	96,326	98,129	86,950
126	0604819A	05	LOSAT	24,773	13,597	30,809	22,610
127	0604820A	05	RADAR DEVELOPMENT	4,952	0	0	0
128	0604823A	05	FIREFINDER	25,875	24,913	27,107	28,515
129	0604854A	05	ARTILLERY SYSTEMS - EMD	63,655	26,614	32,629	9,636
130	0604865A	05	PATRIOT PAC-3 THEATER MISSILE DEFENSE ACQ - EMD	0	0	174,475	78,440
131	0605013A	05	INFORMATION TECHNOLOGY DEVELOPMENT	108,734	69,686	47,566	57,167
Total: System Development and Demonstration				2,141,017	2,512,282	4,737,771	5,243,019
Management support							
132	0604256A	06	THREAT SIMULATOR DEVELOPMENT	19,896	18,158	17,751	18,915
133	0604258A	06	TARGET SYSTEMS DEVELOPMENT	22,504	10,226	13,890	12,582

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Department of the Army
FY 2004 RDT&E Program

Exhibit R-1

Appropriation: 2040 A RDT&E, Army

03-Feb-2003

Line No	Program Element Number	Act	Item	Thousands of Dollars			
				FY 2002	FY 2003	FY 2004	FY 2005
134	0604759A	06	MAJOR T&E INVESTMENT	47,304	51,168	62,135	66,524
135	0605103A	06	RAND ARROYO CENTER	19,467	21,172	22,804	23,016
136	0605301A	06	ARMY KWAJALEIN ATOLL	144,005	126,486	137,307	139,394
137	0605326A	06	CONCEPTS EXPERIMENTATION	30,678	23,564	26,473	27,121
138	0605502A	06	SMALL BUSINESS INNOVATIVE RESEARCH	160,561	178,120	0	0
139	0605601A	06	ARMY TEST RANGES AND FACILITIES	115,473	130,727	174,603	172,114
140	0605602A	06	ARMY TECHNICAL TEST INSTRUMENTATION AND TARGETS	35,560	41,052	54,986	60,018
141	0605604A	06	SURVIVABILITY/LETHALITY ANALYSIS	35,060	35,236	39,138	41,647
142	0605605A	06	DOD HIGH ENERGY LASER TEST FACILITY	22,445	16,679	17,806	17,999
143	0605606A	06	AIRCRAFT CERTIFICATION	3,524	3,618	3,098	3,132
144	0605702A	06	METEOROLOGICAL SUPPORT TO RDT&E ACTIVITIES	6,727	6,795	9,669	9,771
145	0605706A	06	MATERIEL SYSTEMS ANALYSIS	10,695	8,982	15,832	16,209
146	0605709A	06	EXPLOITATION OF FOREIGN ITEMS	3,381	3,431	3,579	5,465
147	0605712A	06	SUPPORT OF OPERATIONAL TESTING	85,714	91,566	67,795	67,757
148	0605716A	06	ARMY EVALUATION CENTER	29,763	37,923	57,074	57,404
149	0605718A	06	SIMULATION & MODELING FOR ACQ, RQTS, & TNG (SMART)	0	0	2,654	2,731
150	0605801A	06	PROGRAMWIDE ACTIVITIES	58,366	57,831	71,555	68,870
151	0605803A	06	TECHNICAL INFORMATION ACTIVITIES	41,695	45,516	28,520	28,929
152	0605805A	06	MUNITIONS STANDARDIZATION, EFFECTIVENESS AND SAFET	29,443	30,029	19,855	19,627
153	0605857A	06	ENVIRONMENTAL QUALITY TECHNOLOGY MANAGEMENT SPT	1,662	1,820	4,938	5,217
154	0605898A	06	MANAGEMENT HEADQUARTERS (RESEARCH AND DEVELOPMENT)	4,058	9,991	8,995	8,536
155	0909999A	06	FINANCING FOR CANCELLED ACCOUNT ADJUSTMENTS	439	0	0	0
Total: Management support				928,420	950,090	860,457	872,978
Operational system development							
156	0102419A	07	JOINT LAND ATTACK CRUISE MISSILES DEFENSE (JLENS)	31,114	28,792	57,549	56,420
157	0203610A	07	DOMESTIC PREPAREDNESS AGAINST WEAPONS OF MASS DEST	2,511	2,438	0	0
158	0203726A	07	ADV FIELD ARTILLERY TACTICAL DATA SYSTEM	35,716	44,978	28,917	22,551
159	0203735A	07	COMBAT VEHICLE IMPROVEMENT PROGRAMS	159,759	82,702	24,486	16,121
160	0203740A	07	MANEUVER CONTROL SYSTEM	40,231	42,229	39,581	17,883

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UNCLASSIFIED
Department of the Army
FY 2004 RDT&E Program

Exhibit R-1

03-Feb-2003

Appropriation: 2040 A RDT&E, Army

Line No	Program Element Number	Act	Item	Thousands of Dollars			
				FY 2002	FY 2003	FY 2004	FY 2005
161	0203744A	07	AIRCRAFT MODIFICATIONS/PRODUCT IMPROVEMENT PROGRAM	141,751	204,562	187,959	167,274
162	0203752A	07	AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM	14,443	6,767	3,399	3,451
163	0203758A	07	DIGITIZATION	31,420	32,158	18,251	18,716
164	0203759A	07	FORCE XXI BATTLE COMMAND, BRIGADE AND BELOW (FBCB2	54,927	61,961	48,436	20,224
165	0203761A	07	FORCE XXI WRAP	39	0	0	0
166	0203801A	07	MISSILE/AIR DEFENSE PRODUCT IMPROVEMENT PROGRAM	13,302	41,787	44,468	32,025
167	0203802A	07	OTHER MISSILE PRODUCT IMPROVEMENT PROGRAMS	52,921	12,445	9,822	4,915
168	0203806A	07	TRACTOR RUT	0	0	8,851	3,342
169	0203808A	07	TRACTOR CARD	11,081	8,499	9,255	9,118
170	0208010A	07	JOINT TACTICAL COMMUNICATIONS PROGRAM (TRI-TAC)	25,614	13,506	16,543	18,664
171	0208053A	07	JOINT TACTICAL GROUND SYSTEM	5,152	2,812	9,767	35,064
172	0301359A	07	SPECIAL ARMY PROGRAM	6,811	9,645	5,968	5,500
173	0303028A	07	SECURITY AND INTELLIGENCE ACTIVITIES	2,420	26,193	0	0
174	0303140A	07	INFORMATION SYSTEMS SECURITY PROGRAM	12,875	22,163	20,728	24,845
175	0303141A	07	GLOBAL COMBAT SUPPORT SYSTEM	79,012	49,360	58,983	65,158
176	0303142A	07	SATCOM GROUND ENVIRONMENT (SPACE)	43,059	68,915	87,352	64,538
177	0303150A	07	WWMCCS/GLOBAL COMMAND AND CONTROL SYSTEM	13,131	16,999	20,124	19,206
178	0305114A	07	TRAFFIC CONTROL, APPROACH AND LANDING SYSTEM-FY 19	753	935	956	1,903
179	0305204A	07	TACTICAL UNMANNED AERIAL VEHICLES	35,213	67,435	60,493	66,730
180	0305206A	07	AIRBORNE RECONNAISSANCE ADV DEVELOPMENT	10,910	11,438	4,751	5,094
181	0305208A	07	DISTRIBUTED COMMON GROUND SYSTEMS (JMIP)	71,836	44,823	32,292	42,377
182	0603778A	07	MLRS PRODUCT IMPROVEMENT PROGRAM	101,595	94,623	84,839	110,537
183	0708045A	07	END ITEM INDUSTRIAL PREPAREDNESS ACTIVITIES	98,769	74,728	65,981	67,706
184	1001018A	07	NATO JOINT STARS	0	503	503	601
Total: Operational system development				1,096,365	1,073,396	950,254	899,963
Total: RDT&E, Army				7,018,252	7,534,849	9,122,825	9,538,691

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133	0604258A	TARGET SYSTEMS DEVELOPMENT	4
134	0604759A	Major T&E Investment	10
135	0605103A	Rand Arroyo Center	19
136	0605301A	ARMY KWAJALEIN ATOLL	22
137	0605326A	Concepts Experimentation	24
139	0605601A	ARMY TEST RANGES AND FACILITIES	31
140	0605602A	Army Technical Test Instrumentation and Targets	38
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142	0605605A	DOD High Energy Laser Test Facility	52
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144	0605702A	Meteorological Support to RDT&E Activities	56
145	0605706A	MATERIEL SYSTEMS ANALYSIS	59
146	0605709A	EXPLOITATION OF FOREIGN ITEMS	63
147	0605712A	Support of Operational Testing	65
148	0605716A	Army Evaluation Center	69
149	0605718A	Simulation & Modeling for Acq, Rqts, & Tng (SMART)	72
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158	0203726A	Adv Field Artillery Tactical Data System	135
159	0203735A	Combat Vehicle Improvement Programs	146
160	0203740A	Maneuver Control System	152
161	0203744A	Aircraft Modifications/Product Improvement Program	159
162	0203752A	Aircraft Engine Component Improvement Program	179
163	0203758A	Digitization	187
164	0203759A	Force XXI Battle Command, Brigade and Below (FBCB2)	194
165	0203761A	Force XXI WRAP	201
166	0203801A	Missile/Air Defense Product Improvement Program	206
167	0203802A	Other Missile Product Improvement Programs	212
170	0208010A	Joint Tactical Communications Program (TRI-TAC)	224
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174	0303140A	Information Systems Security Program	243
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179	0305204A	Tactical Unmanned Aerial Vehicles	300
180	0305206A	Airborne Reconnaissance Adv Development	336
181	0305208A	Distributed Common Ground Systems (JMIP)	343
182	0603778A	MLRS PRODUCT IMPROVEMENT PROGRAM	370
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Aircraft Engine Component Improvement Program	0203752A	162	179
Aircraft Modifications/Product Improvement Program	0203744A	161	159
Army Evaluation Center	0605716A	148	69
ARMY KWAJALEIN ATOLL	0605301A	136	22
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Combat Vehicle Improvement Programs	0203735A	159	146
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MATERIEL SYSTEMS ANALYSIS	0605706A	145	59
Meteorological Support to RDT&E Activities	0605702A	144	56
Missile/Air Defense Product Improvement Program	0203801A	166	206
MLRS PRODUCT IMPROVEMENT PROGRAM	0603778A	182	370
Munitions Standardization, Effectiveness and Safet	0605805A	152	102
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Other Missile Product Improvement Programs	0203802A	167	212
Programwide Activities	0605801A	150	74
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SATCOM Ground Environment (SPACE)	0303142A	176	268
Security and Intelligence Activities	0303028A		125
Simulation & Modeling for Acq, Rqts, & Tng (SMART)	0605718A	149	72
Support of Operational Testing	0605712A	147	65
Survivability/Lethality Analysis	0605604A	141	46
Tactical Unmanned Aerial Vehicles	0305204A	179	300

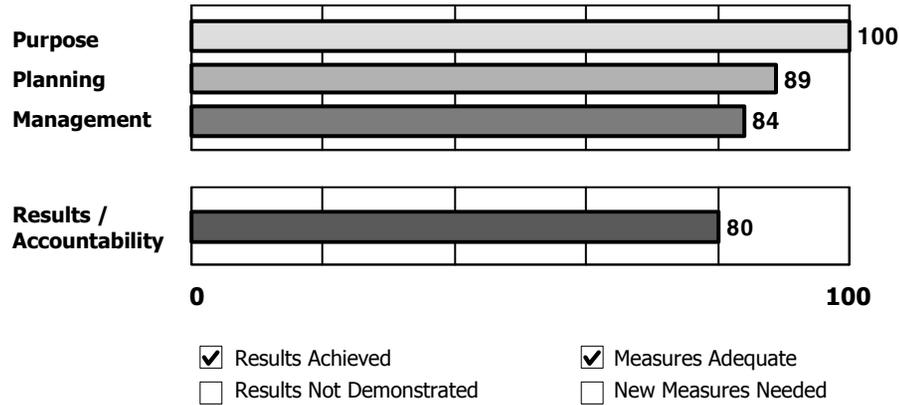
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WWMCCS/Global Command and Control System	0303150A	177	287

Program: Basic Research

Agency: Department of Defense--Military

Bureau: Research, Development, Test, and Evaluation



Key Performance Measures

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%	

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)

<u>2002 Actual</u>	<u>2003 Estimate</u>	<u>2004 Estimate</u>
1,334	1,417	1,309

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604256A - THREAT SIMULATOR DEVELOPMENT	PROJECT 976						
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
976 ARMY THREAT SIM (ATS)	19896	18158	17751	18915	18173	15048	15333	15699

A. Mission Description and Budget Item Justification: This program supports the design, development, integration and fielding of realistic mobile threat simulators and realistic threat simulation products utilized in Army training, developmental and operational tests. Army Threat Simulator and Threat Simulation products are utilized to populate test battlefields for US Army Test and Evaluation Command (ATEC)-conducted 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 requirements defined in the AMC chartered Threat Simulator and Simulation Program Plan (TSPP) that are identified as non-system specific threat product requirements. Each capability is pursued in concert and coordination with existing Army and tri-service capabilities to eliminate duplication of products and services, while providing the proper mix of resources needed to support Army testing and training. These battlefield simulators represent systems (e.g. missile systems; command, control and communications systems; electronic warfare systems; helicopters; etc.) that are used to portray a realistic threat environment during testing of US weapon systems. Simulator development is responsive to Office of the Secretary of Defense and General Accounting Office concerns that the Army conduct operational testing in a realistic threat environment. While this project originally funded simulators representing Soviet equipment, the changing world order has expanded the scope of this program to address rest of world threats. Actual threat equipment is acquired when appropriate in lieu of development. Total package fielding will still be 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). This project supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Developed XMAPS threat system.	1743	0	0	0
Develop Intelligence and Electronic Warfare scenario generation system for test scenario planning and execution.	3055	3145	8074	7832
Develop product improvements for XM11S threat system.	2644	3674	4069	4859
Completed instrumentation and fielding of XM70A threat systems.	2400	0	0	0
Continue instrumentation and fielding of Threat Mines Simulator.	2098	1048	0	0
Completed hardware-in-the-loop simulations of infra-red threat surface-to-air missile systems.	1540	0	0	0
Develop Information Assurance Test Tool (IATT) Threat system.	1958	2557	2722	1598

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604256A - THREAT SIMULATOR DEVELOPMENT	PROJECT 976
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<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Developed Next Generation Anti-Tank Guided Missile (ATGM) hardware seeker system.	908	0	0	0
Developed Advanced Cognitive Reasoning Technology simulator.	1000	0	0	0
Develop Radio Frequency Surface to Air Missile Threat Simulator.	1000	2100	0	0
Developed and integrated critically required initial fielding components for the XM43A Anti-Aircraft Artillery system.	1550	0	0	0
Validate threat simulators/simulations to ensure they are available for operational test.	0	602	805	529
Develop a target acquisition and designation package for Unmanned Aerial Vehicle simulator.	0	1227	0	1797
Conduct Radar Surveillance and Target Acquisition (RSTA) Study.	0	727	0	0
Conduct Injection Jammer Proof of Concept Study.	0	978	0	0
Develop Automated Intelligence and Electronic Warfare Test System (AI-EWTS) multiple emitters.	0	0	2081	1103
Develop Threat Deception Techniques to leverage field testing data into modeling and simulation as signature models.	0	0	0	1197
Develop Multi-Mode Top Attack Threat Simulator.	0	2100	0	0
Totals	19896	18158	17751	18915

<u>B. Program Change Summary</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Previous President's Budget (FY 2003)	18857	15251	18590	13004
Current Budget (FY 2004/2005 PB)	19896	18158	17751	18915
Total Adjustments	1039	2907	-839	5911
Congressional program reductions				
Congressional rescissions	-92	-803		
Congressional increases		4200		
Reprogrammings	1534	-104		
SBIR/STTR Transfer	-403	-386		
Adjustments to Budget Years			-839	5911

Change Summary Explanation: Funding - FY 2003: Congressional increases for Multi-Mode Top Attack Threat Simulator (+2100) and Radio Frequency

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

February 2003

BUDGET ACTIVITY
6 - Management support

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

PROJECT
976

Surface to Air Missile (+2100). FY 2005: Funds realigned to support Intelligence and Electronic Warfare scenario generation system (+5911).

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604258A - TARGET SYSTEMS DEVELOPMENT							
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	22504	10226	13890	12582	11016	10542	10782	11034
238 AERIAL TARGETS	6112	5363	8260	8303	7492	6941	6329	6476
459 GROUND TARGETS	16392	4863	5630	4279	3524	3601	4453	4558

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 assigned legacy 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 ongoing target materiel upgrades to maintain continuity with current weapons technology and trends in modern and evolving Army weapons.

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	25003	10772	14157	12925
Current Budget (FY 2004/2005 PB)	22504	10226	13890	12582
Total Adjustments	-2499	-546	-267	-343
Congressional program reductions				
Congressional rescissions		-216		
Congressional increases				
Reprogrammings	-1825	-59		
SBIR/STTR Transfer	-674	-271		
Adjustments to Budget Years			-267	-343

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604258A - TARGET SYSTEMS DEVELOPMENT						PROJECT 238	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
238 AERIAL TARGETS	6112	5363	8260	8303	7492	6941	6329	6476

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; tactical ballistic 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 tasking 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 Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Continue management and sustainment of more than 20 Army(Reliance Lead) Rotary Wing (RW) Targets, including updates for obsolescence, maintenance, and safety to support T&E programs such as Comanche, Medium Extended Air Defense System (MEADS), Surface Launched AMRAAM (SLAMRAAM), and others.	143	398	414	451
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. In FY05 begin 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.	1093	843	997	1566

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604258A - TARGET SYSTEMS DEVELOPMENT

PROJECT
238

<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Complete redesign and testing of upgraded Target Tracking Control System (TTCS) to new design. Complete testing of upgraded initial test sets. In FY02 investigate integration of BQM-34 target control capability into updated TTCS design. 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 complete upgrade of remaining TTCS to new configuration at a rate of 2 – 3 per year. Also, includes cost of development of improved integrated test set, improvement of operator displays, software performance enhancements, and documentation of design. This will provide support to programs such as Patriot, SLAMRAAM, JLENS, MEADS, Patriot, etc..	2236	2751	3673	2104
Continue development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets, and ancillary devices. Includes FY02 completion of development and testing of Tandem Tow Target under cooperative initiative with British, Australian, and Canadian Governments (The Technical Cooperative Program) with delivery of three test articles and initiated development of Low Cost Towed Target with delivery of three initial prototypes. FY03-04 completes development and testing of Low Cost Towed target emulating current threats at a very low cost (classified customer). FY05 integrates tandem tow technology into large-scale towed targets to support air defense weapons T&E (e.g. Patriot).	1251	694	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 02 – 04 develops initial prototypes, test set, and performs tests in an MQM -107. FY05 provides RDT&E portion to initialize production, and provides maintainer and operator training, and finalizes technical documentation. The customer will provide funding for production units.	654	677	750	1509

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604258A - TARGET SYSTEMS DEVELOPMENT

PROJECT
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<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
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 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, Comanche, Patriot, IBCT (Stryker), MEADS, etc.). These models are on-line and available to all T&E simulation developers.	735	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 outyears. Provides 12 COTS based air vehicles for development testing and initial targets fleet, ground support equipment, and maintainer and operator training. TTCS will be utilized for target control. Significant cost avoidances over using real UAVs for T&E targets.	0	0	1300	1110
Totals	6112	5363	8260	8303

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604258A - TARGET SYSTEMS DEVELOPMENT						PROJECT 459	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
459 GROUND TARGETS	16392	4863	5630	4279	3524	3601	4453	4558

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 process; 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 test and evaluation customers. Project 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.

This program line supports the Legacy-to-Objective transition path of the Transformation Campaign Plan (TCP).

Accomplishments/Planned Program

	FY 2002	FY 2003	FY 2004	FY 2005
Provide funding to help manage and provide oversight of five Primary Operating Centers to include operation, storage, maintenance, and configuration management for the repair of more than 300 Mobile Ground Target vehicles, including acquisition of new material and spare parts. Supports users such as FCS, Comanche, ATACMS, Apache, etc.	1831	2526	2335	2224

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604258A - TARGET SYSTEMS DEVELOPMENT

PROJECT
459

<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
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 for 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, IBCT (Stryker), Land/Air Warrior, etc.) These models are available on-line to all T&E simulation developers.	2212	1238	1965	1549
Completed fabrication and deployment of the Next Mobile Ground Target Surrogate (Russian Smerch Multiple Rocket Launcher) units into the operational fleet to maintain up-to-date threat representative targets to support T&E (e.g., Comanche, Brilliant Anti-Armor Submunitions (BAT)). Completed delivery of six surrogates.	1055	0	0	0
Develops (FY02-03), 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, LOSAT, and others). Delivers 22 surrogates.	1274	1099	1330	506
Completed deployment of surrogate Infantry Fighting Vehicle (Russian name BMP3-S) into the operational fleet and update system configuration to maintain up-to-date threat representative targets that are required to support Comanche and BAT T&E in the FY 2002 timeframe.	225	0	0	0
Acquire up to four T-80UD main battle tanks from the government of the Ukraine, to be placed in the Mobile Ground Targets vehicle fleet for use by T&E programs such as Comanche, BAT Product Improvements (BAT P3I), Land/Air Warrior, Apache, and others.	9795	0	0	0
Totals	16392	4863	5630	4279

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

February 2003

BUDGET ACTIVITY
6 - Management support

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

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	47304	51168	62135	66524	69490	65077	66625	68170
983 MAJOR T&E INVEST-USAKA	7503	8087	14205	9791	7321	8030	8226	8415
984 MAJOR TECH TEST INSTR	32437	35537	36856	40526	40561	36747	37605	38471
986 MAJ USER TEST INST	7364	7544	11074	16207	21608	20300	20794	21284

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; 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 Missile Defense Agency. 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 (R-2 Exhibit)

February 2003

BUDGET ACTIVITY
6 - Management support

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

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	49482	53797	63845	68720
Current Budget (FY 2004/2005 PB)	47304	51168	62135	66524
Total Adjustments	-2178	-2629	-1710	-2196
Congressional program reductions				
Congressional rescissions		-947		
Congressional increases				
Reprogrammings	-876	-293		
SBIR/STTR Transfer	-1302	-1389		
Adjustments to Budget Years			-1710	-2196

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604759A - Major T&E Investment						PROJECT 983	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
983 MAJOR T&E INVEST-USAKA	7503	8087	14205	9791	7321	8030	8226	8415

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), 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 Kwajalein Modernization and Remoting (KMAR) project which 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 Theater Missile Defense (TMD) and Ground-based Mid-course Missile Defense (GMD) test missions as well as significantly reduce USAKA/RTS annual operating costs beginning in FY 2003. This activity supports the Legacy to Objective transition path of the Transformation Campaign Plan.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Continue Kwajalein Modernization and Remoting (KMAR) - Complete installation of Intermediate Frequency (IF) receiver, computer, digital pulse compression and recording equipment for ARPA Long Range Tracking and Instrumentation Radar (ALTAIR). After validation and verification, ALTAIR radar modernization was completed May 2002. Complete development of Target Resolution and Discrimination Experiment (TRADEX) KMAR systems. Complete installation of four telemetry (TM) antenna systems at Kwajalein TM site. Complete installation of remaining four Super Recording Automatic Digital Optical Tracker (RADOT) servo systems. Complete installation of IF receiver, computer, digital pulse compression and recording equipment for TRADEX Radar. After validation and verification, TRADEX radar modernization will be complete by February 2003.	7503	3416	0	0
Upgrade RTS Safety Center to prepare for Multiple Simultaneous Engagements (MSE).	0	890	0	0
Outside Cable Plant Restoration - All pressurized, lead-sheathed backbone and distribution cable will be 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.	0	2610	0	0

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

February 2003

BUDGET ACTIVITY
6 - Management support

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

PROJECT
983

<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Modernize RTS Mission Control Center for compatibility with upgraded KMAR sensors & to provide interoperability with Pacific Ranges.	0	1171	5500	4280
Provide Transportable Telemetry and Transportable Optics capability which enables RTS to project telemetry/optical support data throughout the Marshall Islands and to Wake, Johnston, Midway or Alaska in support of missions.	0	0	5200	4500
Apply new Solid State Technology to simplify radar transmitter hardware. Enhances reliability and commonality of KREMS radar transmitters.	0	0	1000	760
Procure Submarine Fiber Optics Transmission System (SFOTS) for an upgrade to classified and unclassified voice, video, and data networks. System will provide virtually error free voice, video, and data transmissions.	0	0	0	251
Modernize MPS-36 Radars to replace unsupportable hardware and computer systems.	0	0	2505	0
Totals	7503	8087	14205	9791

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604759A - Major T&E Investment					PROJECT 984			
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	
984 MAJOR TECH TEST INSTR	32437	35537	36856	40526	40561	36747	37605	38471	

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; 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 Dynamic Infrared Scene Projector (DIRSP) conducts performance testing of night vision sensors and infrared (IR) imaging seekers at RTTC, and will provide the capability to fully simulate and synthesize present and future battlefields with a mix of real and simulated objects. 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 (AMMSTC) 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 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. 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. C4I Test Instrumentation Control Center (TCC) II enhances and modernizes Electronic Proving Ground'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). This program line supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

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

February 2003

BUDGET ACTIVITY
6 - Management support

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

PROJECT
984

Accomplishments/Planned Program

	FY 2002	FY 2003	FY 2004	FY 2005
Dynamic Infrared Scene Projector (DIRSP): Completed corrective actions and integrated system for final acceptance testing.	591	0	0	0
Land Combat Instrumentation (LCI): Installation of Automotive Communication Network (ACN) at test areas of Aberdeen Test Center.	736	318	0	0
Test Support Network (TSN): Installation of transmission electronics and system integration and testing efforts at White Sands Missile Range.	12578	1369	0	0
Range Data Transmission System (RDTS): Installation of digital fiber optic cable and transmission electronics in support of the East Kofa and South Cibola test ranges at Yuma Proving Ground.	10874	13078	9656	8353
Hardened Subminiature Telemetry and Sensor System (HSTSS): FY 2002 - Completed component deliveries and continued prototype system testing. FY 2003 - Initiate development of HSTSS embedded instrumentation for a single round for use in both testing and training arenas.	4252	5274	0	0
Advanced Multi-Spectral Sensor and Subsystem Test Capabilities (AMMSTC): FY 2002 Completed design of facility for multi-spectral hardware-in-the-loop test capability and began trade studies on various designs/materiels to be used. FY 2003-2005 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.	1004	5153	13287	15581
Versatile Information Systems Integrated Online (VISION): FY 2002 Continued on-going development/enhancement of the Digital Library. Began development of smart sensor to monitor vehicle position and initial research to develop communications protocol. FY 2003-2005 Continue development/enhancement of the Digital Library to increase database and links to other Army facilities. Continue development of new smart sensors. Development of security communication features to handle classified information.	1247	6313	6997	10297
Mobile Infrared Scene Projector (MIRSP): FY 2002 Completed integration of mobile capability for the DEGA and continue prototyping efforts for the Mobile Extended Spectrum Electro-Optical Test Set. FY 2003-2004 Develop multi-spectral projection capability and participate in design of large format resistive array. FY 2005 Begin development of 2048x1024 pixel large format, resistive array infrared scene projector.	1155	1412	2097	2719
21st Century Target Control System: Acquisition and integration of DoD-standard multi-service target control system at White Sands Missile Range.	0	1923	2321	1033
C4I/Test Instrumentation Control Center (TCC) II: Enhancement and expansion of the functions of the TCC to test the Digitized Army and its suite of Army Technical Architecture (ATA)-compliant C4I systems.	0	697	1637	1665
Quantitative Visualization for Test and Evaluation: Development of a new capability for real-time and quantitatively precise visualization of all test data, simulated and real, for use by testers and program managers.	0	0	861	878

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

February 2003

BUDGET ACTIVITY
6 - Management support

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

PROJECT
984

Accomplishments/Planned Program (continued)

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Totals	32437	35537	36856	40526

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604759A - Major T&E Investment						PROJECT 986	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
986 MAJ USER TEST INST	7364	7544	11074	16207	21608	20300	20794	21284

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. Cornerstone of this effort is the 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). Objective RTCA allows the US Army to test all Legacy-to-Objective, Objective 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 Interim Brigade Combat Team and Army Transformation developments. Objective RTCA 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 Objective RTCA 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 OPTEMPO and PERSTEMPO demands to force the US 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. Operational Test Command (OTC) Analytic Simulation and Instrumentation Suite (OASIS) is the operational test environment for the Future Combat systems of systems. OASIS provides the integrated environment required for testing of network centric systems in a realistic operational environment. These systems support Legacy-to-Objective transition path of the Transformation Campaign Plan (TCP).

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

February 2003

BUDGET ACTIVITY
6 - Management support

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

PROJECT
986

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Development and upgrades to the Objective Real-Time Casualty Assessment Instrumentation Suite: 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; Air Defense Artillery (ADA) fly-out models; development of improved communication architecture; Geometric Pairing research and development; and Common Test and Training System research and development.	7364	7544	9703	14841
Development of Operational Test Command (OTC) Analytic Simulation and Instrumentation Suite (OASIS)	0	0	1371	1366
Totals	7364	7544	11074	16207

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605103A - Rand Arroyo Center						PROJECT 732	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
732 ARROYO CENTER SPT	19467	21172	22804	23016	23403	23900	24496	25038

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 Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Research addressing the Army in national strategy, including implications of the New National Strategy; preparing and presenting the Army budget; developing a framework to address "gaps" between the military and the American people; assessing joint rapid decisive operations; identifying access requirements, anti-access threats, and potential counters; Objective Force performance on complex terrain; improving the Army's ability to contribute effectively to emerging homeland security initiatives; assessing the Objective Force in a wide range of warfighting scenarios; and developing and evaluating the future alliance and coalition partner environment relevant to the Army and future land operations.	4588	0	0	0
Research addressing Army transformation, including assessing FCS technology; support to transformation wargaming and analysis; assessing the contribution and importance of C4ISR to the Objective Force; analyzing future bandwidth requirements; supporting CAA in the use of JICM; developing potential strategic actions for the CS/CSS transformation; analyzing the potential benefits from the planned joint experimentation process; and assessing the feasibility of organizing the TO&E Army around brigades rather than divisions as the principal unit of operational employment.	3961	0	0	0

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605103A - Rand Arroyo Center	PROJECT 732
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<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Research addressing people, including human resource implications of Army transformation; leader development for a transformed Army; recruiting options; officer accession and retention; and officer careers and OPMS XXI.	2575	0	0	0
Research addressing readiness, including Army rotation policy and force management; diagnosing equipment serviceability; linking improved processes and inventory to equipment readiness; identifying drivers of customer wait time; improving the training ammunition process; determining training proficiency at CTCs; reviewing and recommending changes to OPTEMPO and collective training; and recommending an implementation strategy for training development for CSS systems.	4555	0	0	0
Research addressing business practices, including the role and limits of outsourcing; minimum military logistics capability; posturing AMC R&D organizations for a changing workforce; creating an integrated logistics business environment; sizing the Army's organic industrial base; re-examining Army acquisition; integrated modernization analysis; and coordinated acquisition of Army systems of systems.	3788	0	0	0
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.	0	3388	0	0
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 Objective Force bandwidth requirements.	0	9951	0	0

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605103A - Rand Arroyo Center	PROJECT 732
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<u>Accomplishments/Planned Program (continued)</u>	FY 2002	FY 2003	FY 2004	FY 2005
Research addressing the Army's enduring challenges, including evaluating joint capstone operational concepts; Objective 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.	0	7833	0	0
Research addressing the role of transformed ground forces in the national security strategy.	0	0	7981	8056
Research addressing shaping and staffing the force.	0	0	6613	6675
Research addressing reshaping support functions and infrastructure.	0	0	6841	6905
Research addressing exploring technology alternatives.	0	0	1369	1380
Totals	19467	21172	22804	23016

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	19806	22148	23072	23414
Current Budget (FY 2004/2005 PB)	19467	21172	22804	23016
Total Adjustments	-339	-976	-268	-398
Congressional program reductions				
Congressional rescissions		-243		
Congressional increases				
Reprogrammings	212	-122		
SBIR/STTR Transfer	-551	-611		
Adjustments to Budget Years			-268	-398

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605301A - ARMY KWAJALEIN ATOLL						PROJECT 614	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
614 ARMY KWAJALEIN ATOLL	144005	126486	137307	139394	142444	144789	148205	151608

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. KMAR will also reduce USAKA/RTS annual operating costs beginning in FY 2003. 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), Orbital Debris Measurement Program, Small Expendable Deployer System and Orbital Debris Measurement Program; and the Air Force Space and Missile Center's associated programs. This activity supports the Legacy to Objective transition path of the Transformation Campaign Plan.

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605301A - ARMY KWAJALEIN ATOLL	PROJECT 614
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<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Provide management support (salaries, training, travel, SMDC matrix, etc).	10632	10245	10493	10930
Accomplish maintenance and repair projects, including design, executed by Corps of Engineers (COE).	6043	3857	2200	700
Procure petroleum, oils and lubricants (POL) and Military Standard Requisitioning and Issue Procedure (MILSTRIP).	19380	14860	15176	15499
Procure other mission operating supplies, equipment and services.	3579	4791	5399	5525
Provide air and sea transportation (cargo to and from continental United States).	6721	6778	7290	7554
Continue to support Army, MDA, NASA and Air Force development and operational missile testing.	30609	33371	31161	31782
Provide logistical support (facilities maintenance and repair, aviation, automotive, marine, medical, food services, education, information management, etc.) to self contained islands of USAKA.	67041	52584	65588	67404
Totals	144005	126486	137307	139394

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	148825	132831	139638	142662
Current Budget (FY 2004/2005 PB)	144005	126486	137307	139394
Total Adjustments	-4820	-6345	-2331	-3268
Congressional program reductions				
Congressional rescissions		-2136		
Congressional increases				
Reprogrammings	-782	-726		
SBIR/STTR Transfer	-4038	-3483		
Adjustments to Budget Years			-2331	-3268

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605326A - Concepts Experimentation

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	30678	23564	26473	27121	23185	19268	26113	23811
308 CONCEPTS EXPERIMENTATION	16097	10950	9198	9108	10737	10706	11309	11389
312 ARMY/JOINT EXPERIMENTATION	13615	9536	14132	14900	9338	5465	13705	11338
33B SOLDIER-CENTERED ANALYSES FOR THE OBJECTIVE FORCE	966	3078	3143	3113	3110	3097	1099	1084

A. Mission Description and Budget Item Justification: The Concept Experimentation Program (project 308) provides the analytical rigor required to refine Objective Force concepts as well as underpin evidence for requirements of potential Objective Force systems. Army Experimentation funds the Army Transformation Experimentation Campaign Plan (ATECP) in support of transformation to the Objective Force (OF). The Army must conduct its own concept development and experimentation to fill its Title X core competencies as part of a DoD (Joint Force) transforming to meet Joint Vision 2020 capabilities and integrate this process with the Joint concept development and experimentation (JCD&E) process, including Army participation in major Joint experiments directed by DoD, Congressional language and the Quadrennial Defense Review (QDR). This program supports development of architecture products and experimental initiatives that develop OF capabilities and meet requirements for OF joint interoperability.

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605326A - Concepts Experimentation

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	31501	22627	22536	22460
Current Budget (FY 2004/2005 PB)	30678	23564	26473	27121
Total Adjustments	-823	937	3937	4661
Congressional program reductions				
Congressional rescissions		-370		
Congressional increases		2100		
Reprogrammings	53	-136		
SBIR/STTR Transfer	-876	-657		
Adjustments to Budget Years			3937	4661

Change Summary Explanation: Funding - FY 2004/2005: Funding increased in support of the Army/Joint Experimentation Program.

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605326A - Concepts Experimentation						PROJECT 308	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
308 CONCEPTS EXPERIMENTATION	16097	10950	9198	9108	10737	10706	11309	11389

A. Mission Description and Budget Item Justification: The Concept Experimentation Program (CEP) funds exploratory concept development and experimentation (XCDE). The objective is to evaluate the widest range of innovative, transformational concepts to determine their value to the Objective Force. CEP is designed to explore ideas, concepts, plans and requirements in an idea-unconstrained environment. Innovative transformational concepts are solicited from a wide spectrum of sources - including outside TRADOC and the Army - and provided with the widest possible freedom to evaluate innovate ideas - fail or succeed. It provides the Army's most aggressive venue for transformation.

This program supports the Objective transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Unit of Action	4110	0	0	0
Unit of Action Intelligence, Surveillance and Reconnaissance (ISR) Requirements	154	0	0	0
Objective Force Sustainment	1500	0	0	0
Battle Commander's Information Cell	1000	0	0	0
Unit of Employment/Unit of Action Shaping the Battlespace	1573	0	0	0
Mounted Maneuver Battle Lab Experimentation to fund Cooperative and Collaborative Research Program with Kentucky Universities.	3357	2019	0	0
Distributed Data Visualization and Management. Acquisition of commercial licenses and integration support for commercial geospatial distributed data visualization and management network at the Battle Command Battle Lab at Ft. Huachuca.	4027	0	0	0
Unit of Action Non-Line of Sight Support Operations Concept Experiment	175	957	0	0
Unit of Action Mobility Concept Experiment	201	200	0	0
Unit of Action Intelligent Munitions Systems Concept Experiment	0	500	0	0
Unit of Action Tactical Operations Concept Experiment	0	3371	0	0
Unit of Action Close Operations Concept Experiment	0	3541	0	0
Unit of Action Sustainment Operations Concept Experiment	0	362	0	0
Specific FY 04 and FY 05 requirements to be determined by the respective Experimentation Planning Conference conducted at the beginning of each FY.	0	0	9198	9108

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605326A - Concepts Experimentation

PROJECT
308

Accomplishments/Planned Program (continued)

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Totals	16097	10950	9198	9108

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605326A - Concepts Experimentation						PROJECT 312	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
312 ARMY/JOINT EXPERIMENTATION	13615	9536	14132	14900	9338	5465	13705	11338

A. Mission Description and Budget Item Justification: FY03-06 experimentation efforts are focused on two principal axes. The first axis supports Objective Force development through the Unit of Action (UA) Operational and Organizational (O & O) Plan and Future Combat Systems Requirements Analysis Plan. This will be accomplished using a large number of small-scale experiments and demonstrations of key operational capabilities within the programmatic organization of the UA and Unit of Employment (UE) Concept Experimentation Programs.

The second axis supports Joint / Army Experimentation via Army participation in Standing Joint Force Headquarters (SJFHQ) development, a major U.S. Joint Forces Command (USJFCOM) effort to prototype (FY03) and operationalize (FY04) the SJFHQ concept prior to fielding the SJFHQs to Combatant Commands (COCOM) in FY05 (exploiting existing Pacific Command exercises as experimental venues).

Long-term experimentation efforts (FY07-12) include continued support for USJFCOM experimentation to prototype and operationalize concepts, continue UA development, Unit of Employment (UE) O&O and Doctrine, Training, Leader Development, Organization, Materiel and Soldiers (DTLOMS) requirements developments, and OF Block II experimentation.

This program supports the Objective transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) execution support for Joint Experiment Millennium Challenge 02	915	0	0	0
Joint Infrastructure for Joint Experiment Millennium Challenge 02	350	0	0	0
Systems Engineering and Architecture Design for Joint Experiment Millennium Challenge 02	150	0	0	0
Enroute Mission Planning and Rehearsal for Joint Experiment Millennium Challenge 02	1300	0	0	0
Command and Control Development for Joint Experiment Millennium Challenge 02	2910	0	0	0
Modeling and Simulation Support for Joint Experiment Millennium Challenge 02	2250	0	0	0
Development and site support for network support for Joint Experiment Millennium Challenge 02	4740	0	0	0
Unit of Action Experimentation	1000	0	0	0
Unit of Action Sustainment Operations	0	925	0	0

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605326A - Concepts Experimentation

PROJECT
312

<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Unit of Action Sensor Fusion Experiment	0	540	0	0
Unit of Action Air-Ground Mobility Experiment	0	402	0	0
Unit of Employment Experimentation	0	3924	0	0
Standing Joint Force Headquarters	0	3745	0	0
Specific FY 04 and 05 requirements to be determined by the respective Experimentation Planning Conference conducted at the beginning of each FY.	0	0	14132	14900
Totals	13615	9536	14132	14900

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605326A - Concepts Experimentation					PROJECT 33B			
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	966	3078	3143	3113	3110	3097	1099	1084	

A. Mission Description and Budget Item Justification: This project will provide early (pre-Milestone A) 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 Objective Force. Work is performed by the Army Research Laboratory (ARL). This program supports the Legacy-to-Objective transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2002	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.	966	1778	1843	1813
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.	0	1300	1300	1300
Totals	966	3078	3143	3113

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605601A - ARMY TEST RANGES AND FACILITIES							
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	115473	130727	174603	172114	186906	204339	199724	206216
F30 ARMY TEST RANGES & FACILITIES	115473	130727	167684	172114	186906	204339	199724	206216
F38 BIG CROW SUPPORT	0	0	6919	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) Program Executive Officers, Program and Product Managers, 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 Army Major Range and Test Facility Bases (MRTFB):

- White Sands Missile Range (WSMR), NM
- Electronic Proving Ground (EPG), Fort Huachuca, AZ
- Aberdeen Test Center (ATC), Aberdeen Proving Ground (APG), MD
- Yuma Proving Ground (YPG), AZ (to include management of Army natural environmental testing at Cold Regions Test Center, Fort Greely and Fort Wainwright, AK, and Tropic Regions Test Center at Schofield Barracks, HI). And provides the resources to operate the Army's developmental test capability at:
- Aviation Technical Test Center, Fort Rucker, AL
- 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.

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 test funding. FY 2003 Congressional language establishes a Defense Test Resource Management Center, the objective to fully fund the operating costs of the MRTFBs by FY 2006, and to ensure that charges to DoD test customers do not exceed direct costs. Historic under funding of the MRTFBs have resulted in inadequate developmental testing, with the ultimate result being system failures in operational test/fielding and increased acquisition cost. The increase also pays civilian salaries reprogrammed to properly align efforts to the mission they support.

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

February 2003

BUDGET ACTIVITY
6 - Management support

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

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	113451	144183	149725	171143
Current Budget (FY 2004/2005 PB)	115473	130727	174603	172114
Total Adjustments	2022	-13456	24878	971
Congressional program reductions		-7500		
Congressional rescissions		-12409		
Congressional increases		8200		
Reprogrammings	3411	-750		
SBIR/STTR Transfer	-1389	-997		
Adjustments to Budget Years			24878	971

Change Summary Explanation:

Funding - The FY 2004 program adjustments reflects the following:

- (1) An increase to support the developmental test mission. Congress has expressed interest in the conclusions of two recent Defense Science Board (DSB) reports. In particular, the December 2000 study indicated that testing is not being adequately conducted, resulting in latent defects that can be very costly and impact systems' operational effectiveness; the acquisition process is not delivering high quality, reliable and effective equipment to our military forces; limited T&E infrastructure is a contributor to the lack of testing; and the T&E process is not funded properly. The FY 2004 increase in funding by Army is in direct response to Congressional interest in implementing the DSB recommendations. Increased funding will provide increased developmental testing services without passing the costs to the test customers. Increased funding will pay for additional contractor labor and the associated non-labor support (e.g., test equipment maintenance, test facility maintenance, spare parts, and test support vehicle maintenance).
- (2) An increase to pay civilian salaries reprogrammed to properly align efforts to the missions they support.
- (3) An increase to support the Big Crow Program Office.
- (4) Realignment of funds to OSD to support OSD civilian salaries located at Dugway Proving Ground.

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605601A - ARMY TEST RANGES AND FACILITIES					PROJECT F30			
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	
F30 ARMY TEST RANGES & FACILITIES	115473	130727	167684	172114	186906	204339	199724	206216	

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 test funding. Historic under funding of the Major Range and Test Facility Base (MRTFB) has resulted in inadequate developmental testing, with the ultimate result being system failures in operational test/fielding and increased acquisition cost. FY 2003 Congressional language establishes a Defense Test Resource Management Center, the objective to fully fund the operating costs of the MRTFBs by FY 2006, and to ensure that charges to Department of Defense (DoD) test customers do not exceed direct cost.

This project provides the institutional funding required to operate the developmental test activities required by DoD Program Executive Officers, Program and Product Managers, and Research, Development, and Engineering Centers. This funding does not pay for program specific test costs. All functions and resources associated with this project are managed by the U.S. Army Developmental Test Command (DTC), a subordinate command of the Army Test and Evaluation Command (ATEC). This project provides resources to operate Army MRTFBs:

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

This project also provides the resources to operate the Army's developmental test capability at:

- Aviation Technical Test Center, Fort Rucker, AL
- 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.

Test facilities operated through this project include: performance and cross country automotive test courses; accelerated corrosion test facility; automotive tilt table; 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; elevated rail threat launch facility; fire safety test enclosure; climatic test facilities; mine/countermine/demolitions complex; an electronic countermeasures vulnerability test

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)**February 2003**

BUDGET ACTIVITY

6 - Management support

PE NUMBER AND TITLE

0605601A - ARMY TEST RANGES AND FACILITIES

PROJECT

F30

facility; unmanned aerial vehicle test facility; electro-magnetic interference/electro-magnetic compatibility/TEMPEST test facility; systems interoperability and computer software testing facility; electronic realistic battlefield environmental facility; communication test facility; electro-optical systems test facility; rocket motor static test stands; inertial guidance test facilities; full spectrum nuclear effects facilities; instrumented air delivery test area; rocket motor static test facility; and lightening effects test facility. Current testing capabilities are not duplicated within DoD. This project 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 project does not finance reimbursable costs directly identified to a user of these ranges. Direct costs are borne by materiel developers and project/product managers in accordance with DoD Directive 3200.11 and DoD Financial Management Regulation 7000.14R. This project sustains the developmental T&E capability required to support all elements of Army Transformation , as well as Joint Service or Other Service systems, hardware, and technologies.

Unclassified systems scheduled for developmental testing that require DTC's test capabilities to be available and maintained include: Stryker; Patriot; Future Combat Systems; Lead the Fleet; High Mobility Multi Purpose Wheeled Vehicle; Family of Medium Tactical Vehicles; USMC Light Armored Vehicle; UH-60 Blackhawk; Airborne Command and Control System; Longbow Apache; TOW Missile; Theater Missile Defense; Force XXI Battle Command Brigade and Below; Support of Objective Force S&T-Army Warfighting Experiments and Advanced Concept Technology Demonstrations; Joint Service and other Air Force/Navy programs.

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

February 2003

BUDGET ACTIVITY
6 - Management support

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

PROJECT
F30

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Mission Support. Funding provides for institutional resources to operate developmental test ranges at White Sands Missile Range (WSMR), New Mexico (including the Electronic Proving Ground (EPG), Fort Huachuca, Arizona), Aberdeen Test Center (ATC), Aberdeen Proving Ground, Maryland, Yuma Proving Ground (YPG), Arizona (to include Cold Regions Test Center, Fort Greely and Fort Wainwright, Alaska, and Tropic Test Site at Schofield Barracks, Hawaii), Aviation Technical Test Center, Fort Rucker, Alabama and Redstone Technical Test Center, Redstone Arsenal, Alabama. Funded items include: TDY/training of civilian and contractor personnel; test equipment maintenance; test facility maintenance; administrative supplies; safety shoes; tools; software; spare parts; test support vehicle maintenance; host support; utilities; communications; and GSA vehicles. Unclassified systems scheduled for developmental testing that require DTC's test capabilities include: Stryker; Patriot; Future Combat Systems; Lead the Fleet; High Mobility Multi Purpose Wheeled Vehicle; Family of Medium Tactical Vehicles; USMC Light Armored Vehicle; UH-60 Blackhawk; Airborne Command and Control System; Longbow Apache; TOW Missile; Theater Missile Defense; Force XXI Battle Command Brigade and Below; Support of Objective Force S&T-Army Warfighting Experiments and Advanced Concept Technology Demonstrations; Joint Service and other Air Force/Navy programs.	19577	23154	28544	29303
T&E Civilian Pay. Funding supports 40 percent of the civilian labor costs for Program Budget Guidance (PBG) authorizations. The balance is test customer reimbursed. The increased funding, beginning in FY 2004, reflects the restoration of PBG authorizations based on the exemption of the test and evaluation (T&E) functions from private sector performance due to the risk to national security. These authorizations are essential to restore/maintain core T&E skills as part of the Government civilian workforce. The funding increase also reflects additional PBG authorizations associated with the transfer of positions from the Operation and Maintenance, Army (OMA) appropriation. These positions, initially identified for transition to the Installation Management Activity (IMA) under Transformation of Installation Management (TIM), have been realigned to this project based on direct support of the T&E mission.	65369	66457	85550	89248
Contractor Pay. This funding supports 20 percent of the contractor labor costs. The balance is test customer reimbursed. 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. Increased funding in FY 2004 and FY 2005 will support a robust workforce able to meet testing needs of the Army Transformation Systems.	30527	32916	43590	43408

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

February 2003

BUDGET ACTIVITY
6 - Management support

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

PROJECT
F30

<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
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, increase hangar power and replace hangar door, expand High Performance Computer (HPC) distributed test networking, overhead crane and roll up door installations, cascade refrigeration and control system equipment, remote/robotic depleted uranium (DU) detection and locating system, fiber optic cable for test ranges, and power upgrade for communications facilities. Increased funding, beginning in FY 2004, is essential to ensure a safe test operating environment. Up to this point revitalization and upgrade of test unique facilities have been unfunded since FY 1996, with a one year exception when OSD provided funding in FY 2000.	0	0	10000	10155
Cold Regions Test Activity (CRTC) Congressional add. Funds designated for CRTC infrastructure, hybrid electric vehicle and non-discarding sabot technology testing at CRTC only.	0	8200	0	0
Totals	115473	130727	167684	172114

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605601A - ARMY TEST RANGES AND FACILITIES	PROJECT F38						
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
F38 BIG CROW SUPPORT	0	0	6919	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.

Accomplishments/Planned Program	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Provide technical contract support, reimbursement for utilities and rents, systems improvements and modernization and flying hour cost and aircrew maintenance/qualifications.	0	0	6919	0
Totals	0	0	6919	0

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605602A - Army Technical Test Instrumentation and Targets							
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	35560	41052	54986	60018	62256	78701	80554	82387
628 TEST TECH & SUST INSTR	35560	33156	44989	49549	50369	54141	55412	56686
62B OPERATIONAL TESTING INSTRUMENTATION DEVELOPMENT	0	6418	7537	8221	9259	12554	12858	13151
62C MODELING AND SIMULATION INSTRUMENTATION	0	1478	2460	2248	2628	12006	12284	12550

A. Mission Description and Budget Item Justification: Increased funding beginning in FY04 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 (R-2 Exhibit)

February 2003

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 starting in FY03 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; Air Defense Artillery Test Directorate Fort Bliss; Fire Support Test Directorate, Fort Sill; Intelligence Electronic Warfare Test Directorate, Fort Huachuca; and Test and Evaluation Support Agency, Fort Hood. The development and sustainment of ATEC's Simulation Operations Rehearsal Model (STORM) is also included. Systems that will benefit from this effort are Army Tactical Command and Control System (ATCCS), Battlefield Functional Area (BFA), Advanced Field Artillery Tactical Data System Service Support Control System (AFATDS), Maneuver Control System (MCS), Forward Area Air Defense Command Control and Intelligence (FAADC2I), All Source Analysis System (ASAS), and Combat Service Support Control System (CSSCS).

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	34719	43222	55430	60917
Current Budget (FY 2004/2005 PB)	35560	41052	54986	60018
Total Adjustments	841	-2170	-444	-899
Congressional program reductions				
Congressional rescissions		-847		
Congressional increases				
Reprogrammings	1736	-235		
SBIR/STTR Transfer	-895	-1088		
Adjustments to Budget Years			-444	-899

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605602A - Army Technical Test Instrumentation and Targets	PROJECT 628						
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
628 TEST TECH & SUST INSTR	35560	33156	44989	49549	50369	54141	55412	56686

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 (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 are required to support the development and fielding cycle of the Army Transformation 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 infrastructure.

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 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.

This program supports the Legacy to Objective path of the Transformation Campaign Plan.

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

February 2003

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 environments, hardware in the loop capabilities and models and simulations to successfully develop and test the Army Transformation and the Objective 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. 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. Continue development and integration of fire control, ground system platforms and other simulations. Continue development of a standardization process to integrate software components for virtual testing. Continue developing and integrating common synthetic environments that include digitized terrain, signature, propagation models and climatic environments, virtual battlefield, and human effects into system-level models and simulations. Continue distributing of the synthetic environments via HLA Environment Federation. Continue development of a validated model to replicate a chemical/biological point detection system and characterization of simulants/agent properties. Continue DTC-wide development and integration of ground truth databases, information system, and synthetic environments into system level models and simulation. Continue development of a simulation model to accurately measure shock and vibration characteristics of ammunition stored on-board howitzers and acquire visualization tools to collect to support range safety.

FY 2002	FY 2003	FY 2004	FY 2005
11765	11800	17650	18364

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

February 2003

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT			
6 - Management support	0605602A - Army Technical Test Instrumentation and Targets	628			
<u>Accomplishments/Planned Program (continued)</u>		FY 2002	FY 2003	FY 2004	FY 2005
<p>Development, Acquisition and Sustainment of Critical Test Instrumentation: provide and maintain the necessary test instrumentation, computer and communications systems and other test facilities to successfully develop and test the Army Transformation and the Objective Force. This program will also complete fiber optic links and digital end devices supporting small missile testing. 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 nuclear effects, directed energy tests, 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, telemetry and data processing equipment used in large missile testing. Acquire aircraft data recorders, signal conditioning equipment and data processing equipment.</p>		18139	15830	21083	24731
<p>Prototype Instrumentation and Advanced Concepts. Provide quick reaction capability to respond to emergency requirements. Provide support for technical committees forging future instrumentation technology developments. Continue to develop Test Operation Procedures (TOPs) and International TOPs (ITOPs) to ensure quality and consistency of test results throughout Army and for international cooperative applications.</p>		520	580	1090	1140
<p>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).</p>		5136	4946	5166	5314

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605602A - Army Technical Test Instrumentation and Targets	PROJECT 628
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<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Totals	35560	33156	44989	49549

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605602A - Army Technical Test Instrumentation and Targets	PROJECT 62B						
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
62B OPERATIONAL TESTING INSTRUMENTATION DEVELOPMENT	0	6418	7537	8221	9259	12554	12858	13151

A. Mission Description and Budget Item Justification: Provides for the instrumentation development, technical upgrade and maintainability of essential instrumentation to achieve a cost effective method of 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. Increased sophistication of Army's new weapons as well as communication and control systems demands new instrumentation's ability to capture test data high in volume at a faster rate. The collected information is then reduced rapidly to only those essential elements to effectively evaluate the system under test. As Army's Transformation and Digitization of the battlefield continues, this effort allows ATEC to modernize and develop its non-major instrumentation to be less intrusive, more reliable and more robust in terms of integrating combat simulation capability into operational tests. The goal is to expand measurement and test control capability while still reducing future 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. ATEC's Operational Test Command (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 Legacy to Objective transition path of the Transformation Campaign Plan.

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Planned projects include Multi-Media Data Transfer System Enhancements, High Speed Telemetry System, Global Positioning System Modernization, Automated Intelligence/Electronic Warfare Test System (AI/EWTS Multiple Emitter Capability), Video Telemetry Recording System, Digital Terrain Database and Toolkit, Airborne Position Location System, and Image Documentation System.	0	6418	7537	8221
Totals	0	6418	7537	8221

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605602A - Army Technical Test Instrumentation and Targets					PROJECT 62C			
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	
62C MODELING AND SIMULATION INSTRUMENTATION	0	1478	2460	2248	2628	12006	12284	12550	

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). Funding for this project was originally programmed within the Operational Testing Instrumentation (0605712A/987) line, these funds were realigned to this new project in order to provide greater visibility to modeling and simulation efforts. These programs support the Legacy to Objective transition path of the Transformation Campaign Plan.

Accomplishments/Planned Program	FY 2002	FY 2003	FY 2004	FY 2005
Funds development and sustainment of high priority modeling and simulation instrumentation systems, such as the Simulation Testing Operations Rehearsal Model (STORM) and OASIS.	0	1478	2460	2248
Totals	0	1478	2460	2248

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605604A - Survivability/Lethality Analysis

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	35060	35236	39138	41647	35452	42316	43007	44048
670 EMERGING TECH SYSTEMS	7239	0	0	0	0	0	0	0
671 AIR DEF/MSL DEF SYSTEM	5267	0	0	0	0	0	0	0
672 AVIATION SYSTEMS	2948	0	0	0	0	0	0	0
675 ARMY SURVIVABILITY ANALYSIS & EVALUATION SUPPORT	9476	35236	39138	41647	35452	42316	43007	44048
677 GROUND COMBAT SYSTEMS	4637	0	0	0	0	0	0	0
678 MUNITIONS SYSTEMS	5013	0	0	0	0	0	0	0
679 SOLDIER SYSTEMS	480	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification: Army increased funding in FY 2004 to support 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 Interim and Objective 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 for Force XXI. 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 independent evaluators 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.

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605604A - Survivability/Lethality Analysis

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

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	34514	39200	42174	45324
Current Budget (FY 2004/2005 PB)	35060	35236	39138	41647
Total Adjustments	546	-3964	-3036	-3677
Congressional program reductions				
Congressional rescissions		-2849		
Congressional increases				
Reprogrammings	983	-202		
SBIR/STTR Transfer	-437	-913		
Adjustments to Budget Years			-3036	-3677

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605604A - Survivability/Lethality Analysis						PROJECT 675	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
675 ARMY SURVIVABILITY ANALYSIS & EVALUATION SUPPORT	9476	35236	39138	41647	35452	42316	43007	44048

A. Mission Description and Budget Item Justification: Beginning in FY 2003 funding was transferred into this project from other projects internal to this PE in order to more efficiently fund holistic survivability analysis needed for the Army's Transformation Campaign Plan. 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 Interim and Objective 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 Interim and Objective 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 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605604A - Survivability/Lethality Analysis

PROJECT
675

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Developed preliminary set of analytical tools, techniques and methodologies to over come shortcomings of current Information Operations Vulnerability Survivability Assessments (IOVSA). Developed initial format and logic content for the decision-making processes for each of the following: C2 node, DF weapons node, sensor node, and red tank node. Additionally, defined, developed, and tested a set of vulnerability metrics that measure vulnerabilities and susceptibilities for given C2 strategies and scenarios.	4000	0	0	0
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, and SINCGARS ASIP, EPLR-VHSIC, MIDS, and TACLANE	1498	0	0	0
Conducted integrated electronic and ballistic effects survivability analysis for U.S. Army IEW systems: ICIDS, Profiler, Prophet and GPS. Conducted information operations vulnerability analysis on these systems.	579	0	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 components of the BCT, FDD, FDC 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).	946	0	0	0
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.	2453	0	0	0
Conduct integrated survivability, lethality, and vulnerability analyses on Army Transformation systems. Continue to support Stryker Live Fire Test and Evaluation (LFT&E) for the second set of variants/configurations (perform damage assessments, post-shot analyses and input to Independent Evaluation). Complete non-ballistic survivability/lethality analysis for the second group of Stryker variants/configurations. Initiate LFT&E support for the third group of Stryker variants/configurations (perform shot predictions, damage assessments, post-shot analyses and input to Independent Evaluation). Initiate survivability analyses for the third group of Stryker variants/configurations. Initiate analysis of the Pre-Planned Product Improvements (P3I) of the Stryker.	0	5404	5195	4216

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605604A - Survivability/Lethality Analysis

PROJECT
675

<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
<p>Conduct integrated survivability, lethality, and vulnerability analyses for Army Future Combat System (FCS) and Objective Force systems. Initiate modeling, analysis and simulation efforts supporting the second phase of FCS program, to include Active Protection Systems (APS), FCS Lethality, FCS Counter APS, FCS Materials Analysis, and ballistic projection of FCS new armors. Further support FCS program by providing documentation and briefings on survivability of concepts in support of the milestone B Defense Acquisition Board process. Continue Comanche Army qualification tests.</p>	0	7754	9104	10774
<p>Conduct integrated survivability, lethality, and vulnerability analyses for Army Modernization/Recapitalization systems. Complete Abrams SEP Configuration laser susceptibility assessments. Complete CH-47F LFT&E survivability evaluation. Prepare multi-threat survivability analysis data for CH-47F milestone C decision. Provide Blackhawk and Apache LFT&E support. Conduct electronic warfare vulnerability assessments for developmental U.S. Army munition systems such as Unitary ATACMS, Precision-Guided Mortar Munition, Advanced Precision Kill Weapon System (Hydra 70 Rocket), XM 982 Excalibur, Guided Multiple Launch Rocket System, NetFires, Longbow Hellfire P3I, Modernized HELLFIRE/Common Missile, Advanced Hornet and MRM. Conduct ballistic survivability/lethality analysis for U.S. Army munitions systems to include Excalibur, MRM, LOSAT, Guided MLRS, Modernized HELLFIRE/Common Missile, XM1031 and Medium Caliber. Conduct obscurant and atmospheric effects survivability analysis for U.S. Army munitions systems. Support LFT&E of LOSAT, XM 1031 and Medium Caliber.</p>	0	6707	7040	7347

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

February 2003

BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
6 - Management support	0605604A - Survivability/Lethality Analysis		675	
<u>Accomplishments/Planned Program (continued)</u>	FY 2002	FY 2003	FY 2004	FY 2005
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 FDC and STRYKER 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, EPLR-VHSIC. Includes update of information warfare vulnerability database, and vulnerability analyses of Tactical Internet components to radio frequency directed energy weapons (RFDEW).	0	10123	11642	12012
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 Ground-based Missile Defense (GMD), Theater High Altitude Air Defense (THAAD), Patriot, Medium Extended Air Defense System (MEADS) and SHORAD. 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) (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	5248	6157	7298
Totals	9476	35236	39138	41647

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605605A - DOD High Energy Laser Test Facility					PROJECT E97			
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	
E97 DOD HELSTF	22445	16679	17806	17999	18170	18599	19033	19472	

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 may be part of the Extended Area Air Defense (EAAD) system, a key component of the Objective Force supporting Full Dimensional Protection. Candidate HEL programs include Mobile Tactical High Energy Laser (MTHEL) and Solid State Heat Capacity Laser (SSHCL). HELSTF is the HEL T&E facility within 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 the only 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 expertise that can support testing at HELSTF. HELSTF facilities include the Sea Lite Beam Director (SLBD), the Mid-Infrared Advanced Chemical Laser (MIRACL), the Laser Demonstration Device (LDD), the 10KW SSHCL testbed the THEL static test site, and the Low Power Chemical Laser (LPCL). HELSTF supports the Pulsed Laser Vulnerability Test 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. HELSTF has embarked on its own transformation to 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 Objective Force in all relevant combat environments. HELSTF 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. HELSTF plans further include a high power 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 of other Service solutions using HEL technologies. This PE provides support for all transition paths of the Transformation Campaign Plan.

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

February 2003

BUDGET ACTIVITY
6 - Management support

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

PROJECT
E97

Accomplishments/Planned Program

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 (THEL, Mobile-THEL, SOCOM Advanced Tactical Laser (ATL), Air Force Airborne Laser, 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. Repair SLBD to support Navy HEL-LATT testing. Initiate pressure vessel certification and communications upgrades. Conduct a variety of tracking tests with SLBD to support SMDC, USAF and MDA (formerly BMDO)missions.

FY 2002	FY 2003	FY 2004	FY 2005
18294	16679	17806	17999
4151	0	0	0
22445	16679	17806	17999

Continued Solid State Laser (SSL) Program.

Totals

B. Program Change Summary

	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	23188	14410	17173	17622
Current Budget (FY 2004/2005 PB)	22445	16679	17806	17999
Total Adjustments	-743	2269	633	377
Congressional program reductions				
Congressional rescissions		-340		
Congressional increases		3150		
Reprogrammings	-129	-96		
SBIR/STTR Transfer	-614	-445		
Adjustments to Budget Years			633	377

FY2003: Congressional increases for Sealite Camera Upgrade (\$1050) and Infrastructure upgrades (\$2100) to HELSTF.

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605606A - AIRCRAFT CERTIFICATION						PROJECT 092	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
092 AIRCRAFT CERTIFICATION	3524	3618	3098	3132	3106	13861	20026	20811

A. Mission Description and Budget Item Justification: This program performs all engineering functions essential for certifying the airworthiness of assigned Army aircraft. Performs safety-of-flight investigations/assessments and issues engineering and airworthiness messages directly to field pilots. 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) 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. This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Manage/execute technical and AW qualification mission for PEO Aviation/force modernization aircraft systems.	1149	915	749	683
Continue to ensure SOF investigations/assessments to include PEO Aviation/force modernization of aircraft systems.	1131	1351	1124	1140
Manage/execute the Army Aeronautical Design Standards Program.	142	191	188	188
Provide continuing engineering support for technology upgrades to PEO Aviation/force modernization aircraft systems.	852	890	792	863
Continue to provide test management capability for PEO Aviation Program/Project/Product Managers.	250	271	245	258
Totals	3524	3618	3098	3132

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605606A - AIRCRAFT CERTIFICATION

PROJECT
092

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	3552	4062	3906	4030
Current Budget (FY 2004/2005 PB)	3524	3618	3098	3132
Total Adjustments	-28	-444	-808	-898
Congressional program reductions				
Congressional rescissions		-401		
Congressional increases				
Reprogrammings	-3	-21		
SBIR/STTR Transfer	-25	-22		
Adjustments to Budget Years			-808	-898

Change Summary Explanation: Funding - FY 2004/FY 2005: Funds realigned to higher priority Army programs.

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605702A - Meteorological Support to RDT&E Activities					PROJECT 128			
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	
128 MET SPT TO DTC ACTIVITY	6727	6795	9669	9771	9069	9328	9517	9742	

A. Mission Description and Budget Item Justification: Increase in funding from FY2003 to FY2004 provides for the increased development and fielding of the Four-Dimensional Weather System which is critical to provide advanced weather forecasting and atmospheric measurement capabilities to support operational and developmental testing. The increase also provides civilian intern positions for meteorological support.

All functions and resources in this Program Element (PE) are managed by the U.S. Army Developmental Test Command (DTC), a subordinate command of the U.S. Army Test and Evaluation Command (ATEC). Meteorological Support (MET Spt) to Research, Development, Testing and Evaluation (RDT&E) Activities provides standard and specialized weather forecasts and data for test reports to satisfy Army/DoD RDT&E test requirements for modern weaponry, e.g., (1) unique atmospheric analysis and sampling to include atmospheric transmittance, extinction, optical scintillation, infrared temperature, aerosol/smoke cloud dispersion characteristics, ballistic meteorological measurements, snow characterization and crystal structure; (2) test event forecasting to include prediction of sound propagation for ballistic firing tests, specialized prediction of light levels and target to background measurements and predictions for electro-optical testing and ballistic 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 (including the 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 Campaign Plan (TCP). It supports all transformation elements of the Army TCP.

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605702A - Meteorological Support to RDT&E Activities	PROJECT 128
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<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Provides indirect costs (personnel salaries) for generating weather forecasts, severe weather warnings/ 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 in FYs 2004 and 2005 to halt the rapid personnel attrition and subsequent loss of institutional knowledge. Note: Senior Army leadership supported increased funding in this account in FY 2004 and FY 2005 for these critical intern positions.	1927	1609	2247	2570
Provides funding for development and fielding of the Four-Dimensional Weather (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. 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. Funding also provides for development and upgrade of range/site meteorological instrumentation and equipment including digital sensors and data analysis equipment; lightning sensor arrays for predicting lightning strikes; Surface Atmospheric Measurement System (SAMS) mobile meteorological system upgrades; replacement meteorological towers and sensors; replacement Doppler acoustic sounders for vertical wind profile measurements; laser ceilometers for measuring cloud layers; wind profiling Light Detection and Ranging (LIDAR) system for vertical wind measurements and absolute transmissometers to measure atmospheric transmissivity in support testing electro-optical devices. Note: Senior Army leadership supported increased funding in this account in FY 2004 and FY 2005. This increase in funding is required to provide advanced weather forecasting and atmospheric measurement capabilities needed to test the modern weapons, sensors and advanced electro-optical devices on TCP materiel.	4063	4736	6954	6713
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 4DWX System and development of synthetic atmospheres to support virtual testing.	737	450	468	488

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605702A - Meteorological Support to RDT&E Activities	PROJECT 128
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<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Totals	6727	6795	9669	9771

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	6833	7310	10069	10277
Current Budget (FY 2004/2005 PB)	6727	6795	9669	9771
Total Adjustments	-106	-515	-400	-506
Congressional program reductions				
Congressional rescissions		-348		
Congressional increases				
Reprogrammings	29	-39		
SBIR/STTR Transfer	-135	-128		
Adjustments to Budget Years			-400	-506

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605706A - MATERIEL SYSTEMS ANALYSIS	PROJECT 541						
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
541 MATERIEL SYS ANALYSIS	10695	8982	15832	16209	16573	16766	17112	17518

A. Mission Description and Budget Item Justification: The increase in funding from FY2003 to FY2004 provides funding reprogrammed from PE 0605803A to pay civilian authorizations.

This program element funds Department of the Army civilians at the Army Materiel Systems Analysis Activity (AMSAA) to conduct its mission of materiel systems analysis.

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

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

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

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

February 2003

BUDGET ACTIVITY

6 - Management support

PE NUMBER AND TITLE

0605706A - MATERIEL SYSTEMS ANALYSIS

PROJECT

541

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

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605706A - MATERIEL SYSTEMS ANALYSIS	PROJECT 541
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<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Funding directly pays HQDA civilians at U.S. Army Materiel Systems Analysis Activity (AMSAA) who are responsible for developing & certifying system performance & effectiveness data (e.g., delivery accuracy, target acquisition, probability of inflicting catastrophic damage, etc.) for U.S. & foreign systems to be used during Army & Joint Analyses of Alternatives (AoAs), force structure studies, & theater level studies. Analyses of performance & combat effectiveness of materiel systems & technology base programs are conducted in support of HQDA, AMC, PEOs/PMs, R&D Centers, TRADOC, & ATEC. Included in these analyses are conduct of & support to: AoAs, system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, requirements analyses, technology insertion studies, reliability growth studies, & physics of failure analyses. Examples of programs supported with critical analyses: Future Combat System (FCS), Comanche, Stryker, Objective Individual Combat Weapon (OICW), UAVs, Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS), Joint Tactical Radio System (JTRS), Digitization Brigade & Below (DB2), PATRIOT, Force XXI Battle Command Brigade and Below (FBCB2). AMSAA develops & modifies system level methodologies, models & 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 & target acquisition methodology improvements, sensor fusion modeling, expansion of mechanical & electronic physics of failure modeling, individual combat evaluation model, synthetic aperture radar methodology, vehicle performance methodology, active protection system performance, & non-lethal weapons performance & effectiveness estimation methodology. AMSAA also performs verification, validation, & accreditation of item/system level performance models which ensures new models & simulations faithfully represent actual systems.	10695	8982	15832	16209
Totals	10695	8982	15832	16209

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605706A - MATERIEL SYSTEMS ANALYSIS

PROJECT
541

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	8811	10189	10402	11160
Current Budget (FY 2004/2005 PB)	10695	8982	15832	16209
Total Adjustments	1884	-1207	5430	5049
Congressional program reductions				
Congressional rescissions		-1132		
Congressional increases				
Reprogrammings	1935	-52		
SBIR/STTR Transfer	-51	-23		
Adjustments to Budget Years			5430	5049

Change Summary Explanation: Funding - FY 2002: reprogramming to support civilian authorizations (+1979).
 FY 2004/2005 funding realigned from PE 0605803A to PE 0605706A to pay the salaries of DA civilians at AMSAA.

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

February 2003

BUDGET ACTIVITY
6 - Management support

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

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	3495	3490	3621	5559
Current Budget (FY 2004/2005 PB)	3381	3431	3579	5465
Total Adjustments	-114	-59	-42	-94
Congressional program reductions				
Congressional rescissions	-7	-39		
Congressional increases				
Reprogrammings	-10	-20		
SBIR/STTR Transfer	-97			
Adjustments to Budget Years			-42	-94

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605712A - Support of Operational Testing

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	85714	91566	67795	67757	68322	69946	70938	72659
001 ATEC IOTE	29289	28936	5398	5077	6039	6156	6205	6313
987 ATEC INSTRUMENTATION MODERNIZATION & DEVELOPMENT	7279	0	0	0	0	0	0	0
V02 ATEC ACTIVITIES	49146	62630	62397	62680	62283	63790	64733	66346

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 987 provided for development and acquisition of non-major and sustaining instrumentation necessary to attain and maintain the data collection and analysis capability to conduct credible and robust operational tests as demanded by the DoD and Congress. It provided for replacement and improvement of existing obsolete inventory and for the development of new technologies to keep abreast of new weapons advancements. In FY 2003, funding in Project 987 was realigned to 0605602A/62B and 0605602A/62C in order to provide greater visibility of the minor instrumentation for operational testing. Project V02 provides for the recurring costs of operating the test activities of the U.S. Army Operational Test Command and similar support across the Command.

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605712A - Support of Operational Testing

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	90790	99375	99709	102507
Current Budget (FY 2004/2005 PB)	85714	91566	67795	67757
Total Adjustments	-5076	-7809	-31914	-34750
Congressional program reductions				
Congressional rescissions		-5898		
Congressional increases				
Reprogrammings	-3529	-525		
SBIR/STTR Transfer	-1547	-1386		
Adjustments to Budget Years			-31914	-34750

Change Summary Explanation: Funding FY04/FY05 – (1) Funding was reprogrammed due to an Army decision for this requirement to be the responsibility of the acquisition community (PEOs, PMs, etc.) for all acquisition category OT&E, with the exception of Follow-on OT&E (FY04 -26011/FY05 -27569). (2) Funds realigned (FY04 -5903/FY05 -7181) to higher priority requirements.

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605712A - Support of Operational Testing						PROJECT 001	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
001 ATEC IOTE	29289	28936	5398	5077	6039	6156	6205	6313

A. Mission Description and Budget Item Justification: This project finances the direct costs of planning and conducting operational testing and evaluations on major and non-major materiel, Multi-Service systems (ACAT I-III), systems without an Army Program Manager and Joint Tests (JT). It funds those costs directly attributable to conducting Early User Tests and Evaluations (EUTE), Limited User Tests and Evaluations (LUTE), or Initial Operational Tests and Evaluations (IOTE). 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. ATEC's mission supports the Legacy to Objective transition path of the Transformation Campaign Program.

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Close Combat operational testing and evaluation.	100	578	0	0
Fire Support operational testing and evaluation.	3105	3737	0	0
Air Defense Artillery operational testing and evaluation.	1677	5454	0	0
Aviation operational testing and evaluation.	2462	1316	0	0
Intelligence and Electronic Warfare operational testing and evaluation.	5530	3482	0	0
Command, Control, Communications and Computer operational testing and evaluation.	0	1548	0	0
Joint Test operational testing and evaluation.	6095	2114	3292	3414
Engineer/combat support operational testing and evaluation.	7820	5781	0	0
Other-Special projects/OTE without Army PM	2500	2642	2106	1663
Advanced Concepts Transformation and Integration.	0	2284	0	0
Totals	29289	28936	5398	5077

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605712A - Support of Operational Testing						PROJECT V02	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
V02 ATEC ACTIVITIES	49146	62630	62397	62680	62283	63790	64733	66346

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 80% 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). Also, OTC is also heavily involved in the Army's Transformation vision and maintains a full time cadre at Fort Lewis, WA to support the Stryker Brigade Combat Team (SBCT). The requirements to support this liaison office are included in this project. Project V02 also provides support for the four Test and Evaluation Coordination Offices (TECOs) located at Forts Benning, Know, Lee, and Leonard Wood as well as for the recurring support costs of HQ ATEC.

Program increase starting in FY 2003 is due to transfer of personnel and dollars with mission from Operations and Maintenance, Army to Army RDTE.

This project supports the Legacy to Objective transition path of the Transformation Campaign Plan.

<u>Accomplishments/Planned Program</u>	FY 2002	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 297 civilian authorizations are supported in FY 2002 and 397 in FY 2003-2005.	29814	38693	38403	38622
Other operational costs include: civilian pay, support contracts, temporary duty, supplies and equipment for HQ ATEC and TECOs. A total of 70 civilian authorizations are supported in FY03 and 61 civilians in FY04 and FY05	19332	23937	23994	24058
Totals	49146	62630	62397	62680

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605716A - Army Evaluation Center						PROJECT 302	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
302 ARMY EVALUATION CENTER	29763	37923	57074	57404	57403	68343	70400	73671

A. Mission Description and Budget Item Justification: The increase in funding from FY2003 to FY2004 is not program growth. The increase will fund the requirement of civilian authorizations increasing from 195 in FY2003 to 324 in FY2004 for the Army Evaluation Center (AEC). This increase reflects the Army leadership's decision 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 starting in FY04. 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 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 the 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. 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 Legacy to Objective transition path of the Transformation Campaign Program.

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605716A - Army Evaluation Center	PROJECT 302
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<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Early involvement initiative 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 experiments.	0	0	4836	4993
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 effectiveness, suitability, and survivability factors pertinent to the decision process, such as STRYKER, Future Combat System (FCS), Comanche, Common Ground System (CGS), Dry Support Bridge (DSB), Tactical Unmanned Aerial Vehicle (TUAV), Maneuver Control System (MCS), Global Broadcast System (GBS), Blackhawk Helicopter (UH-60M), Combat Survivor Evader Locator (CSEL), Anti-Personnel Landmine Alternative (APLA), NSD-A, Countermine Capability Set (CMCS) Group B-2, Family of Medium Tactical Vehicles (FMTV), Hercules, High Mobility Multipurpose Wheeled Vehicle (HMMWV A4), HMMWV Mounted Advanced Medium Range Air to Air Missile system (HUMRAAM), and Aviation Combined Arms Tactical Trainer (AVCATT-A). 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.	29763	37923	52238	52411
Totals	29763	37923	57074	57404

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605716A - Army Evaluation Center

PROJECT
302

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	44611	43950	49052	50119
Current Budget (FY 2004/2005 PB)	29763	37923	57074	57404
Total Adjustments	-14848	-6027	8022	7285
Congressional program reductions				
Congressional rescissions		-2551		
Congressional increases				
Reprogrammings	-13987	-2918		
SBIR/STTR Transfer	-861	-558		
Adjustments to Budget Years			8022	7285

Change Summary Explanation: Funding - FY 2002: Funding decreased due to the cancellation of the STARSTREAK effort that was appropriated in the FY03 President's Budget (-13600).

FY 2004 (+8022) and FY 2005 (+7285) increases are for civilian authorizations to support the independent "cradle to grave" process that develops the evaluation strategy, test designs, and evaluates results to address effectiveness, suitability and survivability of a system. Funding also supports the Early Involvement Initiative, interoperability, and Electromagnetic Environmental Effects (E3). The funding increase will support sufficient ORD reviews to reduce the need for unprogrammed funding to retrofit fielded equipment.

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)						PROJECT S01	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	0	2654	2731	2815	2902	3005	3029

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). Joint Precision Strike Demonstration's (JPSD) 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 Integration and Evaluation Center (IEC) provides the environment that enables the development of SMART tools. This architecture, operational tools and software applications are essential to support ongoing Advanced Concepts Technology Demonstrations (ACTDs) and Joint exercises/experiments. The IEC provides critical support in: (1) developing, testing and evaluating Joint 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 Battle space (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 Objective transition path of the Transformation Campaign Plan (TCP).

FY 2004 funds will be utilized for continuous IEC capability improvement to enable Army/Joint/coalition modeling and simulation synthetic operational environment.

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)	PROJECT S01
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<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
IEC Sustainment - FY 2002 Funding was provided in PE 0603238A, Global Surveillance/Air Defense, Precision Strike, project 177. 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 (TPSO; JISR; and JCSE), and two SMART/SBA acquisition programs (Future Combat System (FCS) and Aerial Common Sensor (ACS)). Support planned transition of Theatre Precision Strike Operations (TPSO) ACTD in training and simulation support for exercises. Provide stimulus in support of training for the Joint Intelligence Surveillance and Reconnaissance (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	0	2654	2731
Totals	0	0	2654	2731

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	0	2694	2685	2778
Current Budget (FY 2004/2005 PB)	0	0	2654	2731
Total Adjustments	0	-2694	-31	-47
Congressional program reductions				
Congressional rescissions				
Congressional increases				
Reprogrammings				
SBIR/STTR Transfer				
Adjustments to Budget Years		-2694	-31	-47

Change Summary Explanation - Funding - FY 2003 - program was not appropriated.

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605801A - Programwide Activities

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	58366	57831	71555	68870	69689	98129	99400	101550
F06 OBJECTIVE FORCE TASK FORCE	0	7683	9829	9752	9711	9676	10021	10099
M02 MED CMD SPT (NON-AMHA)	7501	10038	11688	11886	12423	38341	39098	40024
M15 ARI MGMT/ADM ACT	1979	1798	2178	2330	2338	2423	2454	2514
M16 STANDARDIZATION GROUPS	3392	2934	4088	4135	4239	4328	4385	4470
M42 ARDEC CMD/CTR SUPPORT	5887	5780	5923	5957	5732	6233	5948	6102
M44 CECOM CMD/CTR SPT	3824	3087	3516	3361	3991	4163	4217	4321
M45 ARL CMD/CTR SUPPORT	4894	2823	0	0	0	0	0	0
M46 AMCOM CMD/CTR SPT	5135	5415	6028	6123	5922	6082	6136	6294
M47 TACOM CMD/CTR SPT	3144	3078	2879	2792	2729	2803	2825	2897
M53 DEVELOPMENTAL TEST COMMAND/CTR SPT	9360	8738	11738	11848	11718	12038	12216	12518
M55 EDGEWOOD CHEMICAL BIOLOGICAL CENTER (ECBC)	2964	3716	3863	3920	3835	3941	3969	4069
M58 SSCOM CMD/CTR SPT	1833	1696	1608	1588	2104	2141	2161	2214
M75 FED WORKFORCE RESTRUCT	7349	154	6862	3801	3543	3361	3315	3322
M76 ARMAMENT GROUP SUPPORT	1104	891	1355	1377	1404	2599	2655	2706

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. Projects reflect a glide path in response to Army infrastructure drawdown initiatives. 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 (R-2 Exhibit)

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605801A - Programwide Activities

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	59584	73058	99150	91010
Current Budget (FY 2004/2005 PB)	58366	57831	71555	68870
Total Adjustments	-1218	-15227	-27595	-22140
Congressional program reductions		-13500		
Congressional rescissions	-552			
Congressional increases		-970		
Reprogrammings	-189	-332		
SBIR/STTR Transfer	-477	-425		
Adjustments to Budget Years			-27595	-22140

Change Summary Explanation: Funding - FY 2003: Congressional reduction for program growth (-13500). FY 2004/2005: Funds were realigned to higher priority programs.

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities						PROJECT F06	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
F06 OBJECTIVE FORCE TASK FORCE	0	7683	9829	9752	9711	9676	10021	10099

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 Objective Force (OF). The OFTF facilitates the accelerated fielding of the Objective Force by integrating and synchronizing war fighting capabilities and technologies and by providing assessments associated with the Doctrine, Training, Leader Development, Organization, Materiel, Soldier, Installations, Infrastructure and Institutions (DTLOMS-I3) process that focus Army Senior Leadership decision-making. The OFTF develops and maintains the Objective Force Campaign Plan, establishing a common objective and purpose within the Army, while setting OF 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 OF, synchronize OF 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 OF capabilities this decade.

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

February 2003

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 Objective Force, including Requirements, Training, Fielding, Sustainment, Architecture Integration, Systems, Strategic Integration, and Communications. OETF staff and contractors provide integration, coordination, assessments and management support, including technical approaches and trade-off analyses.

OETF 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 & DoD strategies.

FY 2002	FY 2003	FY 2004	FY 2005
0	7683	9829	9752
0	7683	9829	9752

Totals

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities						PROJECT M02	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M02 MED CMD SPT (NON-AMHA)	7501	10038	11688	11886	12423	38341	39098	40024

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.

<u>Accomplishments/Planned Program</u>	FY 2002	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 technology superiority.	7501	10038	11688	11886
Totals	7501	10038	11688	11886

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities						PROJECT M15		
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	
M15 ARI MGMT/ADM ACT	1979	1798	2178	2330	2338	2423	2454	2514	

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ARI.	1979	1798	2178	2330
Totals	1979	1798	2178	2330

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities						PROJECT M16	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M16 STANDARDIZATION GROUPS	3392	2934	4088	4135	4239	4328	4385	4470

A. Mission Description and Budget Item Justification: Project M16 supports six Standardization Groups (Australia, United Kingdom, Canada, France, Germany and the Far East) for personnel, travel and overhead costs, leases on buildings, and mandatory permanent change of station. The mission of the Standardization Groups is to represent the Army and serve as in-country/region focal point for all international armaments cooperation in their Areas (countries) of Responsibility to government agencies and defense industries. This includes identification of research, development, interoperability, standardization, (Multinational Force Compatibility) opportunities, and foreign non-developmental items (NDI) that support the Army Transformation by saving Army millions of dollars in development costs.

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Continue operation of six Standardization Groups in support of international research, development, interoperability, standardization, opportunities, and foreign NDI.	3392	2934	4088	4135
Totals	3392	2934	4088	4135

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities						PROJECT M42	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M42 ARDEC CMD/CTR SUPPORT	5887	5780	5923	5957	5732	6233	5948	6102

A. Mission Description and Budget Item Justification: Supports the non-AMHA management and administrative functions at the U.S. Army Armament Research, Development and Engineering Center (ARDEC), Picatinny Arsenal, NJ.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ARDEC.	5887	5780	5923	5957
Totals	5887	5780	5923	5957

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities						PROJECT M44		
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	
M44 CECOM CMD/CTR SPT	3824	3087	3516	3361	3991	4163	4217	4321	

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at CECOM.	3824	3087	3516	3361
Totals	3824	3087	3516	3361

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities						PROJECT M46	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M46 AMCOM CMD/CTR SPT	5135	5415	6028	6123	5922	6082	6136	6294

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at AMCOM.	5135	5415	6028	6123
Totals	5135	5415	6028	6123

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605801A - Programwide Activities

PROJECT
M47

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M47 TACOM CMD/CTR SPT	3144	3078	2879	2792	2729	2803	2825	2897

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at TACOM.	3144	3078	2879	2792
Totals	3144	3078	2879	2792

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities						PROJECT M53	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M53 DEVELOPMENTAL TEST COMMAND/CTR SPT	9360	8738	11738	11848	11718	12038	12216	12518

A. Mission Description and Budget Item Justification: Project M53 funds civilian labor and support costs for the management 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, and ADPE/information/technology support for command-wide databases in support of the developmental test mission with oversight and management responsibility of four Major Range and Test Facility Bases and test centers: Aberdeen Test Center, Maryland; Dugway Proving Ground, Utah; Yuma Proving Ground, Arizona; and White Sands Missile Range, New Mexico (with responsibility for 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 oversees the annual execution of over 1800 tests, 7500 workyears, and a \$956M program.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Civilian labor and other support costs for DTC to manage and administer the assigned Army developmental test mission.	8016	8691	9236	9675
Contract costs, including labor, required to manage and administer the assigned Army developmental test mission including ADPE/information technology support for command-wide databases. FY03 program only funds 3% of total requirement.	1072	47	2278	2173
Materials, Supplies, and Equipment.	272	0	224	0
Totals	9360	8738	11738	11848

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities						PROJECT M55	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M55 EDGEWOOD CHEMICAL BIOLOGICAL CENTER (ECBC)	2964	3716	3863	3920	3835	3941	3969	4069

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at ECBC.	2964	3716	3863	3920
Totals	2964	3716	3863	3920

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities						PROJECT M58	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M58 SSCOM CMD/CTR SPT	1833	1696	1608	1588	2104	2141	2161	2214

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at SBCCOM.	1833	1696	1608	1588
Totals	1833	1696	1608	1588

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities						PROJECT M75		
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	
M75 FED WORKFORCE RESTRUCT	7349	154	6862	3801	3543	3361	3315	3322	

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 2002	FY 2003	FY 2004	FY 2005
Funds the transition costs associated with workforce reductions (VERA/VSIP) and required OPM taxes.	7349	154	6862	3801
Totals	7349	154	6862	3801

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605801A - Programwide Activities						PROJECT M76	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
M76 ARMAMENT GROUP SUPPORT	1104	891	1355	1377	1404	2599	2655	2706

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

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Fund domestic and international travel linked to scientific and technological exchanges having military application and mutual benefits to the United States and its Allies.	491	291	502	505
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.	613	600	853	872
Totals	1104	891	1355	1377

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605803A - Technical Information Activities

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	41695	45516	28520	28929	30155	31012	31984	32559
720 TECH INFO FUNC ACTV	2952	3633	2956	2968	3062	3105	3156	3208
727 TECH INFO ACTIVITIES	5414	5581	7107	7290	7816	8187	8407	8624
729 YOUTH SCIENCE ACTIV	2051	2076	2181	2207	2282	2356	2414	2468
730 PERS & TRNG ANALYS ACT	2167	2187	2345	2391	2502	2568	2623	2684
731 ARMY HIGH PERFORMANCE COMPUTING CENTERS (AHPCC)	17038	18940	7187	7284	7528	7687	7874	8054
733 ACQUISITION TECH ACT	7916	8944	3356	3347	3416	3427	3742	3667
735 NET ASSESSMENT DIRECTORATE	740	0	0	0	0	0	0	0
737 KNOWLEDGE MANAGEMENT FUSION	0	956	0	0	0	0	0	0
C16 FAST	2446	2476	2590	2611	2694	2745	2807	2871
C18 BAST	971	723	798	831	855	937	961	983

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 Objective Force. Use of accurate and timely technical information is essential to successfully meeting the milestones required on the path to the Objective 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. 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 work in this program element is consistent with the Army Science and Technology Master Plan (ASTMP). These projects are managed by the Army Research Laboratory, the Army Materiel Command, the Army Research Office, the Army Research Institute, the Army Corps of Engineers and the Information Management Office. Project 735, Net Assessment Directorate, transfers to the Office of the Secretary of Defense starting in FY 2003. The cited work is consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance.

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605803A - Technical Information Activities

The program element contains no duplication with any effort within the Military Departments. This program supports the Objective transition path of the Transformation Campaign Plan.
 No Defense Emergency Response Funds have been provided to this program.

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	38930	34040	35725	36380
Current Budget (FY 2004/2005 PB)	41695	45516	28520	28929
Total Adjustments	2765	11476	-7205	-7451
Congressional program reductions				
Congressional rescissions		-690		
Congressional increases		13700		
Reprogrammings	3813	-261		
SBIR/STTR Transfer	-1048	-1273		
Adjustments to Budget Years			-7205	-7451

Change Summary Explanation: Funding - FY 2004/2005: Funds realigned to higher priority requirements.
 Project 735 transferred to OSD in FY03.

FY03 Congressional Adds:

Knowledge Management Fusion, Project 737, (\$1000); Army High Performance Computing Research Center, Project 731, (\$12700)

Projects with no R-2A:

(\$961), Knowledge Management Fusion, Project 737. The objective of this one year Congressional Add is to support the technical management and operation of a Knowledge Fusion Center at the Army Research Laboratory and an adjunct Knowledge Management Center of Excellence at an Historically Black College or University (HBCU). No additional funding is required to complete this project.

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities						PROJECT 720	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
720 TECH INFO FUNC ACTV	2952	3633	2956	2968	3062	3105	3156	3208

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 Objective 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 U.S. Army Materiel Command (AMC) 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 the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance. The program element contains no duplication with any effort within the Military Departments. Work is performed by the Army Research Laboratory. This program supports the Objective Force transition path of the Transformation Campaign Plan. No Defense Emergency Response Funds have been provided to this project.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
- Provide Army funding support for Federal Laboratory Consortium as required by Public Law 104-113.	156	177	186	187
- Provide administrative and contractual support for the Army Science Board.	1131	1136	1176	1181
- Provide administrative support for the Army's SBIR and STTR programs.	694	673	704	710
- Provide funding for patent fees and patent legal expenses for AMC commands and laboratories.	625	474	644	643
- Provides funding for S&T Strategic Planning and Support.	149	961	24	24
- Provides funding for the Army Science Conference.	197	212	222	223
Totals	2952	3633	2956	2968

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities	PROJECT 727						
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
727 TECH INFO ACTIVITIES	5414	5581	7107	7290	7816	8187	8407	8624

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; Army Materiel Command (AMC); and Army Research Laboratory. 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 Objective Force. The cited work is consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance. The program element contains no duplication with any effort within the Military Departments. Work is performed by the Army Research Laboratory. This program supports the Objective Force transition path of the Transformation Campaign Plan. No Defense Emergency Response Funds have been provided to this project.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
- Administer S&T database computer engineering support contract.	1036	992	1041	1042
- Support Army S&T strategic planning, analysis, and prioritization.	3172	3426	4844	5029
- Support AMC database and Defense Reliance management.	1206	1163	1222	1219
Totals	5414	5581	7107	7290

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities						PROJECT 729	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
729 YOUTH SCIENCE ACTIV	2051	2076	2181	2207	2282	2356	2414	2468

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 the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance. The program element contains no duplication with any effort within the Military Departments. Work is performed by the Army Research Laboratory (ARL). This program supports the Objective transition path of the Transformation Campaign Plan. No Defense Emergency Response Funds have been provided to this project.

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
- Foster high school student interest nationally in science, mathematics, engineering and computer science by sponsoring JSHS, ISEF, IMO, and REAP	1423	1431	1504	1521
- Sponsor joint Army/Navy Washington Regional Area SEAP and increase Army Laboratory/RDEC sponsorship of students	202	220	236	245
- Conduct the 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.	194	191	198	197
- Conduct West Point cadet research internship program to enhance cadet training through field experience within Army research labs and centers.	232	234	243	244
Totals	2051	2076	2181	2207

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities						PROJECT 730	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
730 PERS & TRNG ANALYS ACT	2167	2187	2345	2391	2502	2568	2623	2684

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, leadership, 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 the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance. The program element contains no duplication with any effort within the Military Departments. This program supports the Objective Force transition path of the Transformation Campaign Plan. No Defense Emergency Response Funds have been provided to this project.

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605803A - Technical Information Activities

PROJECT
730

Accomplishments/Planned Program

- In FY02, this research-based studies and analysis program developed Training Strategy Templates to ease the development of unit training plans and resource planning; recommended techniques for reducing test compromise in web-based training; improved the efficacy of a screening tool to increase soldier retention; assessed effectiveness of innovative basic leader training program for newly commissioned officers; developed a web-based tool to facilitate the use of lessons learned from EXFOR Battalion Commanders as they transitioned to the digitized force; and collected interim data on the effectiveness of an intensive training process designed to reduce decay in linguistic skills and proficiency. Studies in FY03 include: determining the feasibility of applying Adaptive Thinking Training Methodology to distance learning; evaluating the effectiveness of alternative training technologies and instructional strategies for acquiring and sustaining aerial gunnery skills; examining the feasibility of reducing Advanced Individual Training (AIT) to less than 26 weeks; analyzing the trends in factors that influence attrition during Initial Entry Training (IET); conducting a comparative analysis of new aptitude area composites for MOS classification; refining a multi-skilled soldier concept; and evaluating different payment strategies for selective reenlistment bonuses.

- Content of the FY04 and 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. Total Army Personnel Command.

FY 2002	FY 2003	FY 2004	FY 2005
2167	2187	2345	2391
Totals	2167	2187	2345

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities						PROJECT 731	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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)	17038	18940	7187	7284	7528	7687	7874	8054

A. Mission Description and Budget Item Justification: The work in this project directly supports Objective Force requirements by providing high fidelity modeling, simulation, and analysis of materials, systems, and operational constructs to be employed within the Objective 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 the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance. The program element contains no duplication with any effort within the Military Departments. Work is performed by the Army Research Laboratory (ARL). This program supports the Objective Force transition path of the Transformation Campaign Plan. No Defense Emergency Response Funds have been provided to this project.

<u>Accomplishments/Planned Program</u>	FY 2002	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)	2421	2194	2471	2457
- Sustain the high performance computing environment and infrastructure in support of the Army High Performance Computing Research Center's (AHPCRC) research and education activities.	3102	1065	1355	1485
- Sustain the high performance computing environment and infrastructure in support of the US Army Research Laboratory's Major Shared Research Center (MSRC)	1015	2981	3361	3342
- Army High Performance Computing Research Center: In FY02, this Congressional Add sustained high performance computing environment and infrastructure in support of the AHPCRC's activities. In FY03, the objective of this Congressional Add is to continue to sustain Army high performance computing research and education activities. No additional funding is required to complete this project.	10500	12700	0	0
Totals	17038	18940	7187	7284

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities						PROJECT 733	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
733 ACQUISITION TECH ACT	7916	8944	3356	3347	3416	3427	3742	3667

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 such as Horizontal Technology Integration, and support to meet the dynamic Army acquisition technology requirements. In FY02 and FY03, this program supports 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 FY04 and beyond, these efforts are supported in PE 0605706A, Project 541. The cited work is consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance. The program element contains no duplication with any effort within the Military Departments. This program supports the Objective transition path of the Transformation Campaign Plan.
No Defense Emergency Response Funds have been provided to this project.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
- Analyze 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 supports efforts for the Future Combat System and Joint Tactical Radio System AoAs. Develop, modify, and maintain weapon system level methodologies, models, and simulations to be used in the conduct of systems analysis. A few examples of planned efforts include: modeling of military operations in urban terrain (MOU), several aviation modeling improvements, search and target acquisition methodology improvements, signature management, and physics of failure modeling improvements.	1276	6157	0	0

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605803A - Technical Information Activities

PROJECT
733

<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
- 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 Corp 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.	708	1829	2342	2335
- Provided force development and force management integration support to the Objective Force Task Force (OFTF), including concept development and analysis, budget analysis, organizational integrations, systems integration, and specialized staff support. Developed common operational architecture, standards, formats and protocols. Determined best technical approach and trade-off analysis, while providing system engineering and technical assistance to OFTF.	2433	0	0	0
- Addressed critical software engineering issues in Army Strategic Software Improvement Program/Software Engineering Institute	445	0	0	0
- Conduct analysis and evaluation of new information technologies, and concepts and applications in integrated management activities such as Horizontal Technology Integration, and support to meet the dynamic Army acquisition technology requirements.	3054	958	1014	1012
Totals	7916	8944	3356	3347

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605803A - Technical Information Activities						PROJECT C16	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
C16 FAST	2446	2476	2590	2611	2694	2745	2807	2871

A. Mission Description and Budget Item Justification: This program focuses Army Materiel Command (AMC) resources to rapidly identify and solve Army field technical problems which enables the improvement of readiness, safety, training, and cut operations and support (O&S) costs. The Commanding General, AMC, institutionalized AMC Field Assistance in Science and Technology (FAST) in 1988 to plan for and allocate all AMC FAST program funding for projects to support Combatant and Army commanders and to operate the director's office. FAST tours of duty provide significant professional growth opportunities for the Army's scientists and engineers. Science advisers are recruited from AMC research, development and engineering centers to serve Combatant Commands and major commands worldwide. The AMC-FAST activity is also supported by assigned Quick Reaction Coordinators (QRCs) within each AMC engineering center. All costs associated with science advisor assignments are funded by the AMC 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 AMC 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 Adviser Program. (Naval Fleet Forces Technology Integration Office). The cited work is consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance. The program element contains no duplication with any effort within the Military Departments. This program supports the Objective Force transition path of the Transformation Campaign Plan. No Defense Emergency Response Funds have been provided to this project.

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605803A - Technical Information Activities

PROJECT
C16

Accomplishments/Planned Program

- In FY 2002, provided continuous activity on 84 FAST projects. Defined, tested and recommended technological solutions to urgent materiel problems identified by Combatant Commanders and Army commanders worldwide; served as Army POC to Defense Advanced Research Projects Agency (DARPA) Babylon program, which supplied language translation devices in support of Enduring Freedom and Task Force Falcon (TFF), and deployed science advisors and technical subject matter experts in support of Task Force Eagle and TFF. In FY 2003-2005, 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 Technology Applications Conference.

FY 2002	FY 2003	FY 2004	FY 2005
2446	2476	2590	2611
2446	2476	2590	2611

Totals

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

February 2003

BUDGET ACTIVITY
6 - Management support

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

COST (In Thousands)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
	Actual	Estimate						
Total Program Element (PE) Cost	29443	30029	19855	19627	20032	22168	21621	21623
296 PYROTECHNIC RELIABILITY & SAFETY	867	862	894	911	918	931	957	979
297 MUN SURVIVABILITY & LOG	4101	3820	7949	7576	7770	7876	8060	8224
857 DOD EXPLOSIVES SAFETY STANDARDS	744	751	788	802	860	1674	1714	1730
858 ARMY EXPLOSIVES SAFETY MANAGEMENT PROGRAM	480	473	490	486	482	487	736	487
859 LIFE CYCLE PILOT PROCESS	12472	16064	2474	2494	2528	2550	2570	2585
862 FUZE TECHNOLOGY INTEGRATION	1928	1916	1981	1991	2057	2077	2099	2124
F21 NATO SMALL ARMS EVAL	472	466	481	475	486	491	503	515
F24 CONVENTION AMMO DEMIL	8379	5677	4798	4892	4931	6082	4982	4979

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 Legacy transition path of the Transformation Campaign Plan

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

February 2003

BUDGET ACTIVITY
6 - Management support

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

(TCP).

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	30437	16014	11447	11611
Current Budget (FY 2004/2005 PB)	29443	30029	19855	19627
Total Adjustments	-994	14015	8408	8016
Congressional program reductions				
Congressional rescissions		-480		
Congressional increases		15500		
Reprogrammings	-176	-173		
SBIR/STTR Transfer	-818	-832		
Adjustments to Budget Years			8408	8016

FY 03:

Congressional increases were provided for the following programs:
 \$6.3M Public Private Partnership.
 \$4.2M Life Cycle Pilot Process.
 \$1.4M Manufacturing RDE Center, Nanotechnologies.
 \$1.4M Micro Electrical Mechanical Systems Technology Applications.
 \$1.0M CVT Detection for Automated Munitions Inspection and Surveillance.
 \$1.2M Plasma Ordnance Demilitarization Systems (PODS).

FY04:

\$0.9M realigned to project D296 to continue the program beyond FY 2003.
 \$3.1M realigned to project D297- Munitions Survivability & Logistics.
 \$2.5M realigned to project M859-Life Cycle Pilot Process to continue program beyond FY 2003.
 \$1.9M realigned to project D862-Fuze Technology Integration to continue program beyond FY 2003.

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

February 2003

BUDGET ACTIVITY
6 - Management support

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

FY05:
\$0.9M realigned to project D296 to continue the program beyond FY 2003.
\$2.7M realigned to project D297- Munitions Survivability & Logistics.
\$2.4M realigned to project M859-Life Cycle Pilot Process to continue program beyond FY 2003.
\$2.0M realigned to project D862-Fuze Technology Integration to continue program beyond FY 2003.

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605805A - Munitions Standardization, Effectiveness and Safet						PROJECT 297	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
297 MUN SURVIVABILITY & LOG	4101	3820	7949	7576	7770	7876	8060	8224

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 technology integration and compliance, weapon system rearm, munitions configured load enablers and advanced packaging and distribution system enhancements. Within each thrust, a broad array of solutions will be identified, tested, and evaluated against developed system measures of effectiveness. Optimum, cost effective solutions that enable the rapid projection of lethal and survivable forces will be demonstrated. The early stages of force deployment are especially critical. Theater ammunition storage areas are vulnerable and present the enemy with lucrative targets. These areas and distribution nodes contain the only available munitions stocks in theater. Loss of these munitions could cripple the force, jeopardize the mission, and result in high loss of life. This project mitigates vulnerabilities and ensures a survivable fighting force.

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Develop less sensitive propellants for M915 and XM916 DPICM projectiles to reduce adverse reaction to unplanned stimuli such as fires, bullet and fire impact, etc. FY02- Refined and manufactured alternative less sensitive propellants, conducted Insensitive Munitions (IM) tests, and completed comparative analysis.	64	0	0	0
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. FY02-Identified candidate IM barrier materials for a Line Of Sight Anti-Tank Missile ballistic blanket, conducted bullet/fragment impact tests, completed evaluation, and transitioned. FY03-Conduct market survey and evaluate advanced materials for ballistic barriers. FY04-Design, fabricate, and test bullet impact mitigating barrier. FY05- Design, fabricate, and test sympathetic detonation mitigating barrier.	111	146	500	450
Develop IM technology solutions for the 2.75" Rockets/Advanced Precision Kill Weapon System (APKWS) family of munitions to reduce reaction to unplanned stimuli. FY02-Loaded warheads with a less sensitive explosive replacement and conducted pit tests to evaluate fragment distribution. FY03-Design an IM venting system for 2.75"/APKWS packaging. FY04-Fabricate prototype vented containers and conduct engineering tests. FY05-Finalize vented container design, conduct IM tests, and transition.	149	200	200	200

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

February 2003

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT			
6 - Management support	0605805A - Munitions Standardization, Effectiveness and Safet	297			
Accomplishments/Planned Program (continued)		<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Develop scoring patterns and techniques for munitions packaging that will create a venting system during unplanned propellant burning to reduce internal pressures and minimize explosive reactions. FY02-Developed and tested a full-scale prototype scored container for the Modular Ammo Charge System (MACS) which allows the MACS charge to significantly improve it's IM performance and pass 5 out of 6 IM tests . FY03- Improve design to achieve success in the final 6th IM test and conduct final IM and rough handling tests.		267	200	0	0
Develop an active venting sensor system for the 2.75" Rocket/Advanced Precision Kill Weapon System (APKWS) family of munitions that will help minimize the munitions' reaction in cook-off environments. FY02-Completed prototype sensor system design and evaluation.		121	0	0	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) and optimizing the shaped charge liner to enable munitions to burn rather than detonate in cook-off environments. FY02-Refined warhead liner design, complete manufacturing process development, and load warhead IM test units. FY03-Conduct IM tests, complete HE down selection. FY04-Conduct final performance, safety, full-scale IM, and arena tests and transition.		604	400	500	0
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. FY02-Conducted producibility and binder mix analysis. FY03-Complete explosive development and conduct small scale IM tests. FY04-Conduct large scale IM testing, refine formulation. FY05-Complete large scale IM testing and performance and safety testing, transition.		392	265	500	450
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. FY02-Continue additive development, conduct safety, characterization, stability, and long term tests. FY03- Refine additive formulation, conduct small scale performance, IM, compatibility, safety, and long term tests. FY04-Produce explosives and additives, test to determine percentage of additive in selected high explosive warhead. FY05-Conduct bursting warhead demonstration and IM tests on selected warhead, transition.		344	377	480	0
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. FY02-Conducted quarterly IM reviews, updated database. FY03-Conduct quarterly IM reviews, update IM database. FY04-Conduct quarterly IM reviews, update IM database. FY05- Conduct quarterly IM reviews, update IM database.		159	248	250	250

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

February 2003

BUDGET ACTIVITY
6 - Management support

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

PROJECT
297

<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
The objective of this effort is to insert IM explosive PAX-2A into M864 RECAP projectiles for a dramatic increase in survivability, penetration performance and service life. FY04-Optimize expulsion charge explosive formulation and conduct IM tests. FY05-Complete IM tests and cartridge level qualification and safety tests, transition.	0	0	375	300
Identify successful IM technologies that were developed for specific munitions and apply them to other types of munitions to reduce reactions to unplanned stimuli such as fires, bullet and fragment impact, etc. FY04-Down select initial candidate munitions and apply technologies, conduct engineering tests. FY05-Manufacture munitions and conduct final IM qualification tests.	0	0	1548	2279
The objective of this effort will be to develop a material that will neutralize/disable expulsion propellant in Dual Purpose Improved Conventional Munitions (DPICM) in fire or high temperature environments before the expulsion propellant reaches its auto ignition temperature. This will minimize the dangerous possibility of expelling and exploding grenades during unplanned fires and cook-offs. FY04-Conduct failure analysis on DPICMs, develop propellant neutralization formulations, conduct engineering evaluation. FY05-Down select neutralization technologies and conduct further development to meet IM cook-off requirements.	0	0	375	300
This program will develop thermal management materials that when exposed to heat will form an insulating barrier on the inside of the munition or container to reduce the heat transfer rate during a fire. This will allow more time for firefighters to put out the fire and reduce the possibility of violent reactions. FY04-Conduct failure analysis on candidate munitions, evaluate and select insulating materials. FY05-Produce test munitions using insulating materials and conduct IM tests.	0	0	400	400
Develop IM explosives using new IRDX ingredients that maximize performance and minimize reaction to unplanned stimuli. FY04-Conduct evaluation of foreign IRDX ingredients and compare characteristics with US developed IRDX. FY05-Formulate new IRDX and develop new explosive.	0	145	400	514
This program will evaluate Volatile Corrosion Inhibitor (VCI)-free barrier packaging material for application to Army munitions and spare parts. This material will provide corrosion protection where VCI cannot be used to extend the useful life of munitions and spare parts items. While eliminating the current VCI cleaning process & associated hazardous waste. FY02-Tested and evaluated sealing concepts, identified candidate munitions, prepared final report.	98	0	0	0
The objective of this program is to develop an improved M2A1 container design that is 10-30% lighter, provides a 20% reduction in cubic space required, and is lower in cost than current containers. This design will benefit Brigade Combat Teams by allowing them to reduce their logistics footprint and facilitate handling and transportation. FY02-Completed container design and modifications. FY03-Complete prototype fabrication and conduct qualification testing, transition.	204	286	0	0

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

February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605805A - Munitions Standardization, Effectiveness
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PROJECT
297

<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
This program will develop a collapsible pallet for consolidating and securing small ammo items such as fuzes, primers, and ammo containers for shipment as Brigade Combat Team SCLs and in-theater Combat Configured Loads. FY02-Conducted market survey, acquired commercial prototypes, conducted testing.	102	0	0	0
The objective of this program is to 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. FY02-Completed container concept and design, selected materials. FY03-Fabricate prototype containers, conduct rough handling tests. FY04-Conduct hazard testing, prepare exemption documentation and transition.	74	180	200	0
Develop a procedure for return, refurbishment, and reuse of 120mm mortar containers and conduct economic analysis versus purchasing new containers. FY04-Conduct analysis.	0	0	73	0
Develop environmental barriers/coatings for packaging that will reduce heat transfer to munitions and thereby enhance shelf-life and reduce life-cycle costs due to deterioration/degradation from heat exposure. FY04-Conduct market survey of materials and develop preliminary packaging designs. FY05-Complete design, fabricate prototypes and conduct engineering testing.	0	0	290	270
Develop lightweight, low cost, high performance immiscible polymer blend material based munitions packaging and pallets to replace conventional wood materials. FY04-Conduct material evaluation, select candidates, and develop packaging designs. FY05-Fabricate prototype containers/pallets, test and transition.	0	0	180	180
Develop low cost mechanism that will secure 120mm tank munitions in PA116 containers. This will eliminate the need for packaging spacers and ensure the munition is protected from vibration and shock environments. It will also eliminate the potential for foreign object damage. FY04-Develop, test, transition.	0	0	107	0
Develop nanocoating materials for packaging that will facilitate cleaning and Nuclear, Biological, and Chemical (NBC) decontamination of munitions and equipment on the battlefield. FY05-Conduct market survey and evaluation of materials.	0	0	150	250
Develop a container for 2.75" and 120mm tank munitions that uses hybrid materials (both metal and composite) and provides a lightweight, high strength, low cost replacement alternative to existing packaging. FY05-Evaluate and select materials, develop design concepts.	0	0	0	300
Develop a lightweight universal cargo platform and transfer system designs for seamless intermodal (air/ground/ship/rail) ammo movement and rapid deployment. FY02-Developed and evaluated design concepts.	216	0	0	0

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

February 2003

BUDGET ACTIVITY
6 - Management support

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

PROJECT
297

<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
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. FY02-Completed system field testing of version I of a Munitions Survivability Software (MSS) tool and transitioned to PM Standard Army Ammo System (SAAS)/PM Global Combat Support System-Army (GCSS-A). Completed design architecture for version 2 that adds an interactive planning/asset management capability. FY03-Complete software design of interactivity enhancements. FY04-Conduct field tests and modify software. FY05-Complete modifications, conduct final test and transition.	855	839	872	525
Develop robotic capability for forklifts and truck mounted cranes to enable the rapid in-theater building of mission configured munition loads for improved distribution velocity and mission transition agility. FY02-Upgraded crane software/hardware for "in the cab" operational capability FY03-Develop and integrate laser vision software and hardware, implement performance, safety, and stability logic enhancements into controller, complete end effector development. FY04-Complete development of software based controller.	341	349	200	0
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-Develop data reader and complete Ammo Surveillance Information System integration, conduct field prototype demonstrations . FY04-Develop data analysis/presentation software module. FY05-Develop single chip multiple sensor design	0	100	189	450
Develop a lightweight, load conforming tie down system for cargo platforms that will enable the rapid securing of configured supply loads. FY03-Acquire and test pre-prototypes and complete evaluation. FY04-Select concept and complete system design. FY05-Fabricate prototypes and conduct engineering tests.	0	85	160	458
Totals	4101	3820	7949	7576

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605805A - Munitions Standardization, Effectiveness and Safet					PROJECT 859			
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	
859 LIFE CYCLE PILOT PROCESS	12472	16064	2474	2494	2528	2550	2570	2585	

A. Mission Description and Budget Item Justification: This project supports the implementation of the Ammunition 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 manufacturabilty 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 2002	FY 2003	FY 2004	FY 2005
Continue technology investigations and industrial assessments started in FY 2002. Develop concept designs and plans to transfer life cycle pilot process technology into the supplier base.	300	2764	1000	1000
Perform production base readiness assessments to analyze present capabilities and identify trends in munitions and industrial technology.	455	500	0	0
Develop "pilot" prototype processes for critical ammunition end items and components necessary to establish a quality, affordable, and environmentally safe production.	517	3700	0	0
Establish framework and operations for NJ Nanotechnology and Micro-Electromechanical Systems (MEMS) consortium in support of ammunition production modernization.	0	1400	1474	1494
Establish framework and operations for Nanotechnology Manufacturing RDE Center in support of ammunition production modernization.	700	1400	0	0
Under the Public Private Partnership program, establish and enhance prototype manufacturing utilizing commercially available off-the-shelf equipment.	10500	6300	0	0
Totals	12472	16064	2474	2494

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605805A - Munitions Standardization, Effectiveness and Safet	PROJECT 862						
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
862 FUZE TECHNOLOGY INTEGRATION	1928	1916	1981	1991	2057	2077	2099	2124

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).

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
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.	698	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.	200	1016	831	841
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.	500	0	500	700

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

February 2003

BUDGET ACTIVITY
6 - Management support

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

PROJECT
862

<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
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.	530	400	300	0
Totals	1928	1916	1981	1991

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605805A - Munitions Standardization, Effectiveness and Safet	PROJECT F24						
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
F24 CONVENTION AMMO DEMIL	8379	5677	4798	4892	4931	6082	4982	4979

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 (FUDES). 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 FUDES.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Prove out prototype plasma arc technology for conventional ammunition and resource recovery potential.	2000	3205	1400	0
Cryofracture development for demilitarization of Anti-Personnel Landmines and other munitions.	3000	1346	800	0
Prove-out of prototype Super-Critical Water Oxidation technology.	447	0	0	0
Development of recycle/reuse technology for magnesium/aluminum	650	326	0	2000
Development of enhanced flexible energetic material handling automation upgrade capabilities sized to real time requirements	0	0	500	1000
Development of transportable alternative materials recovery capabilities for various energetic components	2282	800	2098	0
Multi-based propellant recovery	0	0	0	950
Development of advanced resource recovery/reuse technology for explosives	0	0	0	942
Totals	8379	5677	4798	4892

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605857A - Environmental Quality Technology Management Spt							
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost	1662	1820	4938	5217	5226	5005	5142	5269
031 ACQUISITION POLLUTION PREVENTION	1662	1524	3366	3426	3498	3576	3697	3814
06E ENVIRONMENTAL RESTORATION TECH SUPPORT	0	153	189	218	0	0	0	0
06G ENVIRONMENTAL COMPLIANCE TECHNOLOGY SUPPORT	0	143	185	363	494	169	173	177
06H UNEXPLODED ORDNANCE CLEARANCE TECHNOLOGY SUPPORT	0	0	1198	1210	1234	1260	1272	1278

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: support to the Joint Group for Pollution Prevention, 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, beginning in FY 2003: (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, beginning in FY 2003, 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

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February 2003

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605857A - Environmental Quality Technology Management Spt

impacts; (2) develop and validate a compliance risk assessment model for training range siting, design, and maintenance to provide input to the military construction process; and (3) evaluate and validate improved designs for ranges that incorporate erosion and contaminant control technologies for current range problems and to support future sustainable range designs.

The Unexploded Ordnance Detection and Clearance (JUXOCO) project will, beginning in 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. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	1719	1902	1495	1705
Current Budget (FY 2004/2005 PB)	1662	1820	4938	5217
Total Adjustments	-57	-82	3443	3512
Congressional program reductions				
Congressional rescissions		-20		
Congressional increases				
Reprogrammings	-9	-11		
SBIR/STTR Transfer	-48	-51		
Adjustments to Budget Years			3443	3512

Change Summary Explanation: Funding - FY2004/FY2005: The project for Unexploded Ordnance Detection and Clearance (JUXOCO) was transferred for oversight by office of the Secretary of Defense to the Assistant Secretary of the Army for Installations and Environment beginning in FY2004. In addition, funds were realigned in FY2004 and thereafter from Operations and Maintenance, Army to focus work on RDT&E supporting pollution prevention technology needs of Army Program Executive Officers and Program Managers.

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605857A - Environmental Quality Technology Management Spt	PROJECT 031						
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
031 ACQUISITION POLLUTION PREVENTION	1662	1524	3366	3426	3498	3576	3697	3814

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.

A2P3 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; the National Defense Center for Environmental Excellence (NDCEE); 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.

A2P3 includes Army efforts to eliminate the use of ozone-depleting chemicals 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 avoidance. A2P3 includes support to the Joint Group for Pollution Prevention (JG-PP).

This project supports the Interim transition path of the Transformation Campaign Plan (TCP).

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February 2003

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6 - Management support

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Management Spt

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 chemicals and environmental management systems to reduce environmental risks to acquisition programs. Provided oversight to 7 integrated process teams addressing environmental issues from Army commodities and including participation in the Stryker Armored Vehicle and Comanche environment management teams. Beginning technology management support across commodity areas for the Future Combat Systems ("system of systems") in FY03 and representing the Army Acquisition Community in development of Environmental Analyses related to Army Transformation and current fielding of Stryker Brigade Combat Teams.

FY 2002	FY 2003	FY 2004	FY 2005
667	693	747	754

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February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605857A - Environmental Quality Technology Management Spt	PROJECT 031
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	FY 2002	FY 2003	FY 2004	FY 2005
<p><u>Accomplishments/Planned Program (continued)</u></p> <p>- Technical management and oversight of the Army's reserve of ozone depleting chemicals. Includes oversight of Army programs developing alternative chemicals to substitute into mission critical applications in tactical vehicles and aircraft. The reserve contains the Army's strategic resources of Halon 1301 used for explosion and fire suppression systems, and Freon (R-12) used for tactical cooling systems in wheeled combat and combat support vehicles. Technical management includes oversight of operational use of reserve resources, resolution of operational problems affecting reserve resources, coordination with weapon system Program Managers to affect system replacement and retrofit to eliminate ozone depleting chemicals, coordination and technical assistance to garrison commanders to assure recovery and deposit of excess Halon 1301 and R-12 into the reserve and management of resource levels to assure continued availability of Halon 1301 and R-12 needed to support combat mission critical applications throughout the life of legacy weapon systems (FY 2030). Includes participation in Federal government and multi-national forums discussing use of ozone depleting chemicals, justifying mission critical applications, and addressing importation and use legislation throughout overseas field locations. Achieved elimination of ozone depleting chemicals used in solvent applications; initiated retrofit of NBC Fox vehicles tactical cooling; working retrofit to tactical ambulance cooling; currently overseeing development of CO2 alternatives and supporting implementation of non-ozone depleting chemical explosion and fire suppression in the Stryker Armored Vehicle (the Army's Interim Armored Vehicle - IAV).</p>	180	180	360	378
<p>- 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 hexavalent chromium used in paint systems.</p>	150	150	208	221

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

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605857A - Environmental Quality Technology Management Spt	PROJECT 031
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	FY 2002	FY 2003	FY 2004	FY 2005
<p><u>Accomplishments/Planned Program (continued)</u></p> <p>- Technology support to Program Executive Offices and Program Managers to integrate pollution prevention technology into systems engineering activities. Includes definition of technology requirements to meeting operational requirements, participation in developing test plans and protocols, oversight of testing efforts, analysis of technical data to support implementation decisions, participation in technical and cost risk assessment and reassessment and revision of contractual and operational requirements for successful technology integration, operation and support. Accomplished through direct participation in weapon system environmental management teams located at 7 major subordinate commands. Includes technology management in Environmental Management Systems and participation in documentation and review processes supporting weapon system program milestone decisions. Directly supported elimination of cadmium, hex chrome, and Halon from the Interium Armored Vehicle and other ground combat systems. Currently overseeing development of an environmental management system for Future Combat Systems (system of systems), review of environmental statutes and regulations affecting communications-electronic commodities, and preparation of environmental documentation for operational requirements documents and in preparation for milestone reviews.</p>	370	206	633	643
<p>- 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.</p>	120	120	156	178

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

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605857A - Environmental Quality Technology Management Spt	PROJECT 031
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	FY 2002	FY 2003	FY 2004	FY 2005
<u>Accomplishments/Planned Program (continued)</u> - 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 BA-1/2) requirements among members of the ETTC Pollution Prevention Technology Team, coordination of technology and operational requirements in support of RDT&E BA-3 and BA-4 evaluations in support of weapon system platform integration, management and oversight for developing test plans, oversight of testing activities, and technical data analysis of test results to support weapon systems engineering decision making. Participation in performance and cost/risk assessments in support of Assistant Secretary of the Army (Installations & Environment) [ASA(I&E)] program objectives. Manage development and execution of plans for pollution prevention technology development in four technology areas including Sustainable Painting Operations for the Total Army (SPOTA) that address Army compliance with impending National Emission Standards for Hazardous Air Pollutants (NESHAPs) through a pollution prevention solution.	175	175	625	643
- Technology management and technical support to AMC industrial base and Army field installations for fielding and maintaining pollution prevention technology. Includes coordination of weapon system integration of pollution prevention technology for resolution of industrial base (depots, arsenals and ammunition plants) and garrison environmental issues associated with 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 Interim Brigade Combat Teams. Provide Army Acquisition Community representation in development of Environmental Analyses for Army Transformation including the Programmatic and local Environmental Impact Statements.	0	0	637	609
Totals	1662	1524	3366	3426

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605857A - Environmental Quality Technology Management Spt	PROJECT 06H						
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	0	1198	1210	1234	1260	1272	1278

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 beginning with the FY2004 funded program. 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 beginning in FY2004. 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. In response to a request from the House National Security Committee and concerns of the General Accounting Office, the Department of Defense submitted a plan in March 1997, "Report to Congress: Unexploded Ordnance Clearance: A Coordinated Approach to Requirements and Technology Development." This report was developed by a joint inter-agency task force comprised of the proponents of the unexploded ordnance (UXO) clearance mission areas (countermine, explosive ordnance disposal, environmental remediation, humanitarian demining, and active range clearance). That report defined research and development priorities, program management, and cooperative activities for technology applicable to UXO clearance. In May 1997, the Under Secretary of Defense for Acquisition and Technology directed the establishment of the UXO Center of Excellence (UXOCOE) to implement the plan, and in October 1997, the Department established the operational arm of the UXOCOE, the JUXOCO, which is collocated with the Night Vision Electronic Sensors Directorate at Ft. Belvoir, VA.

<u>Accomplishments/Planned Program</u>	FY 2002	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	0	120	130
Coordinate/collect/analyze UXO RDT&E information via conferences, seminars, and workshops.	0	0	375	392
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	0	187	200
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	0	291	304

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

February 2003

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605857A - Environmental Quality Technology Management Spt	PROJECT 06H
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	FY 2002	FY 2003	FY 2004	FY 2005
<u>Accomplishments/Planned Program (continued)</u> 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	0	225	184
Totals	0	0	1198	1210

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

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605898A - Management Headquarters (Research and Development)					PROJECT M65			
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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)	4058	9991	8995	8536	8986	9228	9237	9574	

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, as well as activities at the U. S. Army Research Laboratory (ARL), Adelphi, MD (in FY02). Management headquarters civilians at HQ ATEC are primarily responsible for (1) developing RDTE program policy and guidance; (2) performing long range planning, programming and budgeting; (3) providing for the management of resources; and (4) conducting program performance review and evaluation. Funding increase starting in FY 2003 is due to mandated realignment of manpower dollars from Operations and Maintenance, Army (OMA) to RDTE.

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Civilian labor and other support required to manage and administer the Army test and evaluation mission at ATEC.	2593	9991	8995	8536
Funds the operation of Army Research Lab headquarters activities which administers the Army laboratory research and development program to sustain technological superiority.	1465	0	0	0
Totals	4058	9991	8995	8536

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

February 2003

BUDGET ACTIVITY
6 - Management support

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

PROJECT
M65

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	7208	11533	9736	10126
Current Budget (FY 2004/2005 PB)	4058	9991	8995	8536
Total Adjustments	-3150	-1542	-741	-1590
Congressional program reductions				
Congressional rescissions		-1448		
Congressional increases				
Reprogrammings	-3011	-57		
SBIR/STTR Transfer	-139	-37		
Adjustments to Budget Years			-741	-1590

Change Summary Explanation: Funding - FY 2002: Based on Congressional direction to eliminate AMHA funding below MACOM level, funds were realigned to Army Research Laboratory mission lines to support payroll and other in-house engineering efforts (-3011).

FY 2005: Funds realigned to higher priority programs.

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303028A - Security and Intelligence Activities					PROJECT H13		
COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
H13	INFORMATION DOMINANCE CENTER (IDC) - TIARA	2420	26193	0	0	0	0	0	0	0	28613

A. Mission Description and Budget Item Justification: Funds used for the development of a prototype for intelligence analysis and counter-intelligence operations supporting information operation missions. Denying, disrupting, and suppressing the adversary's information flow and his ability to effectively command and control his operations is the Army's goal of waging information-age warfare. The Information Dominance Center (IDC) is a beta development and demonstration facility, which uses advanced indigenously developed software and architectures for harvesting, visualizing, displaying, sharing, analyzing, fusing, and developing courses of action for commanders and decision makers in a real-time environment. The center can address both a tactical or strategic threat across a wide array of transnational and asymmetrical foes.

The IDC will play a critical role in Army's development of a full spectrum information operations capability that spans both the offensive and protective arenas. Key to waging an information war against an enemy will be gaining and maintaining full spectrum battlefield visualization, comprehension of enemy and friendly territory, knowledge of battlefield deception, Psychological Operations (PSYOP), public affairs, civil affairs, electronic warfare, Operations Security (OPSEC), and understanding the impact of critical nodes (regional and local). The IDC will support Force Protection/anti-terrorism operations by providing predictive analysis and warnings of attacks on our soldiers or infrastructure. The IDC also will be employed in support of peacekeeping and humanitarian aid missions. The IDC will demonstrate and test methodologies and tools, providing operational plans to fight asymmetric and asynchronous warfare against transnational and non-aligned threats. This new capability would provide the unique collaborative environment to rapidly acquire diverse information, dynamically achieve situational awareness, and provide tailored courses of action to warfighters and DA decision-makers.

The IDC will correlate data from local and international media as well as operational and intelligence sources. The center will perform evaluation, prototype and threat map political, military, economic, and social fabrics to aid in force protection/facilities protection for U.S. forces on the ground. The IDC will be the prototype for fused battlefield visualization showing the affects of air war at one location on a big screen display; collateral damage; infrastructure damage; location of paramilitary and military forces; and the dislocation of refugees and resultant humanitarian aid issues. The IDC will demonstrate a fused battlefield visualization picture of foreign and U.S. centers of gravity in support of contingency operations to help support diplomatic initiatives. It will prototype a fused, object oriented, GIS-oriented, visualization picture of the major political and economic players at international, national, regional, local levels on all selected regions. In addition, the IDC will leverage an ability to analyze a tactical view of the conflict enabling the Army to conduct offensive information operations (PSYOP, computer attack, deception and denial, media influence, cover operations) that could be used to compliment air strikes.

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303028A - Security and Intelligence Activities	PROJECT H13
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<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Continue development of Software/Hardware development	0	4038	0	0
Contractor will develop means of integrating leading edge technology into the Information Dominance Center's intelligence production and analysis capability.	420	0	0	0
Contractor will develop means of integrating leading edge technology in the Expert Radar Signature Solution	2000	2055	0	0
Technology development to meet validated operational requirements for quick reaction capability (QRC) computer network attack (CNA) weapons in support of Army Commanders.	0	5000	0	0
Develop Asymmetric Warfare Intelligence Analysis Advanced Tool Set	0	2500	0	0
Expand Processing for Intelligence Data Analysis	0	1900	0	0
Continue Language Software Training	0	3700	0	0
Develop Base Protection and Monitoring Systems	0	5000	0	0
Develop Contiguous Connection Model (CCM)	0	2000	0	0
Totals	2420	26193	0	0

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	2434	5438	6018	5755
Current Budget (FY 2004/2005 PB)	2420	26193	0	0
Total Adjustments	-14	20755	-6018	-5755
Congressional program reductions				
Congressional rescissions		-293		
Congressional increases		21200		
Reprogrammings		-152		
SBIR/STTR Transfer	-14			
Adjustments to Budget Years			-6018	-5755

FY03: Increase provides Army a flexible, deployable, sustained, computer network attack (CNA) quick reaction capability (QRC).
 FY04/05 dollars redirected to higher Army priority.

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

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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303028A - Security and Intelligence Activities	PROJECT H13
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<u>C. Other Program Funding Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
N/A	0	0	0	0	0	0	0	0	0	0

D. Acquisition Strategy: N/A

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

February 2003

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)						PROJECT E55			
COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	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	31114	28792	57549	56420	66764	76341	78491	117673	0	539125

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 and Missile Defense. JLENS is an Objective 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 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 C4ISR networks by providing correlated fire control and surveillance data. This system supports the objective transformation path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Completed fire control radar hardware and software design, communication payload design, and processing station design.	20857	0	0	0
Continue contract design and development of spiral program.	0	18100	47427	46007
Continue work on lightweight x-band radar technology.	0	955	0	0
Other contracts and OGA.	7247	6010	6700	6810
Project Management	3010	3727	3422	3603
Totals	31114	28792	57549	56420

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
E55

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	32130	29081	56520	57399
Current Budget (FY 2004/2005 PB)	31114	28792	57549	56420
Total Adjustments	-1016	-289	1029	-979
Congressional program reductions				
Congressional rescissions	-157	-330		
Congressional increases		1000		
Reprogrammings	7	-167		
SBIR/STTR Transfer	-866	-792		
Adjustments to Budget Years			1029	-979

FY03 Congressional increase for lightweight x-band radar

<u>C. Other Program Funding Summary</u>	FY 2002	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	0	28326	0	28326

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**February 2003**

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

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

PROJECT

E55

D. Acquisition Strategy: JLENS is designed to provide the joint war fighter with a Land Attack Cruise Missile Defense (LACMD) Over-the-Horizon (OTH) capability to engage cruise missiles masked to surface based sensors and contribute to the development of a Single Integrated Air Picture (SIAP). JLENS is a theater-based system employing advanced elevated sensors against Land Attack Cruise Missiles. JLENS was restructured to a three spiral development program from FY03-09. Spiral 1 - Government Off-the-Shelf (GOTS) Sensor System 32Meter, Spiral 2 - Advanced Sensor 32Meter (Precision Track Radar) and Spiral 3 - Advanced Sensor 71Meter (Precision Track Illumination Radar).

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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	972		2234		2219		Continue	20240	Continue
e . Risk Mitigation, Design, Development	CR/CPIF	Raytheon System Co. MA/CA/FL	84895	19005		47427		46007		Continue	197334	Continue
f . SBIR / STTR			642	0		0		0		0	642	0
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	CPIF	CAS/AL	10024	2377		2837		2922		Continue	18160	Continue
j . Misc. Contracts	SS/CPFF	Multiple	5469	826		1221		1257		Continue	8773	Continue
k . ADaM			1800	0		0		0		0	1800	0
l . AoA/ORD/TEMP			2235	752		250		257		0	3494	0

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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
m . Lightweight x-band radar antenna			1897	955		0		0		0	2852	0
n . In-House JLENS		PEO AMD, HSV, AL	16692	3727		3422		3603		0	27444	0
Subtotal:			149877	28614		57391		56265		Continue	292147	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(R-3)									February 2003			
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		158		155		0	2941	0
b . Misc. OGA&Contracts	Mul/MPR	AL/TX/NM	1656	0		0		0		0	1656	0
Subtotal:			4106	178		158		155		0	4597	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:			156067	28792		57549		56420		Continue	298828	Continue

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0102419A - Joint Land Attack Cruise Missiles Defense (JLENS)	PROJECT E55
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<u>Schedule Detail</u>	<u>FY 2002</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>
ORD AROC		1Q						
ORD JROC		2Q						
MS B				2Q				
MS C								4Q

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

February 2003

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203726A - Adv Field Artillery Tactical Data System							
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	35716	44978	28917	22551	18244	18762	19289	19852	Continuing	Continuing
322 ADV FA TAC DATA SYS/EFF CNTRL SYS (AFATDS/ECS)	35716	40705	27001	22551	18244	18762	19289	19852	Continuing	Continuing
33C IMPROVED POSITION AZIMUTH DETERMINING SYS (IPADS)	0	4273	1916	0	0	0	0	0	0	6189

A. Mission Description and Budget Item Justification: The Advanced Field Artillery Tactical Data System (AFATDS) will broaden and modernize the US Army fire support command, control and communications (C3) system. AFATDS will provide automated fire support, fire planning and the coordination and employment of all service/combined fire support assets to complement the commander's scheme of maneuver. AFATDS will accomplish this by providing fully automated support for planning, coordination and control of all fire support assets (mortars, close air support, naval gunfire, attack helicopters, offensive electronic warfare, field artillery cannons, rockets and guided mis siles) in the execution of close support, counterfire, interdiction, suppression of enemy air defense and deep operations. AFATDS will automatically implement detailed commander's guidance in the automation of operational planning, movement control, targeting, target value analysis and fire support planning. This project is a replacement system for the Initial Fire Support Automated System (IFSAS), Battery Computer System (BCS) and Fire Direction System (FDS). The AFATDS supports the Legacy to Objective 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 and the Legacy-to-Objective transition path of the Transformation Campaign Plan (TCP).

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	36650	38161	22683	6942
Current Budget (FY 2004/2005 PB)	35716	44978	28917	22551
Total Adjustments	-934	6817	6234	15609
Congressional program reductions				
Congressional rescissions		-657		
Congressional increases		9000		
Reprogrammings	57	-261		
SBIR/STTR Transfer	-991	-1265		
Adjustments to Budget Years			6234	15609

FY03 Congressional increase of \$9000K will support other munitions (e.g. GMLRS, HIMARS, Excalibur and Precision Guided Mortar Munitions) and Version 7 requirements. Increased funding in FY04 (\$6234K) and FY05 (\$15609K) is to continue development of AFATDS Version 7 and subsequent software development.

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203726A - Adv Field Artillery Tactical Data System					PROJECT 322		
COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	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)	35716	40705	27001	22551	18244	18762	19289	19852	Continuing	Continuing

A. Mission Description and Budget Item Justification: AFATDS will perform the fire support Command, Control, and Coordination requirements at various levels of command. It will provide Command and Control relationships and full fire support functionality 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. The Marine Corps will also utilize AFATDS. AFATDS will interoperate with Navy and Air Force Command and Control weapon systems as well as the Allied fire support systems ADLER (Germany), ATLAS (France), BATES (UK), and SIR (Italy). This program supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Prepare and Support AFATDS Version 7 Test and Materiel Release	2955	2999	3630	2510
Army Battle Command System (ABCS) System Engineering and Integration Efforts.	642	642	0	0
Continue AFATDS Version 6.3, AFATDS Version 7 and subsequent software development.	32119	37064	23371	20041
Totals	35716	40705	27001	22551

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

B. Other Program Funding Summary	<u>FY 2002</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>	<u>To Compl</u>	<u>Total Cost</u>
OPA (B28600)	53509	75134	22324	24519	24962	18161	18666	19208	Continuing	Continuing
Spares (BS9708)	2500	2355	2555	1552	2665	1074	1072	1071	Continuing	Continuing
Mod In Service Equip (B28620)	0	2895	2059	0	2144	3218	2454	188	Continuing	Continuing

C. Acquisition Strategy: AFATDS software will be developed in incremental releases. AFATDS '96, which received Materiel Release on 13 December 1996, automated 51% of the required tasks including fire support planning, target nomination, order of fire, and meteorological/survey operations. Subsequent releases add additional functions, providing automated capabilities for the required tasks including fire support sensor planning and additional munitions. The AFATDS software will utilize the Defense Information Infrastructure (DII) Common Operating Environment (COE) and the Joint Technical Architecture.

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203726A - Adv Field Artillery Tactical Data System	PROJECT 322
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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	33992	2Q	21560	2Q	18160	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	600	2Q	600	2Q	Continue	Continue	0
Subtotal:			150888	35234		22160		18760		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 . Software Development Support	MIPR	CECOM, Ft. Monmouth, NJ & Telos, Shrewsbury, NJ	3666	813	2Q	813	2Q	813	2Q	Continue	Continue	0
b . Engineering Support	MIPR	CECOM, Ft Monmouth, NJ	2086	933	2Q	733	2Q	733	2Q	Continue	Continue	0
Subtotal:			5752	1746		1546		1546		Continue	Continue	0

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
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	135	2Q	135	2Q	Continue	Continue	0
b . Test Support	MIPR	Titan, Ft Sill, OK and Various	2999	1495	2Q	1295	2Q	795	2Q	Continue	Continue	0
Subtotal:			3449	1630		1430		930		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	700	2Q	350	2Q	Continue	Continue	0
b . Program Management		PM IE, Ft Monmouth, NJ	4718	1365	2Q	1165	2Q	965	2Q	Continue	Continue	0
Subtotal:			7407	2095		1865		1315		Continue	Continue	0
Project Total Cost:			167496	40705		27001		22551		Continue	Continue	0

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
322

<u>Schedule Detail</u>	<u>FY 2002</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>
AFATDS '99 Materiel Release	4Q							
AFATDS Version 7 Limited User Test (LUT)			3Q					
AFATDS Version 7 Materiel Release				3Q				
Maintenance Software Release						1Q	3Q	

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203726A - Adv Field Artillery Tactical Data System					PROJECT 33C		
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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)	0	4273	1916	0	0	0	0	0	0	6189	

A. Mission Description and Budget Item Justification: This project element supports modernization of the Army's Field Artillery and Air Defense 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 IPADS is a new start program 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 system supports the Legacy to Objective transition of the Transformation Campaign Plan.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Provide program management and engineering/logistics support.	0	1960	748	0
Conduct developmental testing and operational testing.	0	2313	1168	0
Totals	0	4273	1916	0

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

February 2003

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 2002	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	0	1961	11128	11933	13050	13305	8086	779	0	60242

C. Acquisition Strategy: The IPADS program is an NDI being procured to a Performance Specification. The acquisition strategy will be a long term Firm Fixed Price Requirements Contract.

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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
			0	0		0		0		0	0	0
Subtotal:												
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 . Acquisition/Program Management	MIPR	TACOM- RI, Rock Island, IL	0	555	1Q	535	1-2Q	0		0	1090	0
b . Matrix Support	MIPR	TACOM - ARDEC, Rock Island, IL	0	1405	1Q	213	1-2Q	0		0	1618	0
Subtotal:			0	1960		748		0		0	2708	0

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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 Testing	MIPR	Yuma Proving Grounds, AZ	0	2313	3-4Q	868	1-2Q	0		0	3181	0
b . Operational Testing	MIPR	Fire Spt Test Dir., Ft. Sill, OK	0	0	3-4Q	300	1-2Q	0		0	300	0
Subtotal:			0	2313		1168		0		0	3481	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
Project Total Cost:			0	4273		1916		0		0	6189	0

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203735A - Combat Vehicle Improvement Programs

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	159759	82702	24486	16121	12941	13227	8802	6689	0	411427
330 ABRAMS TANK IMPROVE PROG	159439	81747	24486	16121	12941	13227	8802	6689	0	400139
718 GRND COMBAT VEHICLE HTI	224	955	0	0	0	0	0	0	0	8800
C64 DC64	96	0	0	0	0	0	0	0	0	2488

A. Mission Description and Budget Item Justification: This Program Element (PE) responds to vehicle deficiencies identified during Operation Desert Storm, 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, notably the LV100 Engine Program. These systems support the Legacy transition path of the Transformation Campaign Plan (TCP).

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	166449	54465	23798	16291
Current Budget (FY 2004/2005 PB)	159759	82702	24486	16121
Total Adjustments	-6690	28237	688	-170
Congressional program reductions				
Congressional rescissions		-1905	-414	-279
Congressional increases		3450		
Reprogrammings	-2060			
SBIR/STTR Transfer	-4630	-2383		
Adjustments to Budget Years		29075	1102	109

In FY03, the Abrams program increased to accelerate the LV100 Engine Program.

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203735A - Combat Vehicle Improvement Programs	PROJECT 330
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COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	159439	81747	24486	16121	12941	13227	8802	6689	0	400139

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 LV100 engine program is the most significant of these efforts. The LV100 engine program is a critical cornerstone in the Abrams Recapitalization Program. All M1A2 SEP tanks will be equipped with the LV100 engine. The objective is a lighter, more reliable, more fuel efficient, and easier-to-repair engine. The LV100 engine program will yield the greatest return on investment by significantly reducing both the Operations and Support (O&S) burden and the armored forces logistics footprint. The Abrams Project Manager 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. This system supports the Legacy transition path of the Army Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
LV100 Engine Program	158013	69000	6536	0
Abrams Legacy Fleet Embedded Diagnostics	1426	2350	0	0
Parts Obsolescence and System Technical Support	0	4460	1300	2721
Alternative Armor Solution	0	5937	6650	3200
Alternative Auxiliary Power Unit	0	0	10000	10200
Totals	159439	81747	24486	16121

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203735A - Combat Vehicle Improvement Programs

PROJECT
330

B. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
Abrams Upgrade Program (GA0750)	587035	369938	92942	0	0	0	0	0	0	0
Abrams Vehicle Modification (GA0700)	80619	176198	268644	499643	342463	364160	275832	102887	460600	2571046
M1A1D Retrofit (GA0720)	11481	0	0	12207	0	0	0	0	0	0
System Enhancement Pgm: SEP M1A2 (GA0730)	98627	120633	0	0	0	0	0	0	0	0
M1A2 Training Devices (GB1302)	11646	11858	0	3633	3718	1074	1073	1072	0	0
Training Device Mod (GA5208)	5466	5411	6252	3652	3763	1074	1073	1072	0	0
Initial Spares (GE0161)	15490	9784	5390	5370	5376	0	0	0	0	0

C. Acquisition Strategy: Honeywell is the prime contractor for the LV100 engine development program. General Dynamics Land Systems Division (GDLS) is the prime contractor for the vehicle integration effort.

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203735A - Combat Vehicle Improvement Programs	PROJECT 330
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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	618099
b . LV100 Engine	C-CPAF	Honeywell International Phoenix, AZ	135161	49000	2-3Q	5386	2-3Q	0		0	189547	212349
c . GDLS Integration	SS-CPFF	General Dynamics Sterling Heights, MI	68000	20000	2-3Q	1150	2-3Q	0		0	89150	90747
d . Other Contracts	Various	Various	38025	10397	2-3Q	17950	2-3Q	16121	2-3Q	Continue	82493	0
Subtotal:			862515	79397		24486		16121		Continue	982519	921195

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	16959	2350		0		0		0	19309	0
Subtotal:			16959	2350		0		0		0	19309	0

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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	56030	0		0		0		0	56030	0
Subtotal:			56030	0		0		0		0	56030	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
Project Total Cost:			935504	81747		24486		16121		Continue	1057858	921195

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203735A - Combat Vehicle Improvement Programs

PROJECT
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<u>Schedule Detail</u>	<u>FY 2002</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>
GDLS Integration PDR	1Q							
GDLS Integration CDR	2Q							
LV100 First Engine To Test	3Q							
LV100 Product Support Contract		1Q						
LV100 In Vehicle Testing		2Q						
GDLS ECP Submittal		4Q						
Complete LV100 Phase I Contract			2Q					
LV100 Engine Production			3Q					
GDLS Production S/W Release			3Q					
Complete GDLS Integration Contract				1Q				
Alternative Armor Contract Award		3-4Q						
Alternative Armor PDR			1Q					
Alternative Armor CDR			2Q					
Alternative Armor Material Release (MR)			3Q					
Alternative Auxiliary Power Unit Award			1Q					

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203740A - Maneuver Control System					PROJECT 484		
COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	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)	40231	42229	39581	17883	11106	10367	0	0	0	307379

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 Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Conduct MCS Block IV and Block V software development and support	39631	35279	31881	16391
Plan and participate in test events, and prepare for the MCS Operational Tests	600	6950	2300	992
Conduct MCS IOT&E (Block IV)	0	0	5400	500
Totals	40231	42229	39581	17883

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203740A - Maneuver Control System

PROJECT
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<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	39883	44444	31956	17644
Current Budget (FY 2004/2005 PB)	40231	42229	39581	17883
Total Adjustments	348	-2215	7625	239
Congressional program reductions		-851		
Congressional rescissions				
Congressional increases				
Reprogrammings	348	-245		
SBIR/STTR Transfer		-1119		
Adjustments to Budget Years			7625	239

FY04: Funds increased for replanned MCS Block IV IOT&E (\$7625K).

<u>C. Other Program Funding Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
BA9320 - Maneuver Control System (MCS)	9589	7378	37141	50658	48304	38009	29205	30133	Continue	Continue
BS9710 - MCS Spares	440	2942	1967	2012	1837	1860	1461	1486	Continue	Continue
BZ9962 - Standardized Integrated Command Post System (SICPS) for MCS	8037	0	0	0	0	0	0	0	0	8037

C. Other Program Funding Summary: Note: Beginning in FY04, 'SICPS for MCS' funded from the MCS line (BA9320).

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**February 2003**

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. MCS software development will follow a blocked approach based on functionality prioritization. Software capabilities will be developed and delivered in blocks over time with the intent of supporting warfighter tactical and training requirements. Block IV will provide the minimum essential operational capability required to set and maintain the conditions for success in the close fight. Block V will deliver the capability to fully synchronize the battlefield framework (close, deep, rear, security and reserve). Subsequent development will be competitively awarded to provide the operational capabilities consistent with the future operational environment in a transformed US Army (e.g., future joint interoperability). The MCS Block IV system will consist of two CHS components, each providing a combination of software capabilities. The two components are the MCS-Heavy box and the MCS-Light box. Together, those components provide all of the minimum essential capabilities to support the functions of Battle Command at battalion and above level maneuver units. MCS, together with its CHS components, will be integrated into the Standardized Integrated Command Post System (SICPS) shelters.

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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	18433	1-3Q	3110	1Q	0	173434	173434
b . Follow-on Software Upgrades (e.g., joint interoperability,COE compliance, etc.)	C	TBD	0	0		0		1067	1-3Q	Continue	Continue	0
c . Misc Contracts	Various	Various	10563	3729	2Q	3135	1-2Q	1373	1-2Q	Continue	Continue	0
d . Software Development & Technical Support	MIPR	CECOM, NJ	13014	5500	1-2Q	5775	1-2Q	6000	1-2Q	Continue	Continue	0
e . Technical Support	In House	PM GC C2, NJ	8111	1915	1-4Q	2011	1-4Q	2112	1-4Q	Continue	Continue	0
f . PSE H/W & S/W	Various	Various	2155	210	2Q	210	2Q	250	2Q	Continue	Continue	0
g . MITRE System Engineering	CPFF	MITRE Corp., Eatontown, NJ	6536	990	1Q	1089	1Q	1198	1Q	Continue	Continue	0
h . ABCS SE&I	MIPR	PEO C3T, NJ	1830	0		0		0		0	1830	0
			172291	34153		30653		15110		Continue	Continue	173434
Subtotal:												

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development

0203740A - Maneuver Control System

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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	477	1-4Q	Continue	Continue	0
b . Misc Contracts	Various	Various	1713	100		150		150		Continue	Continue	0
Subtotal:			4211	533		605		627		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	414	1Q	Continue	Continue	0
b . Misc Contracts	Various	Various	3021	500	1-2Q	550	1-2Q	578	1-2Q	Continue	Continue	0
c . Operational Test/Planning	MIPR	Various	4401	5700	1-2Q	6362	1Q	500	1-2Q	Continue	Continue	0
Subtotal:			8822	6950		7700		1492		Continue	Continue	0

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203740A - Maneuver Control System	PROJECT 484
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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
Subtotal:			889	593		623		654		Continue	Continue	0

Project Total Cost:			186213	42229		39581		17883		Continue	Continue	173434
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Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203740A - Maneuver Control System

PROJECT
484

<u>Schedule Detail</u>	<u>FY 2002</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>
Participation in Field Test 4	1Q							
Participation in DCX-II	1Q							
Participation in Field Test 5	4Q							
MCS System Stress Test	2-3Q	2Q						
MCS Block IV Software Segment Acceptance Test		3Q						
Participate in Field Test 6		4Q						
Complete MCS Block IV Initial Operational Test & Evaluation			3Q					
MCS Milestone III Decision				1Q				
Initial Operational Capability				3Q				
Prepare and conduct Block V Operational Assessment/Operational Test				4Q	1-2Q			
Evolving Software Upgrades (e.g., joint interoperability, COE compliance, etc.)				1-4Q	1-4Q	1-4Q		

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	141751	204562	187959	167274	149101	120432	192914	254847	Continuing	Continuing
028 AERIAL COMMON SENSOR (ACS) (TIARA)	14476	44139	103457	141255	114074	8735	8148	11269	Continuing	Continuing
179 CH-47D PRODUCT IMPRV	486	2965	0	0	0	0	0	0	0	3451
430 IMPR CARGO HELICOPTER	17735	3329	14259	2949	980	0	127554	225536	0	431053
504 BLACK HAWK RECAPITALIZATION/MODERNIZATION	69496	109990	70243	23070	14438	13717	17961	18042	15569	365717
508 APACHE 2ND GENERATION FLIR	39558	44139	0	0	0	0	0	0	0	135719
D12 LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP	0	0	0	0	19609	97980	39251	0	0	156840

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, and the Apache 2nd Generation Forward Looking Infrared (FLIR).

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	145169	201566	132729	111275
Current Budget (FY 2004/2005 PB)	141751	204562	187959	167274
Total Adjustments	-3418	2996	55230	55999
Congressional program reductions				
Congressional rescissions	-764	-2423		
Congressional increases	99	16000		
Reprogrammings	881	-1187		
SBIR/STTR Transfer	-3634	-4622		
Adjustments to Budget Years		-4772	55230	55999

FY 2004: Guardrail Common Sensor/ACS received \$25.1 million for development of a geolocation precision COMINT subsystem; Impr Cargo Helicopter program office realigned \$11.0 million from procurement to RDTE for the Initial Operational Test and Evaluation; and the UH-60A/L Black Hawk SLEP/Modernization program office realigned \$17.0 million from procurement to RDTE for the qualificaion of Dual Digital Flight controls and Multifunctional Displays.

FY 2005: Guardrail Common Sensor/ACS received an additional \$53.4 million for the geolocation precision COMINT subsystem.

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

February 2003

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program						PROJECT 028	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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)	14476	44139	103457	141255	114074	8735	8148	11269	Continuing	Continuing

A. Mission Description and Budget Item Justification: The Aerial Common Sensor (ACS) and the Guardrail Common Sensor (GRCS) are airborne intelligence collection systems 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 objective 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 objective 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 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.

FY04/05 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.

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
028

ACS supports the Objective transition path of the Transformation Campaign Plan.

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Concept Exploration (CE) agreements/Component Advanced Development (CAD) bridge contract to support Milestone process.	2400	0	0	0
Component Advanced Development (CAD) performance specification analysis and source selection.	360	0	0	0
Award and execute ACS CAD contract(s) which will transition virtual system concept and vet it into a system architecture and relevant integration environment; support the MS B process	5204	32991	0	0
System Integration (SI) Phase performance specification analysis and source selection.	0	414	0	0
Complete the prototype efforts required to validate Data Transport Systems performance capabilities.	1000	1650	0	0
Develop an Airborne Tactical Common Data Link (TCDL) for GRCS under a Total Ownership Cost Reduction (TOCR) initiative.	0	1042	0	0
Modeling, Program office, and Decision Review support for entry into CAD.	5512	0	0	0
Modeling, Program office and Milestone B Decision support for entry into System Integration (SI) of SDD Phase.	0	8042	8482	9483
Award and execute contract for System Integration Phase which will integrate technologies developed and demonstrated during the CAD phase	0	0	94975	131772
Totals	14476	44139	103457	141255

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
028

B. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
Defense Cryptologic Program (DCP)	26927	27949	28306	25830	23879	24966	19706	19706	Continuing	Continuing
0305206/DK98 Tactical Reconnaissance	4873	6767	4751	5094	5366	5449	5181	5465	Continuing	Continuing
A02005 Aerial Common Sensor- Aircraft Procurement, Army	0	0	0	0	24151	223876	225870	233871	Continuing	Continuing

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 Concept Exploration (CE) Phase is complete. Two Component Advanced Development contracts were awarded 3QFY02 on a competitive basis to begin risk reduction efforts. The contractors are required to support the program through a milestone approval of the aircraft and sensor suites. MS B is scheduled 4QFY03, followed by a System Development and Demonstration (SDD) phase. The SDD phase will be a competitive solicitation with contract award scheduled in 1QFY04 and will take program through LUT and IOT&E to MS C Full Rate Production.

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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 . Concept Evaluation Agreement	C-FP	Raytheon; Greenville, TX	2785	0		0		0		0	2785	2785
b . Concept Evaluation Agreement	C-FP	Lockheed Martin; Palmdale, CA	3435	0		0		0		0	3435	3435
c . Concept Evaluation Agreement	C-FP	Northrup Grumman, Baltimore, MD	3200	0		0		0		0	3200	3200
d . Data Transport Contract (Includes FY03 TOCR initiative)	SS-CPFF	L3Comm, Salt Lake City, Utah	3000	1042	2Q	0		0		0	4042	4042
e . Omnibus contract	SS-FP	TRW, Sunnyvale, CA.	695	1650	2Q	0		0		0	2345	2345
f . TIBS Installation	C-CPFF	Mutiple	2000	0		0		0		0	2000	2000
g . ACS CAD Contract(s)	C-CPAF	Lockheed Martin, Littleton, CO & Northrup Grumman, Baltimore, MD	5204	32991	1Q	0		0		0	38195	48520
h . ACS SI Contract	C-CPXF	TBD	0	0		94975	2Q	131772	1Q	Continue	Continue	Continue
Subtotal:			20319	35683		94975		131772		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
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	5020	1000	1Q	1000	1Q	1000	1Q	Continue	Continue	Continue
b . Model Evaluation Support		Multiple	2390	1329	1-2Q	1528	1Q	1757	2Q	Continue	Continue	Continue
c . ASARC Support	C-CPFF	CSC, Falls Church, VA	270	135	1-2Q	150	1Q	225	1Q	Continue	Continue	Continue
Subtotal:			7680	2464		2678		2982		Continue	Continue	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	CACI Technologies; Chantilly, VA	1000	0		0		0		0	1000	1000
b . Engineering Support	C-CPFF	Multiple	1924	1026	1Q	1180	1Q	1357	1Q	Continue	Continue	Continue
c . AEC Support	C-CPFF	Multiple	260	833	1-2Q	1251	1Q	1266	1Q	Continue	Continue	Continue
d . Analysis and Evaluation of CAD Products	C-CPFF	Multiple	0	1200	1Q	0		0		0	1200	1200

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program					PROJECT 028			
III. Test and Evaluation (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:			3184	3059		2431		2623		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 . Program Management	MIPR	PM, Signals Warfare	1379	1499	1Q	1724	1Q	1982	1Q	Continue	Continue	Continue
b . Matrix Support	MIPR	HQ, CECOM	2180	1434	1Q	1649	1Q	1896	1Q	Continue	Continue	Continue
Subtotal:			3559	2933		3373		3878		Continue	Continue	Continue
Project Total Cost:			34742	44139		103457		141255		Continue	Continue	Continue

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
028

<u>Schedule Detail</u>	<u>FY 2002</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>
Field TIBS Capability	2-4Q							
GRCS upgrade contracts (to include FY 03 TOCR initiative)	1-4Q	1-4Q						
ACS Concept Exploration Agreements	1-2Q							
Decision Review for ACS Component Advanced Development (CAD)	1Q							
ACS CAD Contract(s)	3-4Q	1-3Q						
Conduct CAD Contractor Tests		3Q						
ACS Milestone B Decision		4Q						
ACS System Integration Phase Contract			2-4Q	1-4Q	1-2Q			
Conduct SI DT&E					1-2Q			
ACS System Demonstration (SD) Phase Decision Review					3Q			
ACS SD Phase Contract Option					3-4Q	1-4Q	1-4Q	1-2Q
ACS SD DT&E						3-4Q		
ACS LUT							1-2Q	
IOT&E								1-2Q
ACS MS C Full Rate Production Decision								2Q
FUE								4Q

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program					PROJECT 430	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	17735	3329	14259	2949	980	0	127554	225536	0	431053

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. This system supports the Legacy-to-Objective transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Continue Engineering Manufacture Development (EMD).	13722	0	0	0
Provide product technical support	0	2632	4400	0
Continue Contract Live Fire Test & Evaluation	0	97	0	0
Continue in-house and program management administration.	326	250	300	0
Continue Government Test & Evaluation.	3687	350	4800	0
Test Analysis	0	0	1500	0
714B Engine	0	0	3259	2949
Totals	17735	3329	14259	2949

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
430

B. Other Program Funding Summary	FY 2002	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)	267848	442632	516040	545869	606388	515247	531744	557449	4917968	8901185

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(R-3)								February 2003				
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	2632	1Q	4400	1Q	0		Continue	7032	0
d . 714B Engine	CPIF	Various	0	0		3259	1-2Q	2949	1-2Q	Continue	6208	0
Subtotal:			118821	2632		7659		2949		Continue	132061	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	0		0	12364	0
Subtotal:			11814	250		300		0		0	12364	0

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
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
			15389	447		6300		0		0	22136	0
Subtotal:												
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
			3901	0		0		0		0	3901	3901
Subtotal:												
Project Total Cost:			149925	3329		14259		2949		Continue	170462	122599

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program					PROJECT 504		
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	69496	109990	70243	23070	14438	13717	17961	18042	15569	365717	

A. Mission Description and Budget Item Justification: The UH-60 Black Hawk will serve as the Army's utility helicopter in the Objective 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 23 years old, and the average age of the UH-60A fleet is 18 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 T700-GE-700 engine and drive train to UH-60L 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.

FY06-FY09 funding includes Pre-Planned Product Improvements (P3I) which are essential for the future UH-60M fleet, one of four helicopter airframes in the Army's objective force. P3I funding will integrate horizontal and vertical technology such as Joint Tactical Radio System (JTRS) as it evolves which is essential for the UH-60M. P3I improvements will ensure that the UH-60M fleet remains effective on the digital battlefield through upgrades, weight reductions, and performance enhancements. This system supports the Legacy-to-Objective (LO) transition path of the Transformation Campaign Plan (TCP).

(NOTE: The UH-60M contractor recently submitted an Estimate at Completion (EAC) for the Integration and Qualification contract that indicates the program may not be executable as currently budgeted. The proposed solution would be to take appropriate actions to realign UH-60M funds from APA to RDT&E for FY04; and to make adjustments to FY05 through FY07 prior to the FY05 budget submission.)

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

February 2003

BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
7 - Operational system development	0203744A - Aircraft Modifications/Product Improvement Program		504	
<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Airframe, avionics and powerplant development. Completed airframe Critical Design Review (CDR).	15424	0	0	0
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.	0	16313	22290	3217
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.	7056	12489	8339	4428
Continue Producibility Engineering and Planning (PEP) as well as manufacturing planning and control.	6101	7099	5020	1385
Prototype build and delivery to support Development Testing (DT).	12901	24695	4633	4445
Test planning to include approval of Test & Evaluation Master Plan (FY2002).	11311	1409	0	0
Testing (Conduct flight testing, EME testing and ground testing).	0	30051	26156	5526
Preparation of training documentation for Logistics Demonstration Familiarization Course, Government Test Pilot Familiarization Course and Test Data Collection Training Course.	2264	3245	2505	0
Conduct training course to support Operational Test (OT).	0	201	527	1371
Maintain Continuous Acquisition and Life Cycle Support (CALC)/Contractor Integrated Technical Information Service (CITIS) and deliver Interface Control Documents (ICD's).	417	493	477	432
Depot Study/Prove-out (Study FY2002-2004 and Prove-out FY2005).	494	832	296	2266
IMD-HUMS demonstration program.	13528	13163	0	0
Totals	69496	109990	70243	23070

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
504

B. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
AA0492 UH-60 MODS	59945	51570	136496	230756	426572	426412	652830	662391	Continuing	Continuing

C. Acquisition Strategy: The UH-60 Black Hawk will serve as the Army's utility helicopter in the Objective Force. The recapitalization/upgrade of the legacy UH-60 fleet for the interim/objective 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, or through the FY25 time frame. 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 (FY01-06), Production/Readiness Phase (FY04-23), and Operations and Sustainment Phase (FY05-FY44).

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

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	81749	86740	2Q	59765	2Q	12764	2Q	73270	314288	0
b . Development Support - Organic	MIPR	UH PMO/matrix	3676	3636	1-4Q	1699	1-4Q	1473	1-4Q	1482	8290	0
c . Development Support - Contractor	C/FP	Support Contractors	4064	3203	1-3Q	587	1-3Q	663	1-3Q	674	5127	0
d . IMD-HUMS Development Support - Organic	MIPR	Aviation Applied Tech Directorate (AATD) Matrix	4364	1113	1-4Q	0		0		0	1113	0
e . IMD-HUMS Development Support - Contractor	C/FP	Goodrich, 100 Panton Road, Vergennes, Vermont 05491	9164	12050	3Q	0		0		0	12050	0
Subtotal:			103017	106742		62051		14900		75426	340868	0

Remarks: IMD-HUMS demonstration program was funded in FY02 and is separate from the UH-60M program.

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program					PROJECT 504			
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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	417	81	1-4Q	212	1-4Q	212	1-4Q	212	717	0
b . Logistics Analysis Support - Organic	MIPR	AMCOM Matrix	0	0	1-4Q	332	1-4Q	2374	1-4Q	1566	4272	0
c . Logistics Analysis Support - Support Contractor	MIPR	Support Contractor	0	0	1-3Q	393	1-3Q	392	1-3Q	402	1187	0
Subtotal:			417	81		937		2978		2180	6176	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 Planning, Test and Evaluation	MIPR	Various Activities	1965	1656	1-4Q	5175	1-4Q	3071	1-4Q	225	10127	0
b . Test Planning, Test and Evaluation	MIPR	Various Activities	0	0	1-4Q	262	1-4Q	265	1-4Q	0	527	0
Subtotal:			1965	1656		5437		3336		225	10654	0

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0203744A - Aircraft Modifications/Product Improvement Program

PROJECT

504

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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	1784	1265	1-4Q	900	1-4Q	922	1-4Q	944	4031	0
b . PM Support - Contract	C/FP	O2K Contractor	618	246	1-3Q	918	1-3Q	934	1-3Q	952	3050	0
Subtotal:			2402	1511		1818		1856		1896	7081	0
Project Total Cost:			107801	109990		70243		23070		79727	364779	0

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203744A - Aircraft Modifications/Product Improvement Program	PROJECT 504
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<u>Schedule Detail</u>	<u>FY 2002</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	1-4Q	1Q					
Finish COSSI Effort (UH-60M)	2Q							
IMD-HUMS: Initiate demonstration program	3Q							
IMD-HUMS: Completion of demonstration program				3Q				
System Critical Design Review (UH-60M)		3Q						
Test article delivery for testing (UH-60M)		4Q	1Q					
OT preparation and conduct				1-4Q				
Milestone C (UH-60M)			2Q					
LRIP Lot 1 Contract Award (UH-60M)			3Q					
LRIP Lot 2 Contract Award (UH-60M)				2Q				
Full rate production IPR (UH-60M)					2Q			
First Unit Equipped (FUE) UH-60M					4Q			
Pre-Planned Product Improvements (P3I)					2-4Q	1-4Q	1-4Q	1-4Q
Closeout of Integration and Qualification					2Q			
Depot Partnership Prove-out (UH-60M)			3-4Q	1-4Q	1-4Q			

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

February 2003

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0203752A - Aircraft Engine Component Improvement Program						PROJECT 106		
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	14443	6767	3399	3451	3604	8798	10531	11504	0	68155

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 Legacy to Objective (LO) transition path of the Transformation Campaign Plan (TCP).

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203752A - Aircraft Engine Component Improvement Program	PROJECT 106
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<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
T700 Engine: Continue addressing flight safety and readiness problems that arise in the field by providing timely engineering support. 2002: Continued the development of the 701D engine to reduce engine O&S costs and improve engine on-wing life. Continue Power Turbine module life analysis modeling and update service life limits. Started development of the Enhanced Digital Electronic Control for the 701D engine to reduce O&S Costs and improve flight safety. 2003: Continue the development of the 701D engine to reduce engine O&S costs and improve engine on-wing life. Complete the Enhanced Digital Electronic Control program to reduce costs and improve safety. 2004: : Complete the development of the 701D engine to reduce engine O&S costs and improve engine on-wing life. Develop improved seals to reduce oil leakage, improve on-wing life, and reduce O&S costs. Perform component life analysis of PT hardware to improve flight safety and readiness. 2005: Complete component life analysis of PT hardware to improve flight safety and readiness. Qualify an improved GG blade damper to enhance on-wing life and reduce O&S costs. Qualify an internal coating for the stage 2 nozzle to improve life and reduce O&S costs.	9902	4800	1555	1326
T800/SPU: Complete designs and qualification testing for new hardware to improve reliability and maintainability.	0	0	0	500

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

February 2003

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT			
7 - Operational system development	0203752A - Aircraft Engine Component Improvement Program	106			
Accomplishments/Planned Program (continued)		<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
T55 Engine: Continue applying engineering effort to unanticipated flight safety problems revealed in the field and provide timely support. 2002: Continued design and qualification work on the Safety Enhanced Plumbing to introduce fire resistant and fire proof fluid lines. Started the Design and qualification of an Improved Bleed System which will reduce O & S costs. Started the qualification of the improved tailpipe to reduce removals and O&S costs. Started the design of an improved N2 Speed Sensor which will eliminate the gear train thereby reducing hardware requirements and improve O&S costs. Completed Life Management Fraction Damage Tables and completed the qualification effort for the Stage 2 Wheel life enhancement. 2003: Complete design and qualification of an improved Bleed System to reduce O & S costs. Complete the qualification of the Safety Enhanced Plumbing to improve engine safety. Continue the design and qualification of the Enhanced Tail Pipe to reduce O & S costs. Continue Design and Qualification efforts on N2 Sensor to reduce amount of hardware and improve O&S. 2004: Complete the Design and Qualification of the N2 Speed Sensor Program to reduce amount of hardware and O&S Costs. Complete the design and Qualification of the Enhanced tailpipe to reduce O & S costs. Start the Design efforts for the T55-GA-714B program to increase engine temperature margin and reduce O & S costs (engines remain on-wing longer). 2005: Continue the Design work and start the Qualification effort for the T55-GA-714B program to increase engine temperature margin and reduce O & S costs (engines remain on-wing longer).	1734	1510	1425	1250	
GTCP36 APU: Component life analysis/qualification testing. Dual Alloy Turbine Design. Perform Dual Alloy Turbine Wheel containment analysis. Spin pit testing to verify life limits. PTO Clutch analytical inspection to verify improvements. Component life analysis/qualification testing. Run 200-hour Qualification Tests for numerous CIP-developed components for the Apache and Black Hawk APUs. Develop new depot repair procedures to deal with emerging failure trends. Design and test inlet barrier filter.	283	105	175	150	
T62 APU: Component life analysis/qualification testing. Flow formed Combustor with flexible fuel manifold for reliability. Redesign reduction drive housing and carrier assembly to improve maintainability/reliability. Redesign wiring harness to greatly improve reliability. Component Life Analysis. Development of a flow formed Combustor Housing which will improve the reliability of the combustor. Design and test inlet barrier filters for both APUs	73	100	150	125	
IN HOUSE: In-house support for the CIP engineers. Contracting support for CIP contracts.	134	252	94	100	
Continued development of RAPTR DRP/Test Cell Correlation.	456	0	0	0	
Continued development of Universal Full Authority Digital Engine Control (FADEC)	1000	0	0	0	

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203752A - Aircraft Engine Component Improvement Program	PROJECT 106
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<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Continued development of Variable Displacement Vane Pump (VDVP) and Liquid or Light End Air (LOLA) Equipped Fuel Delivery Unit (FDU)	861	0	0	0
T800 Engine:	0	0	0	0
Totals	14443	6767	3399	3451

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	14889	3689	3858	3923
Current Budget (FY 2004/2005 PB)	14443	6767	3399	3451
Total Adjustments	-446	3078	-459	-472
Congressional program reductions				
Congressional rescissions		-91		
Congressional increases		3400		
Reprogrammings	-35	-39		
SBIR/STTR Transfer	-411	-192		
Adjustments to Budget Years			-459	-472

FY04/FY05: Minor adjustments due to funds being redirected to higher priority Army programs.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**February 2003**

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

**0203752A - Aircraft Engine Component
Improvement Program**

PROJECT

106

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

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

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development

0203752A - Aircraft Engine Component Improvement Program

106

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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 . T-700 Engine	SS/CPFF	GE-Air, Lynn, MA	53400	4800	1-2Q	1555	1-2Q	1326	1-2Q	Continue	61081	Continue
b . T-800 SPU	SS/CPFF	Williams International, Walled Lake, MI	0	0		0	1-2Q	100		0	100	0
c . T-800 Engine	SS/CPFF	Honeywell, Phoenix, AZ	0	0		0	1-2Q	200		0	200	0
d . T-800 Engine	SS/CPFF	Rolls Royce, Indianapolis, IN	0	0		0	1-2Q	200	1-2Q	0	200	0
e . T-55 Engine	SS/CPFF	Honeywell, Phoenix, AZ	22694	1510	1-2Q	1425	1-2Q	1250	1-2Q	Continue	26879	Continue
f . APU's	MIPR	Air Force, Kelly AFB, TX	13557	0		0		0		0	13557	13557
g . FADEC/FDU	MIPR	CECOM, Ft. Monmouth, NJ	5577	0		0		0		0	5577	5716
h . APU's	MIPR	Air Force, Hill AFB, UT	724	205	3Q	325	3Q	275	3Q	Continue	1529	Continue
Subtotal:			95952	6515		3305		3351		Continue	109123	Continue

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
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
Subtotal:			209	0		0		0		0	209	209
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(R-3)	February 2003
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203752A - Aircraft Engine Component Improvement Program	PROJECT 106
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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	445	252	1-4Q	94	1-4Q	100	1-4Q	Continue	891	Continue
Subtotal:			10787	252		94		100		Continue	11233	Continue

Project Total Cost:			107509	6767		3399		3451		Continue	121126	Continue
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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203758A - Digitization					PROJECT 374		
COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	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	31420	32158	18251	18716	15349	15733	9952	11296	Continuing	183695

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 Legacy to Objective transition path of the Army Transformation Plan

<u>Accomplishments/Planned Program</u>	FY 2002	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.	4832	4688	3993	4050
Provide technical, analytical, and management support for implementation of information operations on the digitized battlefield.	1608	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.	1518	1597	1000	1020
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.	1325	1505	900	910

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

February 2003

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT			
7 - Operational system development	0203758A - Digitization	374			
<u>Accomplishments/Planned Program (continued)</u>		<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
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.		1019	0	0	0
Synchronize system/platform integration, through the use of common components, across ground and aviation programs.		4386	0	0	0
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.		0	5174	2558	2666
Manage integration of Analysis, Modeling and Design (AMD, including software development systems, through database integration, with other systems. Support the increased ingegration of training and test systems with the tactical (C4ISR) systems.		0	2885	0	0
Apply emerging horizontal integrated information technologies, capitalizing on the synergism achieved through system of system fieldings across functional areas.		3942	0	0	0
Improve network management across all fielded digitized systems to support increased activity.		0	2659	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.		0	4210	8100	8340
Integrate and synchronize modeling and simulation interoperability with programs in support of testing and training of system of systems developments as part of Simulation and C2 Information Systems Connectivity Experiments (SINCE).		3475	0	0	0
Provide strategic planning to the Army Experimentation Campaign Program (AECPP). Design and manage Unit Set configuration and execution. Perform management and oversight of the 3 views of architecture (system, operational, and technical).		1430	0	0	0
Identify Embedded Training Design Support tasks, methodologies, research, and development in the use of simulation.		1630	0	0	0
Apply university academic and research resources to the integration of Army modeling, simulation, and training in support of modernized forces.		2755	2000	0	0
Support Joint and Coalition interoperability programs to improve operational integration in accordance with JV 2010, including C4I Coalition Warfare, Command and Control System Interoperability Program (C2SIP) efforts, interoperability database developments, operational system architectures, the Simulation of C2 Information Systems Connectivity Experiments (SINCE) and the Multilateral Interoperability Program (MIP).		2500	2951	600	600

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203758A - Digitization	PROJECT 374
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<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Support Digital Intelligence Situation Mapboard (DISM) Battalion Testand integration research with SINCGARS	1000	2800	0	0
Totals	31420	32158	18251	18716

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	32027	28968	32465	33405
Current Budget (FY 2004/2005 PB)	31420	32158	18251	18716
Total Adjustments	-607	3190	-14214	-14689
Congressional program reductions				
Congressional rescissions		-530		
Congressional increases		4800		
Reprogrammings	251	-186		
SBIR/STTR Transfer	-858	-894		
Adjustments to Budget Years			-14214	-14689

Starting FY2004: Transfer of civilian salaries and contractor support to OMA.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**February 2003**

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0203758A - Digitization

PROJECT

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C. Other Program Funding Summary: Not Applicable

D. Acquisition Strategy: To validate/demonstrate concepts and requirements, near term efforts were 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 digital capability designed to meet the near-term requirements of the First Digitized Division, Second Digitized Division by 2003, and First Digitized Corps by the end of 2006, the Stryker Brigade Combat Teams and the Army Transformation Force. Also supports the Army's role in joint and multi-national digitization programs; coordinates/manages security, vulnerability and "Red Teaming" functions; and manages Manpower and Personnel Integration (MANPRINT) modeling, simulations, and analysis.

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
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	15154	1Q	16451	1Q	16916	1Q	Continue	Continue	0
b . International Digitization	MIPR/PWD	Various	11001	2951	1Q	600	1Q	600	1Q	Continue	Continue	0
c . Technical Analysis	MIPR	MITRE, McLean, VA	4028	1090	1Q	1200	1Q	1200	1Q	Continue	Continue	0
d . Other Government Agencies	MIPR	Various	6022	500	1Q	0	1Q	0		0	6522	0
Subtotal:			80237	19695		18251		18716		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 . Directorate of Integration Office Operations	In House	Pentagon, Arlington, VA	6192	1400	1-4Q	0		0		0	7592	0
b . Digitization Planning, Internet and graphics support	MIPR	Veridian Corp. Pentagon, Arlington, VA	5299	1700	1Q	0		0		0	6999	0

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0203758A - Digitization					PROJECT 374		
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
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	0		0		0	15126	0
d . Other Integration Support	MIPR	L3Com, Pentagon	1923	196	1Q	0		0		0	2119	0
Subtotal:			24440	7396		0		0		0	31836	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 . 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	0		0		0	10692	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
e . DISM Integration Research with SINCGARS	MIPR	PM Soldier Huntsville, AL	0	2800		0		0		0	2800	0

ARMY RDT&E COST ANALYSIS(R-3)	February 2003
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203758A - Digitization	PROJECT 374
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III. Test and Evaluation (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:			16603	5067		0		0		0	21670	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:			121280	32158		18251		18716		Continue	Continue	0
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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2003

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0203759A - Force XXI Battle Command, Brigade and Below (FBCB2)						PROJECT 120			
COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	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)	54927	61961	48436	20224	14798	16696	7908	8244	0	295338

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 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.

FY 04 funds will continue test of FBCB2 Software, development of v7.0 software, and initiate test of v7.0 software. FY05 funds will continue development and initiate Operational Evaluation of v7.0 software. FBCB2 is an Army designated Horizontal Technology Integration (HTI) program. This system supports the legacy to the objective transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Conducted Limited User Test (LUT) 2A at Ft. Hood, TX, Field Test Five (FT5) at Ft. Huachuca, AZ, Line of Sight(LOS) Testing at Ft. Knox, KY, and Initiated IOT&E Planning and Preparation	19891	0	0	0
Developed training plans, (Plan of Instructions) maintenance and technical manuals for v3.5.	1299	0	0	0
Completed software development for v3.5, initiate development of v7.0 and support Government Testing.	15530	0	0	0
Continue Army Battle Command System (ABCS) architecture and system of systems network engineering and integration efforts in support of ABCS 7.0 and Software Block Functionality.	13033	20688	3658	1000
PM FBCB2 Program Management.	5174	6054	3953	2010
Conduct combined FBCB2/MCS/ISYSCON(V4) Force Effectiveness Limited User Test at National Training Center, Ft Irwin, CA, Initial Operational Test and Evaluation (IOT&E) at FT. Hood, TX, Climatic (Extreme Cold), at Ft. Greely, AK, NTC 03-03, 03-05, and 03-08 at National Training Center, Ft Irwin, CA	0	3883	19000	0

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203759A - Force XXI Battle Command, Brigade and Below (FBCB2	PROJECT 120
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<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Continue development of FBCB2 software v7.0, support Government Testing and develop training plans, (POI's) maintenance and technical manuals for v7.0.	0	31336	14021	1000
Development of Joint Interoperability, Upgrades for DII COE Compliance and Safety Issues	0	0	3504	13214
Field Test 4QFY04 and Operational Evaluation on v7.0 Software	0	0	4300	3000
Totals	54927	61961	48436	20224

<u>B. Program Change Summary</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Previous President's Budget (FY 2003)	56381	64915	29396	20578
Current Budget (FY 2004/2005 PB)	54927	61961	48436	20224
Total Adjustments	-1454	-2954	19040	-354
Congressional program reductions				
Congressional rescissions		-838		
Congressional increases				
Reprogrammings	88	-359		
SBIR/STTR Transfer	-1542	-1757		
Adjustments to Budget Years			19040	-354

FY04 \$20M Realignment from OPA to RDT&E, FBCB2, to finance Joint Initial Operational Test and Evaluation.

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203759A - Force XXI Battle Command, Brigade and Below (FBCB2)	PROJECT 120
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C. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
Other Procurement Army Activity 2 SSN W61900	83844	91257	83200	81274	94376	78624	99927	147218	1200100	1959820
Other Procurement Army Activity 4 SSN BS9736 (Spares)	1234	1840	4211	3512	3553	3554	2790	6061	0	26755

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 7.0 on 14 June 2002. This will satisfy the Operational Requirements Document (ORD) Block II requirements and synchronize with ABCS 7.0.

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. A LRIP Contingency Option for an additional 6,774 FBCB2 Systems has been authorized and a Full Rate Production (FRP) decision is planned following IOT&E, FY04.

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT		
7 - Operational system development				0203759A - Force XXI Battle Command, Brigade and Below (FBCB2)						120		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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	TRW, CA	135621	20688	1Q	3658	1Q	1000	1Q	Continue	Continue	0
b . Hardware Development	FFP	TRW, CA.	27645	0		0		0		Continue	Continue	0
c . Software Development	CPIF/CPAF	TRW, CA	184929	31336	1Q	17525	1Q	14214	1Q	Continue	Continue	0
d . TACNAV	CPIF	TRW CA	1000	0		0		0		0	1000	0
			349195	52024		21183		15214		Continue	Continue	0
Subtotal:												
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	1650	1Q	1550	1-4Q	1250	1-4Q	Continue	Continue	0
b . Matrix Support	MIPR	CECOM, Ft. Monmouth	3941	683	1Q	400	1-2Q	400	1-2Q	Continue	Continue	0
c . Misc. Contracts Support	MIPR/PWD	CECOM, Ft. Monmouth	18307	3721	1Q	2003	1-2Q	360	1-2Q	Continue	Continue	0
			33185	6054		3953		2010		Continue	Continue	0
Subtotal:												

ARMY RDT&E COST ANALYSIS(R-3)

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BUDGET ACTIVITY
7 - Operational system development

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

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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	0		0		0		0	2133	0
b . ATEC	MIPR	ATEC	32610	370	1Q	19000	1Q	3000		Continue	Continue	0
c . EPG	MIPR	EPG	14739	795	1Q	4300		0	1Q	Continue	Continue	0
d . CRTC	MIPR	CRTC	0	420		0		0		0	420	0
e . Misc Contract Support			0	2298		0		0		0	2298	0
Subtotal:			49482	3883		23300		3000		Continue	Continue	0

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT		
7 - Operational system development				0203759A - Force XXI Battle Command, Brigade and Below (FBCB2)						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	61961		48436		20224		Continue	Continue	0

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
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<u>Schedule Detail</u>	<u>FY 2002</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>
FT4	1Q							
LUT 2A	1Q							
Version 3.5 FBCB2 S/W Delivery	2Q							
FT5	4Q							
Line of Sight (LOS) Testing	4Q							
Climatic (Extreme Cold) Testing Ft. Greely, AK		2Q						
Initial Operational Test & Evaluation (IOTE)			1-4Q					
Award Follow-on SE&I Contract				1Q				
MS III/Full Rate Production Decision Review				1Q				
Full Rate Production Contract Award				2Q				
FBCB2 Software v7.0 Delivery				1Q				
Field Test and Operational Evaluation on v7.0 software				2Q				
FBCB2 SW Block 2 Upgrade and Test					3Q			
FBCB2 SW Block 3 Upgrade and Test							1Q	
FBCB2 SW Block 4 Upgrade and Test								3Q

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

February 2003

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0203761A - Force XXI WRAP						PROJECT 394		
COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
394	FORCE XXI INITIATIVES	39	0	0	0	0	0	0	0	0	39

A. Mission Description and Budget Item Justification: The Rapid Acquisition Program for Transformation (RAPT) is the Army's proven Acquisition Reform initiatives. The program puts proven technologies from successful experimentation into the hands of the warfighter faster and cheaper by reducing acquisition cycle time. Candidates considered for funding through this program are compelling, mature technologies capable of achieving a Milestone C decision in the near future or following one to two years of continued development. Initiatives can originate from virtually anywhere. Sources for "good ideas" are the Training and Doctrine Command (TRADOC) Centers, Schools and Battle Labs, the user community, the Army Materiel Command (AMC), Research Development & Engineering Centers (RDECs), the Project Manager/Program Executive Officer (PM/PEO) community, industry, Academia, Horizontal Technology Integration (HTI), General Officer Steering Committees (GOSCs), and the Federally Funded Research and Development Centers (FFRDCs). The primary sources for initiatives are the Battle Lab Warfighting Experiments (BLWEs), Advanced Warfighting Experiments and the Advanced Concept Technology Demonstrations (ACTDs). The RAPT program is the bridge linking Army's compelling successes in experimentation to systems acquisition. Program terminated in FY 02.

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
RAPT Travel Support	39	0	0	0
Totals	39	0	0	0

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

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0203761A - Force XXI WRAP

PROJECT
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<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	15446	0	0	0
Current Budget (FY 2004/2005 PB)	39	0	0	0
Total Adjustments	-15407	0	0	0
Congressional program reductions				
Congressional rescissions				
Congressional increases				
Reprogrammings	-15406			
SBIR/STTR Transfer	-1			
Adjustments to Budget Years				

FY 03: Funds re-aligned to programs where actual execution will occur.

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

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

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BUDGET ACTIVITY

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D. Acquisition Strategy: Not applicable.

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0203761A - Force XXI WRAP					PROJECT 394		
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 . RAPT candidates	Various	TBD	15446	0		0		0		0	15446	0
Subtotal:			15446	0		0		0		0	15446	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
			0	0		0		0		0	0	0
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
			0	0		0		0		0	0	0
Subtotal:			0	0		0		0		0	0	0
Remarks: Not Applicable												

ARMY RDT&E COST ANALYSIS(R-3)	February 2003
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203761A - Force XXI WRAP	PROJECT 394
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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

Remarks: Not Applicable

Project Total Cost:			15446	0		0		0		0	15446	0
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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203801A - Missile/Air Defense Product Improvement Program						
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	13302	41787	44468	32025	16765	10899	11171	11419	0	194025
036 PATRIOT PROD IMP PGM	9434	41787	44468	32025	16765	10899	11171	11419	0	184408
303 STINGER RMP PIP	3868	0	0	0	0	0	0	0	0	9617

A. Mission Description and Budget Item Justification: The goal of the Air Defense Artillery (ADA) modernization is to provide well-trained soldiers with the most capable systems at the right time to defeat the evolving threat. The ADA systems support the Air and Missile Defense (AMD) force which assists the Army and the Joint Force in gaining Full Spectrum Dominance in any operational requirement. ADA must continually be upgraded and modernized to meet all challenges, from small scale contingencies to major theater wars (MTW). FY04/FY05 funds support critical improvements to the Patriot program.

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	13727	43738	45266	32630
Current Budget (FY 2004/2005 PB)	13302	41787	44468	32025
Total Adjustments	-425	-1951	-798	-605
Congressional program reductions				
Congressional rescissions		-505		
Congressional increases				
Reprogrammings	-49	-242		
SBIR/STTR Transfer	-376	-1204		
Adjustments to Budget Years			-798	-605

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203801A - Missile/Air Defense Product Improvement Program					PROJECT 036	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	9434	41787	44468	32025	16765	10899	11171	11419	0	184408

A. Mission Description and Budget Item Justification: The Patriot Product Improvement Program upgrades the Patriot system through a series of individual materiel changes (MC) culminating in the attainment of the Patriot Advanced Capability - 3 (PAC-3) system. The communication upgrades improve Patriot's above and below battalion communication equipment. These changes eliminate Patriot-peculiar communications equipment and improve Patriot's interoperability between systems and the Services. FY00 was the first year for the Remote Launch Communication Enhancement Upgrade (RLCEU) Link 16 Phase 1 and Post Deployment Build 5 (PDB 5). RLCEU Link 16 will develop and test the hardware required for a Link-16 terminal, terminal control, and communications processing equipment to receive and process the Link 16 Joint Data Net information. PDB 5 will improve system capability against advanced threats (Theater Ballistic Missiles and Air-Breathing Threats (TBMs and ABTs) in all environments, to include clutter and/or intense Electronic Counter Measures (ECM). Program objective will be to define the software changes necessary to enhance system capabilities against advanced TBM and cruise missile threats. In addition, interoperability improvements [e.g., Cooperative Engagement Capability (CEC) interface, cueing, and Tactical Data Information Link (TADIL) direct to Fire Unit (FU)], PAC-3 missile integration improvements in ground software, Classification Discrimination & Identification (CDI3) enhancements, and on-line diagnostic evolution will be addressed. This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Continue Post PDB 5	4161	6010	9483	7588
Recapitalization	5273	26527	28985	19437
Special Program (PIP)	0	4250	0	0
SIAP	0	5000	6000	5000
Totals	9434	41787	44468	32025

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

February 2003

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 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
Budget Activity 3 - Patriot Mod (C50700)	24819	148671	212575	86131	75443	77490	71881	41854	0	738864
Budget Activity 3 - Patriot Mod Initial Spares CA0267	722	39946	32055	14775	14849	9576	9034	8124	0	129081
Medium Sets - M53500	0	6394	816	1305	1374	1405	1432	1442	0	14168
Position Azimuth Determining SYS (PADS) - M75700	0	0	783	782	782	781	779	779	0	4686

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(R-3)									February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
7 - Operational system development					0203801A - Missile/Air Defense Product Improvement Program					036		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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		Continue	Continue	0
b . Post PDB 5			2760	1210		3553		2368		Continue	9891	Continue
c . Recapitalization			5273	26527	2Q	28985	2Q	19437	2Q	Continue	80222	0
d . Special Program (PIP)			0	4250	2Q	0		0		Continue	Continue	0
e . SIAP			0	5000	3Q	6000	3Q	5000	3Q	Continue	Continue	0
Subtotal:			9259	36987		38538		26805		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 . In-House Support		RSA/AL	14961	700		900		810		Continue	17371	Continue
b . Matrix Support		RSA/AL	3347	500		550		520		Continue	4917	Continue
Subtotal:			18308	1200		1450		1330		Continue	22288	Continue

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
7 - Operational system development					0203801A - Missile/Air Defense Product Improvement Program					036		
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	1250		1500		1000		Continue	18971	Continue
b . White Sands Missile Range	MIPR	WSMR/NM	12758	350		430		400		Continue	13938	Continue
c . RDEC and Other Govt Agent	1095/MIPR	RSA/AL	95732	2000		2550		2490		0	102772	0
Subtotal:			123711	3600		4480		3890		Continue	135681	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
Subtotal:			0	0		0		0		0	0	0
Project Total Cost:			151278	41787		44468		32025		Continue	Continue	Continue

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
036

<u>Schedule Detail</u>	<u>FY 2002</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>
Configuration 3 Initial Operational Test & Evaluation (IOT&E)	2-4Q							
Initiate PAC-3 Evolutionary Block Upgrades	1Q							
PAC-3 Missile Block 02 Production DAB		1Q						
PAC-3 Missile Block 04 Production			4Q					
PAC-3 IOC				4Q				
PAC-3 Missile Block 06 Production						4Q		

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	52921	12445	9822	4915	4903	4777	4907	4903	0	169275
336 TOW PIP	35371	0	0	0	0	0	0	0	0	93344
785 LONGBOW HELLFIRE PIP	17550	12445	9822	0	0	0	0	0	0	51526
786 APKWS SIMULATOR UPGRADE	0	0	0	4915	4903	4777	4907	4903	0	24405

A. Mission Description and Budget Item Justification: The TOW Fire and Forget (F&F) Missile program provides a capability to Light Early-Entry Contingency Forces and the Interim Brigade Combat Teams equipped with the TOW Improved Target Acquisition System (ITAS). The Army has recently completed a thorough review of all programs in order to balance near-term requirements with Objective Force needs. As a result, the TOW F&F program is not funded after FY02.

Longbow HELLFIRE is a critical system to the Interim and Objective Forces. Longbow HELLFIRE provides the Army with a fire-and-forget, anti-armor capability for the Apache Longbow (Interim Force) and Comanche (Objective 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) and add Counter-Active Protection System (CAPS) capabilities for the missile. The HOJ/AJ and CAPS objective is to maintain the Longbow HELLFIRE Missile System's low vulnerability and susceptibility to any "hard kill" Active Protection System (APS) and battlefield jammer threats. This system supports the Legacy-to-Objective 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. This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	68318	13018	9988	0
Current Budget (FY 2004/2005 PB)	52921	12445	9822	4915
Total Adjustments	-15397	-573	-166	4915
Congressional program reductions				
Congressional rescissions		-143		
Congressional increases				
Reprogrammings	-13496	-72		
SBIR/STTR Transfer	-1901	-358		
Adjustments to Budget Years			-166	4915

FY02 funds reprogrammed to higher Army priorities due to the termination of the TOW Fire and Forget program.
 FY05 increase to initiate APKWS Simulator upgrade development.

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
785

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	17550	12445	9822	0	0	0	0	0	0	51526

A. Mission Description and Budget Item Justification: Longbow HELLFIRE is an Objective Force missile system that provides the Army with a fire-and-forget, anti-armor capability for the Apache Longbow (Interim Force) and Comanche (Objective 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) and add Counter-Active Protection System (CAPS) capabilities for the missile. The HOJ/AJ and CAPS objective is to maintain the Longbow HELLFIRE Missile System's low vulnerability and susceptibility to any "hard kill" Active Protection System (APS) and battlefield jammer threats. This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Complete critical/final design of HOJ/AJ software; complete 6 degree of freedom modeling.	15518	0	0	0
Implement design changes; formal hardware qualification; hardware in the loop; complete critical/final design; complete guidance section and rocket ball design evaluation.	0	10229	6578	0
Conduct missile ground flight test, low speed captive flight test, and aircraft system flight test.	0	1193	2303	0
Conduct tower, wind tunnel, and hardware in the loop testing.	549	0	0	0
Perform government engineering support.	1483	1023	941	0
Totals	17550	12445	9822	0

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
785

B. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
C70300 Longbow Hellfire/LBHF	231486	181183	33061	28526	26892	11174	0	0	0	2137617

C. Acquisition Strategy: Development of the Longbow Hellfire HOJ/AJ and CAPS will be sole source to the prime contractor, Longbow Limited Liability Company (LLC). 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 LLC for development and qualification of HOJ/AJ and CAPS.

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203802A - Other Missile Product Improvement Programs	PROJECT 785
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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	4829	1Q	0		0	35375	0
b . Support Contracts	Various	Various	2120	622	1-4Q	764	1-4Q	0		0	3506	0
c . Development Engineering	Various	Various	1944	637	1-4Q	985	1-4Q	0		0	3566	0
Subtotal:			25640	10229		6578		0		0	42447	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(R-3)								February 2003				
BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT		
7 - Operational system development				0203802A - Other Missile Product Improvement Programs						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	2303	1-4Q	0		0	4570	0
Subtotal:			1074	1193		2303		0		0	4570	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	1023	1-4Q	941	1-4Q	0		0	4509	0
Subtotal:			2545	1023		941		0		0	4509	0
Project Total Cost:			29259	12445		9822		0		0	51526	0

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203802A - Other Missile Product Improvement Programs	PROJECT 785
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<u>Schedule Detail</u>	<u>FY 2002</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>
Test and Evaluation	2-3Q							
Missile firings LBHF HOJ/AJ		2Q						
Engineering Change Proposal LBHF HOJ/AJ		3Q						
Complete detailed design LBHF CAPS		2Q						
Test and Evaluation			2Q					
Engineering Change Proposal LBHF CAPS			3Q					

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203802A - Other Missile Product Improvement Programs					PROJECT 786	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	0	4915	4903	4777	4907	4903	0	24405

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. This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Define system requirements for training simulator hardware and software.	0	0	0	4413
Develop test plans.	0	0	0	212
Perform government engineering support.	0	0	0	290
Totals	0	0	0	4915

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
786

B. Other Program Funding Summary	<u>FY 2002</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>	<u>To Compl</u>	<u>Total Cost</u>
C70301 APKWS (Advanced Precision Kill Weapon System)	0	0	0	20566	50458	65320	125869	160451	1435900	1858564
PE 604802/705 Advanced Precision Kill Weapon System (APKWS) SD&ED	0	23369	35112	11414	6667	9405	18252	16966	0	121185

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(R-3)	February 2003
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203802A - Other Missile Product Improvement Programs	PROJECT 786
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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		3863	1Q	57961	61824	0
b . Support Contracts	Various	Various	0	0		0		125	1-4Q	1916	2041	0
c . Developmental Engineering	Various	Various	0	0		0		425	1-4Q	5247	5672	0
Subtotal:			0	0		0		4413		65124	69537	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(R-3)									February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
7 - Operational system development					0203802A - Other Missile Product Improvement Programs					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	3781	3993	0
Subtotal:			0	0		0		212		3781	3993	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		290	1Q	5385	5675	0
Subtotal:			0	0		0		290		5385	5675	0
Project Total Cost:			0	0		0		4915		74290	79205	0

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
786

<u>Schedule Detail</u>	<u>FY 2002</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			
APKWS Simulator PDR for Lethality Enhancements						1Q		
APKWS Simulator CDR for Lethality Enhancements						2Q		
APKWS Simulator ECP for Lethality Enhancements						3Q		
APKWS Simulator Lethality Enhancements Refit							1Q	
APKWS Simulator PDR for Motor/Seeker Enhancements							3Q	
APKWS Simulator CDR for Motor/Seeker Enhancements								1Q
APKWS Simulator ECP for Motor/Seeker Enhancements								4Q

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

February 2003

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0208010A - Joint Tactical Communications Program (TRI-TAC)								
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	25614	13506	16543	18664	16981	17421	22813	23219	Continuing	Continuing
01D TACTICAL INTERNET MANAGEMENT SYSTEM	0	4673	7696	9642	9804	10288	16230	17144	Continuing	Continuing
107 ISYSCON DEVELOPMENT	25614	8833	8847	9022	7177	7133	6583	6075	Continuing	Continuing

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 Legacy transition path of the Transformation Campaign Plan (TCP).

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	21428	14121	10822	10667
Current Budget (FY 2004/2005 PB)	25614	13506	16543	18664
Total Adjustments	4186	-615	5721	7997
Congressional program reductions				
Congressional rescissions		-154		
Congressional increases				
Reprogrammings	4186	-78		
SBIR/STTR Transfer		-383		
Adjustments to Budget Years			5721	7997

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 SW 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 plus up for 01D TIMS (V)4 to support Block 5 SW Development.

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0208010A - Joint Tactical Communications Program (TRI-TAC)					PROJECT 01D	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	0	4673	7696	9642	9804	10288	16230	17144	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 Legacy transition path of the Transformation Campaign Plan (TCP)

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Requirement Analysis, System Engineering, and Software Development Blk 4	0	4673	0	0
Test & Evaluation Blk 4	0	0	2200	0
Requirement Analysis, System Engineering, and Software Development Blk 5	0	0	5496	7222
Test & Evaluation Blk 5	0	0	0	2420
Totals	0	4673	7696	9642

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
01D

B. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
B93900 TIMS	0	11522	8321	11449	14359	5800	6033	6443	Continuing	Continuing

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. In Mar 99, PDM, Communications Systems Management (CMS) signed a delivery order under the PM, Force XXI Battle Command Brigade and Below (FBCB2) contract with TRW in response to the DD-2028 requirements. TIMS provides the necessary network management functions for FBCB2 and Army Battle Command System (ABCS). An Operational Requirements Document (ORD), superceding the ISYSCON ROC/2028 Change, was approved in May 02. Release 1 of TIMS software was formally tested at the contractor's facility prior to the FBCB2 Customer Test (Apr 00). Release 2.1 was used for the FBCB2 Limited User Test 2 (DCX-1). Release 2.2F was assessed at TIMS LUT2A in Dec 01. Release 2.5 was assessed at Field Test 5 (Sep 02) and was the Block 4 production representative S/W version scheduled to be tested at IOT&E. Milestone C Limited Deployment was approved June 21, 2001 and amended June 17, 2002 to reflect a combined FBCB2 and Maneuver Control System (MCS) IOT&E originally scheduled for 3QFY03. Based on real world requirements the combined IOT&E has been postponed and is targeted to occur in FY04. Therefore, FRP IPR and MR dates are tentatively scheduled in FY05. Current TIMS Limited Deployment Decision is to field release 2.5 to III Corps elements and SBCTs.

ARMY RDT&E COST ANALYSIS(R-3)	February 2003
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0208010A - Joint Tactical Communications Program (TRI-TAC)	PROJECT 01D
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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	2519	2Q	4306	2Q	5922	2Q	Continue	12747	0
Subtotal:			0	2519		4306		5922		Continue	12747	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	310	2Q	390	2Q	Continue	Continue	0
b . TIMS Government Engr	MIPR	Various	0	540	2Q	630	2Q	660	2Q	Continue	Continue	0
Subtotal:			0	904		940		1050		Continue	Continue	0

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
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		2200	2Q	0		0	2200	0
b . TIMS Block 5 OT	MIPR	AEC-Various	0	0		0		2420	2Q	0	2420	0
Subtotal:			0	0		2200		2420		0	4620	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	250	2Q	250	2Q	Continue	Continue	0
Subtotal:			0	1250		250		250		Continue	Continue	0
Project Total Cost:			0	4673		7696		9642		Continue	Continue	0

Schedule Profile Detail (R-4a Exhibit)

February 2003

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 2002</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 Block 5 Award			2Q					
TIMS IOT&E			3Q					
TIMS Full Rate Production IPR				1Q				
TIMS Block 5 OT				3Q				
TIMS Material Release (IOC)				4Q				
TIMS Incremental Block 5 Releases					4Q	4Q	4Q	
TIMS Block 5 Operational Evaluations						3Q		3Q

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0208010A - Joint Tactical Communications Program (TRI-TAC)					PROJECT 107	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	25614	8833	8847	9022	7177	7133	6583	6075	Continuing	Continuing

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 will establish an interface with technical control facilities in the Army Battlefield Command System (ABCS) architecture.
- 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.
- This program element will also interface with the WIN-Tactical Architecture and Network Management Facilities.

- The ISYSCON (V)4 Tactical Internet Management System (TIMS) funding transitions to a new Project, 01D, within PE 208010A in FY03.

- The ISYSCON supports the Legacy transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Block 1 Enhancements (P2 Increment 1.5.2)	4311	0	0	0
Block 3 Development (P2 Increment 2.0)	6388	6292	900	0
Block 3 Development (P2 Increment 2.1)	0	0	7797	2093
Battlefield Spectrum Management Upgrade	2160	0	0	0
Army COMSEC Engineering System Interface	840	420	0	0
Block 6 Development (P2 Increment 3)	0	0	0	6779
System Security Accreditation	209	150	150	150
WIN-Tactical Network Management and Associated Activities	300	0	0	0
TIMS Conduct LUT2A (Release 2.2F)	765	0	0	0
TIMS Initiate Requirement & Analysis (Release 2.5)	630	0	0	0
TIMS Initiate Sys Engr (Release 2.5)	3586	0	0	0

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0208010A - Joint Tactical Communications Program (TRI-TAC)	PROJECT 107
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<u>Accomplishments/Planned Program (continued)</u>	FY 2002	FY 2003	FY 2004	FY 2005
TIMS Initiate Software Development (Release 2.5)	4166	0	0	0
TIMS Conduct Test & Evaluation (Release 2.5)	2259	0	0	0
TIMS S/W Development	0	1971	0	0
Totals	25614	8833	8847	9022

<u>B. Other Program Funding Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
BX0007 ISYSCON	32222	30518	21528	36375	3933	1510	0	0	0	213806
028010/01D Tactical Internet Management System	0	4833	7696	9642	9804	10288	16230	17144	Continuing	Continuing

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(R-3)

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development

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

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/CPFF	GDC4S, Taunton, MA	127325	5590	2Q	7501	2Q	7204	2Q	Continue	Continue	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	29687	1971	2Q	0		0		0	31658	0
d . JNMS Development	CPFF/TM/ FFP	SAIC, McLean, VA	10408	0		0		0		0	10408	0
Subtotal:			168070	7561		7501		7204		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
Subtotal:			0	0		0		0		0	0	0

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development

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

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	TEXCOM/APG/EPG	2950	200	2Q	88	2Q	533	2Q	Continue	Continue	0
b . ISYS Accreditation	MIPR	Software Engineering Center, CECOM, Fort Monmouth, NJ	350	125	2Q	147	2Q	144	2Q	Continue	Continue	0
c . TI MGR (V)4 Test Support	MIPR	TEXCOM/APG/EPG	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
Subtotal:			5335	325		235		677		Continue	Continue	0

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0208010A - Joint Tactical Communications Program (TRI-TAC)	PROJECT 107
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<u>Schedule Detail</u>	<u>FY 2002</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 LUT 2A Release 2.2F	1Q							
ISYSCON Block 3 Phase 2 - Increment 2.0 FQT		3Q						
ISYSCON Block 3 Phase 2 - Increment 2.1 Award			2Q					
ISYSCON Block 3 Phase 2 - Increment 2.1 FQT				4Q				
ISYSCON Block 3 Phase 2 - Increment 3.0 Award					2Q			
ISYSCON Block 3 Phase 2 - Increment 3.0 FQT						4Q		
ISYSCON Block 3 Phase 2 - Increment 3.1 Award							2Q	
ISYSCON FQT								4Q

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0208053A - Joint Tactical Ground System					PROJECT 635		
COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	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)	5152	2812	9767	35064	18499	15682	15897	8042	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 satellites and the follow-on Space Based Infrared System 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 Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Continue Phase II M3P Integrated Product and Process Development (IPPD)	3555	2160	7298	7289
Continue Phase II M3P development	1362	509	1973	27003
Continue Phase II M3P management support	235	143	496	772
Totals	5152	2812	9767	35064

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0208053A - Joint Tactical Ground System

PROJECT
635

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	5176	2860	2505	8047
Current Budget (FY 2004/2005 PB)	5152	2812	9767	35064
Total Adjustments	-24	-48	7262	27017
Congressional program reductions				
Congressional rescissions		-32		
Congressional increases				
Reprogrammings	-24	-16		
SBIR/STTR Transfer				
Adjustments to Budget Years			7262	27017

Increases in FY04 funding will continue upgrade of the JTAGS system to the M3P.
 Increases in FY05 funding for developing a 6th M3P to meet new wartime requirements.

<u>C. Other Program Funding Summary</u>	<u>FY 2002</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>	<u>To Compl</u>	<u>Total Cost</u>
BZ8420 Joint Tactical Ground Station Mods	0	0	0	5868	7664	22848	6928	0	Continue	Continue

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**February 2003**

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. Phase II M3P 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(R-3)

February 2003

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	209	1Q	46	1Q	26040	1Q	Continue	51805	Continue
b . Engineering Services	C/CPFF	Northrup Grumman/ Azusa, CA	3886	300	1Q	500	1Q	550	1Q	0	5236	0
c . In-House IPPD Support	N/A	Various	10077	1904		3136		3492		Continue	18609	Continue
d . Contractor Engineering IPPD Support	C/CPFF	Various	8277	305	2Q	1908	2Q	2174	2Q	Continue	12664	Continue
e . Government Engineering IPPD Support	N/A	Various	8910	64		2250		1895		Continue	13119	Continue
f . Government Furnished Equipment	N/A	Various	311	30		500		500		0	1341	0
Subtotal:			56971	2812		8340		34651		Continue	102774	Continue

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
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	0		1427		413		Continue	1840	Continue
Subtotal:			0	0		1427		413		Continue	1840	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
Subtotal:			0	0		0		0		0	0	0
Project Total Cost:			56971	2812		9767		35064		Continue	104614	Continue

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0208053A - Joint Tactical Ground System	PROJECT 635
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<u>Schedule Detail</u>	<u>FY 2002</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>
Continue P3I Phase II Development	1-4Q							
Continue P3I Phase II Development		1-4Q						
Continue P3I Phase II Development / DM3P DT/OT			1-4Q					
Continue P3I Phase II Development / DM3P Fielding				1-4Q				
Continue P3I Phase II Development					1-4Q			
Continue P3I Phase II Development						1-4Q		
Continue P3I Phase II Development / GM3P DT/OT							1-4Q	
Continue P3I Phase II Development / GM3P Fielding								1-4Q

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

February 2003

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0303140A - Information Systems Security Program									
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	12875	22163	20728	24845	25837	26656	23774	24913	Continuing	Continuing	
491 INFORMATION ASSURANCE DEVELOPMENT	11741	20949	7444	8100	9073	9922	7204	7972	0	88952	
501 ARMY KEY MGT SYSTEM	1134	1214	1362	1425	1513	1557	1009	1049	Continuing	Continuing	
50B ARMY COMMON ACCESS CARD/PUBLIC KEY INFRASTRUCTURE	0	0	11922	15320	15251	15177	15561	15892	0	93449	

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

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	13253	14844	15143	15642
Current Budget (FY 2004/2005 PB)	12875	22163	20728	24845
Total Adjustments	-378	7319	5585	9203
Congressional program reductions				
Congressional rescissions	-87	-464		
Congressional increases		8372		
Reprogrammings				
SBIR/STTR Transfer	-291	-589		
Adjustments to Budget Years			5585	9203

FY04 and FY05 increases attributed to realignment of ISSP funding (OPA to R&D) to accommodate Biometrics Requirements

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303140A - Information Systems Security Program					PROJECT 491	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	11741	20949	7444	8100	9073	9922	7204	7972	0	88952

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. This program supports the Legacy to Objective transition path of the Transformation Campaign.

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
<ul style="list-style-type: none"> - Support development of Secure Gateway and begin testing of the developing products. - 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. - Investigate Low Probability of Intercept (LPI)/Low Probability of Detection (LPD) techniques for integration in very short range radios. - Support Inline Networking Encryption (INE) installation and integration through installation kit development. - Provide Tech Support on Army CRYPTO modernization program. 	2241	2500	2851	2640
Develop and evaluate information assurance tools as follows: <ul style="list-style-type: none"> - Perform information assurance network assessment of Stryker Brigade Combat Team (SBCT) Architectures to improve security posture. - 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. - Conduct field test "developmental red teaming" of systems and networks. - Conduct performance modeling of the network effects of information assurance tools. - Tailor tool enhancements for unique tactical applications. 	4586	5074	4593	5460

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303140A - Information Systems Security Program	PROJECT 491
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Accomplishments/Planned Program (continued)	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
- Conduct test and evaluation of Biometric commercial off-the-shelf hardware and software to determine suitability for use within DOD.	4914	13375	0	0
- Conduct modeling and simulation efforts to support operational evaluation.				
- Enhance CECOM prototype Biometric platform delivered to Biometrics Management Office.				
- Implement biometric access control on personal digital assistant suitable for military and dual-use application.				
- Support biometric integration in existing command and control and MIS systems.				
Totals	11741	20949	7444	8100

B. Other Program Funding Summary	<u>FY 2002</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>	<u>To Compl</u>	<u>Total Cost</u>
OPA TA0600	67466	39055	115374	30656	30140	28469	25073	27020	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 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 support the testing and evaluation of COTS products and other analysis and evaluation of applicable technologies

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

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	5081	1Q	3749	1Q	3920	1Q	Continue	33663	Continue
b . Hardware/Software Engineering	Various	Various	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		3695	1-4Q	4180	1-4Q	0	12379	0
d . (1) Various	TBD	Various	7847	0		0		0		Continue	7847	0
e . (2)	T&M	CSC, Eatontown, NJ	140	1208	2Q	0		0		0	1348	0
f . (3)	C-Reimburs	MITRE, McLean, VA	713	400	2Q	0		0		0	1113	0
g . (4)	T&M	ILEX Tinton Falls, NJ	500	77	2Q	0		0		0	577	0
h . (6)	T&M	Booz Allen Hamilton, McLean, VA	0	373	2Q	0		0		0	373	0
i . (7)	T&M	Lockheed Martin, Tinton Falls, NJ	0	180	2Q	0		0		0	180	0

ARMY RDT&E COST ANALYSIS(R-3)	February 2003
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303140A - Information Systems Security Program	PROJECT 491
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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. (8)	T&M	MIT, Cambridge, MA	0	135	2Q	0		0		0	135	0
k. (5)	T&M	Atlantic Consulting Services, GA	900	120	2Q	0		0		0	1020	0
l. DHIAP	Various	Various	12027	0	1-4Q	0		0		0	12027	0
m. DoD Biometrics Program	TBD	CIO/G6 BMC	4914	13375	1-4Q	0		0		0	18289	0
Subtotal:			57682	20949		7444		8100		Continue	94175	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
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0303140A - Information Systems Security Program					PROJECT 491		
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
			0	0		0		0		0	0	0
Subtotal:												
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
			0	0		0		0		0	0	0
Subtotal:												
Remarks: Not Applicable												
Project Total Cost:			57682	20949		7444		8100		Continue	94175	Continue

Schedule Profile Detail (R-4a Exhibit)							February 2003	
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303140A - Information Systems Security Program			PROJECT 491	
<u>Schedule Detail</u>	<u>FY 2002</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>
· Full fielding of AIRTERM (KY-100)								
TISM (Laboratory Testing)								
· Field Testing (Prototype Development Initiation)	1-4Q	1-4Q	1-4Q					
C2 Protect								
- Network Access Control	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
- Intrusion Detection Control	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
- Host Machine Vulnerabilities	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
- Risk Management	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
- Malicious Code Detectors	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
- Purge Tools	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
- Audit Analysis	1-4Q	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	1-4Q	1-3Q					
TACLANE								
Type Classification (conditional)								
Acquisition of Installation Kits								
Type Classification Standard (TC Standard)	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 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303140A - Information Systems Security Program	PROJECT 501
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COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	1134	1214	1362	1425	1513	1557	1009	1049	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 Objective transition path of the Transformation Campaign Plan (TCP) and the Warfighter Information Network-Tactical (WIN-T).

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Continue development of next set of software tools for the AKMS Workstation development environment to include TCP and WIN-T.	1020	1098	1243	1304
Government Engineering	114	116	119	121
Totals	1134	1214	1362	1425

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

PROJECT
501

B. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
BA1201 TSEC - AKMS	12118	9875	2702	2855	3073	3164	3219	3328	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(R-3)									February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
7 - Operational system development					0303140A - Information Systems Security Program					501		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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	1098	2Q	1243	2Q	1304	2Q	Continue	Continue	0
c . EKMS	MIPR	Navy, Washington	3900	0		0		0		0	3900	0
Subtotal:			26938	1098		1243		1304		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
Subtotal:			0	0		0		0		0	0	0

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
7 - Operational system development					0303140A - Information Systems Security Program					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
			25	0		0		0		0	25	0
Subtotal:												
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
			704	116		119		121		Continue	Continue	0
Subtotal:												
Project Total Cost:			27667	1214		1362		1425		Continue	Continue	0

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

PROJECT
501

<u>Schedule Detail</u>	<u>FY 2002</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>
Materiel Release (ACES)	2Q							
ACES IOC	2Q							
AKMS Materiel Release for new Army Acquisition Programs	1-4Q							

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303140A - Information Systems Security Program					PROJECT 50B		
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	0	11922	15320	15251	15177	15561	15892	0	93449	

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

<u>Accomplishments/Planned Program</u>	FY 2002	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.	0	0	11922	15320
- Conduct modeling and simulation efforts to support operational evaluation.				
- Conduct DoD-wide working groups to synthesize Enterprise Biometric requirements and capabilities into Biometrics Technology Demonstrations				
- Support biometric integration in existing command and control and MIS systems.				
Totals	0	0	11922	15320

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303140A - Information Systems Security Program

PROJECT
50B

B. Other Program Funding Summary	<u>FY 2002</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>	<u>To Compl</u>	<u>Total Cost</u>
TA0600 - Information Systems Security Program	8938	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(R-3)								February 2003				
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		11922	1-4Q	15320	1-4Q	Continue	Continue	0
Subtotal:			0	0		11922		15320		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 . N/A			0	0		0		0		0	0	0
Subtotal:			0	0		0		0		0	0	0

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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		11922		15320		Continue	Continue	0

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303140A - Information Systems Security Program	PROJECT 50B
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<u>Schedule Detail</u>	<u>FY 2002</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 Development			1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303141A - Global Combat Support System					PROJECT 083		
COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	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)	79012	49360	58983	65158	69064	75207	78813	80605	0	625069

A. Mission Description and Budget Item Justification: The Global Combat Support System-Army/Tactical (GCSS-A/T) is a Major Defense Acquisition Program (MDAP) and the primary enabler of the Army's Combat Support/Combat Service Support (CSS) transformation. GCSS-A/T will replace SAAS, SAMS, SARSS, ULLS, SPBS-R and ILAP. GCSS-A/T will provide the warfighter with a seamless flow of timely, accurate, accessible and secure information that gives combat forces a decisive edge. The GCSS-A/T system will provide the best business processes and streamline procedures and accountability for all users in support of the Interim Force and support of the Army's Transformation to the Objective Force.

GCSS-A/T supports the Objective transition path of the Transformation Campaign Plan (TCP). GCSS-A/T did not receive any Defense Emergency Response Funds (DERF).

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Successfully completed Software Acceptance Tests on the PB-USE enhancement. Continued Business Process Reengineering of the Maintenance Module which is presently on hold pending our EPR implementation. Began requirements validation of the Management Module.	54712	0	0	0
Project Preparation and Blueprinting for the GCSS-A/T ERP.	17000	41888	51332	57323
PMO operations	7300	7472	7651	7835
Totals	79012	49360	58983	65158

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303141A - Global Combat Support System

PROJECT
083

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	84426	71864	83089	77786
Current Budget (FY 2004/2005 PB)	79012	49360	58983	65158
Total Adjustments	-5414	-22504	-24106	-12628
Congressional program reductions		-20000		
Congressional rescissions		-869		
Congressional increases				
Reprogrammings	-3128	-286		
SBIR/STTR Transfer	-2286	-1349		
Adjustments to Budget Years			-24106	-12628

FY03 decreases reflect Congressional reductions.
 FY04/05 funds realigned to reflect Army priorities.

<u>C. Other Program Funding Summary</u>	<u>FY 2002</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>	<u>To Compl</u>	<u>Total Cost</u>
OPA SSN: W00800, STACOMP	37948	45943	34810	64623	92307	96037	100862	100196	Continue	Continue
OMA APE: 432612	3005	14513	8088	7424	9963	13740	20236	20689	Continue	Continue

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**February 2003**

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0303141A - Global Combat Support System

PROJECT

083

D. Acquisition Strategy: For GCSS-A/T, the PM, LIS will follow commercially proven ERP phases for project lifecycle. The lifecycle contains preparation evaluations 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. Refine and approve program scope and planning, preliminary business process master list, defining of objective capability as well as team composition and training.

- Project Preparation. Preparing final BPP master list, development of specifications, development of business process flow, refining of data/forms.

- Blueprinting. Adapt business practices to the ERP software as feasible.

- Realization. Live data evaluation, complete preparation of the production system, including end user training, cutover activities, and system validation in a warfighter environment.

- Final Preparation. Development of the sustainment plan, the performance improvement action plan, as well as Post implementation reviews.

On 5 Nov 02, a non-milestone Army Systems Acquisition Review Council (ASARC) approved rebaselining the program to an Enterprise Resource Planning (ERP) solution that will replace the 13 legacy system baselines with a single seamless automated system. A Joint Requirements Oversight Council (JROC) is scheduled for March 2003.

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
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	95337	12200	3Q	12100	1-2Q	6800	1-2Q	Continue	126437	Continue
b . Enterprise Resource Planning (ERP)	C/FP	Northrop Grumman, Los Angeles, CA	17000	22377	3Q	31397	1Q	42944	1Q	0	113718	0
c . Integrated Concept Team	MIPR	CASCOM, Ft Lee, VA	2529	1363	1Q	1399	1Q	1552	1Q	Continue	6843	Continue
Subtotal:			114866	35940		44896		51296		Continue	246998	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 . Technical Services	C/FP	SRC, Petersburg, VA	7200	2472	1-3Q	2546	1-3Q	2622	1-3Q	Continue	14840	Continue
b . Engineering and Security	MPIR	ISEC, Ft Huachuca, AZ	6148	1500	1-3Q	1500	1-3Q	1500	1-3Q	Continue	10648	Continue
c . Testing	C/FP	Econ & Eng Resource Group, Ft Hood, TX	2948	1448	1-3Q	1536	1-3Q	1627	1-3Q	Continue	7559	Continue
d . PM Support	C/FP	Log Mgt Institute, McLean, VA	2000	1000	1-3Q	1000	1-3Q	1000	1-3Q	Continue	5000	Continue

ARMY RDT&E COST ANALYSIS(R-3)	February 2003
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303141A - Global Combat Support System	PROJECT 083
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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:			18296	6420		6582		6749		Continue	38047	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 . AEC	MIPR	TEXCOM, Ft Hood, TX	11000	4200	1-3Q	4600	1-3Q	4100	1-2Q	Continue	23900	Continue
b . Ft. Hood Facility	C/FP	Killeen, TX	600	300	1-2Q	300	1-2Q	300	1-2Q	Continue	1500	Continue
Subtotal:			11600	4500		4900		4400		Continue	25400	Continue

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development

0303141A - Global Combat Support System

083

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	6466	2500	1-4Q	2605	1-3Q	2713	1-3Q	Continue	14284	Continue
Subtotal:			6466	2500		2605		2713		Continue	14284	Continue
Project Total Cost:			151228	49360		58983		65158		Continue	324729	Continue

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303141A - Global Combat Support System

PROJECT
083

<u>Schedule Detail</u>	<u>FY 2002</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>
ERP Vendor Selection		1-3Q						
Evaluation		1-4Q						
Project Preparation		4Q						
Blueprinting		3-4Q	1-3Q	1-2Q				
IPR				1-2Q				
Realization								
Final Preparation					1-4Q			
Go Live IPR					4Q			
Fielding					3-4Q	1-3Q	1-3Q	1-2Q
Sustainment					3-4Q	1-4Q	1-4Q	1-4Q

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	43059	68915	87352	64538	62205	105953	101596	95958	Continuing	Continuing
253 DSCS-DCS (PHASE II)	12673	11618	13545	13385	13756	10665	9346	9526	Continuing	Continuing
384 SMART-T	18376	16596	26201	12802	0	0	0	0	0	90647
456 MILSATCOM SYSTEM ENGINEERING	12010	40701	47606	38351	48449	81808	75613	74482	Continuing	Continuing
562 MBAND INT SAT TERM MIST	0	0	0	0	0	13480	16637	11950	0	13942

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 (R-2 Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	44647	72244	80999	53676
Current Budget (FY 2004/2005 PB)	43059	68915	87352	64538
Total Adjustments	-1588	-3329	6353	10862
Congressional program reductions		-990		
Congressional rescissions				
Congressional increases				
Reprogrammings	-397	-396		
SBIR/STTR Transfer	-1191	-1943		
Adjustments to Budget Years			6353	10862

FY04 increase of 6.563M and FY05 increase of 12.096M in Project 384 (SMART-T) to fund AEHF development effort.

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)					PROJECT 253		
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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)	12673	11618	13545	13385	13756	10665	9346	9526	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 legacy transition path of the Transformation Campaign Plan (TCP). No Defense Emergency Response Funds (DERF) were provided to this project.

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Continue the development of the DSCS Integrated Management System (DIMS) Interface Software program	3429	4344	5283	4880
Continue the development of the Common Network Planning Software (CNPS) program	7193	5105	5743	4354
TCS-SATCOM architecture	0	0	274	1764
Continue SATCOM Engineering Lab (SEL), PM Admin, and Systems Engineering Technical Assistance (SETA) efforts	2051	2169	2245	2387
Totals	12673	11618	13545	13385

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
253

B. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
DSCS Other Procurement Army	104784	87376	98272	94475	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. A Transformational Communications (TC) SATCOM architecture will be prepared prior to development of any TC SATCOM equipments.

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
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	3886	2Q	4766	1-2Q	4305	1-2Q	Continue	Continue	Continue
b . CNPS	C / FFP	Logicon, Winter Park, FL	14418	4231	2Q	4843	1-2Q	3454	1-2Q	Continue	Continue	Continue
Subtotal:			30256	8117		9609		7759		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	802	1-2Q	1089	1-2Q	1450	1-2Q	Continue	Continue	Continue
b . SETA Support	C / CPFF	Fort Monmouth, NJ	774	430	1-2Q	400	1-2Q	925	1-2Q	Continue	Continue	Continue
c . Engineering Support	C / CPFF	JHU/APL, Laurel, MD	100	100	1-2Q	200	1-2Q	864	1-2Q	Continue	Continue	Continue
d . Core Support	Various	Fort Monmouth, NJ	1404	542	1-4Q	522	1-4Q	540	1-4Q	Continue	Continue	Continue
Subtotal:			4557	1874		2211		3779		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
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	1125	2Q	1200	2Q	Continue	Continue	Continue
Subtotal:			3241	1027		1125		1200		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	647	1-4Q	Continue	Continue	Continue
Subtotal:			2384	600		600		647		Continue	Continue	Continue
Project Total Cost:			40438	11618		13545		13385		Continue	Continue	Continue

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development

0303142A - SATCOM Ground Environment (SPACE)

253

<u>Schedule Detail</u>	<u>FY 2002</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		3Q						
Complete CNPS V1.0 Testing			3Q					
CNPS V1.0 Materiel Release			3Q					
DIMS Version 4.01 Materiel Release	3Q							
Award Wideband Gapfiller/CNPS Mod	2Q							
DIMS Version 5.0 Software Testing - Beginning	4Q							
DIMS Version 5.0 Software Testing - Ending		2Q						
DIMS Version 5.0 Materiel Release		3Q						
DIMS Version 5.1 Software Testing - Beginning			1Q					
DIMS Version 5.1 Software Testing - Ending			2Q					
DIMS Version 5.1 Materiel Release			3Q					
DIMS Version 6.0 Software Testing - Beginning					1Q			
DIMS Version 6.0 Software Testing - Ending					3Q			
DIMS Version 6.0 Materiel Release						1Q		
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 2003

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)						PROJECT 384	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	18376	16596	26201	12802	0	0	0	0	0	90647

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 Legacy transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Payload specification change development	594	500	483	487
Development of AEHF satellite payload simulators	2416	2138	2256	578
AEHF development efforts	15366	13958	23462	11737
Totals	18376	16596	26201	12802

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
384

B. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
BC4002 - SMART-T	21395	11935	48585	57412	68648	48647	49312	5079	Continuing	Continuing
BS9720 - Spares	508	14	1033	1555	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(R-3)

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development

0303142A - SATCOM Ground Environment (SPACE)

384

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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	14008	2Q	20775	1Q	8237	1Q	0	128275	0
c . Transmitter Development	SS / CPFF	Raytheon - Marlborough, MA	0	0		2210	1Q	2210	1Q	0	4420	0
d . Govt Support	MIPR	Various	14321	164	2Q	179	1Q	187	1Q	0	14851	0
e . GFE	MIPR	Various	149	0		0		0		0	149	0
Subtotal:			216898	14172		23164		10634		0	264868	0

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development

0303142A - SATCOM Ground Environment (SPACE)

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	112	1Q	125	1Q	130	1Q	0	5714	0
c . Lab Activities	MIPR	Various	7340	236	2Q	260	1Q	270	1Q	0	8106	0
Subtotal:			23977	348		385		400		0	25110	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	Lincoln Labs - Lexington, MA	20775	2076	1Q	2210	1Q	552	1Q	0	25613	0
b . DT&OT Test Support	MIPR	Various	6700	0		442	3Q	1216	1Q	0	8358	0
c . Test Bed Development	MIPR	Lincoln Labs Lexington, MA	2980	0		0		0		0	2980	0
Subtotal:			30455	2076		2652		1768		0	36951	0

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303142A - SATCOM Ground Environment (SPACE) **PROJECT**
384

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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 Support of SMART-T Development	MIPR	Lincoln Labs Lexington, MA	7900	0		0		0		0	7900	0
Subtotal:			7900	0		0		0		0	7900	0
Project Total Cost:			279230	16596		26201		12802		0	334829	0

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
384

<u>Schedule Detail</u>	<u>FY 2002</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>
Continue AEHF Simulator Development	1-4Q	1-4Q	1-3Q					
AEHF Simulator Development Completed			4Q					
Continue AEHF Development	1-4Q	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							2-4Q	

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)						PROJECT 456			
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	12010	40701	47606	38351	48449	81808	75613	74482	Continuing	Continuing

A. Mission Description and Budget Item Justification: The Army is responsible for developing, procuring, and maintaining the life cycle logistics support for satellite terminals, satellite control subsystems, communications subsystems, and all related equipment required to achieve end-to-end connectivity satisfying Joint Chiefs of Staff Command, Control, Communications, and Intelligence (C3I) requirements. SATCOM assets also support the President, JCS, combatant commanders, Military Departments, Department of State, and other government Departments and Agencies. This project provides centralized funding for advanced systems engineering, analysis, research, development, test, and evaluation of new and emerging technologies, optimizing terminal performance and interoperability on the digitized battlefield. This system supports the Legacy transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Conduct various developmental efforts or analysis to provide enhanced terminal capability and Joint interoperability (EHF, SHF and Commercial Bands)	1200	2000	2500	4101
Continue Battlefield Digitization Architecture efforts in support of Army Transformation and the Objective Force	1241	1500	3843	4200
Conduct development, integration and fielding of interim SATCOM networking management tools and support the AEHF Management Planning Element (AMPE) development process	1315	2324	3100	3100
Continue system engineering development test and experimental support	1434	1752	2363	2450
Advanced SATCOM architecture development and System Engineering Support (EHF, SHF, and Commercial Bands)	1520	2037	3200	3500
System Engineering IAW the DoD Transformation Communication System (TCS) analysis and technology development efforts	0	5000	13000	19000
Development of SHF Ka band augmentation (KaSAT)	5300	15800	8600	2000
Development of an integrated Ka band capability for Army SHF terminals	0	9000	11000	0
ABCS System Engineering and Integration Efforts (SE&I)	0	1288	0	0
Totals	12010	40701	47606	38351

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
456

B. Other Program Funding Summary	FY 2002	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)	11390	10704	10668	9303	10148	10196	1251	0	0	63660
BA9350 - SHF TERM	9540	24193	17492	17553	4885	2929	0	0	0	76592
BC4002 - SMART-T	21395	11935	48585	57412	68648	48647	49312	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(R-3)									February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
7 - Operational system development					0303142A - SATCOM Ground Environment (SPACE)					456		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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	TBS	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	TBS	0	5000	2Q	13000	2Q	19000	2Q	Continue	Continue	Continue
e . ABCS SE&I	MIPR	TBS	0	1288	2Q	0		0		0	1288	0
			6824	31088		32600		21000		Continue	Continue	Continue
Subtotal:												
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	3148	2Q	3833	2Q	Continue	15500	Continue
b . Engineering (Contract)	Various	Various	5661	2319	2Q	4008	2Q	4168	2Q	Continue	16156	Continue
c . System Architecture & Analysis	Various	MIT Lincoln Labs - Lexington, MA; Mitre	900	2950	2Q	3200	2Q	3500	2Q	Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)	February 2003
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)	PROJECT 456
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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:			13028	7321		10356		11501		Continue	Continue	Continue

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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	Lincoln Labs, Lexington, MA	2669	500	1Q	0		0		0	3169	0
b . Test Support	Various	Various	2194	1292	2Q	4000	1Q	4500	1Q	Continue	Continue	Continue
Subtotal:			4863	1792		4000		4500		Continue	Continue	Continue

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ARMY RDT&E COST ANALYSIS(R-3)	February 2003
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)	PROJECT 456
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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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	Lincoln Labs Lexington, MA	6190	0		0		0		0	6190	0
b . Advanced Wideband System Architecture	MIPR	Various	500	500	2Q	650	2Q	1350	1Q	0	3000	0
Subtotal:			6690	500		650		1350		0	9190	0

Project Total Cost:			31405	40701		47606		38351		Continue	Continue	Continue
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Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0303142A - SATCOM Ground Environment (SPACE)	PROJECT 456
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<u>Schedule Detail</u>	<u>FY 2002</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>
Intersegment Post Launch Verification (Flight 5)	2-4Q							
Intersegment Post Launch Verification (Flight 6)		2Q						
Initiate System Engineering IAW TCS Study		1Q						
Support System Engineering IAW TCS Study		2-4Q	1-4Q	1-4Q	1-4Q	1-4Q		
Initiate Development of Army Tactical Terminals IAW DoD TCS Requirements			2Q					
Initiate Ka Band Augmentation Development (KaSAT)	4Q							
Initiate Ka Band Prototype Testing			2Q					
Initiate Ka Band Integration Development		4Q						
Support KaSAT Factory Testing			1-2Q					
Support KaSAT On-Orbit Testing			4Q					
Support WGS System Test / Launch		3Q	2Q					
Support WGS On-Orbit Testing				1Q				
Support AEHF System CDR			3Q					
Support Management Planning Element (MPE) System Design Development		3-4Q	1-2Q					
Support MPE Initial Delivery				3Q				
Support MPE Testing					2Q			
Support MPE Upgrade for AEHF						2Q		
Support MPE Follow-On Deliveries and New Requirements							2Q	
Support AEHF AEST 8000 (System Test)						2-3Q		
Support New Terminal Requirements								1Q
Initiate Waveform Development			1Q					
Support Waveform Development			2-4Q	1-4Q				

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0303150A - WWMCCS/Global Command and Control System				PROJECT C86		
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	13131	16999	20124	19206	17608	15502	18129	17520	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 Joint Global Command and Control System (GCCS). GCCS-A provides automated command and control tools for Army Strategic and 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. The GCCS-A will provide a layered architecture and functional best-of-breed software applications to develop a totally integrated component of the joint GCCS. This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Perform Systems Engineering	2216	2427	2572	2726
Software Development	9098	12019	15345	14193
Perform Data Engineering	620	756	797	797
Conduct Test and Evaluation	381	395	418	444
Perform Program Support and Management Efforts	816	942	992	1046
Army Battle Command System (ABCS) System Engineering and Integration Efforts	0	460	0	0
Totals	13131	16999	20124	19206

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303150A - WWMCCS/Global Command and Control System

PROJECT
C86

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	13385	17895	8406	7987
Current Budget (FY 2004/2005 PB)	13131	16999	20124	19206
Total Adjustments	-254	-896	11718	11219
Congressional program reductions		-452		
Congressional rescissions				
Congressional increases				
Reprogrammings	8			
SBIR/STTR Transfer	-262	-444		
Adjustments to Budget Years			11718	11219

Funding: FY 2004 (+11718) Increase for development of previously deferred Threshold (T1) Operational Requirements
 FY 2005 (+11219) Increase for development of previously deferred Threshold (T1) Operational Requirements

<u>C. Other Program Funding Summary</u>	FY 2002	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)	8437	20576	16499	16239	17025	17181	20677	22293	Continue	Continue

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**February 2003**

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 software integration and development effort is a multi-year incrementally funded spiral development effort. Spiral development will ensure interoperability with Joint and ABCS Systems as well as continuing development of objective Operational Requirements Document (ORD) capabilities. A hybrid (Cost-Plus-Award Fee and Firm-Fixed- Price) contract was awarded to Lockheed Martin Corporation (LMC) in December 1994. The contract consists of software development, software maintenance and relocation/de-installation of the test facility upon completion of the contract. Project Manager, Strategic Theater Command and Control System (PM STCCS) established an Integrated Process Team (IPT) in December 1995 to review the status of software integration and develop functional deliveries. The results of the IPT were instituted providing the users of GCCS-A mission software deliveries identified as Capability Package 1 (CP1) and deliveries one through four followed by required functional enhancements. CP1, which was delivered in second quarter FY 1996 and designated Initial Operational Capability (IOC) system in the fourth quarter FY 1996, provided the replacement for the Army World-Wide Military Command and Control Information System (AWIS) strategic mission support applications/software and the Army's GCCS interface to selected HQDA and FORSCOM sites. Deliveries one through four provide the integration and migration of selected Standard Theater Army Command and Control System (STACCS), Theater Automated Command and Control Information Management System (TACCIMS) and Combat Service Support Control System (CSSCS) Echelons Above Corps (EAC) mission support applications/software into a common baseline. Deliveries one through four have been/are being delivered to ten Army -managed sites located throughout the world. A common hardware platform will be used within the Army to implement GCCS-A/GCCS. This will include products from the Army's Common Hardware/Software-2 (CHS-2) contract, which consists of Commercial Off-the-Shelf (COTS) hardware and software. The COTS hardware and software will provide computers with expanded processing, storage and communications capability, as well as office-automation and management software.

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development

0303150A - WWMCCS/Global Command and Control System

C86

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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	12019	1-2Q	15345	1-2Q	14193	1-2Q	Continue	122516	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	15662		18714		17716		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development

0303150A - WWMCCS/Global Command and Control System

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(R-3)

February 2003

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	16999		20124		19206		Continue	Continue	Continue

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0303150A - WWMCCS/Global Command and Control System

PROJECT
C86

<u>Schedule Detail</u>	<u>FY 2002</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>
ABCS/FDD Interoperability	1-4Q	1-4Q						
GCCS-A Delivery 3 Development Complete	2Q							
GCCS-A Block 4 Development	2-4Q	1-4Q	1-4Q					
GCCS-A Block 5 Development		4Q	1-4Q	1-4Q	1-3Q			
GCCS-A Block 6 Development				4Q	1-4Q	1-4Q	1-3Q	
GCCS-A Block 7 Development						4Q	1-4Q	1-4Q

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305114A - Traffic Control, Approach and Landing System-FY 19					PROJECT 711	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	753	935	956	1903	1953	1935	15864	29874	0	54810

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 alternative 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. Project in 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 Legacy-to-Objective transition path of the Transformation Campaign Plan.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
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.	715	888	908	1808
Continue Program Management Support	38	47	48	95
Totals	753	935	956	1903

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305114A - Traffic Control, Approach and Landing System-FY 19

PROJECT
711

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	777	977	972	1936
Current Budget (FY 2004/2005 PB)	753	935	956	1903
Total Adjustments	-24	-42	-16	-33
Congressional program reductions				
Congressional rescissions	-4	-10		
Congressional increases				
Reprogrammings	1	-5		
SBIR/STTR Transfer	-21	-27		
Adjustments to Budget Years			-16	-33

C. Other Program Funding Summary: JPALS is a joint program with the Air Force acting as 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 if SRGPS becomes an Army requirement.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**February 2003**

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 acquisition strategy is to complete current risk reduction efforts and establish technical architecture and operating concept for LDGPS and legacy systems. Synchronize JPALS development and fielding with GPS Modernization timeline and M-Code development to take advantage of aircraft modification windows of opportunity. Integrate JPALS capability in the EGI (Embedded GPS Inertial Navigation System) and DGNS (Doppler GPS Navigation System) avionics and Force Modernization Fleet of helicopters.

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
7 - Operational system development					0305114A - Traffic Control, Approach and Landing System-FY 19					711		
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
			0	0		0		0		0	0	0
Subtotal:												
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 . Continue system engineering, logistics and technical support	MIPR	Various	3148	888	1-4Q	908	1-4Q	1808	1-4Q	Continue	6752	0
Subtotal:			3148	888		908		1808		Continue	6752	0

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305114A - Traffic Control, Approach and Landing System-FY 19					PROJECT 711			
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
			0	0		0		0		0	0	0
Subtotal:												
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	MIPR	AMCOM, AL	172	47	1-4Q	48	1-4Q	95	1-4Q	Continue	362	0
Subtotal:			172	47		48		95		Continue	362	0
Project Total Cost:			3320	935		956		1903		Continue	7114	0

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305114A - Traffic Control, Approach and Landing System-FY 19	PROJECT 711
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<u>Schedule Detail</u>	<u>FY 2002</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>
PM Support	1-4Q							
Continue system engineering, logistics and technical support	1-4Q							

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	35213	67435	60493	66730	42262	38260	27496	28250	Continuing	Continuing
114 TACTICAL UNMANNED AERIAL VEHICLE (TUAV) (JMIP)	23105	44276	11741	13426	13451	7766	7666	7920	0	163056
11A ADVANCED PAYLOAD DEVELOP & SPT (JMIP)	9820	20896	17614	11523	970	968	971	981	Continuing	Continuing
11B DTSP DEVELOPMENT (JMIP)	0	0	5771	5898	19714	21409	10906	11302	0	75000
123 JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (JMIP)	2288	2263	2258	2254	2244	2238	2065	2162	0	20037
D09 EXTENDED RANGE UAV (JMIP)	0	0	23109	33629	5883	5879	5888	5885	0	80273

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) as well as a divisional Mobile Maintenance Facility (MMF) capable of supporting up to four TUAV systems. 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 Radio/Moving Target Indicator, Communication Relay Payload, Laser Designation, and Objective EO/IR. To support these efforts, a modeling and simulation capability/process is being developed to assess the operational benefit of these advanced technologies. Future initiatives will focus on the transition of technologies that directly support the Army's Objective Force, such as the development and fielding of countermine, counter camouflage, NBC and other specialty payloads as appropriate. DTSP is a UAV mounted SIGINT/EW sensor that detects enemy and gray radio frequency (RF) emitters. DTSP will provide the Land Commander with a deep looking SIGINT/EW system capable of detecting, identifying, locating and geo-locating RF emitters throughout the Area of Operation (AO). The DTSP electronic emitter information will be fused with other sensors. The Joint Technology Center/System Integration Lab (JTC/SIL) is a joint integration center that develops simulations of tactical UAVs and strategic reconnaissance and imagery. It also utilizes the Modernized Imagery Exploitation System (MIES), the Enhanced Tactical Radar Correlator (ETRAC), and a variety of C4I systems and interfaces, like the Tactical Control System. The Multiple Unified Simulation Environment (MUSE) system provides for the development of real-time, interoperable hardware and operator in-the-loop simulations of multiple intelligence systems, that may be integrated with larger simulations in support of Service exercises. MUSE development provides a realistic operational environment supporting a wide range of information efforts.

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

February 2003

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0305204A - Tactical Unmanned Aerial Vehicles

TUAV was provided a supplemental fund called Defense Emergency Response Fund (DERF), as a non-add, for \$10.0M in FY 02 for TCDL Shadow integration.

This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP). The TUAV is an Objective Force System.

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	37880	46479	35260	51357
Current Budget (FY 2004/2005 PB)	35213	67435	60493	66730
Total Adjustments	-2667	20956	25233	15373
Congressional program reductions				
Congressional rescissions	-2668	-753		
Congressional increases		22100		
Reprogrammings	1	-391		
SBIR/STTR Transfer				
Adjustments to Budget Years			25233	15373

FY03 funding was increased for Hunter Ground Control Station Development and to obtain an I-GNAT system.

FY 04 & 05 funding was increased for Extended Range and Objective Capability for Shadow to meet payload and range requirements.

Schedule Profile Detail (R-4a Exhibit)		February 2003
BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles	PROJECT 0305204A
<p>Schedule Detail: Not applicable for this item.</p>		

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles					PROJECT 114	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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)	23105	44276	11741	13426	13451	7766	7666	7920	0	163056

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, as well as a divisional Mobile Maintenance Facility capable of supporting up to four TUAV systems. This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP). The TUAV is an Objective Force system.

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Program Management Support	3632	3117	2285	2268
Objective Capability Development / C4I	1044	0	0	0
Development Testing / Risk Reduction Testing / ST&E	2850	1452	2300	2000
Digital Data Link development efforts (TCDL)	0	4700	0	0
Complete TUAV LRIP EMD Program	7841	0	0	0
Corrective action efforts and associated engineering support	7738	5090	0	0
MILES Development	0	0	1100	0
Joint Technical Architecture Army Compliance, DITSCAP, Autonomy, etc.	0	0	800	800
Future Combat Systems / Objective Force Requirements	0	0	800	800
C4I Maintenance / Improvements (ABCS 4.3, 6.2, ...)	0	0	1000	1000
UAV Joint Interoperability Standards	0	0	600	1100
TAFT System Support	0	0	900	800
BIT/BITE Improvements / System Enhancements	0	0	700	758
Total Ownership Cost - Reduction Initiatives (System Design Improvements)	0	0	600	800
Survivability Enhancements	0	0	656	600
Engineering Support - Extended Range	0	2000	0	0

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles	PROJECT 114
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<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Survey to evaluate non-developmental airframe candidates that meet extended range endurance requirements and downselect to two vendors.	0	1900	0	0
Hardware cost for Ground Control Stations (2) and Take-Off and Landing System (2) to be integrated into the air vehicles selected for the extended range requirement. Begin integration effort.	0	2500	0	0
Target Location Error/ATCR	0	2000	0	0
I-GNAT	0	9709	0	0
Ground Control Station and Trailers	0	11808	0	0
P3I / TCDL LUT	0	0	0	2500
Totals	23105	44276	11741	13426

<u>B. Other Program Funding Summary</u>	<u>FY 2002</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>	<u>To Compl</u>	<u>Total Cost</u>
TUAV Procurement (BA0330)	56352	99036	73764	57704	8578	8573	10230	9382	Continuing	Continuing
Initial Spares - TUAV (BS9738)	0	14752	15069	9841	14780	14742	14712	9247	Continuing	Continuing
TUAV - Extended Range/ Multi-purpose (B00305)	0	0	0	0	65166	79869	134082	162769	Continuing	Continuing

Note: Other related Navy dollars fund the development of Tactical Control System software for integration into the TUAV under this project.

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, TCS, Tactical Control Data Link and advanced sensor payloads as they mature and are operationally proven.

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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	63941	0		0		0		0	63941	63676
b . Improved EO/IR Payload Modification/Integration Assessment for Demo on Hunter	Comp/Opt	AMCOM RDEC Redstone, AL	200	0		0		0		0	200	200
c . MILES Development	MIPR	Various	0	0		1100	1-3Q	0		0	1100	0
d . TUAV Source Selection/System Capabilities Demo	MIPR/PWD	Various	7200	0		0		0		0	7200	7200
e . Digital Data Link (TCDL)	CPFF	Various	342	4700	1-3Q	0		0		0	5042	0
f . Army Apache/UAV Interoperability Demonstration	MIPR	AMCOM RDEC Redstone, AL	350	0		0		0		0	350	350
g . Corrective Actions/Engineering Support	CPFF / PWD	Various	7714	5090	2Q	0		0		0	12804	7714
h . Hunter UAV non-recurring support	SS/FPIF	TRW, Sierra Vista, AZ	4140	0		0		0		0	4140	4140
i . Hardware cost for GCS's (2) and TALS (2) to be integrated into the selected AV's for the ER req.	CPFF	AAI Corporation, MD	0	2500	1-3Q	0		0		0	2500	0

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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
j . UAV Joint Interoperability Standards	MIPR / PWD	Various	0	0		600	1-3Q	1100	1-3Q	0	1700	0
k . TAFT System Support	MIPR / PWD	Various	0	0		900	1-3Q	800	1-3Q	0	1700	0
l . C4I Maintenance / Improvements	MIPR / PWD	Various	0	0		1000	1-3Q	1000	1-3Q	0	2000	0
m . Survey to evaluate non-development airframe candidates that meet extended range and endurance req.	CPFF	Various	0	1900	1-3Q	0		0		0	1900	0
n . Ground Control Station and Trailers	Unknown	AAI Corporation, MD & TRW, AZ	0	11808	2-3Q	0		0		0	11808	0
o . Joint Technical Architecture Army Compliance, DITSCAP, Autonomy, etc.	MIPR / PWD	Various	0	0		800	1-3Q	800	1-3Q	0	1600	0
p . I-GNAT	Unknown	General Atomics	0	9709	2-3Q	0		0		0	9709	0
q . Target Location Error / ATCR	CPFF	AAI Corporation, MD	0	2000	2Q	0		0		0	2000	0

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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
r . Total Ownership Cost - Reduction Initiatives (System Design Improvements)	MIPR / PWD	Various	0	0		600	1-3Q	800	1-3Q	0	1400	0
s . Survivability Enhancements	MIPR / PWD	Various	0	0		656	1-3Q	600	1-3Q	0	1256	0
t . Government Furnished Equipment	MIPR	Various	2036	0		0		0		0	2036	2036
u . SIL/MUSE	MIPR	Sys Integration Lab, AMCOM Redstone, AL	1500	0		0		0		0	1500	1500
v . BIT/BITE Improvements	MIPR / PWD	Various	0	0		700	1-3Q	758	1-3Q	0	1458	0
w . Advanced Payload Development/Modification/ Integration	MIPR	PM UAV Payloads, Huntsville, AL	4118	0		0		0		0	4118	4118
x . Tactical Control System	PWD	AMCOM RDEC Redstone, AL	700	0		0		0		0	700	700
y . Objective Capability Assessment/Development / C4I	Comp/FPIF	AAI Corporation, MD	3044	0		0		0		Continue	Continue	Continue
z . TUAV Ground Control Station Architecture	MIPR	Sys Integration Lab, AMCOM Redstone, AL	7275	0		0		0		0	7275	7275

ARMY RDT&E COST ANALYSIS(R-3)	February 2003
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles	PROJECT 114
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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
aa. Institutional Mission Simulator	MIPR	Sys Integration Lab, AMCOM Redstone, AL	2910	0		0		0		0	2910	2910
bb. Outrider Advance Concept Technology Demonstration Bridge Contract	SS/FPIF	Alliant Techsystems, Hopkins, MN	10600	0		0		0		0	10600	10600
cc. Future Combat Systems / Objective Force Requirements	MIPR / PWD	Various	0	0		800	1-3Q	800	1-3Q	0	1600	0
Subtotal:			116070	37707		7156		6658		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
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	1543	2Q	784	1Q	800		Continue	8142	Continue
b . Government Engineering Support	PWD	AMCOM Redstone, AL	3950	808	1-2Q	850	1Q	850		Continue	6458	Continue
c . Contractor Engineering Support - Extended Range	CPFF	Various	0	2000	2Q	0		0		0	2000	0
Subtotal:			8965	4351		1634		1650		Continue	16600	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 . Risk Reduction Testing/ST&E	MIPR	Various	13531	0		0		0		0	13531	13531
b . Development Testing/ OPTEMPO Testing / Risk Reduction Testing / ST&E	MIPR	Various	2850	1452	2Q	2300	1Q	4500	1Q	Continue	11102	Continue
c . C4I Testing	MIPR	Various	1980	0		0		0		0	1980	1980

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles						PROJECT 114		
III. Test and Evaluation (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 . 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	1452		2300		4500		Continue	29173	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 . Program Mgt Personnel	MIPR	PM UAV Redstone, AL	6030	766	1Q	651	1Q	618	1Q	Continue	8065	Continue
Subtotal:			6030	766		651		618		Continue	8065	Continue
Project Total Cost:			151986	44276		11741		13426		Continue	Continue	Continue

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
114

<u>Schedule Detail</u>	<u>FY 2002</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	1Q							
Special In-Process Review / LRIP II/ III Decision	1Q							
IOT&E Preparation and IOT&E	3Q							
Field IOT&E LRIP System to IOT&E User	4Q							
Milestone III / Production Decision	4Q							
Award Full Rate Production		1Q						
C4I Maintenance/ Improvements (ABCS 4.3, 6.2,)	1-4Q	1-4Q	1-4Q	1-4Q				

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles					PROJECT 11A		
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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)	9820	20896	17614	11523	970	968	971	981	Continuing	Continuing	

A. Mission Description and Budget Item Justification: Development of Payloads to support the Army's Extended Range/Multi-Purposes (ER/MP) Unmanned Air Vehicle (UAV) in accordance with the TRADOC UAV priorities. The Synthetic Aperture Radar/Moving Target Indicator (SAR/MTI) Payload will provide a wide area search capability with a built-in imaging sensor that provides essential all-weather capability. This will provide surveillance and increased situational awareness capability. SAR/MTI Payloads will be provided to the ER/MP UAV being procured by PM UAV Systems. Production deliveries will support ER/MP UAV deliveries and will support the Future Combat System and Objective Force. The Electro-Optic/Infrared (EO/IR) Payload will provide Reconnaissance Surveillance and Target Acquisition (RSTA) and intelligence at greater standoff ranges with increased targeting accuracies as well as providing the foundation for broader mission applications (e.g. Countermine, etc). The EO/IR sensor Payload is being provided for the ER/MP UAV. Future initiatives will continue to focus on the transition of technologies directly supporting emerging ER/MP requirements and the Army's Objective Force. These initiatives include the development and fielding of Laser Designator, 3-D mapping, Counter Camouflage (Hyperspectral) and other payloads when matured and assessed as operationally relevant for FCS/Objective 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.

This system supports both the Interim and Objective Force transition paths of the Transformation Campaign Plan (TCP).

FY04/FY05 funds provide for the development of the SAR/MTI, EO/IR/LD and Miniaturized LIDAR payload development

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Program Management/Engineering Support.	2104	1867	2202	2100
Initiate SAR/MTI Development and Integration - includes Development Test (DT) start. SDD Test Articles will support DT and Operational Test (OT).	0	9000	9112	2680
Perform SAR/MTI military utility assessment.	2856	0	0	0
Conduct Advanced EO/IR Operational Capability Assessment in support of MS B decision.	2800	0	0	0
Initiate EO/IR Development and Integration for ER/MP UAV.	0	5879	3000	1600
Initiate miniaturized Light Detection and Ranging (LIDAR) sensor package development efforts.	0	3000	3000	2000

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles	PROJECT 11A
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Accomplishments/Planned Program (continued)	FY 2002	FY 2003	FY 2004	FY 2005
Initiate Payload/Ground Station Integration, including plug-and-play architecture.	1700	950	0	0
Continue advanced payload modeling and simulation.	360	0	0	0
Procure payload test assets to support Development Test/Operational Test (DT/OT) for advanced payloads. (Includes one digital data link, one ground control station and aircraft/crew lease.)	0	0	0	1300
Conduct test support planning and execution.	0	200	300	1843
Totals	9820	20896	17614	11523

B. Other Program Funding Summary	FY 2002	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	0	11724	24429	18051	19618	0	73822
Tactical Unmanned Aerial Vehicles (375204/D09)	0	0	23109	33629	5883	5879	5888	5885	0	80273
Extended Range/Multi-Purpose (ER/MP): UAV (JMIP) (B00305)	0	0	0	0	65166	79869	134082	162769	0	441886

C. Acquisition Strategy: 1. The System Development and Demonstration (SDD) contract for the SAR/MTI Payload will be a competitive source selection for the design/modification and fabrication of SDD articles and will be awarded during 3Q FY-03. In FY-04 the program will complete design of repackaged SAR/MTI. In FY-05 system development testing will be conducted. In FY-06 Milestone C and Operational Testing will be completed. Upon successful completion, a contract option will be exercised. For production quantities, sole source procurements will be initiated.

2. EO/IR Payload will be pursued for the ER/MP in FY-03. Upon successful DT and MS C in FY06, a production option will be exercised for articles to support deliveries in FY-08. Follow on procurements will be awarded on a sole source basis. Upgrades/increased capabilities will be incorporated through a block upgrade approach (Laser designation, Countermine, etc) as the technology matures and is operationally proven and demonstrated.

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development

0305204A - Tactical Unmanned Aerial Vehicles

11A

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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/MTI Program MUA		Various	2856	0		0		0		0	2856	2941
b . SAR/MTI System Development & Demonstration	COMP/CPFF	TBS	0	9000	3Q	9112	1Q	2680	1Q	0	20792	23294
c . Advanced EO/IR Operational Capabilities Assessment	MIPR	CECOM NVESD Ft. Belvoir, VA	2800	0		0		0		0	2800	2800
d . Payload plug-and-play	MIPR	NSWC, Crane, IN	300	0		0		0		0	300	300
e . Advanced Payload Modeling and Simulation	MIPR	WSMR/TBE	360	0		0		0		0	360	360
f . EO/IR Program for ER/MP	COMP/CPFF	TBS	0	5879	3Q	3000	1Q	1600	1Q	0	10479	13600
g . Miniaturized Light Detection and Ranging Sensor Package	MIPR	PO JPSD Fort Belvoir, VA	0	3000	2Q	3000	1Q	2000	1Q	0	8000	0
h . Advanced Payload Development (Laser, Hyperspectral, Countermine)	TBS	TBS	0	0		0		0		2978	2978	2978
i . TUAV GCS integration	MIPR	PM UAVS, Huntsville, AL	1400	950	2Q	0		0		0	2350	2350

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles						PROJECT 11A		
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
			7716	18829		15112		6280		2978	50915	48623
Subtotal:												
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	CPFF	Various	1857	1617	1Q	2002	1Q	1900	1Q	Continue	7376	Continue
Subtotal:			1857	1617		2002		1900		Continue	7376	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 . Test Assets/Data Link/Ground Display/Lease/Engineering Support	MIPR	PM UAV Systems, Huntsville, AL	0	0		0		1300	1Q	0	1300	1300
b . Payload DT Support	MIPR	DTC, Aberdeen Proving Grounds, MD	0	100	1-4Q	150	1-4Q	0	1-4Q	0	250	550

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles					PROJECT 11A			
III. Test and Evaluation (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
c . Payload OT Support	MIPR	IEWTD, Ft. Huachuca, AZ	0	100	1-4Q	150	1-4Q	1843	1-4Q	990	3083	1540
Subtotal:			0	200		300		3143		990	4633	3390
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	250	1-4Q	200	1-4Q	200	1-4Q	Continue	Continue	Continue
Subtotal:			247	250		200		200		Continue	Continue	Continue
Project Total Cost:			9820	20896		17614		11523		Continue	Continue	Continue

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
11A

<u>Schedule Detail</u>	<u>FY 2002</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>
Perform SAR/MTI Military Utility Assessment		1-2Q						
Develop Miniaturized Light Detection and Ranging (LIDAR) Sensor Package		1-4Q	1-4Q	1-4Q				
FCS Milestone B for SAR/MTI and EO/IR		3Q						
Award SAR/MTI SDD Contract		3Q						
Continue SAR/MTI Development and DT preparation.			1-4Q					
DT Test Article Deliveries and Testing				1-2Q				
OT for SAR/MTI					2Q			
MS C for SAR/MTI					3Q			
Award FRP Option for SAR/MTI					3Q			
SAR/MTI FRP Deliveries							1Q	
Conduct Operational Capabilities Assessment for Advanced EO/IR	4Q	1Q						
MS B for EO/IR		3Q						
Contract Award for EO/IR SDD		3Q						
Complete DT for EO/IR				1Q				
OT for EO/IR					2Q			
MS C for EO/IR					4Q			
EO/IR FRP Option Award						1Q		
EO/IR FRP Deliveries							1Q	
Initiate Miniaturized LIDAR		2Q						

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles					PROJECT 11B	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
11B DTSP DEVELOPMENT (JMIP)	0	0	5771	5898	19714	21409	10906	11302	0	75000

A. Mission Description and Budget Item Justification: DTSP has been renamed Tactical SIGINT Payload (TSP). TSP is a UAV mounted SIGINT/Electronic Warfare (EW) sensor that detects enemy and gray radio frequency (RF) emitters. TSP will provide the Unit of Action/Unit of Employment (UA/UE) Land Commander with a 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 Future Combat System (FCS) 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 and provide directed Electronic Attack (EA). The SIGINT [Communications Intelligence (COMINT) and Electronic Intelligence (ELINT)] and EA payloads are 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 Objective Force capabilities Future Combat Systems and contributing to the Joint Intelligence, Surveillance and Reconnaissance (ISR) net.

This project supports the Objective transition path of the Transformation Campaign Plan (TCP).

FY04/FY05 funding supports the System Development and Demonstration (SDD) of the TSP program using the SIGINT technologies that satisfy the UA/UE requirement.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Initiate System Demonstration and Development (SDD)Source Selection Evaluation Process (SSEB)/ Conduct SSEB for SDD	0	0	1771	0
Award SDD Contract	0	0	3250	5400
Demonstrate potential Unit of Action/Unit of Employment (UA/UE) payloads	0	0	750	498
Totals	0	0	5771	5898

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
11B

B. Other Program Funding Summary	FY 2002	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)	10662	11170	5283	5227	5368	5352	3532	2681	0	49275
OPA SSN BZ9761 Tactical SIGINT Payload: TSP	0	0	0	0	0	0	16247	28027	Continuing	Continuing

FY04 and subsequent funding for the TSP program was established under 0305204 11B. The program was previously funded as part of 63774 131.

C. Acquisition Strategy: TSP CAD activities are designed to demonstrate SIGINT payloads/technologies and evaluate their ability to meet operational requirements. A competitive solicitation was issued and awards made to three contractors in FY01 for the CAD Phase. The contracts contain options for flight demonstrations that can be exercised in FY03 following successful demonstrations. The SDD phase beginning in FY04 will be a full and open competitive solicitation.

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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 . UA/UE Payloads Demonstration	CPFF	TBS	0	0		400	1Q	400	1Q	Continue	Continue	0
b . SDD Contract	CPIF	TBS	0	0		2312	3Q	2798	1Q	Continue	Continue	0
Subtotal:			0	0		2712		3198		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 . Engineering Support	FFP	MITRE, McLean, VA	0	0		300	1Q	300	1Q	Continue	Continue	0
b . Matrix Support	MIPR	CECOM, Fort Monmouth NJ	0	0		809	1Q	900	1Q	Continue	Continue	0
c . Engineering Support	FFP	CACI, Eatontown, NJ	0	0		1050	1Q	600	1Q	Continue	Continue	0
Subtotal:			0	0		2159		1800		Continue	Continue	0

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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 . Ongoing UA/UE Payload Demo Assessment	MIPR	AEC/EPG, Ft Huachuca, AZ	0	0		450	2Q	450	1Q	0	900	0
Subtotal:			0	0		450		450		0	900	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		450	1-4Q	450	1-4Q	Continue	Continue	0
Subtotal:			0	0		450		450		Continue	Continue	0
Project Total Cost:			0	0		5771		5898		Continue	Continue	0

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
11B

<u>Schedule Detail</u>	<u>FY 2002</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		3Q						
CAD Phase II Flight Demos		1-3Q						
Conduct IPR for TSP/FCS Development Alignment		2Q						
IPR for Flight Demo Results			1Q					
SDD Source Selection			1-3Q					
SDD Contract Award			3Q					
SDD System to Spt FCS BL I EUT #1 & #2				1-4Q	1-4Q			
FCS Milestone B for Block II					2Q			
DT/IOTE for TSP						1-3Q		
MS C TSP Decision Review						4Q		
TSP Production Contract							1Q	
Decision Review for CAD ELINT/EA							1Q	
ELINT/EA CAD							2-4Q	1-3Q
ELINT/EA Milestone B								4Q

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles					PROJECT 123		
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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)	2288	2263	2258	2254	2244	2238	2065	2162	0	20037	

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 Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Develop and integrate Tactical Common Data Link into MUSE in support TUAV ORD	150	0	0	0
Incorporate new technology sensors and platforms into the MUSE	0	200	200	150
Develop and upgrade Terrain and Target databases	240	290	234	230
Initial effects-based fixed target behavior model	0	0	190	0
Initial VTUAV/UCARS Vehicle models	0	0	165	0
Initial ATARS and TARPS simulation model	0	0	235	0
Link Fixed Target Database with DIA MIDB	0	0	207	0
Integrate Weapon Employment Capabilities into MUSE	0	125	0	0
MUSE Remote Support Capability	175	0	0	0
Upgrade HLA Certification and DITSCAP	120	120	120	175
Evaluate and integrate New Visualization Technologies into MUSE	0	105	0	0
Technical support of MUSE integration with IEWTPT	50	50	0	0
Initiate MUSE TUAV Flight Performance Model Verification and Validation Process	190	120	0	0
Provide MUSE Configuration Management and Help Desk Services	300	240	240	240

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles	PROJECT 123
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<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
MUSE Equipment	785	720	300	300
JTC/SIL Management	278	293	367	329
Initial development of Multi-Spectral and Hyper-Spectral simulations	0	0	0	245
Prototype FIA interfaces and capabilities	0	0	0	120
Imagery generation upgrade conversion	0	0	0	160
Enhance IR abd SAR model sets	0	0	0	90
Update interfaces to DoD models	0	0	0	215
Totals	2288	2263	2258	2254

<u>B. Other Program Funding Summary</u>	<u>FY 2002</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>	<u>To Compl</u>	<u>Total Cost</u>
PE 0305204N Navy	1700	1700	1700	1700	1700	1700	0	0	0	10200
PE 0305205F Air Force	2000	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(R-3)								February 2003				
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	175	1Q	318	972	677
e . MUSE Equipment	C/FFP	Various	1059	570	1Q	100	1Q	100	1Q	1611	3440	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(R-3)

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development

0305204A - Tactical Unmanned Aerial Vehicles

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	125	1Q	0		0		596	721	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(R-3)								February 2003				
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	1310		1351		1156		5147	11765	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(R-3)	February 2003
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles	PROJECT 123
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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	1-4Q	80	1-4Q	80	1-4Q	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(R-3)									February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
7 - Operational system development					0305204A - Tactical Unmanned Aerial Vehicles					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
Subtotal:			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	287	1-4Q	288	1-4Q	1324	2551	1999
Subtotal:			419	233		287		288		1324	2551	1999
Project Total Cost:			4553	2263		2258		2254		9252	20580	16129

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles					PROJECT D09	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	0	23109	33629	5883	5879	5888	5885	0	80273

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. JROCM 030-99 encourages a path that obtains the 200 kilometer range objective and permits a single UAV system to meet Army requirements. Realizing that Shadow 200 air vehicle does not meet all payload requirements and 200km range, TRADOC has initiated Extended Range/Multipurpose UAV requirement definition. Utilizing Shadow ground equipment with an extended range air vehicle will permit the Army to meet ORD requirements with a single UAV system. This system supports the Interim and Objective transition paths of the Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Hardware to be provided to selected Vendors for integration (GCS's, TALS, and HWIL)	0	0	3400	0
Software mod to accept Vendor data link (\$300K/Vendor)	0	0	600	0
Program Management	0	0	2350	3421
Prime System Integrator	0	0	7150	8990
ER/MP AV Vendor cost (\$4M/Vender)	0	0	8000	0
Risk Reduction	0	0	1609	2418
Vender Flyoff Fee (\$500K/Vender)	0	0	0	1000
AV Vender Integration Cost(TALS, GCS, etc.)	0	0	0	9000
Trailer Development	0	0	0	3000
Development Test and Range Cost	0	0	0	3600
Range cost and instrumentation for System Capability Demonstration (SCD)	0	0	0	2200
Totals	0	0	23109	33629

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

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

February 2003

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0305204A - Tactical Unmanned Aerial Vehicles

PROJECT

D09

C. Acquisition Strategy: Development/Integration of an extended range air vehicle would include a two phased effort. Phase I involves a competition and downselect to qualified airframe vendors. Phase II involves integration and test of the air vehicles to existing Shadow ground control equipment, followed by a final downselect to a single vendor. Initial activities would include Requirements Analysis and preparation of a Request for Proposal. In addition, TUAV equipment required for phase II would be ordered to be available in support of Phase II efforts.

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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 . Hardware to be provided to select Vendors for integration (GCSs, TALS, and HWIL)	TBD		0	0		3400	1-3Q	0		0	3400	0
b . Software MOD to accept Vender Data Link	TBD		0	0		600	1-3Q	0		0	600	0
c . Prime System Integrator	TBD		0	0		4150	1-3Q	6990	1-3Q	0	11140	0
d . ER/MP AV Vender cost (\$4M/Vender)	TBD		0	0		8000	1-3Q	0		0	8000	0
e . Vender Flyoff Fee (\$500K/Vender)	TBD		0	0		0		1000	1-3Q	0	1000	0
f . AV Vender Integration cost (TALS,GCS)	TBD		0	0		0		9000	1-3Q	0	9000	0
g . Trailer Development	TBD		0	0		0		3000	1-3Q	0	3000	0
Subtotal:			0	0		16150		19990		0	36140	0

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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 . Prime System Integrator	TBD		0	0		3000	1-3Q	2000	1-3Q	0	5000	0
Subtotal:			0	0		3000		2000		0	5000	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 . Risk Reduction	TBD		0	0		1609	1-3Q	2418	1-3Q	0	4027	0
b . Development Test and Range Cost	TBD		0	0		0		3600	1-3Q	0	3600	0
c . Range cost and instrumentation for System Capability Demonstration	TBD		0	0		0		2200	1-3Q	0	2200	0
Subtotal:			0	0		1609		8218		0	9827	0

ARMY RDT&E COST ANALYSIS(R-3)	February 2003
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305204A - Tactical Unmanned Aerial Vehicles	PROJECT D09
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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	TBD		0	0		2350	1-3Q	3421	1-3Q	0	5771	0
Subtotal:			0	0		2350		3421		0	5771	0
Project Total Cost:			0	0		23109		33629		0	56738	0

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
D09

<u>Schedule Detail</u>	<u>FY 2002</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>
Paper Downselect to two Venders			1-4Q					
Downselect to one Vender				1-4Q				
Final Integration				1-4Q				
P3I					1-4Q	1-4Q	1-4Q	1-4Q

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

February 2003

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0305206A - Airborne Reconnaissance Adv Development						PROJECT K98	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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)	10910	11438	4751	5094	5366	5449	5181	5465	Continuing	Continuing

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. FY04/05 funds continue MTI/SAR and MSI/HSI technology development and supports the integration of these for system demonstrations.

MASINT was provided a supplemental fund called Defense Emergency Response Fund (DERF), as a non-add, for \$2.6 million in FY 2002.

This system supports the Objective transition path of the Transformation Campaign Path (TCP).

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
-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 (day only). Developed and integrated multiple algorithm exploitation and processing techniques for advanced spectral detection and recognition (day only)	6037	1721	0	0
Spiral development and integration of multi-mode MTI/SAR/MSI/HSI/EO/IR capabilities for the ACS program	4873	4882	4751	5094
Development of Signature-based unattended MASINT sensor	0	2950	0	0
- Sensor development and improvements of the HyLITE system for application in the tactical environment. Conduct integration of HyLITE with the NVESD test bed aircraft. Conduct lab characterization, flight tests, data collections, and field experimentations.	0	1885	0	0

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305206A - Airborne Reconnaissance Adv Development	PROJECT K98
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<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Totals	10910	11438	4751	5094

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	10972	4882	4832	5182
Current Budget (FY 2004/2005 PB)	10910	11438	4751	5094
Total Adjustments	-62	6556	-81	-88
Congressional program reductions				
Congressional rescissions	-60	-128		
Congressional increases		6750		
Reprogrammings	-2	-66		
SBIR/STTR Transfer				
Adjustments to Budget Years			-81	-88

<u>C. Other Program Funding Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
0203744A/028 ACS	14476	44139	103457	141255	114074	8735	8148	11269	Continue	Continue
A02005 Aerial Common Sensor	0	0	0	0	24151	223876	225870	233871	Continue	Continue

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**February 2003**

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 CE phase completed in 1QFY02 and two ACS CAD contracts were awarded in 3QFY02 on a competition basis. The CAD contract's efforts 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) phase. The System Development and Demonstration (SDD) phase will be a competitive solicitation with contract award scheduled in 1QFY04.

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
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	1396	3Q	0		0		0	11482	11494
b . ACS Development Support; Hyperspectral Imagery	C-CPFF	BAE Systems, NY	0	1155	3Q	0		0		0	1155	1194
c . ACS Technology contract for MTI/SAR/MIS/HSI/EO/IR	C-CPXF	Multiple	4403	4270	1-2Q	4009	1Q	4318		Continue	Continue	Continue
Subtotal:			14489	6821		4009		4318		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 . ACS System Engineering; Hyperspectral Imagery	C/T&M	EOIR, Fredricksburg VA	1615	125	2Q	0		0		0	1740	1615
b . Technical Support; HyLITE	C/T&M	SAIC Corp, San Diego, CA	228	0		0		0		0	228	228
c . ACS Technical Support; Hyperspectral Imagery	C/T&M	IDA; Washington, DC	260	50	2Q	0		0		0	310	260

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305206A - Airborne Reconnaissance Adv Development						PROJECT K98		
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 . NV Technical Support HyLITE	C/T&M	Northrop Grumman, Los Angeles, CA	0	250	2Q	0		0		0	250	0
e . ACS Technical Support; Hyperspectral Imagery	C/T&M	Northrop Grumman, Los Angeles, CA	0	250	2Q	0		0		0	250	0
Subtotal:			2103	675		0		0		0	2778	2103
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 . ACS Systems Evaluation: Hyperspectral Imagery	MIPR	BCBL; Ft. Huachuca AZ	10	0		0		0		0	10	10
b . ACSTest & Demonstration; Hyperspectral Imagery	MIPR	CECOM; NVSED, NJ	922	200	2Q	0		0		0	1122	922
c . ACS Integration and Demonstration of MTL/SAR/MSI/HSI/EO/IR technologies	C-CPXF and MIPR	Multiple	0	375	2Q	489	1Q	508	1Q	Continue	Continue	Continue
Subtotal:			932	575		489		508		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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	75	2Q	0		0		0	1340	1265
b . ACS Program & Engineering Support; MTI/SAR/MSI/HSI/EO/IR	MIPR	CECOM; I2WD	468	237	2Q	253	1Q	268	1Q	Continue	Continue	Continue
c . ACS Program & Engineering Support: Hyperspectral Imagery			0	105	2Q	0		0		0	105	0
d . Signature based unattended MASINT sensors			0	2950		0		0		0	2950	0
Subtotal:			1733	3367		253		268		Continue	Continue	Continue
Project Total Cost:			19257	11438		4751		5094		Continue	Continue	Continue

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305206A - Airborne Reconnaissance Adv Development

PROJECT
K98

<u>Schedule Detail</u>	<u>FY 2002</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>
HyLITE Algorithm Design/Implementation (day/night) and analysis	1-4Q	1-4Q						
HyLITE Aircraft Integration	3-4Q	3Q						
HyLITE Test and Demonstrate	3-4Q	1-4Q						
ACS MTI/SAR/MSI/HSI/EO/IR technology demonstrations		3-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
ACS MS B Decision Review		4Q						
ACS MS C Decision Reivew								2Q

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	71836	44823	32292	42377	86579	110095	111148	115624	0	622613
956 DISTRIBUTED COMMON GROUND SYSTEM (DCGS) (JMIP)	71836	44823	8306	18167	43471	42361	46342	50380	0	333525
D06 DCGS-A ASAS INTEGRATION (JMIP)	0	0	1337	7667	14706	19597	9813	9807	0	62927
D07 DCGS-A COMMON MODULES (JMIP)	0	0	21603	9594	21373	40759	44280	44698	0	182307
D08 DCGS-A SENSOR INTEGRATION (JMIP)	0	0	1046	6949	7029	7378	10713	10739	0	43854

A. Mission Description and Budget Item Justification: Distributed Common Ground System - Army (DCGS-A) supports the Future Combat System (FCS) and Objective Force commander's ability to execute battle command, synchronize fires and effects, rapidly shift battle focus, achieve situational understanding, and protect the force. DCGS-A provides commanders access to advanced Intelligence, Surveillance and Reconnaissance (ISR) capabilities and data across echelons from strategic to tactical levels, synchronizes ISR collection, exploitation, processing, and distribution of information; and operates in a network with multiples levels of security. 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 in order to locate high value/high payoff targets and enhance the ability of the joint and Army commander to employ his forces more effectively. The core functions of DCGS-A are ISR integration, fusion of sensor information, and direction and distribution of sensor information. DCGS-A includes common software that is interoperable with sensors, other Battlefield Operating Systems (BOS), and the DoD DCGS Family of Systems (FoS). Development of a modular, scaleable, multi-intelligence DCGS-A capability with a reduced footprint is a key component of transformation and a top Army priority. 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 FCS FoS and other select platforms. At the Unit of Employment (UE) and above, DCGS-A is composed of hardware and software in deployable and fixed configurations. As an element of the Objective Force battle command architecture, DCGS-A allows the integration of all ISR assets based on the commander's critical information requirements (CCIR) to produce intelligence which contributes to the common operational picture (COP). Sensor information direction and distribution will provide sensor to commander, sensor to shooter, and sensor to analyst real time information. This system supports the Objective transition path of the Transformation Campaign Plan (TCP).

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	72095	15683	15911	15625
Current Budget (FY 2004/2005 PB)	71836	44823	32292	42377
Total Adjustments	-259	29140	16381	26752
Congressional program reductions				
Congressional rescissions	-259	-8800		
Congressional increases		38200		
Reprogrammings		-260		
SBIR/STTR Transfer				
Adjustments to Budget Years			16381	26752

FY2004 +\$16,381 provided to initiate development of DCGS-A.
 FY2005 +\$26,752 provided for continuous development of DCGS-A.

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

February 2003

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0305208A - Distributed Common Ground Systems (JMIP)						PROJECT 956	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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)	71836	44823	8306	18167	43471	42361	46342	50380	0	333525

A. Mission Description and Budget Item Justification: Distributed Common Ground System - Army (DCGS-A) supports the Future Combat System (FCS) and Objective Force commander's ability to execute battle command, synchronize fires and effects, rapidly shift battle focus, achieve situational understanding, and protect the force. This project supports the system development and demonstration of the Distributed Common Ground System, Army (DCGS-A). DCGS-A supports network centric warfare through sharing and distribution of timely, multi-INT battle management and collection of sensor targeting information to Land Commanders at all echelons as well as to other services. Advanced networking, sensor connectivity, cross-cueing, data sharing and processing will provide commanders, a common view and understanding of the battlefield and access to Intelligence, Surveillance and Reconnaissance (ISR) data and products currently only available within echelons, from a specific ISR ground station. Modular and scalable components will provide flexibility for tailoring and deploying assets and capabilities in support of all types of units of employment/action and across a broad spectrum of conflicts. This project integrates and networks capabilities existent in multiple intelligence ground stations, and eventually consolidates the capabilities and replaces the hardware found in the following current force systems: All Source Analysis System (ASAS), CI/HUMINT Information Management System (CHIMS), Tactical Exploitation System (TES), Guardrail Information Node (GRIFN), Guardrail Common Sensor (GRCS) Intelligence Processing Facility (IPF), PROPHET Control, Joint Surveillance Target Attack Radar System (JSTARS) Common Ground Station (CGS), and the Tactical Unmanned Aerial Vehicle (TUAV) Ground Control Station (GCS). DCGS-A will ultimately migrate these capabilities into a common configuration. Networking these capabilities 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. Networking of multi-INT capabilities will ensure increased interoperability with other Services and reduce forward footprint and logistics burden, all critical Army transformation objectives. This project also supports the engineering development and acquisition of Army Common Imagery Ground/Surface Systems (CIG/SS). The objective of CIG/SS is to enable all systems to receive, process, exploit, and report any imagery source regardless of platform or sensor type to meet the intelligence and targeting needs of tactical commanders. The CIG/SS scheme provides the warfighter with an integrated and interoperable airborne reconnaissance imagery processing and exploitation capability that can be tailored for all levels of conflict. This project also incorporates Army funds originally divested from Defense Airborne Reconnaissance Program (DARP) for the imagery portion of the TES. This system supports the Objective transition path of the Transformation Campaign Plan (TCP).

PM DCGS-A was provided Defense Emergency Response Fund (DERF) supplemental funding as a non-add, for FY02 in the amount of \$20.43M to accelerate the Interim DCGS-A capability to XVIII Airborne and III Corps. Additional DERF funding was provided to Army Space Program Office (ASPO) in the amount of \$16.50M for Interop Van Functionality and SIGINT & IMINT pre-processing Architecture (S&IPA) engineering efforts, and S&IPA for Ft. Hood.

FY03 Congressional Plus-Up of \$29.9M for Wideband ISR, MASINT tools, DCGS-A upgrades, integration at Echelons Above Corps (EAC), integration of

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
956

Common Data Link (CDL) and MTI/MP-RTIP integration.

DCGS-A supports the Legacy to Objective transition path of the Army Transformation Campaign Plan (TCP).

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Continue CIG/SS element engineering to implement software upgrades, and enhancements to maintain compatibility with changing the national and tactical interfaces (TES)	7492	0	0	0
AIP Upgrades into TES.	750	0	0	0
Integrate Moving Target Indicator Exploitation/Surveillance Control Data Link (MTIX/SCDL) and Signal Imagery Preprocessor Architecture (S&IPA) into TES Variants at XVIII and III Corps.	9590	0	0	0
Tactical Exploitation System - Main (TES-M) to III Corps - key element of DCGS-A Architecture.	15500	0	0	0
DCGS-A enhancements to the GR/CS Integrated Processing Facility (IPF) as a part of DCGS-A architecture to be fielded to III Corps.	14490	0	0	0
Implement Block II ACE to DCGS-A interface that provides database to database exchange capability.	7560	0	0	0
Studies, analysis and modeling and simulation for DCGS-A with an emphasis on the communications/dissemination infrastructure, trade off analysis, database structure, and data element synchronization.	963	0	0	0
Incorporate DCGS upgrades into CHIMS to provide HUMINT operator access to multi-INT databases.	2410	0	0	0
Development of requirements documentation and associated developmental, operational and interoperability (Joint Interoperability Test Center - JITC) testing.	4900	0	0	0
Develop a COMINT workstation	3180	2990	0	0
Field a DCGS-A capability to establish a 513th Military Intelligence BDE Echelons Above Corps (EAC) Home Station Operations Center (HSOC).	1241	600	0	0
Evaluate and integrate visualization and MASINT sensor tools for data sharing and collaboration of multi-INT platforms.	3760	2000	0	0
Integration and test support for XVIII and III Corps DCGS-A upgrades.	0	2500	0	0
Assess CDL and MP-RTIP alternatives.	0	9700	0	0
DCGS-A system integration to support Wideband ISR Network.	0	2460	0	0
Development of ISR modules to support FCS.	0	11943	0	0
Develop DCGS-A testbed.	0	1358	0	0

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305208A - Distributed Common Ground Systems (JMIP)	PROJECT 956
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<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
DCGS-A Milestone B preparation.	0	1150	0	0
SAIP prototype single vehicle development, fielding, integration, and evaluation. Starting in FY03 shared coverage with 0305208, D957	0	1561	1000	0
DTES Production and Interop and Upgrade Spirals. Starting in FY03 DTES costs spread across this PE, 0305208, D957, and SSNs BZ7316 and BZ7317. FY04 and beyond covered by BZ7316 and D956	0	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.	0	439	2000	3933
TES Forward or MAIN Systems' upgrades and interoperability builds.	0	1500	4145	2250
Continued TES/DCGS-A development through Army Topographic Engineer Center (TEC) and FFRDC (Aerospace). Prior to FY 05 covered under 0305208, D957.	0	0	0	3465
Systems engineering and technical assistance, IPT participation across programs and Services, Roadmaps, and DCGS-A Transformation Plans. Prior to FY 05 covered under 0305208, D957.	0	0	0	5519
Ensures data link interoperability across Services and other programs.	0	0	1092	3000
Totals	71836	44823	8306	18167

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

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BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground Systems
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B. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
PE 0603766A Tactical Surveillance Systems Project 907 (TIARA)	16225	16107	17068	16079	15928	16544	17223	19841	0	135015
PE 0604766A TES/DCGS-A Project D909 (TIARA)	0	1770	0	0	0	0	0	0	0	1770
BZ7316 DCGS-A (JMIP)	2277	11303	2687	9494	9885	24324	32982	33662	Continuing	Continuing
BZ7317 Tactical Exploitation System (TIARA) *1	34134	17100	0	0	0	0	0	0	0	51234
APA AZ2000 Guardrail Mods (TIARA) (DCGS-A GRIFN MDEP FPDP Only) *2	5000	0	0	0	0	0	0	0	0	5000
PE 0604766A Tactical Exploitation System (TES) / DCGS-A 957 *3	59668	55485	19695	16	0	0	0	0	0	134864
PE 0604770 Army Common Ground Station (CGS) (202)	7485	4511	4705	0	0	0	0	0	0	16701
BA1080, Army Common Ground Station (CGS)	21156	8387	8261	0	0	0	0	0	0	37804
PE 0604321 CI/HUMINT Software Products (B41) (TIARA)	2335	2323	2125	1601	1964	3409	1827	1893	Continuing	Continuing
BK5275 CI HUMINT Info Management System	2475	9472	7892	2947	3922	6548	3279	5898	Continuing	Continuing

- *1 Congress reprogrammed \$7.5 M from PE 305208, Project 956 into OPA BZ7317 for DCGS-A capability.
- *2 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: The DCGS-A program will be developed utilizing an Evolutionary Acquisition approach, providing Blocked capabilities and spiral development within each Block. Block 1 will enhance existing systems to establish the necessary interfaces, collaboration, data sharing capabilities, Home Station Operation Center and embedded FCS modules. Block 2 will pursue competitive development to enable maximum industry participation to acquire robust processing, exploitation, analysis visualization, and dissemination applications and supporting hardware to reduce ground station footprint and provide increased processing capabilities.

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

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 . ETRAC CIG/SS	C/CPAF	Northrop Grumman, Linthicum, MD	5527	0		0		0		0	5527	5527
b . MIES CIG/SS	SS/CPFF	DBA, Melbourne FL	4187	0		0		0		0	4187	4187
c . TES DCGS Sustainment & Interoperability & Retro	CPAF/FF	Northrop Grumman, Linthicum, MD	22936	10122	1Q	7393	1Q	8587	1Q	Continue	Continue	Continue
d . III Corps TES MAIN	C/CPFF	Northrop Grumman, Linthicum, MD	15500	0		0		0		0	15500	15500
e . GR/IFN component of DCGS-A	SS/CPFF	TRW, Sunnyvale, CA	14390	0		0		0		0	14390	14390
f . Visualization/Data Sharing	T&M	TRW	3560	0		0		0		0	3560	3560
g . Block II ACE to Interim DCGS Interface	MIPR	PM SW	7360	0		0		0		0	7360	7360
h . Studies, Analysis and M&S for Objective DCGS	T&M	Booz-Allen / OSEC	463	0		0		0		0	463	0
i . COMINT Workstation and ELINT Upgrade	MIPR	PM IE	3080	2661	1Q	0		0		0	5741	5741

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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 . CHIMS Upgrades for HUMINT Operator Multi-INT	MIPR	PM CHIMS	2310	0		0		0		0	2310	0
k . INSCOM Home Station Nodes	MIPR	INSCOM	1200	534	1Q	0		0		0	1734	0
l . XVIII ABC & III Corps Interim DCGS	MIPR	XVIII & III Corps	0	1875	2Q	0		0		0	1875	0
m . Evaluate and Integrate Visualization and MASINT Tools	MIPR	NRO	0	1780	2Q	0		0		0	1780	0
n . Assess CDL and MP-RTIP Alternatives	CP	TBD	0	8633	2Q	0		0		0	8633	0
o . DCGS-A Integration to support Wideband ISR Network	CP	TBD	0	2189	2Q	0		0		0	2189	0
p . Development of ISR modules to support FCS	CP	TBD	0	10630	2Q	0		0		0	10630	0
q . Systems Engineering, DCGS-A Transformation Plans	CP	TBD	0	0		0		4911	1Q	Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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 . Data Link Interoperability Across Services and Other Programs	CP	TBD	0	0		0		2670	1Q	Continue	Continue	Continue
Subtotal:			80513	38424		7393		16168		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 . 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	1042	1Q	249	1Q	545	1Q	Continue	Continue	Continue
Subtotal:			6001	2065		249		545		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
7 - Operational system development					0305208A - Distributed Common Ground Systems (JMIP)					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 the XVIII Airborne and III Corps DCGS-A upgrades	T&M	TBD	0	350	2Q	0		0		0	350	0
b . Develop DCGS-A Testbed	CP	TBD	0	1208	2Q	0		0		0	1208	0
Subtotal:			0	1558		0		0		0	1558	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	2776	1-4Q	664	1-4Q	1454	1-4Q	Continue	Continue	Continue
Subtotal:			500	2776		664		1454		Continue	Continue	Continue
Project Total Cost:			87014	44823		8306		18167		Continue	Continue	Continue

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground Systems (JMIP) **PROJECT 956**

<u>Schedule Detail</u>	<u>FY 2002</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>
Development of TES Main to III Corps	3-4Q	1-4Q						
GRIFN component of DCGS-A	3-4Q	1-4Q						
Integration of Common Ground Station (CGS) /CHIMS capability into Interim DCGS-A	3-4Q	1-2Q						
TES and GRIFN integration	3-4Q	1-4Q	1-2Q					
DCGS-A requirements development	2-4Q	1-4Q						
DCGS-A fielding at XVIII Airborne (Spiral 2)			3Q					
MS B for embedded DCGS-A (FCS)		3Q						
Home Station Operation Centers (HSOC) fielding to 513th MI BDE (Spiral 1)		3-4Q						
DCGS-A fielding at III Corps (Spiral 3)	2Q							
Embedded DCGS-A development		3-4Q	1-4Q	1-4Q	1-3Q			
IOT&E for Block I (FCS EUT)					3-4Q			
MS B Block II (UE)			1Q					
Block II SDD			2-4Q	1-4Q	1-4Q	1-3Q		
Block II MS C						3Q		

* The majority of TES system funding is under PE 0604766A (TES/DCGS-A)

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305208A - Distributed Common Ground Systems (JMIP)					PROJECT D06	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	0	1337	7667	14706	19597	9813	9807	0	62927

A. Mission Description and Budget Item Justification: This evolutionary project supports the system development and demonstration of the Distributed Common Ground System, Army (DCGS-A), which will form the Intelligence Surveillance and Reconnaissance (ISR) knowledge backbone of the Army's Objective Force and support Battle Command On-The-Move (BCOTM). DCGS-A supports network centric warfare through timely development of enemy/threat situational assessments, and the timely sharing and distribution of multi-INT and All Source battle management and targeting information, and optimal management of collection/ISR resources. Sensor Fusion and All Source production capabilities will be 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 process will provide automated support for Fusion Levels 1, 2, 3, and 4 as defined by the Joint Directors of Laboratories Data Fusion Model. 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. All Source and multi-INT products will be produced, using collaboration techniques, in multiple formats to support all levels of interoperability (e.g., MTF, VMF, graphical displays and overlays, web-based, email) and technology (e.g., database replication, XML). The current MLS message processor/interface and controlled interface/guard technology will also be transitioned from the existing system to achieve timely distribution (push and pull) of intelligence products in multiple formats at multiple levels of classification and releaseability. This will be accomplished by leveraging current industry successes to extend into the next generation of information transfer agents with universal sets of plug-in applications for multiple media/format implementations.

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Enhance interface between All Source Sensor Fusion process and SIGINT single sources.	0	0	200	750
Enhance interface between All Source Sensor Fusion process and CI/HUMINT single source.	0	0	200	1000
Enhance All Source Sensor Fusion processing of MASINT.	0	0	200	1200
Enhance controlled interface technology for improved product distribution at multiple security levels via web.	0	0	277	750

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0305208A - Distributed Common Ground Systems (JMIP)	PROJECT D06
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<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Studies, analysis, and prototyping for porting All Source Sensor Fusion mission applications to FCS environment.	0	0	260	1000
Studies, analysis, and prototyping of All Source Sensor Fusion processes for Block II DCGS-A.	0	0	0	1167
Initial extension of All Source Sensor Fusion guard technology into FCS environment.	0	0	200	1000
Extension of All Source Sensor Fusion controlled interface technology into Block II DCGS-A.	0	0	0	800
Totals	0	0	1337	7667

<u>B. Other Program Funding Summary</u>	<u>FY 2002</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>	<u>To Compl</u>	<u>Total Cost</u>
064321A All Source Analysis System, Project B19 ASAS Evolutionary Acquisition	41907	52043	18043	13947	10500	10793	11106	8896	Continuing	Continuing

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.

The DCGS-A program will be developed utilizing an Evolutionary Acquisition approach, providing Blocked capabilities and spiral development within each Block. Block 1 will enhance existing systems to establish the necessary interfaces, collaboration, data sharing capabilities, Home Station Operation Center and embedded FCS modules. Block 2 will pursue competitive development to enable maximum industry participation to acquire robust processing, exploitation, analysis visualization, and dissemination applications and supporting hardware to reduce ground station footprint and provide increased processing capabilities.

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

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	TBD	TBD	0	0		937	2Q	6317	1Q	Continue	Continue	Continue
Subtotal:			0	0		937		6317		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 . 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(R-3)								February 2003				
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	300	1-4Q	Continue	Continue	Continue
Subtotal:			0	0		300		750		Continue	Continue	Continue
Project Total Cost:			0	0		1337		7667		Continue	Continue	Continue

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground Systems (JMIP) **PROJECT**
D06

<u>Schedule Detail</u>	<u>FY 2002</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
All-source Sensor Fusion Continuous Evaluation			1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q

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

February 2003

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0305208A - Distributed Common Ground Systems (JMIP)					PROJECT D07		
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	0	21603	9594	21373	40759	44280	44698	0	182307

A. Mission Description and Budget Item Justification: DCGS-A will integrate common data management, visualization and exploitation tools that will create the software and hardware baseline for seamless multi-INT tasking, processing, exploitation, and dissemination (TPED). 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. In order to provide seamless multi-intelligence TPED, the DCGS-A program will develop fixed (Home Station Node), deployable configuration, and applications. 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 Future Combat System of Systems (FCS) and the Objective Force to provide tailored access to actionable information. DCGS-A will be Joint, Allied and Coalition interoperable. DCGS-A will be modular, scalable, and tailorable to provide commanders flexibility in the force package to accomplish the specific mission. DCGS-A application – programs, applets, and toolsets – will be based on DoD standards and common throughout DCGS-A.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Development of ISR modules to be embedded into Future Combat System (FCS) and other Objective Force systems.	0	0	7000	3150
Develop common processing/exploitation tools for DCGS-A Enterprise (Home Station Node, Deployable Configuration, and Embedded Application.)	0	0	3000	2000
DCGS-A Enterprise Integration (integration of processing, exploitation and dissemination capabilities)	0	0	4500	0
Test support for Block 1.	0	0	2730	864
Interoperability maintenance in support of FCS.	0	0	0	1580
DCGS-A Milestone B preparation.	0	0	500	0
DCGS-A multi-level security.	0	0	0	1000
DCGS-A modeling & simulation.	0	0	1100	500
Integrated logistics support(ILS) and training.	0	0	0	500
Imagery processing upgrades.	0	0	2773	0
Totals	0	0	21603	9594

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
D07

B. Other Program Funding Summary	FY 2002	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	71836	44823	8306	18167	43471	42361	46342	50380	Continuing	Continuing
RDTE (PE 35208, Proj D08) DCGS-A JMIP	0	0	1046	6949	7029	7378	10713	10739	Continuing	Continuing
RDTE (PE 35208, Proj D06) DCGS-A JMIP	0	0	1337	7667	14706	19597	9813	9807	Continuing	Continuing
BZ7316 DCGS-A Unit of Employment	2277	11303	2687	9494	9885	24324	32982	33662	Continuing	Continuing
AZ2000 Guardrail Mods (GRIFIN only)	0	0	4966	4953	0	0	0	0	0	9919

C. Acquisition Strategy: The DCGS-A program will be developed utilizing an Evolutionary Acquisition approach, providing Blocked capabilities and spiral development within each Block. Block 1 will enhance existing systems to establish the necessary interfaces, collaboration, data sharing capabilities, Home Station Operation Center and embedded FCS modules. Block 2 will pursue competitive development to enable maximum industry participation to acquire robust processing, exploitation, analysis visualization, and dissemination applications and supporting hardware to reduce ground station footprint and provide increased processing capabilities.

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development

0305208A - Distributed Common Ground Systems (JMIP)

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 . Develop DCGS-A ISR Modules for FCS	Competitive CPIF/CPAF	TBD	0	0		6440	2Q	2898	1Q	Continue	Continue	Continue
b . Develop Common Processing/Exploitation tools for DCGS-A Enterprise	Competitive CPIF/CPAF	TBD	0	0		2760	2Q	1840	1Q	Continue	Continue	Continue
c . DCGS-A Enterprise Integration (processing, exploitation and dissemination capabilities)	Competitive CPIF/CPAF	TBD	0	0		4140	2Q	0		0	4140	0
d . Interoperability Maintenance in support of FCS	Competitive CPIF/CPAF	TBD	0	0		0		1453	1Q	Continue	Continue	Continue
e . DCGS-A MS B Preparation	Competitive CPIF/CPAF	TBD	0	0		460	2Q	0		0	460	0
f . DCGS-A Multi-level Security	Competitive CPIF/CPAF	TBD	0	0		0		920	1Q	Continue	Continue	Continue
g . DCGS-A Modeling and Simulation	Competitive CPIF/CPAF	TBD	0	0		1012	2Q	460	1Q	Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
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 . Integrated Logistics Support / Training	Competitive CPIF/CPAF	TBD	0	0		0		460	1Q	Continue	Continue	Continue
i . Imagery Processing Upgrades	Competitive CPIF/CPAF	TBD	0	0		2552	2Q	0		0	2552	0
Subtotal:			0	0		17364		8031		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	CECOM	0	0		432	1Q	192	1Q	Continue	Continue	Continue
Subtotal:			0	0		432		192		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

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 for Block 1	Competitive CPIF/CPAF	TBD	0	0		2511	2Q	795	1Q	Continue	Continue	Continue
Subtotal:			0	0		2511		795		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 . Project Management	In House	PM DCGS-A	0	0		1296	1Q	576	1Q	Continue	Continue	Continue
Subtotal:			0	0		1296		576		Continue	Continue	Continue

Project Total Cost:			0	0		21603		9594		Continue	Continue	Continue
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Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground Systems (JMIP) **PROJECT**
D07

<u>Schedule Detail</u>	<u>FY 2002</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>
MS B for embedded DCGS-A (FCS)		3Q						
Award development contracts for DCGS-A			1Q					
Interoperability testing of DCGS-A Common Modules			4Q	1-3Q				
Embedded DCGS-A development		3-4Q	1-4Q	1-4Q	1-3Q			
IOT&E for Block I (FCS EUT)					3-4Q			
MS B for Block II (UE)			1Q					
Block II SDD			2-4Q	1-4Q	1-4Q	1-3Q		
Block II MS C						3Q		

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0305208A - Distributed Common Ground Systems (JMIP)					PROJECT D08	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	0	1046	6949	7029	7378	10713	10739	0	43854

A. Mission Description and Budget Item Justification: Current limitations in Intelligence, Surveillance and Reconnaissance operations limit the ground Commander's ability to maximize use of a variety of intelligence sources. Visibility of all collection resources is unavailable to allow the tasking process to accurately and efficiently use all collection capabilities. There is limited capability to cue and slew sensors across intelligence domains and across Battlefield Operating Systems (BOS). DCGS-A will interoperate with a wide variety of Legacy and Objective Force sensors; manned and unmanned, space, air, ground platforms, and human sources. DCGS-A will provide the commander at the Unit of Action (UA) and Unit of Employment (UE) access to sensors tailored to support the mission. DCGS-A will maximize sensor access through common data and tasking formats to improve and accelerate the decision-action cycle-time. DCGS-A will receive Army, Joint, Coalition, and commercial sensor data via GIG components. DCGS-A will develop the capability to integrate the performance of Collection Management; Sensor TPPU; Single, Multi-INT, and All-Source Analysis; and Dissemination of products for use by the warfighter. DCGS-A will provide the Commander an ability to task, receive, process and exploit, analyze, disseminate, and present signals, signatures, human, imagery, terrain, and weather data, processed data, and information from US, Allied, and Coalition sensors/sources. DCGS-A sensor integration efforts completed under this project will improve the accuracy and timeliness of intelligence provided to the Commander and promote a standards-based ISR infrastructure to increase inter-Service and Agency collaboration and ISR platform management. DCGS-A will receive Army, Service, Joint, Coalition, and commercial sensor data via line of sight and beyond line of sight data links and cable communications networks.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Develop and integrate Multi-INT sensor (HUMINT, IMINT, SIGINT, MASINT) modules into DCGS-A Enterprise.	0	0	0	2000
Develop and integrate DCGS-A geographic nodes and components for sensor data distribution in DCGS-A network.	0	0	0	3933
Develop DCGS-A Testbed	0	0	1046	1016
Totals	0	0	1046	6949

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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

PROJECT
D08

B. Other Program Funding Summary	FY 2002	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	71836	44823	8306	18167	43471	42361	46342	50380	Continuing	Continuing
RDTE (PE 35208, Proj D07) DCGS-A JMIP	0	0	21603	9594	21373	40759	44280	44698	Continuing	Continuing
RDTE (PE 35208, Proj D06) DCGS-A JMIP	0	0	1337	7667	14706	19597	9813	9807	Continuing	Continuing
BZ7316 DCGS-A Unit of Employment	2277	11303	2687	9494	9885	24324	32982	33662	Continuing	Continuing
AZ2000 GRCS Mods (DCGS-A GRIFIN only)	0	0	4966	4953	0	0	0	0	0	9919

C. Acquisition Strategy: The DCGS-A program will be developed utilizing an Evolutionary Acquisition approach, providing Blocked capabilities and spiral development within each Block. Block 1 will enhance existing systems to establish the necessary interfaces, collaboration, data sharing capabilities, Home Station Operation Center and embedded FCS modules. Block 2 will pursue competitive development to enable maximum industry participation to acquire robust processing, exploitation, analysis visualization, and dissemination applications and supporting hardware to reduce ground station footprint and provide increased processing capabilities.

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
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		1840	1Q	Continue	Continue	Continue
b . Develop and Integrate DCGS-A geographic nodes and components for sensor data distribution in DCGS-A	Competitive CPIF/CPAF	TBD	0	0		0		3618	1Q	Continue	Continue	Continue
			0	0		0		5458		Continue	Continue	Continue
Subtotal:												
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
			0	0		75		139		Continue	Continue	Continue
Subtotal:												

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
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 . Block 1 Testbed	Competitive CPIF/CPAF	TBD	0	0		846	2Q	935	1Q	0	1781	0
Subtotal:			0	0		846		935		0	1781	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		125	1Q	417	1Q	Continue	Continue	Continue
Subtotal:			0	0		125		417		Continue	Continue	Continue
Project Total Cost:			0	0		1046		6949		Continue	Continue	Continue

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305208A - Distributed Common Ground Systems (JMIP) **PROJECT**
D08

<u>Schedule Detail</u>	<u>FY 2002</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>
MS B for embedded DCGS-A (FCS)		3Q						
Embedded DCGS-A development		3-4Q	1-4Q	1-4Q	1-3Q			
IOT&E for Block I (FCS EUT)					3-4Q			
MS B Block II (UE)			1Q					
Block II SDD			2-4Q	1-4Q	1-4Q	1-3Q		
MS C for Block II						3Q		

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	101595	94623	84839	110537	132991	33288	20032	27687	0	658956
090 MLRS HIMARS	53816	30599	20851	10638	0	0	0	0	0	162093
093 MLRS JOINT TECH ARCHITECTURE	2156	6426	8458	2064	1068	0	5778	3450	0	29400
783 MLRS SMART TACT RKT	0	0	0	1966	5580	0	0	17510	0	25056
784 GUIDED MLRS	45623	57598	55530	95869	126343	33288	10612	778	0	442407
787 HIMARS P3I	0	0	0	0	0	0	3642	5949	0	0

A. Mission Description and Budget Item Justification: The High Mobility Artillery Rocket System (HIMARS), the Joint Technical Architecture-Army (JTA-A), Guided MLRS (GMLRS) and GMLRS Unitary are Legacy to Objective force systems that provide precision strike and are essential due to the expansion of regional power threats. The Guided Smart (previously known as MLRS Smart Tactical Rocket (MSTAR) and HIMARS P3I will support the Army Objective Force. This Product Improvement Program (PIP) provides for the maturation of HIMARS, JTA-A and the System Development and Demonstration (SDD) of a Guided Smart, GMLRS, GMLRS Unitary and the HIMARS P3I.

HIMARS will replace M198 towed howitzer and M270 launchers giving early entry forces immediate fire support within a hot landing zone without waiting for heavy-lift aircraft.

JTA-A will implement the capability for situational awareness in M270A1 and HIMARS launchers and trainers.

Guided Smart will integrate an adverse smart submunition warhead to achieve moving and stationary, hard and soft, point target capability in adverse weather conditions.

The multinational GMLRS program will greatly enhance the capability of the existing MLRS, providing greater range, significantly enhanced accuracy, and interoperability among the nations covered under the MLRS Memorandum of Understanding (MOU). This improvement will reduce the number of rockets required to defeat targets, thus dramatically reducing the logistics burden and increasing crew survivability. The GMLRS program includes GMLRS Unitary. GMLRS Unitary Rocket is an evolutionary product improvement to the GMLRS that provides for the development and integration of a unitary warhead and multi mode fuze providing point hit precision kill capability against hardened stationary targets. Additionally, seeker technologies will be assessed for spiral development and potential insertion into GMLRS Unitary to provide operation flexibility against an expanded target set including moving targets.

HIMARS P3I is the future pre-planned product improvement rocket and missile launch platform.

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

HIMARS P3I launcher is a block upgrade to the HIMARS launcher and replaces M270A1 launcher.

HIMARS, JTA -A, GMLRS and GMLRS Unitary support the Legacy to Objective transition path of the Transformation Campaign Plan (TCP). Guided Smart and HIMARS P3I will support the Army Objective Force.

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	99505	57825	7701	6410
Current Budget (FY 2004/2005 PB)	101595	94623	84839	110537
Total Adjustments	2090	36798	77138	104127
Congressional program reductions				
Congressional rescissions	-613	-1204		
Congressional increases		41250		
Reprogrammings	3904	-548		
SBIR/STTR Transfer	-1326	-2700		
Adjustments to Budget Years			77138	104127

FY03 HIMARS and Guided MLRS (GMLRS) Unitary programs were increased in the FY03 Amended Budget Submission. FY04/FY05 increases will fund the GMLRS Unitary effort and increased testing costs associated with designation of HIMARS and GMLRS as ACAT IC programs.

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

February 2003

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 090			
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	53816	30599	20851	10638	0	0	0	0	0	162093	

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 force. It provides MLRS capability 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 Objective Force Unit of Employment will provide fires that share and isolate the battle space. Stryker and Objective Force commanders will employ HIMARS to provide counterfire.

HIMARS meets Army's modernization goals for the 21st century, is designated the Army's "Legacy to Objective" Rocket/Missile delivery system, and was selected by Army strategic planners as one of the Army's seven "core" transformation systems.

<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Assembled hardware, conducted Contractor Development Test (CDT) and Critical Design Review (CDR)	44412	0	0	0
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	0	18678	9749	3705
Conduct Extended System Integration Test (ESIT), Flight Test Series 1 & 2 and Automotive Ground Test, Resupply Vehicle and Resupply Trailer Integration Test (3 Test Articles); Perform Technical Assessments	9404	2100	0	0
Conduct Cold Region Testing, Nuclear Testing, Production Qualification Test (PQT) 2 testing, ESIT II and Ballistic Survivability, Command, Control, Communications, Computers and Intelligence (C4I) and Analysis of Alternatives (AOA) , Finalize Resupply Vehicle and Trailer for FCA; perform Technical Assessments and Prepare Milestone Documentation; Integrate of Advanced Field Artillery Tactical Data System; conduct Ground and Flight tests	0	9821	11102	6933
Totals	53816	30599	20851	10638

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
090

B. Other Program Funding Summary	<u>FY 2002</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>	<u>To Compl</u>	<u>Total Cost</u>
HIMARS Launcher (C03000)	0	128621	124191	169778	211073	229729	231558	241891	2565902	3902743
HIMARS Modifications (C67501)	0	0	467	475	8020	11752	16091	8303	131766	176874
HIMARS Modifications: Initial Spares (CA0289)	0	0	70	71	690	1267	1209	1015	25600	29922
Initial Spares, HIMARS (CA0288)	0	0	7510	4044	8472	7639	13056	10485	109808	161014

C. Acquisition Strategy: The HIMARS program, currently in System Development Demonstration (SDD), is near the end of a 40 month maturation contract which was awarded in Dec 99. A Long Lead Item (LLI) production contract was awarded in Dec 02 to support LRIP1 launchers and to maintain critical program schedule and meet the accelerated First Unit Equipped (FUE) date. Milestone C is scheduled for 2QFY03 with an anticipated LRIP 1 contract award scheduled for 3QFY03.

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

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7 - Operational system development

0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

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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	LMMFCS, TX	98540	13323	1-2Q	0		0		0	111863	0
b . Path through Operational Test	CPFF	LMMFCS, TX	0	5200	3-4Q	4194	1-4Q	2415	1-2Q	0	11809	0
c . Cab Improv./ OGA	N/A	TACOM (S&S)	4531	300	1-4Q	150	1-4Q	100	1-2Q	0	5081	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	12882	1730	1-4Q	1500	1-4Q	700	1-4Q	0	16812	0
Subtotal:			119993	20553		5844		3215		0	149605	0

Remarks: TACOM - Tank-automotive & Armaments Command
 AMCOM - Aviation & Missile Command
 RSA - Redstone Arsenal, AL
 S&S - Stewart & Stevenson
 GSA - General Services Administration
 LMMFCS - Lockheed Martin Missile and Fire Control System

Note: Path through Operational Test (OT) contract is for OT preparation and execution.

ARMY RDT&E COST ANALYSIS(R-3)

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BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT

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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	988	300	2Q	300	1Q	300	1Q	0	1888	0
Subtotal:			988	300		300		300		0	1888	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	N/A	APG MD, WSMR NM & RTTC RSA	13488	8500	1-4Q	13907	1-4Q	6723	1-3Q	0	42618	0
Subtotal:			13488	8500		13907		6723		0	42618	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(R-3)	February 2003
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM	PROJECT 090
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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	Precision Fires Project Office, Redstone Arsenal, AL	5667	1246	1-4Q	800	1-4Q	400	1-4Q	0	8113	0
Subtotal:			5667	1246		800		400		0	8113	0
Project Total Cost:			140136	30599		20851		10638		0	202224	0

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT
PROGRAM

PROJECT
090

<u>Schedule Detail</u>	<u>FY 2002</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>
Design IPR 1								
Development Testing Begins								
Functional Qualification Test (FQT), Launchers 1-3 Delivered	1Q							
Design IPR 2	1Q							
Functional Configuration Audit (FCA)		2Q						
Launchers 4-6 delivered	3-4Q							
LLI IPR, Milestone C		1-2Q						
IOT Ground Test Begins			4Q					
IOT Flight Test Begins			4Q	1Q				

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM				PROJECT 093		
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	2156	6426	8458	2064	1068	0	5778	3450	0	29400

A. Mission Description and Budget Item Justification: The JTA-A completes final development of the Joint Variable Message Format (JVMF) necessary to meet the Department of Defense Message Standardization requirement in FY03 and transition it to production. The next generation JVMF development and integration begins in FY08. It also develops and integrates situational awareness capability for both the M270A1 and HIMARS in FY04. This development meets the requirement for a digitized HIMARS for the Interim Division by FY06 and transitions this effort to production in FY05. The MLRS launchers are critical to U.S. Forces Korean and the Army Counterattack Corps as well as supporting Army Transformation. Additionally, the JTA-A provides for the development and integration of Selective Availability/Anti-Spoofing Module (SAASM) for the M270A1 and HIMARS through FY04. The next generation of SAASM development and integration begins in FY08. The development makes the M270A1 and HIMARS compliant with the Joint Staff guidance to have weapon systems SAASM compliant by FY07. JTA-A also provides the development and integration of a low cost navigation unit as part of the Reduction in Total Ownership Cost (RTOC) effort from FY03 to FY06. This effort transitions to HIMARS production in FY06-FY07.

This effort is required to meet JTA-A compliance requirements and enable firing of GMLRS and future ATACMS variants.

Accomplishments/Planned Program	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Develop platform situational awareness requirements. Perform Force XXI Battle Command Brigade and Below (FBCB2) applique integration and development testing.	603	0	2421	0
Develop, integrate, and test SASSM and Joint Variable Message Format.	1553	1272	377	0
Perform development testing.	0	432	428	0
Develop, integrate and test Low Cost Pos Nav Unit (LCPNU).	0	4228	4600	2000
Develop anti-jamming hardware.	0	396	483	0
Perform Technical assessments, concept studies, prepare milestone documentation and risk reduction.	0	98	149	64
Totals	2156	6426	8458	2064

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
093

B. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
Missile Procurement, Army	0	0	0	0	0	0	0	0	0	0
MLRS Launcher (C65900)	130606	134742	40155	41326	24468	0	0	0	0	371297
MLRS Mods(C67500)	13438	31181	19918	21328	16140	9888	19332	6732	140100	278057
MLRS Initial Spares (CA0257)	9860	6613	6521	6395	0	0	0	0	0	29389
MLRS Mod Initial Spares (CA0265)	851	5546	1269	5770	5942	4281	3257	2597	43989	73502
HIMARS Launcher (C03000)	0	128621	124191	169778	211073	229729	231558	241891	2565902	3902743

C. Acquisition Strategy: The Joint Technical Architecture-Army (JTA-A) standards will be implemented for the M270A1 and HIMARS launcher to provide Force XXI capabilities for the Army Counterattack Corps. The JVMF is currently being developed in the Software Engineering Directorate and will be integrated into the launchers using a sole source contracting strategy with Lockheed Martin Missile and Fire Control System (LMMFC). This contracting strategy will also be used for the transition of the Low Cost Positioning and Navigation Unit.

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

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 (LCPNU Support)	CPAF	LMMFCS, Dallas, TX	3538	3202	1-3Q	3675	1-3Q	964	1-3Q	750	12129	0
b . Government Support	N/A	AMCOM/GSA, RSA	2767	2341	1-3Q	3038	1-3Q	443	1-3Q	5508	14097	0
Subtotal:			6305	5543		6713		1407		6258	26226	0

Remarks: LCPNU- Low Cost Positioning Navigation Unit
 LMMFCS - Lockheed Martin Missile and Fire Control System 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(R-3)

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM	PROJECT 093
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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		100	1-3Q	0		100	692	0
b . Test Support		AMCOM, RSA	0	100	1-3Q	750	1-3Q	150	1-3Q	1800	2800	0
c . Test Support		WSMR, NM	0	284	1-2Q	250	1-3Q	250	1-3Q	950	1734	0
Subtotal:			492	384		1100		400		2850	5226	0

Remarks: CTSF - Central Test Support Facility AMCOM - 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	499	1-4Q	645	1-4Q	257	1-4Q	1188	3647	0
Subtotal:			1058	499		645		257		1188	3647	0

Remarks: PFRMS - Precision Fires Rocket and Missile Systems

Project Total Cost:			7855	6426		8458		2064		10296	35099	0
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Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM	PROJECT 093
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<u>Schedule Detail</u>	<u>FY 2002</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>
Conduct rqts analysis, configure prototype h/w and receive applique, begin integration test		2-4Q	1-2Q					
Perform system integration test		3-4Q	3-4Q					
Develop platform situation awareness requirements. Perform FBCB2 applique integr and dev testing.		3-4Q						
Develop, integrate and test SASSM and JVMF.		1-4Q	1-4Q				1-3Q	1-3Q
Perform development testing.		3Q	3Q					3Q
Develop, integrate and test Low Cost Pos Nav Unit (LCPNU).		1-4Q	1-3Q	1-3Q	1-3Q			
Develop anti-jamming hardware.			1-4Q				1-3Q	

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 783	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
783 MLRS SMART TACT RKT	0	0	0	1966	5580	0	0	17510	0	25056

A. Mission Description and Budget Item Justification: The Guided Smart (previously known as Multiple Launch Rocket System Smart Tactical Rocket (MSTAR)) will complement the GMLRS and GM LRS-Unitary rockets to complete the MLRS layered lethality capability. Guided Smart, when completely developed and tested, will integrate an adverse weather seeker into a larger elliptical volume, smart submunition warhead to achieve moving and stationary, hard and soft, point target capability in adverse weather conditions.

Accomplishments/Planned Program	FY 2002	FY 2003	FY 2004	FY 2005
Perform technical assessments, concept studies, risk reduction and prepare requirement and milestone documentation.	0	0	0	1966
Totals	0	0	0	1966

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

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0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
783

B. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
GMLRS (C65404)	0	36550	107759	112646	129759	249753	487699	570898	9980191	11675255

C. Acquisition Strategy: To design, develop and procure a Guided Smart rocket with a smart warhead through competitive acquisition to support the Army's Objective Force.

ARMY RDT&E COST ANALYSIS(R-3)

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BUDGET ACTIVITY

PE NUMBER AND TITLE

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7 - Operational system development

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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	TBD	TBD	0	0		0		1708	1-3Q	37033	38741	0
b . Government Support	TBD	TSM -RAMS, Ft. Sill, OK	0	0		0		21	1Q	0	21	0
c . Government Support	TBD	AMCOM, RSA	0	0		0		67	1Q	2153	2220	0
Subtotal:			0	0		0		1796		39186	40982	0

Remarks: TBD - To be determined TSM -RAMS - TRADOC System Manager-Rocket and Missile Systems
AMCOM, RSA - Aviation and Missile Command, Redstone Arsenal

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(R-3)	February 2003
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM	PROJECT 783
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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	TBD		0	0		0		87	2Q	1712	1799	0
Subtotal:			0	0		0		87		1712	1799	0

Remarks: TBD-To be determined

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	N/A	PFRMS Proj Ofc, RSA	0	0		0		83	1-4Q	2139	2222	0
Subtotal:			0	0		0		83		2139	2222	0

Remarks: PFRMS - Precision Fires Rocket and Missile Systems

Project Total Cost:			0	0		0		1966		43037	45003	0
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Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT
PROGRAM

PROJECT
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<u>Schedule Detail</u>	<u>FY 2002</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>
Contract Award/Concept Study				1Q				
Organization Requirement Document (ORD)				2Q				
Seeker/Airframe Integration Design				3Q				
Prototype Fabrication					1Q			
Engineering Test					2Q			
Milestone Decision Review B					4Q			
Technology Demo								1-2Q
System Development and Demonstration Contract Award								1Q
Preliminary Design Review								3Q

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 784	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	45623	57598	55530	95869	126343	33288	10612	778	0	442407

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 warfighter with 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 will integrate 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. The GMLRS will also become the primary munition for the artillery units fielded with the M270A1 launcher. The GMLRS is 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 pre-planned product improvement that will integrate a multi-mode fuze and high explosive insensitive munition into a warhead of the same GMLRS dimensions. 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 objective force. FY05 initiates efforts to meet DOD mandate on insensitive munitions effort. Additionally, seeker technologies will be assessed for spiral development and potential insertion into GMLRS Unitary to provide operational flexibility against an expanded target set including moving targets. The GMLRS and the GMLRS-Unitary support the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

Guided MLRS and the GMLRS-Unitary are the baseline for future Artillery Precision Rocket Munitions and are critical to the Army's Objective Force. GMLRS and GMLRS-Unitary meet Army Transformation Objectives and support Joint Vision 2020 Tenet of Precision Engagement.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Conducted Development Engineering, EDT Flight Tests, Production Qualification Testing (PQT) Ground and Flight Tests, Test Analysis (30 Test Articles)	25290	0	0	0
Conduct Development Engineering, Functional Configuration Audit, Final Product Definition Data Package (PDDP), and System Integration Test	0	9820	100	500
Perform Integration and Test of Alternative Self Destruct Fuze and Improved Mechanical Fuze	3561	2500	0	3422
Develop Advanced Field Artillery Tactical Data System (AFATDS) Interface	1472	500	200	200
Procure assets for System Integration, Cold Region Test, Pre OT Live Fire and SDF Qual Tests	5570	4220	0	0

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM	PROJECT 784
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<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Conduct system test and evaluation activities to include Initial Operational Test (IOT), Ground and Flight Test.	7729	1000	4915	0
Procure rockets for Operational Test (30 test articles)	0	3203	0	0
Perform technical assessments, concept studies, prepare milestone documentation and risk reduction	2001	1400	100	100
Conduct HIMARS/GMLRS DT Flight Test, Cold Region Test	0	2700	0	0
Conduct Development and Engineering for Insensitive Munitions (IM) Program	0	0	96	2226
Conduct Design and Development Warheads and Multi Mode Fuzes for Unitary	0	24233	20000	19000
Initiate Initial Common Hardware Buy for Test Activities for Unitary	0	5000	0	0
Perform Anti-Jamming System Engineering and Integration for Unitary	0	2000	4000	3000
Conduct Development Engineering, EDT Flight Test, Production Qualification Testing (PQT) Ground and Flight Tests, Test Analysis for Unitary	0	1022	15119	54344
Conduct Development Engineering, Functional Configuration Audit, Final Product Definition Data Package (PDDP), and System Integration Test for Unitary	0	0	6046	6470
Perform Integration and Test of Alternative Multi-Mode Fuze for Risk Reduction for Unitary	0	0	3000	2500
Conduct system test and evaluation activities for Unitary	0	0	1954	4107
Totals	45623	57598	55530	95869

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

PROJECT
784

B. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
Missile Procurement Army - ER-MLRS (C65402)	0	0	0	0	0	0	0	0	0	119296
Missile Procurement Army - GMLRS (C65404)	0	36550	107759	112646	129759	249753	487699	570898	9980191	11675255

C. Acquisition Strategy: The GMLRS-DPICM Acquisition Strategy includes entrance into Low Rate Initial Production (LRIP) FY03. After a successful operational test, the program will move into full rate production in FY05. 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. The GMLRS-DPICM effort incorporates the results of other development efforts for an improved mechanical fuze, a self-destruct fuze, as well as, increase the range for a new rocket motor.

GMLRS-Unitary Acquisition Strategy is streamlined product improvement program employing a spiral development approach. Block 1 will maximize commonality with GMLRS-DPICM with a new warhead and dual-mode fuze (point detonation and delay). The European Cooperative Development Partners for GMLRS have all expressed a desire to join the GMLRS-Unitary development effort in Block 2 which will include a third fuze mode (proximity), insensitive rocket motor, GPS Anti-Jam capability and other enhancements based on technology maturity.

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development

0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

784

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 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	12632	1-4Q	431	1-4Q	4587	1-3Q	21857	123565	0
b . SDD Unitary Contract	SS & CPAF	LMMFCS Dallas, TX	0	26290	1Q	39324	1Q	76465	1Q	115586	257665	0
c . Government Support	N/A	AMCOM/GSA,RSA	18477	500	1-3Q	250	1Q	750	1-3Q	2750	22727	0
d . Government Support for Unitary	N/A	AMCOM/GSA,RSA	0	3423	1-3Q	2613	1-4Q	2609	1-4Q	3147	11792	0
Subtotal:			102535	42845		42618		84411		143340	415749	0

Remarks: LMMFCS - Lockheed Martin Missile and Fire Control System GSA - General Services Admin
AMCOM - Aviation and Missile Command

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	1552	1103	1-3Q	0		200	2Q	1100	3955	0
b . P3I Concept Studies	C & TDB	TBD	1500	0		0		0		0	1500	0
c . Support Contract for Unitary	C & CPFF	Camber Research, AL	0	1000	1-3Q	2000	1-3Q	2246	1-3Q	3250	8496	0
d . P3I Concept Studies for Unitary	C& TDB	TBD	0	0		1000	1-3Q	1500	1-3Q	3000	5500	0

ARMY RDT&E COST ANALYSIS(R-3)	February 2003
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BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM	PROJECT 784
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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	2103		3000		3946		7350	19451	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	N/A	WSMR, NM & Meppen,GE	7746	7500	1-4Q	3974	3-4Q	0		4750	23970	0
b . Test Support for Unitary	N/A	WSMR, NM	0	450	1Q	1954	1-4Q	3286	1-4Q	12792	18482	0
Subtotal:			7746	7950		5928		3286		17542	42452	0

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

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0603778A - MLRS PRODUCT IMPROVEMENT
PROGRAM

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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	2300	1-4Q	756	1-4Q	911	1-4Q	1825	12928	0
b . In-House Support for Unitary	N/A	PFRMS Proj Ofc, RSA	0	2400	1-4Q	3228	1-4Q	3315	1-4Q	5017	13960	0
Subtotal:			7136	4700		3984		4226		6842	26888	0

Remarks: PFRMS - Precision Fires Rocket and Missile Systems

Project Total Cost:			120469	57598		55530		95869		175074	504540	0
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Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM	PROJECT 784
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<u>Schedule Detail</u>	<u>FY 2002</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>
EDT Ground Tests, Ballistic flights 1&2, Motor Qual tests, Final SW Integration Test, HWIL Tests	1-2Q							
EDT Rocket intergration and test, EDT Flight Tests 1&2, Motor Qual Complete	1Q							
EDT and PQT Rocket Integration , EDT Flight Tests 3-6, ROFS Software FQT	2-3Q							
PQT Ground and Flight Test	3-4Q	1Q						
Functional Configuration Audit (FCA)		1Q						
Facilitization IPR, Final PDDP, MS C		1-3Q						
LRIP Contract Award		3Q						
HIMARS/GMLRS DT Flight Test, Cold Region Test			1-2Q					
1st LRIP Rocket Delivery, Production Verification Test (PVT)		2Q						
Initial Operational Test (IOT), Ground and Flight Test			4Q	1Q				
2nd LRIP Rocket Delivery, Production Verification Test (PVT)			2Q					
Full Rate Production Decision, FRP Contract, Initial Operational Capability (IOC)				2-4Q				
Unitary SDD Contract Award		1Q						
Unitary Block 1 Integration and Delivery Decision for Contingency Quantity		4Q						
Unitary 1 EDT Grnd Tests, Ballistic Flights 1&2, Motor Qual Test, Final SW Integration Test, HWIL			2-4Q					
Unitary Block 1 EDT Rocket Integration and Tests, EDT Flight Test 1&2			4Q				1Q	
Unitary Block 1 EDT and PQT Rocket Integration, EDT Flight Tests 3-6, ROFS Software FQT			4Q					
Unitary Block 1 PQT Grnd and Flight Tests			4Q					
Unitary Block 1 Functional Configuration Audit				1Q				

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY	PE NUMBER AND TITLE								PROJECT
7 - Operational system development	0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM								784
<u>Schedule Detail (continued)</u>	<u>FY 2002</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>	
Unitary Block 2 Critical Design Review and In-Progress Review				1Q					
Unitary Block 1 Limited Fielding Decision for Contingencies				1Q					
Unitary Block 2 PQT Ground and Flight Tests					3-4Q				
Unitary Block 2 Functional Configuration Audit					4Q				
Unitary Block 2 Facilitization IPR, Final PDDP and MS C					4Q				
Unitary Block 2 LRIP Contract Award						1Q			
Unitary Block 2 Production Verification Test						3Q			
Unitary Block 2 Environmental Extreme Testing							1Q		
Unitary Block 2 Initial Operational Test							2Q		
Unitary Block 2 Initial Operational Capability							2Q		
Unitary Block 2 Full-Rate Production Decision Review							4Q		

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

February 2003

BUDGET ACTIVITY 7 - Operational system development		PE NUMBER AND TITLE 0708045A - End Item Industrial Preparedness Activities								
COST (In Thousands)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to	Total Cost
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	
Total Program Element (PE) Cost	98769	74728	65981	67706	77460	80628	82569	84457	0	710930
E25 MFG SCIENCE & TECH	61059	56859	65981	67706	77460	80628	82569	84457	0	636002
E27 RELIABILITY, MAINTAINABILITY & SUSTAINABILITY(RMS)	12710	17869	0	0	0	0	0	0	0	49928
EA1 VENTURE CAPITAL	25000	0	0	0	0	0	0	0	0	25000

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 Objective Force (OF). This program element comprises three projects: E25 Manufacturing Technology (ManTech), E27 Reliability, Maintainability and Supportability (RM&S) and EA1 Venture Capital. 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 OF 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 OF. These major investment areas are Aviation Systems, Fire Support Systems, Armor, Sensors, Electronics/Power Systems 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 Army Venture Capital (VC) initiative is an opportunity provided by Congress to engage small innovative companies that normally do not do business with the Army. The VC focus is on power and energy technology to support the soldier.

The work in this PE is consistent with the Army S&T Master Plan (ASTMP), the Army Modernization Plan and Project Reliance. The PE contains no duplication with any effort within the Military Departments.

No Defense Emergency Response Funds (DERF) were provided to the program.

This program supports the Objective Force transition path of the Transformation Campaign Plan.

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0708045A - End Item Industrial Preparedness Activities

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	77863	61025	69315	71104
Current Budget (FY 2004/2005 PB)	98769	74728	65981	67706
Total Adjustments	20906	13703	-3334	-3398
Congressional program reductions				
Congressional rescissions		-1055		
Congressional increases		17300		
Reprogrammings	23035	-433		
SBIR/STTR Transfer	-2129	-2109		
Adjustments to Budget Years			-3334	-3398

Change Summary Explanation:

FY03 (+\$17300) Congressional Adds totaling \$17300 (as noted below) added to this program element.

FY03 Congressional adds:

Industrial Short Pulse Laser Development/Femtosecond Laser, Project E25 (\$4200), Reactive Atom Plasma Processing, Project E25 (\$2200), 21st Century High Technology for Legacy Parts Reinvention, Project E25 (\$1000), Bipolar Wafer Cell NiMH Battery, Project E25 (\$1000), Continuous Manufacturing Process for Metal Matrix Composites, Project E25 (\$450), ManTech for Cylindrical Zinc Air Battery for Landwarrior System, Project E25 (\$2100), Modular Extendable Rigid Wall Shelter (MERWS) – Phase II, Project E25 (\$4850), and National Center for Defense Manufacturing and Machining, Project E25 (\$1500).

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

February 2003

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0708045A - End Item Industrial Preparedness Activities					PROJECT E25	
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	61059	56859	65981	67706	77460	80628	82569	84457	0	636002

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 OF. 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 OF 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). Short term programs are identified as Manufacturing Demonstrations (MDs). The cited work is consistent with the Army S&T Master Plan (ASTMP), the Army Modernization Plan and Project Reliance. The project contains no duplication with any effort within the Military Departments. Army ManTech projects are aligned into major investment areas to support Army Transformation to FCS and the Objective Force. These major investment areas are Aviation Systems, Fire Support Systems, Armor, Sensors, Electronics/Power Systems, and Flexible Display Initiative.

No Defense Emergency Response Funds (DERF) were provided to the project.

This project supports the Objective Force transition path of the Transformation Campaign Plan.

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0708045A - End Item Industrial Preparedness Activities	PROJECT E25
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<u>Accomplishments/Planned Program</u>	FY 2002	FY 2003	FY 2004	FY 2005
Aviation Systems –In FY02, the Power Transfer Systems Manufacturing MD demonstrated extended service life of tail rotor gearboxes. The Knowledge and Process Tools for Manufacturing of Affordable Composites MTO demonstrated reduction in fabrication labor of composite structures. The Low Cost Light Weight Structures MTO and the Affordable Drive Train Housings MTO begin in FY03. The program for FY03-FY05, will enhance the spiral bevel gear, improve the manufacturing process, and provide a reduction in drive weight ratio for rotary wing aircraft. It will also mature advanced design and manufacturing concepts for complex composite structures, reduce assembly labor, demonstrate composite prototypes, conduct structural tests, and implement airframe integration for FCS. This will reduce weight, increase performance, and demonstrate rapid affordable manufacturing processes for composite housings. The benefits will be a reduction of AH-64 housings lost and UH-60 and RAH-66 housing unit weight, demonstrate fabrication using soft tooling, new resin injection techniques and preforms, and provide cost reduction and O&S cost savings to the aviation fleet.	1197	4867	6082	2795
Fire Support Systems –In FY02, the Uniform Cannon Tube Reshaping MTO fabricated a fully automated cannon tube reshaping machine; the Low Cost, High-G, Micro-Electro-Mechanical Systems (MEMS) Inertial Measurement Units (IMU) project defined system processes to include modeling process flow, assembly, test and yield for first generation IMU; the Objective Individual Combat Weapon (OICW)/ Objective Crew Served Weapon (OCSW) MTO completed limited production of the OICW warhead and conducted preliminary evaluation of components to demonstrate guidance and control system cost reductions Army missiles; and the Large Caliber Cannon Life Extension MTO completed the design of large caliber cylindrical magnetron sputtering coatings for depositing refractory metal tantalum onto the bore surfaces of large caliber cannon barrels. The planned program for FY03-FY05 will deliver the Shop Floor Cannon Tube Reshaping System, and Centerline and Erosion Measurement System to improve firing accuracy; begin manufacturing and process control development for 2nd generation IMU and reduce IMU unit cost; 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.	16449	16708	8629	9020

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

February 2003

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0708045A - End Item Industrial Preparedness
Activities

PROJECT
E25

Accomplishments/Planned Program (continued)

Armor –In FY02, Improved Manufacturing Methods of Titanium in Ultra-Lightweight Armament and Ground Vehicle Systems MTO demonstrated advanced welding and single melt processing of titanium on M240 machine gun and transferred robotic welding technology to an advanced combat vehicle manufacturer; and the Knowledge and Process Tools for Manufacturing of Affordable Composite Structures (Ground Vehicles) MTO demonstrated full integration of automation and sensor-based intelligent process control for composite ballistic hull and turret structures. The planned program for FY03-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; conduct alternative resins manufacturing trials to broaden commercial base and extend service temperatures of ballistic structures, incorporate FCS armor tile “encapsulation” into previously demonstrated processes, and mature depot level repair solutions; and will mature low cost composite tooling, implement lay-up techniques with robotic equipment and demonstrate potential cost savings for several parts. Low Cost Affordable ManTech for FCS Structural and Appliqué Armor MTO begins in FY03 and will develop and mature manufacturing processes to enable affordable transition of composites (organic and hybrid ceramic) materials required for FCS ground vehicles. These composites will provide protection from ballistic threat, enhance vehicle runningloads and contribute to weight reduction.

FY 2002	FY 2003	FY 2004	FY 2005
3183	4157	5495	9407

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0708045A - End Item Industrial Preparedness Activities	PROJECT E25
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	FY 2002	FY 2003	FY 2004	FY 2005
<p><u>Accomplishments/Planned Program (continued)</u></p> <p>Sensors –In FY02, the IR Cooled and Uncooled Staring Sensors MTO increased performance for emerging weapons systems and accelerated the production of affordable monolithic uncooled focal plane arrays operating in the mid to long wave IR bands; and the Conformal Optics MTO integrated advanced optics processes within OICW fire control system to reduce weight and defined process tools for manufacturing of a new generation of missile window domes and mirrors for surveillance systems. The planned program for FY03-05 will address Military Lasers and the Dual Band Focal Plane Array (FPA). The Military Lasers MTO begins in FY03. This project will provide manufacturing processes for diode pumped lasers, which will reduce size and weight of laser systems and enable lightweight laser designators (3lb) for soldiers and Unmanned Aerial Vehicle (UAV) applications. In FY03, this project will determine the baseline for process yields, throughput, cycle times; increase 930 nm laser diodes from 2 watts to 4 watts/200 mm device for Objective Individual Combat Weapon laser. In FY04, it will improve Epitaxial growth to increase yield to 40%. In FY05, it will reduce cost of unmounted bars to \$1/peak watt and improve reliability for 60° C operation and military OPTEMPO cycles. The Dual Band FPA MTO begins in FY03. This project will provide manufacturing processes to produce affordable detector/dewar assemblies with cryogenic cooler providing digital video output to be integrated into higher assembly infrared sensors. In FY03, it will baseline the processes and defines Smart FPA features. In FY04, it will increase wafer fabrication to 35 cm2 and improve interconnects. In FY05, it will increase detector growth by 15% and process yield by 20%.</p>	7430	13827	19130	18863
<p>Electronic/Power Systems –Silicon Carbide Switches MTO, and 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. Efforts in Software Defined Radio Manufacturing and Micro-Electro Mechanical Systems (MEMS) Tenna Switch/Ferroelectric Switch Electronically Scanned Array (ESA) Manufacturing will be initiated in FY03. The planned program for FY04-FY05, will mature manufacturing technology processes related to software defined radios; mature manufacturing processes in the area of silicon carbide production technology; provide manufacturing technology processes to reduce risk and cost associated with 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.</p>	0	0	24684	24676

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

February 2003

BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
7 - Operational system development	0708045A - End Item Industrial Preparedness Activities		E25	
<u>Accomplishments/Planned Program (continued)</u>	FY 2002	FY 2003	FY 2004	FY 2005
Flexible Display Initiative – This project begins in FY04 and is supported by science and technology in PE 62705. This technology will develop and deploy, 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.	0	0	1961	2945
ManTech for Munitions Totally Integrated Munitions Enterprise Congressional add demonstrated enterprise architecture for design and manufacture of munitions components to meet surge/replenishment needs. Goal: Mature manufacturing technologies essential to reducing the cost of munitions production, reducing product variability, and enabling production of emerging munitions such as those needed for FCS. No additional funding is required to complete this project.	11200	0	0	0
Totally Integrated Munitions Enterprise Congressional add demonstrated manufacturing processes for 155mm modular charge system that reduced costs and increased quality, demonstrated explosive formulations for next generation munitions applications, and demonstrated manufacture for composite cartridge cases for FCS applications, significantly improving reproducibility and lowering costs. Goal: Mature manufacturing technologies essential to the affordable production of conventional and precision munitions. No additional funding is required to complete this project.	7000	0	0	0
Laser Peening Technology for Aircraft and Ground Equipment Congressional add began standardization of data for laser shock peened materials and construction of a Laser Shock Peen Manufacturing Cell to increase component life and decrease maintenance cost of helicopters and ground vehicles. No additional funding is required to complete this project.	1000	0	0	0
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. FY 03 funding was added to the program for continuation of the development of larger batteries used in vehicles for the silent watch program. No additional funding is required to complete this project.	1000	1000	0	0
Industrial Applications of Femtosecond Laser Technology Congressional add to mature specification for first generation micro machine tool for fuel injectors to improve diesel engine efficiency. FY03 funding was added to continue the project. No additional funding is required to complete this project.	4200	4200	0	0
Force Provider Microwave Wastewater Treatment Congressional add to prepare for field scale prototype development and testing to demonstrate a new wastewater treatment system. No additional funding is required to complete this project.	1400	0	0	0

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

February 2003

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0708045A - End Item Industrial Preparedness Activities	PROJECT E25
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<u>Accomplishments/Planned Program (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
ManTech Program for Cylindrical Zinc Batteries Congressional add had contract award in June 02. FY03 funding was added to continue the cell assembly stations, automated cell assembly, automated battery assembly, and quality control standards and testing. No additional funding is required to complete this project.	1800	2100	0	0
Continuous Manufacturing for Metal Matrix Composites Congressional add to mature metal matrix composites tape manufacturing line to achieve improved strength of materials at reduced weight for advanced artillery shells and mortar tubes. FY03 funding was added to continue the project. No additional funding is required to complete this project.	2600	450	0	0
Modular Extendable Rigid Wall Shelter (MERWS) Congressional add to address manufacturing issues of the shelter components and design issues to reduce shelter costs. FY03 funding was added to continue the project. No additional funding is required to complete this project.	2600	4850	0	0
Reactive Atom Plasma Processing Congressional add matures 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.	0	2200	0	0
21st Century High Technology for Legacy Parts Reinvention Congressional add matures the processes to develop 3D CAM/CAD models to define a virtual part to replace obsolete structural parts. It leverages 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.	0	1000	0	0
National Center for Defense Manufacturing and Machining Congressional add will 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.	0	1500	0	0
Totals	61059	56859	65981	67706

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

C. Acquisition Strategy: Not applicable for this item.

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

February 2003

BUDGET ACTIVITY 7 - Operational system development			PE NUMBER AND TITLE 1001018A - NATO Joint STARS					PROJECT C35			
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	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	0	503	503	601	598	696	682	706	Continuing	4789	

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. This system supports the legacy transition path of the Transformation Campaign Plan (TCP).

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.

<u>Accomplishments/Planned Program</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Continue to support necessary meetings and conferences.	0	16	18	20
Develop Ground Station Segment to meet NATO AGS Requirements.	0	196	216	290
Conduct Developmental Tests and Demonstrations.	0	164	137	153
Support the NATO AGS3 in the preparation of acquisition documentation for development/procurement of NATO AGS Air and Ground Segments.	0	127	132	138
Totals	0	503	503	601

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<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	0	512	512	611
Current Budget (FY 2004/2005 PB)	0	503	503	601
Total Adjustments	0	-9	-9	-10
Congressional program reductions				
Congressional rescissions		-6		
Congressional increases				
Reprogrammings		-3		
SBIR/STTR Transfer				
Adjustments to Budget Years			-9	-10

<u>C. Other Program Funding Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
BA1080 Joint STARS (TIARA)	21156	8387	8261	0	0	0	0	0	0	37804
BS9724 Joint STARS Spares	3849	3176	295	0	0	0	0	0	0	7320
64770/202 Joint Stars(TIARA)	7485	4511	4705	0	0	0	0	0	0	16701

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D. Acquisition Strategy: NATO AGS is currently in the Program Definition phase. The Army will support this activity with both requirements and acquisition personnel. The objective is to prepare for the eventual NATO procurement of an AGS capability. Based on extensive background knowledge obtained through the development of the Army's Common Ground Station (CGS), the Army intends to support the AGS effort with the expertise of individuals already involved with CGS. The Army intends to contract with the CGS manufacturer as necessary to support the development of an AGS ground segment, and to support exercises and demonstrations as they pertain to the US Government objectives and the Army AGS imperatives.