UNCLASSIFIED

Supporting Data FY 1998/1999 Budget Estimate
Submitted to Congress - February 1997

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)

"READINESS THROUGH MODERNIZATION"

VOLUME III

UNCLASSIFIED

19970314 032

DTIC QUALITY INSPECTED 1

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

DESCRIPTIVE SUMMARIES FOR PROGRAM ELEMENTS OF THE RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY FY 1998/1999 FEBRUARY 1997

VOLUME III
Budget Activities 6 and 7

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

THIS PAGE INTENTIONALLY LEFT BLANK

FY 1998/1999 RDT&E, ARMY
PROGRAM ELEMENT DESCRIPTIVE SUMMARIES

INTRODUCTION AND EXPLANATION OF CONTENTS

1. General. This section has been prepared for the purpose of providing information concerning the Army Research, Development, Test and Evaluation program. The Descriptive Summaries are comprised of R-2 (Budget Item Justification Sheet) and R-3 (RDT&E Program Element/Project Cost Breakdown) Exhibits which provide narrative information on all RDT&E program elements and projects for the FY 1996, 1997, 1998 and 1999 time period.

2. Relationship of the FY 1998/1999 Budget Submission to the FY 1997 Budget submitted to Congress. This paragraph provides a list of program elements restructured, transitioned, or established to provide specific program identification.

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

OLD PE/PROJECT	NEW PROJECT TITLE	NEW PE/PROJECT
0601102A/S16	Science Base/Combat Casualty Care Research	0601102A/S14
0602618A/H81, 0603004A/43A	Liquid Propellant Technology Program	0602618A/H37
0602624A/H28	Fuze Technology	0602624A/H36
0602712A/H24	Camouflage Technology	0602712A/H35
0602785A/791	Personnel System/Performance Technology	0602785A/790
0602787A/825	Combat Casualty Care Technology	0602787A/874
0603001A/XXA	Force XXI Land Warrior	0603001A/J50
0603003A/D368	Improved Cargo Helicopter	0203744A/D430
0603004A/L95	Landmine Warfare Dev	0603004A/43A
0603007A/793	Training Sys and Education	0603007A/792
0603313A/D380	Guided MLRS	0603778A/D784
0604760A/DC77	Computer Generated Forces	0604760A/DC78
0605601A/DE90, DE91,DE92, DE93, D618,D632 & D630	Army Test Ranges and Facilities	0605601A/DF30

A. Program Element Restructures (continued).

OLD PE/PROJECT	NEW PROJECT TITLE	NEW PE/PROJECT
0605601A/D630	Non-Major System Test & Design Evaluation	0605601A/D699
0605641A/D670, D671, D672, D672, D675 & D678	Survivability Evaluation	0605604A/D734
0605706A/D026	Major Systems Test, Design and Evaluation	0605706A/M542
0303142A/D384 & /D386	Automated Communications Management System	0303142A/D559

B. FY 1998 Developmental Transitions.

FROM PE/PROJECT	PROJECT TITLE	TO PE/PROJECT
0602120A/AH15	Dismounted Soldier Combat Identification (CID)	0604817A/D902
0602303A/214	2.75" Anti-Air Tech Demo	0603313A/549
0603313A/387	Multi-Purpose Individual Munition	0604802A/284

C. Establishment of New FY 1998 Program Elements/Projects. There are no major system new starts. Minor new initiatives for FY 1998, in addition to Congressionally directed initiatives for FY 1997, are shown below with asterisks. The remaining programs listed are outyear initiatives or restructures beyond FY 1998 or were previously funded from other Defense appropriations.

TITLE	PE/PROJECT
Voice Instructional Device*	0602601A/AH39
Plasma Energy Pyrolysis System*	0602720A/A876
Western Environmental Technology Office (WETO) Environmental Support*	0602720A/A877
Neurotoxin Exposure Treatment*	0602787A/A838
Cancer Signal/Cancer Cell Proliferation*	0602787A/A839
Computer-Assisted Minimally Invasive Surgery*	0602787A/A841
ENT Minimally Invasive Simulation*	0602787A/A842

C. Establishment of New FY 1998 Program Elements/Projects (continued).

TITLE	PE/PROJECT
Health Technology Roadmaps*	0602787A/A843
Hepatitis A Vaccine*	0602787A/A844
Trichloromelamine*	0603002A/D813
Neurofibromatosis*	0603002A/D814
National Medical Testbed*	0603002A/D815
Computer-Based Decision Support Systems*	0603002A/D816
Computer-Aided Diagnostic Research*	0603002A/D817
Advanced Cancer Detection Center*	0603002A/D818
Nautilus/THEL*	0603308A/D989
Battle Integration Center*	0603308A/D997
LCPK for 2.75 Inch Rockets	0603313A/A567
Advanced Light Anti-Armor Weapon System (ALAWS)*	0603607A/D664
Future Combat System	0603645A/DQ19
LTASS	0603774AD598
Future Scout Vehicle - Advanced Development*	0603645A/D018
Suite of Integrated Infrared Countermeasures Op Test*	0604270A/D2VT
Arm Treatment & Transport Vehicle	0604640A/DG28
Future Scout Vehicle - EMD	0604645A/D022
Mounted Warrior*	0604713A/D680
XM982*	0604802A/D695
Army Systems Engineering & Warfighting Technical Spt*	0604805A/D589
Modernization of Utilities*	0605678A/M744
Survivability Evaluation	0605604A/D734
Ground Combat Vehicle HTI*	0203735A/D718
Bradley A3 P3I (BFV A4)	0203735A/D377
Guardrail Common Sensor	0203744A/D028
UH-60 Door Gun*	0203744A/D504
Force XXI Initiatives*	0203758A/D376
Longbow Hellfire PIP	0203802A/D785
Joint Precision Approach Landing System (JPALS)	0305114A/D711
MLRS Army Technical Architecture*	0603778A/D093
Weapons Systems Modernization Software Maintenance	0708045A/DE26

D. FY 1998 programs for which funding was shown in the FY 1997 President's Budget Submit (February 1996), but which are no longer funded.

PE/PROJECT	TITLE	BRIEF EXPLANATION
0203735A/D2UT	Abrams IOTE	Funds transferred to system line.
0601101A/91E	ILIR-ARI	Program terminated
0601102A/S16	Science Base/Combat Dentistry Research	Program terminated
0602120A/H25	Nuc Effects Surv Tech	Program terminated
0602624A/H23	Non-Lethal Weapons Technology	Program terminated
0602783A/094	Tactical Software Technology	Program terminated
0603627A/E79	Smoke, Obscurant - Advanced Development	Funds transferred to system line
0602787A/825	Combat Maxillofacial Injury	Program terminated
0603001A/594	Metrology & Calibration	Program terminated
0603001A/J28	Test Measurement Technology Development	Program terminated

Descriptive summaries for PE 0603806A - NBC Defense Systems, AD and PE 0604806A - NBC Defense Systems, ED are not provided in this Army submission. Since these programs were transferred to Defense RDT&E in FY 1996, program details are available in the Defense RDT&E submission under PE 0603884BP and PE 0604384BP.

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

0203735A/DC64	0603003A/DB38/D391	0603710A/DC63
0203806A	0603005A/DC62	0603851A
0203808A	0603009A	0603854A/DC68
0602601A/AC84/DC83	0603013A	0604649A/DG15
0602104A	0603017A	0604328A/DC71
0602122A	0603018A	
0602712A/AC61	0603020A	
0602786A/AC60	0603322A	

Department of the Army
FY 1998/1999 RDT&E Program

Exhibit R-1

Summary

Date: Feb 1997

Thousands of Dollars

	FY 1996	FY 1997	FY 1998	FY 1999
Summary Recap of Budget Activities				
Basic Research	181,722	179,059	198,854	210,349
Applied Research	450,837	551,558	462,935	493,665
Advanced Technology Development	580,033	677,676	418,322	431,696
Demonstration and Validation	454,454	558,250	523,395	445,831
Engineering and Manufacturing Development	1,124,738	1,141,159	1,107,393	1,162,925
RDT&E Management Support	1,234,657	1,072,165	1,136,576	1,108,382
Operational Systems Development	730,971	750,761	663,368	643,876
Total Research Development Test & Eval Army	4,757,412	4,930,628	4,510,843	4,496,724
Summary Recap of FYDP Programs				
Strategic Forces	4,000	26,376	86,193	134,298
General Purpose Forces	560,107	541,129	403,355	354,129
Intelligence and Communications	64,814	72,633	89,316	68,413
Research and Development (FYDP Program 6)	4,094,970	4,242,671	3,874,153	3,874,693
Central Supply and Maintenance	23,699	47,819	44,326	50,086
Administration and Assoc Activities	322	0	0	0
Support of Other Nations	9,500	0	13,500	15,105
Total Research Development Test & Eval Army	4,757,412	4,930,628	4,510,843	4,496,724

THIS PAGE INTENTIONALLY LEFT BLANK

Department of the Army
FY 1998/1999 RDT&E Program

Exhibit R-1

Appropriation: 2040 A Reserach Development Test & Eval Army

Date: Feb 1997

Line No	Program Element Number	Item	Act	FY 1996	FY 1997	FY 1998	FY 1999
				Thousands of Dollars			
1	0601101A	IN-HOUSE LABORATORY INDEPENDENT RESEARCH	1	13,657	14,393	15,113	15,828
2	0601102A	DEFENSE RESEARCH SCIENCES	1	121,822	119,739	138,165	141,555
3	0601104A	UNIVERSITY AND INDUSTRY RESEARCH CENTERS	1	46,243	44,927	45,576	52,966
		Basic Research		181,722	179,059	198,854	210,349
4	0602104A	TRACTOR ROSE	2	2,484	3,065	0	0
5	0602105A	MATERIALS TECHNOLOGY	2	9,858	14,530	9,811	10,979
6	0602120A	SENSORS AND ELECTRONIC SURVIVABILITY	2	26,675	19,351	19,294	19,682
7	0602122A	TRACTOR HIP	2	5,603	7,981	7,242	8,170
8	0602211A	AVIATION TECHNOLOGY	2	17,853	21,898	27,282	30,281
9	0602270A	EW TECHNOLOGY	2	14,651	15,510	16,528	18,151
10	0602303A	MISSILE TECHNOLOGY	2	17,535	29,144	22,335	24,002
11	0602308A	MODELING & SIMULATION TECHNOLOGY	2	19,466	20,652	21,059	24,287
12	0602601A	COMBAT VEHICLE AND AUTOMOTIVE TECHNOLOGY	2	35,040	34,312	33,112	33,360
13	0602618A	BALLISTICS TECHNOLOGY	2	34,647	39,913	33,317	37,598
14	0602622A	CHEMICAL, SMOKE AND EQUIP DEFEATING TECHNOLOG	2	1,728	2,259	4,739	6,691
15	0602623A	JOINT SERVICE SMALL ARMS PROGRAM	2	4,857	4,497	4,786	5,204
16	0602324A	WEAPONS AND MUNITIONS TECHNOLOGY	2	24,297	22,246	26,980	30,613
17	0602705A	ELECTRONICS AND ELECTRONIC DEVICES	2	21,134	24,351	20,192	22,374
18	0602709A	NIGHT VISION TECHNOLOGY	2	16,442	16,636	17,304	19,213
19	0602712A	COUNTERMINE SYSTEMS DEVELOPMENT	2	0	7,372	10,598	10,715
20	0602716A	HUMAN FACTORS ENGINEERING TECHNOLOGY	2	15,445	15,968	14,256	15,626
21	0602720A	ENVIRONMENTAL QUALITY TECHNOLOGY	2	25,537	55,178	17,519	13,869
22	0602782A	COMMAND, CONTROL, COMMUNICATIONS TECHNOLOGY	2	13,130	14,976	16,838	18,180
23	0602783A	COMPUTER AND SOFTWARE TECHNOLOGY	2	3,843	6,500	679	337
24	0602784A	MILITARY ENGINEERING TECHNOLOGY	2	33,734	38,060	36,422	40,112
25	0602785A	MANPOWER/PERSONNEL/TRAINING TECHNOLOGY	2	7,254	9,329	9,014	9,019
26	0602786A	LOGISTICS TECHNOLOGY	2	26,995	21,319	17,689	18,565
27	0602787A	MEDICAL TECHNOLOGY	2	70,575	104,332	74,684	75,307
28	0602789A	ARMY ARTIFICIAL INTELLIGENCE TECHNOLOGY	2	2,054	2,179	1,255	1,330
		Applied Research		450,837	551,558	462,935	493,665

Department of the Army
FY 1998/1999 RDT&E Program

Exhibit R-1

Appropriation: 2040 A Reserach Development Test & Eval Army

Date: Feb 1997

Line No	Program Element Number	Item	Act	FY 1996	FY 1997	FY 1998	FY 1999
				Thousands of Dollars			
29	0603001A	LOGISTICS ADVANCED TECHNOLOGY	3	38,820	22,724	35,469	32,197
30	0603002A	MEDICAL ADVANCED TECHNOLOGY	3	90,591	201,198	10,677	10,959
31	0603003A	AVIATION ADVANCED TECHNOLOGY	3	48,320	56,165	31,330	29,921
32	0603004A	WEAPONS AND MUNITIONS ADVANCED TECHNOLOGY	3	29,119	29,122	18,255	29,717
33	0603005A	COMBAT VEHICLE AND AUTOMATIVE ADVANCED TECH	3	26,363	28,811	32,685	59,573
34	0603006A	COMMAND, CONTROL, COMM ADVANCED TECHNOLOGY	3	29,323	29,379	19,688	20,911
35	0603007A	MANPOWER, PERSONNEL AND TRAINING ADV TECH	3	4,576	4,406	3,003	3,006
36	0603009A	TRACTOR HIKE	3	23,016	16,791	14,350	9,574
37	0603013A	TRACTOR DIRT	3	1,713	3,265	3,393	2,448
38	0603017A	TRACTOR RED	3	5,369	8,445	5,572	4,953
39	0603020A	TRACTOR ROSE	3	4,731	4,971	9,204	9,111
40	0603105A	MILITARY HIV RESEARCH	3	2,795	17,544	2,713	3,162
41	0603238A	Global Surveillance/Air Defense/Precision Strike Technology Demo	3	37,630	22,009	11,664	4,926
42	0603270A	EW TECHNOLOGY	3	3,818	6,651	8,182	11,754
43	0603313A	MISSILE AND ROCKET ADVANCED TECHNOLOGY	3	109,972	99,819	117,139	89,542
44	0603322A	TRACTOR CAGE	3	8,088	8,651	6,412	5,353
45	0603606A	LANDMINE WARFARE AND BARRIER ADV TECHNOLOGY	3	25,006	27,629	19,332	19,778
46	0603607A	JOINT SERVICE SMALL ARMS PROGRAM	3	4,516	9,049	4,754	5,148
47	0603654A	LINE-OF-SIGHT TECHNOLOGY DEMO	3	13,396	9,791	13,000	20,000
48	0603710A	NIGHT VISION ADVANCED TECHNOLOGY	3	31,142	29,761	19,299	19,250
49	0603734A	MILITARY ENGINEERING ADVANCED TECHNOLOGY	3	14,544	20,213	12,231	17,334
50	0603772A	ADV TACTICAL COMPUTER SCIENCE & SENSOR TECH	3	27,185	21,282	19,970	23,079
		Advanced Technology Development		580,033	677,676	418,322	431,696
51	0603018A	TRACTOR TREAD	4	14,158	2,329	0	0
52	0603308A	ARMY MISSILE DEFENSE SYSTEMS INTEGRATION	4	23,443	66,462	24,138	12,637
53	0603619A	LANDMINE WARFARE AND BARRIER - ADV DEV	4	35,768	27,860	18,882	11,214
54	0603627A	SMOKE, OBSCURANT AND TARGET DEFEATING SYS-AD	4	2,623	6,246	0	0
55	0603639A	ARMAMENT ENHANCEMENT INITIATIVE	4	58,227	63,240	40,313	18,982
56	0603640A	ARTILLERY PROPELLANT DEVELOPMENT	4	20,811	8,322	8,521	0
57	0603645A	ARMORED SYSTEMS MODERNIZATION-ADVANCED DEVE	4	181,647	7,803	2,007	2,008

x

Appropriation: 2040 A Reserach Development Test & Eval Army

Date: Feb 1997

Line No	Program Element Number	Item	Act	FY 1996	FY 1997	FY 1998	FY 1999
				Thousands of Dollars			
58	0603649A	ENGINEER MOB EQUIP ADVANCED DEV	4	13,591	0	0	0
59	0603653A	ADVANCED TANK ARMAMENT SYSTEM	4	9,335	11,395	8,982	8,928
60	0603713A	ARMY DATA DISTRIBUTION SYTEM	4	6,360	23,170	21,214	10,049
61	0603745A	TACTICAL ELECTRONIC SUPPORT SYSTEMS - ADV DEV	4	5,630	3,941	0	0
62	0603747A	SOLDIER SUPPORT AND SURVIVABILITY	4	6,709	6,541	7,557	7,680
63	0603766A	TAC EXPLOIT OF NAT CAP (TENCAP)-DEM/VAL TIARA	4	26,796	25,354	20,920	23,714
64	0603774A	NIGHT VISION SYSTEMS ADVANCED DEVELOPMENT	4	3,167	2,769	2,939	2,893
65	0603790A	NATO RESEARCH AND DEVELOPMENT (H)	4	0	9,755	13,168	11,169
66	0603801A	AVIATION - ADV DEV	4	12,893	13,104	7,132	7,450
67	0603802A	WEAPONS AND MUNITIONS - ADV DEV	4	949	0	0	0
68	0603804A	LOGISTICS AND ENGINEER EQUIPMENT - ADV DEV	4	5,587	7,433	6,783	6,833
69	0603805A	CBT SERVICE SUPPORT CONTROL SYS EVAL & ANALYS	4	13,228	12,689	7,673	7,783
70	0603807A	MEDICAL SYSTEMS - ADV DEV	4	9,878	9,996	6,765	8,700
71	0603851A	TRACTOR CAGE (Dem/Val)	4	3,234	3,001	1,948	1,627
72	0603854A	ARTILLERY SYSTEMS DEMONSTRATION/VALIDATION	4	0	238,590	324,380	294,495
73	0603856A	SCAMP BLOCK II (SPACE)	4	0	8,250	73	9,669
74	0603889A	COUNTERDRUG R&D PROJECTS	4	420	0	0	0
		Demonstration and Validation		454,454	558,250	523,395	445,831
75	0604201A	AIRCRAFT AVIONICS	5	20,073	14,694	21,669	12,729
76	0604220A	ARMED, DEPLOYABLE OH-58D	5	688	1,130	0	0
77	0604223A	COMANCHE	5	284,131	331,424	282,009	371,927
78	0604270A	EW DEVELOPMENT	5	62,250	73,886	66,212	51,490
79	0604321A	ALL SOURCE ANALYSIS SYSTEM	5	49,912	39,308	24,045	26,228
80	0604325A	FOLLOW-ON TO TOW	5	944	5,479	13,949	50,884
81	0604328A	TRACTOR CAGE	5	0	1,524	11	303
82	0604604A	MEDIUM TACTICAL VEHICLES	5	2,923	5,874	3,729	0
83	0604609A	SMOKE, OBSCURANT AND TARGET DEFEATING SYS-ED	5	1,915	0	0	703
84	0604611A	JAVELIN (AWWS-M)	5	2,249	6,014	8,018	5,277
85	0604619A	LANDMINE WARFARE	5	29,453	26,288	19,800	23,075
86	0604622A	FAMILY OF HEAVY TACTICAL VEHICLES	5	2,605	1,958	0	0

Department of the Army
FY 1998/1999 RDT&E Program

Exhibit R-1

Appropriation: 2040 A Reserach Development Test & Eval Army

Date: Feb 1997

Line No	Program Element Number	Item	Act	FY 1996	FY 1997	FY 1998	FY 1999
				Thousands of Dollars			
87	0604633A	AIR TRAFFIC CONTROL	5	5,073	7,377	1,705	1,729
88	0604640A	ADVANCED COMMAND AND CONTROL VEHICLE	5	17,306	7,734	8,867	0
89	0604641A	TACTICAL UNMANNED GROUND VEHICLE	5	0	2,823	2,687	2,663
90	0604642A	LIGHT TACTICLE WHEELED VEHICLE	5	3,970	2,937	9,909	39,919
91	0604645A	ARMORED SYSTEMS MODERNIZATION (ASM)-ENG DEV	5	32,425	6,585	0	0
92	0604649A	ENGINEER MOBILITY EQUIPMENT DEVELOPMENT	5	19,114	46,705	56,196	63,069
93	0604710A	NIGHT VISION SYSTEMS - ENG DEV	5	37,658	34,870	33,456	21,255
94	0604713A	COMBAT FEEDING, CLOTHING, AND EQUIPMENT	5	16,049	76,428	55,964	43,539
95	0604715A	NON-SYSTEM TRAINING DEVICES - ENG DEV	5	50,140	48,788	76,749	73,048
96	0604716A	TERRAIN INFORMATION - ENG DEV	5	8,509	7,144	2,942	2,686
97	0604726A	INTEGRATED METEOROLOGICAL SUPPORT SYSTEM	5	0	0	1,946	1,931
98	0604739A	JTT/CIBS-M (TIARA)	5	0	4,765	4,499	4,447
99	0604740A	TACTICAL SURVEILLANCE SYSTEM - ENG DEV	5	2,954	0	0	0
100	0604741A	AIR DEFENSE C2I - ENG DEV	5	21,810	20,031	18,350	6,698
101	0604746A	AUTOMATIC TEST EQUIPMENT DEVELOPMENT	5	10,648	9,575	2,582	2,533
102	0604760A	DISTRIBUTIVE INTERACTIVE SIMULATIONS ENG DEV	5	0	15,631	20,895	9,242
103	0604766A	TAC EXPLOIT NAT CAP (TENCAP)-EMD (TIARA)	5	23,266	15,235	19,113	19,531
104	0604768A	BRILLIANT ANTI-ARMOR SUBMUNITION(BAT)	5	190,472	161,816	202,302	129,466
105	0604770A	JOINT SURVEILLANCE/TARGET ATTACK RADAR SYSTEM	5	15,302	9,624	6,940	5,670
106	0604778A	POSITIONING SYS DEVEL (SPACE)	5	436	428	419	409
107	0604780A	COMBINED ARMS TACTICAL TRAINER (CATT)	5	56,282	26,110	2,823	2,866
108	0604801A	AVIATION - ENG DEV	5	4,885	5,403	5,109	6,067
109	0604802A	WEAPONS AND MUNITIONS - ENG DEV	5	14,845	23,661	3,577	24,865
110	0604804A	LOGISTICS & ENGINEER EQUIPMENT - ENG DEV	5	19,132	19,903	28,039	26,932
111	0604805A	COMMAND, CONTROL, COMMUNICATIONS SYSTEMS - ED	5	16,740	9,556	11,052	16,395
112	0604807A	MEDICAL MATERIEL/MED BIO DEFENSE EQUIPMENT ED	5	4,644	4,693	4,483	5,408
113	0604808A	LANDMINE WARFARE/BARRIER - ENG DEV	5	6,802	7,556	22,605	44,133
114	0604814A	SENSE AND DESTROY ARMOR - ENG DEV	5	15,764	9,934	22,372	20,813
115	0604816A	LONGBOW	5	21,969	10,644	0	0
116	0604817A	COMBAT IDENTIFICATION	5	23,669	16,411	19,784	13,379
117	0604818A	ARMY TACTICAL COMM & CONT HARDWARE & SOFTWAR	5	27,231	15,780	20,022	18,697
118	0604820A	RADAR DEVELOPMENT	5	500	0	0	0

Appropriation: 2040 A Reserach Development Test & Eval Army

Date: Feb 1997

Line No	Program Element Number	Item	Act	FY 1996	FY 1997	FY 1998	FY 1999
				Thousands of Dollars			
119	0604823A	FIREFINDER	5	0	2,496	2,564	12,022
120	0604854A	ARTILLERY SYSTEMS - ENGINEERING DEVELOPMENT	5	0	2,937	0	897
		Engineering and Manufacturing Development		1,124,738	1,141,159	1,107,393	1,162,925
121	0604256A	THREAT SIMULATOR DEVELOPMENT	6	13,705	11,383	14,004	11,877
122	0604258A	TARGET SYSTEMS DEVELOPMENT	6	13,557	9,916	11,688	13,063
123	0604759A	MAJOR TEST & EVALUATION INVESTMENT	6	62,154	40,833	40,449	33,407
124	0605103A	RAND ARROYO CENTER	6	17,895	21,108	17,576	18,040
125	0605301A	ARMY KWAJALEIN ATOLL	6	140,930	143,789	138,769	142,125
126	0605502A	SMALL BUS INV RSCH/SMALL BUS TECH PILOT PROG	6	85,919	0	0	0
127	0605601A	ARMY TEST RANGES AND FACILITIES	6	142,694	130,222	122,117	128,919
128	0605602A	ARMY TECHNOLOGY & SUSTAINING INSTRUMENTATION	6	25,422	21,944	33,184	32,976
129	0605604A	SURVIVABILITY/LETHALITY ANALYSIS	6	32,250	30,675	32,330	30,678
130	0605605A	DOD HIGH ENERGY LASER SYS TEST FAC (HELSTF)	6	33,231	29,974	14,952	14,976
131	0605606A	AIRCRAFT CERTIFICATION	6	2,821	2,840	2,919	2,924
132	0605702A	METEOROLOGICAL SUPPORT TO RDT&E ACTIVITIES	6	6,458	6,348	6,434	6,658
133	0605706A	MATERIEL SYSTEMS ANALYSIS	6	17,241	14,126	29,707	28,675
134	0605709A	EXPLOITATION OF FOREIGN ITEMS	6	8,413	7,193	7,762	4,349
135	0605712A	SUPPORT OF OPERATIONAL TESTING	6	41,078	49,614	81,672	68,949
136	0605801A	PROGRAMWIDE ACTIVITIES	6	64,859	59,708	86,208	85,604
137	0605802A	INTERNATIONAL COOPERATIVE RESEARCH AND DEV	6	1,555	1,534	1,581	1,581
138	0605803A	TECHNICAL INFORMATION ACTIVITIES	6	13,549	16,552	15,451	15,872
139	0605805A	MUNITIONS STANDARDZION EFFECTIVENESS & SAFETY	6	16,692	3,211	6,317	5,895
140	0605853A	ENVIRONMENTAL CONSERVATION	6	2,493	1,723	1,778	2,977
141	0605854A	POLLUTION PREVENTION	6	11,004	13,602	5,353	4,681
142	0605856A	ENVIRONMENTAL COMPLIANCE-RDT&E	6	65,985	54,251	51,378	47,604
143	0605876A	MINOR CONSTUCTION (RPM) - RDTE	6	6,035	4,229	4,393	4,537
144	0605878A	MAINTENANCE AND REPAIR (RPM) - RDTE	6	86,907	68,580	85,119	74,681
145	0605879A	REAL PROPERTY SERVICES (RPS)	6	0	90,457	88,945	88,936
146	0605896A	BASE OPERATIONS-RDT&E	6	306,481	219,946	231,653	233,633

Department of the Army
FY 1998/1999 RDT&E Program

Exhibit R-1

Appropriation: 2040 A Reserach Development Test & Eval Army

Date: Feb 1997

Line No	Program Element Number	Item	Act	FY 1996	FY 1997	FY 1998	FY 1999
				Thousands of Dollars			
147	0605898A	MANAGEMENT HEADQUARTERS (RSCH & DEVELOPMENT)	6	15,007	18,407	4,837	4,765
148	0909999A	CLOSED ACCOUNT ADJUSTMENT	6	322	0	0	0
		RDT&E Management Support		1,234,657	1,072,165	1,136,576	1,108,382
149	0603778A	MLRS PRODUCT IMPROVEMENT PROGRAM	7	68,851	62,804	26,678	21,845
150	0102419A	AEROSTAT JOINT PROGRAM	7	4,000	26,376	86,193	134,298
151	0203726A	ADV FIELD ARTILLERY TACTICAL DATA SYSTEM	7	36,973	38,512	39,039	34,939
152	0203735A	COMBAT VEHICLE IMPROVEMENT PROGRAMS	7	206,625	206,816	136,520	69,443
153	0203740A	MANEUVER CONTROL SYSTEM	7	48,302	27,888	25,641	23,932
154	0203744A	AIRCRAFT MODIFICATIONS/PRODUCT IMPROV PROGRAM	7	4,288	22,386	2,609	28,791
155	0203752A	AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRA	7	3,703	3,834	2,940	2,933
156	0203758A	DIGITIZATION	7	110,583	137,078	156,960	149,015
157	0203801A	MISSILE/AIR DEFENSE PRODUCT IMPRV PROGRAM	7	59,199	64,557	17,412	11,431
158	0203802A	OTHER MISSILE PRODUCT IMPROVEMENT PROGRAMS	7	64,920	9,874	1,255	17,011
159	0203806A	TRACTOR RUT	7	3,346	3,112	2,111	0
160	0203808A	TRACTOR CARD	7	9,521	6,766	6,690	6,693
161	0208010A	JOINT TACTICAL COMMUNICATIONS PROG (TRI-TAC)	7	12,647	18,229	8,983	9,941
162	0208053A	JOINT TACTICAL GRD STATION (TIARA)	7	0	2,077	3,195	0
163	0301359A	SPECIAL ARMY PROGRAM	7	8,538	10,185	5,547	4,551
164	0303140A	COMMUNICATIONS SECURITY (COMSEC) EQUIPMENT	7	3,455	3,161	9,647	3,826
165	0303142A	SATCOM GROUND ENVIRO (SPACE)	7	52,821	39,421	57,827	44,288
166	0303150A	ARMY GLOBAL C2 SYS	7	0	19,389	15,045	14,793
167	0305114A	TRAFFIC CNTL/APPROACH/LANDING SYS (JPALS)	7	0	0	750	0
168	0305128A	SECURITY AND INTELLIGENCE ACTIVITIES	7	0	477	500	955
169	0708045A	End Item Industrial Preparedness Activities	7	23,699	47,819	44,326	50,086
170	1001018A	NATO JSTARS - TIARA	7	9,500	0	13,500	15,105
		Operational Systems Development		730,971	750,761	663,368	643,876
Total		Research Development Test & Eval Army		4,757,412	4,930,628	4,510,843	4,496,724

ARMY

FY97 COLUMN OF FY98/99 PRES BUD

The spreadsheet below reflects the FY97 column of the FY98/99 President's Budget by project. It is provided as clarification to the attached descriptive summaries. In the Project Change Summary (paragraph B of Exhibit R-2), we have reflected the FY97 Appropriated Value as the amount Congress appropriated less undistributed reductions in Sections 8136, 8138, and 8037 (column G of spreadsheet). This methodology is consistent with past practices and is consistent throughout this submission. However, we just recently realized that we should have shown the amount appropriated prior to any reductions (column A), and the total of those reductions (column F) as Adjustments to Appropriated Value. Unfortunately, time did not allow us to change over 400 descriptive summaries before the deadline for this submission. We intend to use this methodology for all future submissions.

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97			Sec 8037		Tot Adj to	FY 97
BA	PE	Proj	Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Approp Value	Column on RDDS
1	61101	91A	9893	-198	-9			-207	9686
1	61101	91C	3910	-78	-4			-82	3828
1	61101	91D	768	-15	-1			-16	752
1	61101	91E	130	-3	0			-3	127
			14701	-294	-14	0	0	-308	14393
1	61102	305	1156	-23	-1			-24	1132
1	61102	31B	2281	-46	-2			-48	2233
1	61102	52C	2243	-45	-2			-47	2196
1	61102	53A	3605	-72	-3			-75	3530
1	61102	74A	2303	-46	-2			-48	2255
1	61102	74F	2462	-49	-2			-51	2411
1	61102	F20	2333	-47	-2			-49	2284
1	61102	F22	447	-9	0			-9	438
1	61102	H42	1775	-35	-2			-37	1738
1	61102	H43	5584	-112	-6			-118	5466
1	61102	H44	3354	-67	-3			-70	3284
1	61102	H45	1848	-37	-2			-39	1809
1	61102	H47	2811	-56	-4			-60	2751
1	61102	H48	6872	-137	-6			-143	6729
1	61102	H52	849	-17	-1			-18	831
1	61102	H57	47844	-957	-45	-22	-8	-1032	46812
1	61102	H66	1314	-26	-1			-27	1287
1	61102	H67	4901	-98	-5			-103	4798
1	61102	H68	350	-7	0			-7	343
1	61102	S04	598	-12	-1			-13	585
1	61102	S13	8430	-169	-8			-177	8253
1	61102	S14	3830	-77	-4			-81	3749
1	61102	S15	5661	-113	-5			-118	5543
1	61102	S16	468	-9	0			-9	459

ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F (B+C+D+E)	G (A-F)
						Sec 8037		Tot Adj to	FY 97
BA	PE	Proj	FY 97 Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Approp Value	Column on RDDS
1	61102	S17	800	-16	-1			-17	783
1	61102	T22	1767	-35	-2			-37	1730
1	61102	T23	1532	-31	-1			-32	1500
1	61102	T24	1128	-23	-1			-24	1104
1	61102	T25	3136	-63	-3			-66	3070
1	61102	S18	650	-13	-1			-14	636
			122332	-2447	-116	-22	-8	-2593	119739
1	61104	H50	6853	-137	-6			-143	6710
1	61104	H53	690	-14	-1			-15	675
1	61104	H54	7252	-145	-7			-152	7100
1	61104	H56	4469	-89	-4			-93	4376
1	61104	H59	5797	-116	-5			-121	5676
1	61104	H62	10043	-201	-9			-210	9833
1	61104	H64	2899	-58	-3			-61	2838
1	61104	H65	2899	-58	-3			-61	2838
1	61104	H73	4986	-100	-5			-105	4881
			45888	-918	-43	0	0	-961	44927
	TOTAL BA 1		**182921**	**-3659**	**-173**	**-22**	**-8**	**-3862**	**179059**
2	62104	B79	3131	-63	-3			-66	3065
			3131	-63	-3	0	0	-66	3065
2	62105	H84	14841	-297	-14			-311	14530
			14841	-297	-14	0	0	-311	14530
2	62120	140	2651	-53	-2			-55	2596
2	62120	H15	3686	-74	-3		-5	-82	3604
2	62120	H16	13455	-269	-13	-22		-304	13151
2	62120	H25	0	0	0			0	0
			19792	-396	-18	-22	-5	-441	19351
2	62122	622	8152	-163	-8			-171	7981
			8152	-163	-8	0	0	-171	7981

ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97			Sec 8037		Tot Adj to	FY 97
BA	PE	Proj	Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Approp Value	Column on RDDS
2	62211	47A	19640	-393	-18		-16	-427	19213
2	62211	47B	2743	-55	-3			-58	2685
			22383	-448	-21	0	-16	-485	21898
2	62270	442	8783	-176	-8			-184	8599
2	62270	906	7062	-141	-7	-3		-151	6911
			15845	-317	-15	-3	0	-335	15510
2	62303	214	25795	-516	-24		-27	-567	25228
2	62303	205	4000	-80	-4			-84	3916
			29795	-596	-28	0	-27	-651	29144
2	62308	C90	9516	-190	-9	-19		-218	9298
2	62308	C99	11618	-232	-11	-21		-264	11354
			21134	-422	-20	-40	0	-482	20652
2	62601	C05	5982	-120	-6		-2	-128	5854
2	62601	H39	2100	-42	-2			-44	2056
2	62601	H77	10544	-211	-10		-5	-226	10318
2	62601	H82	3090	-62	-3			-65	3025
2	62601	H91	13384	-268	-13	-5	-39	-325	13059
			35100	-703	-34	-5	-46	-788	34312
2	62618	H75	8007	-160	-8			-168	7839
2	62618	H37	7500	-150	-7			-157	7343
2	62618	H80	20762	-415	-19			-434	20328
2	62618	H81	4497	-90	-4			-94	4403
			40766	-815	-38	0	0	-853	39913
2	62622	552	2343	-47	-2	-34	-1	-84	2259
			2343	-47	-2	-34	-1	-84	2259
2	62623	H21	4593	-92	-4			-96	4497
			4593	-92	-4	0	0	-96	4497

ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F (B+C+D+E)	G (A-F)
						Sec 8037			
BA	PE	Proj	FY 97 Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Tot Adj to Approp Value	FY 97 Column on RDDS
2	62624	H18	9484	-190	-9	-9	-3	-211	9273
2	62624	H19	5039	-101	-5			-106	4933
2	62624	H28	8214	-164	-8		-2	-174	8040
			22737	-455	-22	-9	-5	-491	22246
2	62705	H11	6073	-121	-6			-127	5946
2	62705	H94	18799	-376	-18			-394	18405
			24872	-497	-24	0	0	-521	24351
2	62709	H95	16994	-340	-16	-2		-358	16636
			16994	-340	-16	-2	0	-358	16636
2	62712	C61	1359	-27	-1			-28	1331
2	62712	H24	6170	-123	-6			-129	6041
			7529	-150	-7	0	0	-157	7372
2	62716	H70	14072	-281	-13	-13		-307	13765
2	62716	H34	2250	-45	-2			-47	2203
			16322	-326	-15	-13	0	-354	15968
2	62720	048	6072	-121	-6			-127	5945
2	62720	876	7500	-150	-7			-157	7343
2	62720	877	5000	-100	-5			-105	4895
2	62720	822	2000	-40	-2			-42	1958
2	62720	823	5400	-108	-5			-113	5287
2	62720	826	4000	-80	-4			-84	3916
2	62720	829	13170	-263	-12			-275	12895
2	62720	835	3169	-63	-3			-66	3103
2	62720	896	7412	-148	-7			-155	7257
2	62720	F25	2634	-53	-2			-55	2579
			56357	-1126	-53	0	0	-1179	55178
2	62782	779	7265	-145	-7			-152	7113
2	62782	H92	8042	-161	-8	-10		-179	7863
			15307	-306	-15	-10	0	-331	14976

ARMY

FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F (B+C+D+E)	G (A-F)
						Sec 8037			
BA	PE	Proj	FY 97 Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Tot Adj to Approp Value	FY 97 Column on RDDS
2	62783	094	4321	-86	-4			-90	4231
2	62783	Y10	2317	-46	-2			-48	2269
			6638	-132	-6	0	0	-138	6500
2	62784	855	8556	-171	-8			-179	8377
2	62784	H71	6691	-134	-6			-140	6551
2	62784	T40	11403	-228	-11	-24		-263	11140
2	62784	T41	4285	-86	-4			-90	4195
2	62784	T42	5541	-111	-5			-116	5425
2	62784	T45	2422	-48	-2			-50	2372
			38898	-778	-36	-24	0	-838	38060
2	62785	790	3107	-62	-3			-65	3042
2	62785	791	6421	-128	-6			-134	6287
			9528	-190	-9	0	0	-199	9329
2	62786	283	1665	-33	-2			-35	1630
2	62786	C60	3277	-66	-3			-69	3208
2	62786	J10	3000	-60	-3			-63	2937
2	62786	H98	9464	-189	-9	-13	-8	-219	9245
2	62786	H99	4402	-88	-4	-8	-3	-103	4299
			21808	-436	-21	-21	-11	-489	21319
2	62787	825	514	-10	0			-10	504
2	62787	870	29843	-597	-28			-1044	28799
2	62787	873	2931	-59	-3			-62	2869
2	62787	874	11415	-228	-11			-239	11176
2	62787	878	7294	-146	-7			-153	7141
2	62787	879	8693	-174	-8			-182	8511
2	62787	839	2300	-46	-2			-48	2252
2	62787	842	1000	-20	-1			-21	979
2	62787	844	20000	-400	-19	TRANSFERRED TO DEFENSE HEALTH PROGRAM			
2	62787	843	3500	-70	-3			-73	3427
2	62787	841	2500	-50	-2			-52	2448
2	62787	838	25000	-500	-23			-523	24477
2	62787	863	2000	-40	-2			-42	1958
2	62787	845	10000	-200	-9			-209	9791
			126990	-2540	-118	0	0	-2658	104332

ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F (B+C+D+E)	G (A-F)
BA	PE	Proj	FY 97 Approp Value	Sec 8136	Sec 8138	Sec 8037 FFRDC	Sec 8037 Consulting Services	Tot Adj to Approp Value	FY 97 Column on RDDS
2	62789	880	2226	-45	-2			-47	2179
			2226	-45	-2	0	0	-47	2179
	TOTAL BA 2		584081	-11680	-549	-183	-111	-12523	551558
3	63001	242	1249	-25	-1			-26	1223
3	63001	543	3097	-62	-3			-65	3032
3	63001	594	445	-9	0			-9	436
3	63001	C07	1891	-38	-2			-40	1851
3	63001	J28	251	-5	0			-5	246
3	63001	J50	16277	-326	-15			-341	15936
			23210	-465	-21	0	0	-486	22724
3	63002	806	100000	-2000	-94			-2094	97906
3	63002	810	9228	-185	-9			-194	9034
3	63002	804	45000	-900	-42			-942	44058
3	63002	819	2400	-48	-2			-50	2350
3	63002	893	12000	-240	-11			-251	11749
3	63002	813	500	-10	0			-10	490
3	63002	818	3500	-70	-3			-73	3427
3	63002	817	3000	-60	-3			-63	2937
3	63002	816	6000	-120	-6			-126	5874
3	63002	815	6000	-120	-6			-126	5874
3	63002	887	7500	-150	-7			-157	7343
3	63002	814	8000	-160	-8			-168	7832
3	63002	840	2373	-47	-2			-49	2324
			205501	-4110	-193	0	0	-4303	201198
3	63003	313	3527	-71	-3			-74	3453
3	63003	391	5040	-101	-5			-106	4934
3	63003	436	24647	-493	-23		-109	-625	24022
3	63003	447	7780	-156	-7			-163	7617
3	63003	A38	15000	-300	-14			-314	14686
3	63003	B38	1000	-20	-1			-21	979
3	63003	B97	484	-10	0			-10	474
			57478	-1151	-53	0	-109	-1313	56165
					xx				

ARMY

FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F (B+C+D+E)	G (A-F)
						Sec 8037			
BA	PE	Proj	FY 97 Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Tot Adj to Approp Value	FY 97 Column on RDDS
3	63004	232	5772	-115	-5			-120	5652
3	63004	43A	21809	-436	-20			-456	21353
3	63004	L95	2178	-44	-2	-15		-61	2117
			29759	-595	-27	-15	0	-637	29122
3	63005	221	4758	-95	-4			-99	4659
3	63005	440	13507	-270	-13		-123	-406	13101
3	63005	441	4203	-84	-4			-88	4115
3	63005	497	1818	-36	-2			-38	1780
3	63005	502	2000	-40	-2			-42	1958
3	63005	C62	3266	-65	-3			-68	3198
			29552	-590	-28	0	-123	-741	28811
3	63006	247	7427	-149	-7			-156	7271
3	63006	257	11981	-240	-11	-110		-361	11620
3	63006	592	3712	-74	-3			-77	3635
3	63006	596	5000	-100	-5			-105	4895
3	63006	597	2000	-40	-2			-42	1958
			30120	-603	-28	-110	0	-741	29379
3	63007	792	1418	-28	-1			-29	1389
3	63007	793	3082	-62	-3			-65	3017
			4500	-90	-4	0	0	-94	4406
3	63009	B18	17176	-344	-16	-25		-385	16791
			17176	-344	-16	-25	0	-385	16791
3	63013	C25	3335	-67	-3			-70	3265
			3335	-67	-3	0	0	-70	3265
3	63017	B69	8625	-172	-8			-180	8445
			8625	-172	-8	0	0	-180	8445
3	63020	B77	5078	-102	-5			-107	4971
			5078	-102	-5	0	0	-107	4971
3	63105	H29	17919	-358	-17			-375	17544
			17919	-358	-17	0	0	-375	17544

ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F (B+C+D+E)	G (A-F)
						Sec 8037		Tot Adj to	
BA	PE	Proj	FY 97 Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Approp Value	FY 97 Column on RDDS
3	63238	177	14446	-289	-14	-22	-124	-449	13997
3	63238	546	8212	-164	-8		-28	-200	8012
			22658	-453	-22	-22	-152	-649	22009
3	63270	K15	2913	-58	-3			-61	2852
3	63270	K16	3881	-78	-4			-82	3799
			6794	-136	-7	0	0	-143	6651
3	63313	206	1	0	0			0	1
3	63313	703	9000	-180	-8			-188	8812
3	63313	263	9745	-195	-9			-204	9541
3	63313	380	13515	-270	-13			-283	13232
3	63313	387	639	-13	-1			-14	625
3	63313	486	7849	-157	-7	-29		-193	7656
3	63313	493	24245	-485	-23			-508	23737
3	63313	496	37042	-741	-35	-18	-34	-828	36214
3	63313	550	1	0	0			0	1
			102037	-2041	-96	-47	-34	-2218	99819
3	63322	B92	8851	-177	-8		-15	-200	8651
			8851	-177	-8	0	-15	-200	8651
3	63606	608	23296	-466	-22	-67	-7	-562	22734
3	63606	624	5000	-100	-5			-105	4895
			28296	-566	-27	-67	-7	-667	27629
3	63607	627	8243	-165	-8			-173	8070
3	63607	664	1000	-20	-1			-21	979
			9243	-185	-9	0	0	-194	9049
3	63654	460	10000	-200	-9			-209	9791
			10000	-200	-9	0	0	-209	9791
3	63710	C63	2224	-44	-2			-46	2178
3	63710	K70	11425	-228	-11			-239	11186
3	63710	K86	5566	-111	-5			-116	5450
3	63710	K87	11182	-224	-11			-235	10947
			30397	-607	-29	0	0	-636	29761

ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F (B+C+D+E)	G (A-F)
						Sec 8037			
BA	PE	Proj	FY 97 Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Tot Adj to Approp Value	FY 97 Column on RDDS
3	63734	T08	1456	-29	-1			-30	1426
3	63734	T10	9585	-192	-9			-201	9384
3	63734	T12	9623	-192	-9	-19		-220	9403
			20664	-413	-19	-19	0	-451	20213
3	63772	101	13988	-280	-13	-265		-558	13430
3	63772	243	975	-19	-1			-20	955
3	63772	281	7136	-143	-7	-51	-38	-239	6897
			22099	-442	-21	-316	-38	-817	21282
	TOTAL BA 3		**693292**	**-13867**	**-650**	**-621**	**-478**	**-15616**	**677676**
4	63018	B89	2409	-48	-2	-30		-80	2329
			2409	-48	-2	-30	0	-80	2329
4	63308	990	2884	-58	-3			-61	2823
4	63308	989	45000	-900	-42			-942	44058
4	63308	997	20000	-400	-19			-419	19581
			67884	-1358	-64	0	0	-1422	66462
4	63619	606	28464	-569	-27		-8	-604	27860
			28464	-569	-27	0	-8	-604	27860
4	63627	E79	6380	-128	-6			-134	6246
			6380	-128	-6	0	0	-134	6246
4	63639	643	46561	-931	-44		-5	-980	45581
4	63639	656	18160	-363	-17	-7		-387	17773
			64721	-1294	-61	-7	-5	-1367	63354
4	63640	B91	8500	-170	-8			-178	8322
			8500	-170	-8	0	0	-178	8322
4	63645	Q19	8000	-160	-8	-29		-197	7803
			8000	-160	-8	-29	0	-197	7803
4	63653	B99	11639	-233	-11			-244	11395
			11639	-233	-11	0	0	-244	11395

ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F (B+C+D+E)	G (A-F)
						Sec 8037			
BA	PE	Proj	FY 97 Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Tot Adj to Approp Value	FY 97 Column on RDDS
4	63713	2QT	3653	-73	-3		-39	-115	3538
4	63713	370	20169	-403	-19		-2	-424	19745
			23822	-476	-22	0	-41	-539	23283
4	63745	535	4025	-80	-4			-84	3941
			4025	-80	-4	0	0	-84	3941
4	63747	610	1946	-39	-2			-41	1905
4	63747	669	3418	-68	-3			-71	3347
4	63747	C09	1316	-26	-1			-27	1289
			6680	-133	-6	0	0	-139	6541
4	63766	907	26060	-521	-24	-17	-144	-706	25354
			26060	-521	-24	-17	-144	-706	25354
4	63774	131	2829	-57	-3			-60	2769
			2829	-57	-3	0	0	-60	2769
4	63790	691	9963	-199	-9			-208	9755
			9963	-199	-9	0	0	-208	9755
4	63801	B32	2228	-45	-2			-47	2181
4	63801	B33	2053	-41	-2			-43	2010
4	63801	B45	9104	-182	-9			-191	8913
			13385	-268	-13	0	0	-281	13104
4	63804	266	1444	-29	-1			-30	1414
4	63804	428	3951	-79	-4			-83	3868
4	63804	G10	132	-3	0			-3	129
4	63804	G11	217	-4	0			-4	213
4	63804	G14	88	-2	0			-2	86
4	63804	K39	869	-17	-1			-18	851
4	63804	K41	891	-18	-1			-19	872
			7592	-152	-7	0	0	-159	7433
4	63805	091	11119	-222	-10	-3		-235	10884
4	63805	246	2021	-40	-2	-61		-103	1918
			13140	-262	-12	-64	0	-338	12802

ARMY

FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F (B+C+D+E)	G (A-F)
						Sec 8037			
BA	PE	Proj	FY 97 Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Tot Adj to Approp Value	FY 97 Column on RDDS
4	63807	808	3835	-77	-4			-81	3754
4	63807	811	2636	-53	-2			-55	2581
4	63807	836	2905	-58	-3			-61	2844
4	63807	837	835	-17	-1			-18	817
			10211	-205	-10	0	0	-215	9996
4	63851	C75	3124	-62	-3	-48	-10	-123	3001
			3124	-62	-3	-48	-10	-123	3001
4	63854	505	240916	-4818	-226		-77	-5121	235795
4	63854	C68	2855	-57	-3			-60	2795
			243771	-4875	-229	0	-77	-5181	238590
4	63856	389	8080	-162	-8			-170	7910
			8080	-162	-8	0	0	-170	7910
	TOTAL BA 4		**570679**	**-11412**	**-537**	**-195**	**-285**	**-12429**	**558250**
5	64201	C97	15008	-300	-14			-314	14694
			15008	-300	-14	0	0	-314	14694
5	64220	538	1154	-23	-1			-24	1130
			1154	-23	-1	0	0	-24	1130
5	64223	327	296528	-5930	-278		-130	-6338	290190
5	64223	C72	42116	-842	-40			-882	41234
			338644	-6772	-318	0	-130	-7220	331424
5	64270	665	44579	-892	-42			-934	43645
5	64270	L12	16414	-328	-15	-6		-349	16065
5	64270	L15	3845	-77	-4			-81	3764
5	64270	L16	1288	-26	-1			-27	1261
5	64270	L18	9348	-187	-9		-1	-197	9151
			75474	-1510	-71	-6	-1	-1588	73886
5	64321	2FT	3767	-75	-4		-40	-119	3648
5	64321	B19	36433	-729	-34	-10		-773	35660
			40200	-804	-38	-10	-40	-892	39308

ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F (B+C+D+E)	G (A-F)
						Sec 8037			
BA	PE	Proj	FY 97 Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Tot Adj to Approp Value	FY 97 Column on RDDS
5	64325	E18	5596	-112	-5			-117	5479
			5596	-112	-5	0	0	-117	5479
5	64328	C71	1561	-31	-1		-5	-37	1524
			1561	-31	-1	0	-5	-37	1524
5	64604	H07	6000	-120	-6			-126	5874
			6000	-120	-6	0	0	-126	5874
5	64611	499	6143	-123	-6			-129	6014
			6143	-123	-6	0	0	-129	6014
5	64619	088	26909	-538	-25	-41	-17	-621	26288
			26909	-538	-25	-41	-17	-621	26288
5	64622	659	2000	-40	-2			-42	1958
			2000	-40	-2	0	0	-42	1958
5	64633	586	7549	-151	-7		-14	-172	7377
			7549	-151	-7	0	-14	-172	7377
5	64640	G27	7899	-158	-7			-165	7734
			7899	-158	-7	0	0	-165	7734
5	64641	E47	2884	-58	-3			-61	2823
			2884	-58	-3	0	0	-61	2823
5	64642	E40	3000	-60	-3			-63	2937
			3000	-60	-3	0	0	-63	2937
5	64645	175	6726	-135	-6			-141	6585
			6726	-135	-6	0	0	-141	6585
5	64649	G25	34837	-697	-33		-5	-735	34102
5	64649	G26	12873	-257	-12		-1	-270	12603
			47710	-954	-45	0	-6	-1005	46705

ARM

FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F (B+C+D+E)	G (A-F)
						Sec 8037			
BA	PE	Proj	FY 97 Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Tot Adj to Approp Value	FY 97 Column on RDDS
5	64710	L69	18443	-369	-17	-8	-13	-407	18036
5	64710	L70	9482	-190	-9			-199	9283
5	64710	L74	7712	-154	-7			-161	7551
			35637	-713	-33	-8	-13	-767	34870
5	64713	548	809	-16	-1			-17	792
5	64713	667	48917	-978	-46			-1024	47893
5	64713	668	21598	-432	-20			-452	21146
5	64713	C40	1784	-36	-2			-38	1746
5	64713	L40	4955	-99	-5			-104	4851
			78063	-1561	-74	0	0	-1635	76428
5	64715	241	36752	-735	-35	-31		-801	35951
5	64715	396	2781	-56	-3			-59	2722
5	64715	573	10332	-207	-10			-217	10115
			49865	-998	-48	-31	0	-1077	48788
5	64716	579	7369	-147	-7	-50	-21	-225	7144
			7369	-147	-7	-50	-21	-225	7144
5	64739	702	4867	-97	-5			-102	4765
			4867	-97	-5	0	0	-102	4765
5	64741	126	20516	-410	-19	-9	-47	-485	20031
			20516	-410	-19	-9	-47	-485	20031
5	64746	L59	9793	-196	-9	-10	-3	-218	9575
			9793	-196	-9	-10	-3	-218	9575
5	64760	C73	10248	-205	-10			-215	10033
5	64760	C74	2632	-53	-2			-55	2577
5	64760	C77	3086	-62	-3			-65	3021
			15966	-320	-15	0	0	-335	15631
5	64766	909	15758	-315	-15	-136	-57	-523	15235
			15758	-315	-15	-136	-57	-523	15235

ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97 Approp			Sec 8037		Tot Adj to Approp	FY 97 Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Value	on RDDS
5	64768	2NT	5	0	0			0	5
5	64768	641	68622	-1372	-64			-1436	67186
5	64768	687	19221	-384	-18			-402	18819
5	64768	688	77559	-1551	-73		-129	-1753	75806
			165407	-3307	-155	0	-129	-3591	161816
5	64770	202	9857	-197	-9	-12	-15	-233	9624
			9857	-197	-9	-12	-15	-233	9624
5	64778	168	437	-9	0			-9	428
			437	-9	0	0	0	-9	428
5	64780	571	26713	-534	-25	-44		-603	26110
			26713	-534	-25	-44	0	-603	26110
5	64801	C45	5518	-110	-5			-115	5403
			5518	-110	-5	0	0	-115	5403
5	64802	284	14108	-282	-13			-295	13813
5	64802	AS1	1600	-32	-2			-34	1566
5	64802	531	5176	-104	-5			-109	5067
5	64802	712	3284	-66	-3			-69	3215
			24168	-484	-23	0	0	-507	23661
5	64804	194	2230	-45	-2			-47	2183
5	64804	279	1444	-29	-1			-30	1414
5	64804	429	3261	-65	-3			-68	3193
5	64804	H01	9635	-193	-9			-202	9433
5	64804	H14	88	-2	0			-2	86
5	64804	L39	1677	-34	-2			-36	1641
5	64804	L41	1033	-21	-1			-22	1011
5	64804	L42	962	-19	-1			-20	942
			20330	-408	-19	0	0	-427	19903

ARMY

FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F (B+C+D+E)	G (A-F)
						Sec 8037			
BA	PE	Proj	FY 97 Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Tot Adj to Approp Value	FY 97 Column on RDDS
5	64805	097	1715	-34	-2	-19		-55	1660
5	64805	098	569	-11	-1	-15		-27	542
5	64805	282	7031	-141	-7			-148	6883
5	64805	485	481	-10	0			-10	471
			9796	-196	-10	-34	0	-240	9556
5	64807	812	193	-4	0			-4	189
5	64807	832	1695	-34	-2			-36	1659
5	64807	834	884	-18	-1			-19	865
5	64807	849	2022	-40	-2			-42	1980
			4794	-96	-5	0	0	-101	4693
5	64808	016	5499	-110	-5			-115	5384
5	64808	415	2232	-45	-2	-5	-8	-60	2172
			7731	-155	-7	-5	-8	-175	7556
5	64814	2ST	309	-6	0		-3	-9	300
5	64814	644	9840	-197	-9			-206	9634
			10149	-203	-9	0	-3	-215	9934
5	64816	C87	5872	-117	-6			-123	5749
5	64816	C31	5000	-100	-5			-105	4895
			10872	-217	-11	0	0	-228	10644
5	64817	482	13886	-278	-13		-20	-311	13575
5	64817	901	2897	-58	-3			-61	2836
			16783	-336	-16	0	-20	-372	16411
5	64818	323	7784	-156	-7			-163	7621
5	64818	C34	8645	-173	-8	-290	-15	-486	8159
			16429	-329	-15	-290	-15	-649	15780
5	64823	L85	2551	-51	-2		-2	-55	2496
			2551	-51	-2	0	-2	-55	2496

ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F (B+C+D+E)	G (A-F)
						Sec 8037			
BA	PE	Proj	FY 97 Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Tot Adj to Approp Value	FY 97 Column on RDDS
5	64854	509	3000	-60	-3			-63	2937
			3000	-60	-3	0	0	-63	2937
	TOTAL BA 5		1166826	-23338	-1097	-686	-546	-25667	1141159
6	64256	976	11627	-233	-11			-244	11383
			11627	-233	-11	0	0	-244	11383
6	64258	238	6706	-134	-6	-2		-142	6564
6	64258	459	3423	-68	-3			-71	3352
			10129	-202	-9	-2	0	-213	9916
6	64759	983	2423	-48	-2			-50	2373
6	64759	984	32197	-644	-30	-19		-693	31504
6	64759	986	7105	-142	-7			-149	6956
			41725	-834	-39	-19	0	-892	40833
6	65103	732	21763	-435	-20	-200		-655	21108
			21763	-435	-20	-200	0	-655	21108
6	65301	614	146864	-2937	-138			-3075	143789
			146864	-2937	-138	0	0	-3075	143789
6	65502	770		0	0			0	0
6	65502	771		0	0			0	0
6	65502	802		0	0			0	0
6	65502	860		0	0			0	0
6	65502	861		0	0			0	0
6	65502	M40		0	0			0	0
			0	0	0	0	0	0	0
6	65601	618	12826	-257	-12			-269	12557
6	65601	630	4785	-96	-4			-100	4685
6	65601	632	1578	-32	-1			-33	1545
6	65601	E90	17418	-348	-16			-364	17054
6	65601	E91	35172	-703	-33			-736	34436
6	65601	E93	61233	-1225	-58	-5		-1288	59945
			133012	-2661	-124	-5	0	-2790	130222
					xxx				

ARMY

FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
						Sec 8037			
BA	PE	Proj	FY 97 Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Tot Adj to Approp Value	FY 97 Column on RDDS
6	65602	628	22413	-448	-21			-469	21944
			22413	-448	-21	0	0	-469	21944
6	65604	670	4879	-98	-5			-103	4776
6	65604	671	5818	-116	-5	-10		-131	5687
6	65604	672	3739	-75	-4			-79	3660
6	65604	675	5027	-101	-5			-106	4921
6	65604	677	5337	-107	-5			-112	5225
6	65604	678	5729	-115	-5			-120	5609
6	65604	679	814	-16	-1			-17	797
			31343	-628	-30	-10	0	-668	30675
6	65605	E97	30667	-613	-29	-51		-693	29974
			30667	-613	-29	-51	0	-693	29974
6	65606	092	2905	-58	-3		-4	-65	2840
			2905	-58	-3	0	-4	-65	2840
6	65702	128	6484	-130	-6			-136	6348
			6484	-130	-6	0	0	-136	6348
6	65706	026	4258	-85	-4			-89	4169
6	65706	541	10170	-203	-10			-213	9957
			14428	-288	-14	0	0	-302	14126
6	65709	650	3304	-66	-3			-69	3235
6	65709	C28	4043	-81	-4			-85	3958
			7347	-147	-7	0	0	-154	7193
6	65712	001	21021	-420	-20	-2	-224	-666	20355
6	65712	985	10545	-211	-10			-221	10324
6	65712	987	4396	-88	-4			-92	4304
6	65712	V02	14944	-299	-14			-313	14631
			50906	-1018	-48	-2	-224	-1292	49614

ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97			Sec 8037		Tot Adj to	FY 97
BA	PE	Proj	Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Approp Value	Column on RDDS
6	65801	M02	7355	-147	-7			-154	7201
6	65801	M15	3780	-76	-4			-80	3700
6	65801	M16	4045	-81	-4			-85	3960
6	65801	M42	5641	-113	-5			-118	5523
6	65801	M43	5002	-100	-5			-105	4897
6	65801	M44	5969	-119	-6			-125	5844
6	65801	M45	5487	-110	-5	-3	-1	-119	5368
6	65801	M46	2260	-45	-2			-47	2213
6	65801	M47	2632	-53	-2			-55	2577
6	65801	M53	12565	-251	-12	-85	-14	-362	12203
6	65801	M55	3179	-64	-3			-67	3112
6	65801	M58	390	-8	0			-8	382
6	65801	M75	2787	-56	-3			-59	2728
			61092	-1223	-58	-88	-15	-1384	59708
6	65802	798	1566	-31	-1			-32	1534
			1566	-31	-1	0	0	-32	1534
6	65803	720	2626	-53	-2		-9	-64	2562
6	65803	727	2870	-57	-3		-5	-65	2805
6	65803	729	2309	-46	-2			-48	2261
6	65803	730	3448	-69	-3			-72	3376
6	65803	733	2180	-44	-2			-46	2134
6	65803	C16	2798	-56	-3			-59	2739
6	65803	C18	690	-14	-1			-15	675
			16921	-339	-16	0	-14	-369	16552
6	65805	296	682	-14	-1			-15	667
6	65805	857	589	-12	-1			-13	576
6	65805	F21	280	-6	0			-6	274
6	65805	F24	1731	-35	-2			-37	1694
			3282	-67	-4	0	0	-71	3211
6	65853	0CC	1498	-30	-1			-31	1467
6	65853	1CC	115	-2	0			-2	113
6	65853	5CC	146	-3	0			-3	143
			1759	-35	-1	0	0	-36	1723

ARMY

FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F (B+C+D+E)	G (A-F)
BA	PE	Proj	FY 97 Approp Value	Sec 8136	Sec 8138	Sec 8037 FFRDC	Sec 8037 Consulting Services	Tot Adj to Approp Value	FY 97 Column on RDDS
6	65854	0PP	546	-11	-1			-12	534
6	65854	1PP	143	-3	0			-3	140
6	65854	5PP	1957	-39	-2			-41	1916
6	65854	7PP	799	-16	-1			-17	782
6	65854	8PP	10449	-209	-10			-219	10230
			13894	-278	-14	0	0	-292	13602
6	65856	0VV	34856	-697	-33			-730	34126
6	65856	1VV	13972	-279	-13			-292	13680
6	65856	4VV	1500	-30	-1			-31	1469
6	65856	5VV	5083	-102	-5			-107	4976
			55411	-1108	-52	0	0	-1160	54251
6	65876	0WW	2766	-55	-3			-58	2708
6	65876	1WW	1062	-21	-1			-22	1040
6	65876	4WW	491	-10	0			-10	481
			4319	-86	-4	0	0	-90	4229
6	65878	0YY	50862	-1017	-48			-1065	49797
6	65878	1YY	15807	-316	-15			-331	15476
6	65878	4YY	3378	-68	-3			-71	3307
			70047	-1401	-66	0	0	-1467	68580
6	65879	0UU	62918	-1258	-59			-1317	61601
6	65879	1UU	24858	-497	-23			-520	24338
6	65879	4UU	4614	-92	-4			-96	4518
			92390	-1847	-86	0	0	-1933	90457
6	65896	0ZZ	148139	-2963	-138			-3101	145038
6	65896	1ZZ	64068	-1281	-60			-1341	62727
6	65896	4ZZ	12442	-249	-12			-261	12181
			224649	-4493	-210	0	0	-4703	219946
6	65898	M65	4801	-96	-5			-101	4700
6	65898	831	14000	-280	-13			-293	13707
			18801	-376	-18	0	0	-394	18407
	TOTAL BA 6		1095744	-21916	-1029	-377	-257	-23579	1072165

ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F (B+C+D+E)	G (A-F)
						Sec 8037			
BA	PE	Proj	FY 97 Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Tot Adj to Approp Value	FY 97 Column on RDDS
7	63778	027	27038	-541	-25		-50	-616	26422
7	63778	050	26324	-526	-25			-551	25773
7	63778	054	10909	-218	-10			-228	10681
			64271	-1285	-60	0	-50	-1395	62876
7	12419	E55	26940	-539	-25			-564	26376
			26940	-539	-25	0	0	-564	26376
7	23726	2ET	4933	-99	-5		-52	-156	4777
7	23726	322	34564	-691	-32	-42	-64	-829	33735
			39497	-790	-37	-42	-116	-985	38512
7	23735	280	3116	-62	-3			-65	3051
7	23735	2TT	2079	-42	-2		-22	-66	2013
7	23735	2UT	1460	-29	-1		-15	-45	1415
7	23735	330	71246	-1425	-67		-5	-1497	69749
7	23735	344	18298	-366	-17			-383	17915
7	23735	371	89635	-1793	-84		-5	-1882	87753
7	23735	718	11900	-238	-11			-249	11651
7	23735	C64	13562	-271	-13		-9	-293	13269
			211296	-4226	-198	0	-56	-4480	206816
7	23740	2HT	3895	-78	-4		-41	-123	3772
7	23740	484	25187	-504	-24	-491	-52	-1071	24116
			29082	-582	-28	-491	-93	-1194	27888
7	23744	430	17914	-358	-17			-375	17539
7	23744	504	250	-5	0			-5	245
7	23744	179	4700	-94	-4			-98	4602
			22864	-457	-21	0	0	-478	22386
7	23752	106	3947	-79	-4		-30	-113	3834
			3947	-79	-4	0	-30	-113	3834
7	23758	374	90180	-1803	-85	-112	-55	-2055	88125
7	23758	376	50000	-1000	-47			-1047	48953
			140180	-2803	-132	-112	-55	-3102	137078

ARMY

FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
						Sec 8037			
BA	PE	Proj	FY 97 Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Tot Adj to Approp Value	FY 97 Column on RDDS
7	23801	036	47291	-946	-44		-21	-1011	46280
7	23801	303	18668	-373	-18			-391	18277
			65959	-1319	-62	0	-21	-1402	64557
7	23802	2MT	390	-8	0		-4	-12	378
7	23802	304	4469	-89	-4			-93	4376
7	23802	045	3900	-78	-4			-82	3818
7	23802	336	1340	-27	-1		-10	-38	1302
			10099	-202	-9	0	-14	-225	9874
7	23806	C19	3179	-64	-3			-67	3112
			3179	-64	-3	0	0	-67	3112
7	23808	E11	6933	-139	-7		-21	-167	6766
			6933	-139	-7	0	-21	-167	6766
7	28010	107	18693	-374	-18	-55	-17	-464	18229
			18693	-374	-18	-55	-17	-464	18229
7	28053	635	2124	-42	-2		-3	-47	2077
			2124	-42	-2	0	-3	-47	2077
7	31359	381	9042	-181	-8			-189	8853
7	31359	382	394	-8	0			-8	386
7	31359	H87	1749	-35	-2			-37	1712
			11185	-224	-10	0	0	-234	10951
7	33140	491	2574	-51	-2	-6		-59	2515
7	33140	501	587	-12	-1			-13	574
			3161	-63	-3	-6	0	-72	3089
7	33142	253	17063	-341	-16	-451		-808	16255
7	33142	2PT	142	-3	0		-2	-5	137
7	33142	384	17217	-344	-16	-477	-222	-1059	16158
7	33142	386	1029	-21	-1			-22	1007
7	33142	455	878	-18	-1			-19	859
7	33142	456	4348	-87	-4		-18	-109	4239
			40677	-814	-38	-928	-242	-2022	38655

ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F (B+C+D+E)	G (A-F)
						Sec 8037			
BA	PE	Proj	FY 97 Approp Value	Sec 8136	Sec 8138	FFRDC	Consulting Services	Tot Adj to Approp Value	FY 97 Column on RDDS
7	33150	C86	19804	-396	-19			-415	19389
			19804	-396	-19	0	0	-415	19389
7	35128	H12	487	-10	0			-10	477
			487	-10	0	0	0	-10	477
7	78045	E25	48842	-977	-46			-1023	47819
			48842	-977	-46	0	0	-1023	47819
	TOTAL BA 7		769220	-15385	-722	-1634	-718	-18459	750761
			5062763	-101257	-4757	-3718	-2403	-112135	4930628

TABLE OF CONTENTS

BA	PE	Program Element Title	PAGE
#1 - BASIC RESEARCH			
1	0601101A	In-House Laboratory Independent Research	1
2	0601102A	Defense Research Sciences	10
3	0601104A	University and Industry Research Centers	76
#2 - EXPLORATORY DEVELOPMENT			
4	0602105A	Materials Technology	101
5	0602120A	Sensors and Electronic Survivability	104
6	0602211A	Aviation Technology	115
7	0602270A	Electronic Warfare (EW) Technology	124
8	0602303A	Missile Technology	131
9	0602308A	Modeling and Simulation Technology	137
10	0602601A	Combat Vehicle and Automotive Technology	143
11	0602618A	Ballistics Technology	159
12	0602622A	Chemical, Smoke and Equipment Defeating Technology	168
13	0602623A	Joint Service Small Arms Program	170
14	0602624A	Weapons and Munitions Technology	173
15	0602705A	Electronics and Electronic Devices	183
16	0602709A	Night Vision Technology	191
17	0602712A	Countermine Applied Research	194
18	0602716A	Human Factors Engineering Technology	198
19	0602720A	Environmental Quality Technology	205
20	0602782A	Command, Control, Communications Technology	224
21	0602783A	Computer and Software Technology	230
22	0602784A	Military Engineering Technology	235
23	0602785A	Manpower/Personnel/Training Technology	250

TABLE OF CONTENTS

BA	PE	Program Element Title	PAGE
#2 - EXPLORATORY DEVELOPMENT - Continued			
24	0602786A	Logistics Technology	255
25	0602787A	Medical Technology	269
26	0602789A	Army Artificial Intelligence Technology	294
#3 - ADVANCED DEVELOPMENT			
27	0603001A	Logistics Advanced Technology	296
28	0603002A	Medical Advanced Technology	314
29	0603003A	Aviation Advanced Technology	334
30	0603004A	Weapons and Munitions Advanced Technology	346
31	0603005A	Combat Vehicle and Automotive Advanced Technology	355
32	0603006A	Command, Control and Communications Advanced Technology	367
33	0603007A	Manpower, Personnel and Training Advanced Technology	381
34	0603105A	Military Human Immunodeficiency Virus (HIV) Research	386
35	0603238A	Air Defense/Precision Strike Technology	388
36	0603270A	Electronic Warfare (EW) Technology	394
37	0603313A	Missile and Rocket Advanced Technology	399
38	0603606A	Landmine Warfare and Barrier Advanced Technology	427
39	0603607A	Joint Service Small Arms Program	433
40	0603654A	Line-of-Sight Technology Demonstration	437
41	0603710A	Night Vision Advanced Technology	440
42	0603734A	Military Engineering Advanced Technology	447
43	0603772A	Advanced Tactical Computer Science and Sensor Technology	455

TABLE OF CONTENTS

BA	PE	Program Element Title	PAGE
#4 - DEMONSTRATION AND VALIDATION			
44	0603308A	Army Missile Defense Systems Integration	463
45	0603619A	Landmine Warfare and Barrier - Advanced Development	473
46	0603627A	Smoke, Obscurant and Target Defeating System - Advanced Development	482
47	0603640A	Artillery Propellant Development	486
48	0603645A	Armored Systems Modernization - Advanced Development	490
49	0603649A	Engineering Modification Equipment - Advanced Development	506
50	0603653A	Advanced Tank Armament System	510
51	0603713A	Army Data Distribution System	515
52	0603745A	Tactical Electronic Support Systems - Advanced Development (TIARA)	524
53	0603747A	Soldier Support and Survivability	528
54	0603766A	Tactical Exploitation of National Capabilities (TENCAP) - Dem/Val (TIARA)	544
55	0603774A	Night Vision Systems - Advanced Development	549
56	0603790A	NATO Research & Development	554
57	0603801A	Aviation - Advanced Development	565
58	0603802A	Weapons and Munitions - Advanced Development	580
59	0603804A	Logistics and Engineering Equipment - Advanced Development	583
60	0603805A	Combat Service Support Control Systems Evaluation and Analysis	613
61	0603807A	Medical Systems - Advanced Development	622
62	0603854A	Artillery Systems Advanced Development	638
63	0603856A	SCAMP BLK II (SPACE)	644
#5 - ENGINEERING AND MANUFACTURING DEVELOPMENT			
64	0604201A	Aircraft Avionics	647
65	0604220A	Armed, Deployable OH-58D	653
66	0604223A	Comanche	656

TABLE OF CONTENTS

BA	PE	Program Element Title	PAGE
#5 - ENGINEERING AND MANUFACTURING DEVELOPMENT - Continued			
67	0604270A	Electronic Warfare (EW) Development	666
68	0604321A	All Source Analysis System (TIARA)	694
69	0604325A	Follow-On To TOW	703
70	0604604A	Medium Tactical Vehicles	706
71	0604609A	Smoke, Obscurant and Target Defeating System - Engineering Development	711
72	0604611A	Javelin	715
73	0604619A	Landmine Warfare	719
74	0604622A	Family of Heavy Tactical Vehicles	723
75	0604633A	Air Traffic Control	730
76	0604640A	Advanced Command and Control Vehicle	735
77	0604641A	Tactical Unmanned Ground Vehicle	739
78	0604642A	Light Tactical Wheeled Vehicle	743
79	0604645A	Armored Systems Modernization (ASM) - Engineering Development	750
80	0604649A	Engineer Mobility Equipment Development	759
81	0604710A	Night Vision Systems - Engineering Development	770
82	0604713A	Combat Feeding, Clothing, and Equipment	785
83	0604715A	Non-System Training Devices - Engineering Development	812
84	0604716A	Terrain Information - Engineering Development (TIARA)	830
85	0604726A	Integrated Meteorological System (IMETS) (TIARA)	835
86	0604739A	JTT/CIBS-M (TIARA)	839
87	0604740A	Tactical Surveillance System - Engineering Development	842
88	0604741A	Air Defense Command, Control, Intelligence - Engineering Development	845
89	0604746A	Automatic Test Equipment Development	852
90	0604760A	Distributive Interactive Simulations - Engineering Development	861
91	0604766A	Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)	876

TABLE OF CONTENTS

BA	PE	Program Element Title	PAGE
#5 - ENGINEERING AND MANUFACTURING DEVELOPMENT - Continued			
92	0604768A	Brilliant Anti-Armor (BAT) Submunition	881
93	0604770A	Joint Surveillance/Target Attack Radar System	900
94	0604778A	Positioning Systems Development (SPACE)	909
95	0604780A	Combined Arms Tactical Trainer (CATT)	912
96	0604801A	Aviation - Engineering Development	917
97	0604802A	Weapons and Munitions - Engineering Development	923
98	0604804A	Logistics & Engineer Equipment - Engineering Development	947
99	0604805A	Command, Control, Communications Systems - Engineering Development	990
100	0604807A	Medical Materiel - Engineering Development	1009
101	0604808A	Landmine Warfare/Barrier - Engineering Development	1024
102	0604814A	Sense and Destroy Armor Munition - Engineering Development	1032
103	0604816A	Longbow	1041
104	0604817A	Combat Identification - Engineering & Manufacturing Development	1050
105	0604818A	Army Tactical Command and Control Hardware & Software	1062
106	0604820A	Radar Development	1071
107	0604823A	Firefinder	1074
108	0604854A	Artillery Systems - Engineering Development	1079
#6 - MANAGEMENT SUPPORT			
109	0604256A	Threat Simulator Development	1086
110	0604258A	Target Systems Development	1089
111	0604759A	Major Test and Evaluation Investment	1095
112	0605103A	Rand Arroyo Center	1104
113	0605301A	Army Kwajalein Atoll	1108
114	0605601A	Army Test Ranges and Facilities	1111

TABLE OF CONTENTS

BA	PE	Program Element Title	PAGE
#6 - MANAGEMENT SUPPORT - Continued			
115	0605602A	Army Test Technology and Sustaining Instrumentation	1131
116	0605604A	Survivability/Lethality Analysis	1138
117	0605605A	DOD High Energy Laser System Test Facility (HELSTF)	1158
118	0605606A	Aircraft Certification	1160
119	0605702A	Meteorological Support to Research, Development, Testing & Evaluation Activities	1162
120	0605706A	Materiel Systems Analysis	1165
121	0605709A	Exploitation of Foreign Items	1174
122	0605712A	Support of Operational Testing	1179
123	0605801A	Programwide Activities	1196
124	0605802A	International Cooperative Research and Development	1201
125	0605803A	Technical Information Activities	1203
126	0605805A	Munitions Standardization Effectiveness and Safety	1220
127	0605853A	Environmental Conservation	1230
128	0605854A	Pollution Prevention	1236
129	0605856A	Environmental Compliance - Research, Development, Testing & Evaluation	1246
130	0605876A	Minor Construction - Research, Development, Testing & Evaluation	1254
131	0605878A	Maintenance and Repair - Research, Development, Testing & Evaluation	1261
132	0605879A	Real Property Services (RPS)	1269
133	0605896A	Base Operations - Research, Development, Testing & Evaluation	1276
134	0605898A	Management Headquarters (Research and Development)	1284
#7 - OPERATIONAL SYSTEM DEVELOPMENT			
135	0102419A	Aerostat Joint Program Office	1289
136	0203726A	Advanced Field Artillery Tactical Data System	1294
137	0203735A	Combat Vehicle Improvement Programs	1303

TABLE OF CONTENTS

BA	PE	Program Element Title	PAGE
#7 - OPERATIONAL SYSTEM DEVELOPMENT - Continued			
138	0203740A	Maneuver Control System	1332
139	0203744A	Aircraft Modifications/Product Improvement Program	1345
140	0203752A	Aircraft Engine Component Improvement Program	1357
141	0203758A	Digitization	1362
142	0203801A	Missile/Air Defense Product Improvement Program	1372
143	0203802A	Other Missile Product Improvement Programs	1383
144	0208010A	Joint Tactical Communications Program (TRI-TAC)	1407
145	0208053A	Joint Tactical Ground System (TIARA)	1411
146	0303140A	Communications Security (COMSEC) Equipment	1414
147	0303142A	Satellite Communications (SATCOM) Ground Environment (SPACE)	1423
148	0303150A	Army Global Command and Control System (AGCCS)	1456
149	0305114A	Joint Precision Approach Landing System (JPALS)	1461
150	0305128A	Security and Intelligence Activities	1464
151	0603778A	Multiple Launch Rocket System Product Improvement Program	1467
152	0708045A	Army Industrial Preparedness Manufacturing Technology	1486
153	1001018A	NATO Joint STARS	1498

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Advanced Command and Control Vehicle	0604640A	735
Advanced Field Artillery Tactical Data System	0203726A	1294
Advanced Tactical Computer Science and Sensor Technology	0603772A	455
Advanced Tank Armament System	0603653A	510
Aerostat Joint Program Office	0102419A	1289
Air Defense Command, Control, Intelligence - Engineering Development	0604741A	845
Air Defense/Precision Strike Technology	0603238A	388
Air Traffic Control	0604633A	730
Aircraft Avionics	0604201A	647
Aircraft Certification	0605606A	1160
Aircraft Engine Component Improvement Program	0203752A	1357
Aircraft Modifications/Product Improvement Program	0203744A	1345
All Source Analysis System (TIARA)	0604321A	694
Armed, Deployable OH-58D	0604220A	653
Armored Systems Modernization (ASM) - Engineering Development	0604645A	750
Armored Systems Modernization - Advanced Development	0603645A	490
Army Artificial Intelligence Technology	0602789A	294
Army Data Distribution System	0603713A	515
Army Global Command and Control System (AGCCS)	0303150A	1456
Army Industrial Preparedness Manufacturing Technology	0708045A	1486
Army Kwajalein Atoll	0605301A	1108
Army Missile Defense Systems Integration	0603308A	463
Army Tactical Command and Control Hardware & Software	0604818A	1062
Army Test Ranges and Facilities	0605601A	1111
Army Test Technology and Sustaining Instrumentation	0605602A	1131

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Artillery Propellant Development	0603640A	486
Artillery Systems - Engineering Development	0604854A	1079
Artillery Systems Advanced Development	0603854A	638
Automatic Test Equipment Development	0604746A	852
Aviation - Advanced Development	0603801A	565
Aviation - Engineering Development	0604801A	917
Aviation Advanced Technology	0603003A	334
Aviation Technology	0602211A	115
Ballistics Technology	0602618A	159
Base Operations - Research, Development, Testing & Evaluation	0605896A	1276
Brilliant Anti-Armor (BAT) Submunition	0604768A	881
Chemical, Smoke and Equipment Defeating Technology	0602622A	168
Comanche	0604223A	656
Combat Feeding, Clothing, and Equipment	0604713A	785
Combat Identification - Engineering & Manufacturing Development	0604817A	1050
Combat Service Support Control Systems Evaluation and Analysis	0603805A	613
Combat Vehicle and Automotive Advanced Technology	0603005A	355
Combat Vehicle and Automotive Technology	0602601A	143
Combat Vehicle Improvement Programs	0203735A	1303
Combined Arms Tactical Trainer (CATT)	0604780A	912
Command, Control and Communications Advanced Technology	0603006A	367
Command, Control, Communications Systems - Engineering Development	0604805A	990
Command, Control, Communications Technology	0602782A	224
Communications Security (COMSEC) Equipment	0303140A	1414
Computer and Software Technology	0602783A	230

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Countermine Applied Research	0602712A	194
Defense Research Sciences	0601102A	10
Digitization	0203758A	1362
Distributive Interactive Simulations - Engineering Development	0604760A	861
DOD High Energy Laser System Test Facility (HELSTF)	0605605A	1158
Electronic Warfare (EW) Technology	0603270A	394
Electronic Warfare (EW) Technology	0602270A	124
Electronic Warfare (EW) Development	0604270A	666
Electronics and Electronic Devices	0602705A	183
Engineer Mobility Equipment Development	0604649A	759
Engineering Modification Equipment - Advanced Development	0603649A	506
Environmental Compliance - Research, Development, Testing & Evaluation	0605856A	1246
Environmental Conservation	0605853A	1230
Environmental Quality Technology	0602720A	205
Exploitation of Foreign Items	0605709A	1174
Family of Heavy Tactical Vehicles	0604622A	723
Firefinder	0604823A	1074
Follow-On To TOW	0604325A	703
Human Factors Engineering Technology	0602716A	198
In-House Laboratory Independent Research	0601101A	1
Integrated Meteorological System (IMETS) (TIARA)	0604726A	835
International Cooperative Research and Development	0605802A	1201
Javelin	0604611A	715
Joint Precision Approach Landing System (JPALS)	0305114A	1461
Joint Service Small Arms Program	0603607A	433

Program Element Title	PE	PAGE
Joint Service Small Arms Program	0602623A	170
Joint Surveillance/Target Attack Radar System	0604770A	900
Joint Tactical Communications Program (TRI-TAC)	0208010A	1407
Joint Tactical Ground System (TIARA)	0208053A	1411
JTT/CIBS-M (TIARA)	0604739A	839
Landmine Warfare	0604619A	719
Landmine Warfare and Barrier - Advanced Development	0603619A	473
Landmine Warfare and Barrier Advanced Technology	0603606A	427
Landmine Warfare/Barrier - Engineering Development	0604808A	1024
Light Tactical Wheeled Vehicle	0604642A	743
Line-of-Sight Technology Demonstration	0603654A	437
Logistics & Engineer Equipment - Engineering Development	0604804A	947
Logistics Advanced Technology	0603001A	296
Logistics and Engineering Equipment - Advanced Development	0603804A	583
Logistics Technology	0602786A	255
Longbow	0604816A	1041
Maintenance and Repair - Research, Development, Testing & Evaluation	0605878A	1261
Major Test and Evaluation Investment	0604759A	1095
Management Headquarters (Research and Development)	0605898A	1284
Maneuver Control System	0203740A	1332
Manpower, Personnel and Training Advanced Technology	0603007A	381
Manpower/Personnel/Training Technology	0602785A	250
Materials Technology	0602105A	101
Materiel Systems Analysis	0605706A	1165
Medical Advanced Technology	0603002A	314

Program Element Title	PE	PAGE
Medical Materiel - Engineering Development	0604807A	1009
Medical Systems - Advanced Development	0603807A	622
Medical Technology	0602787A	269
Medium Tactical Vehicles	0604604A	706
Meteorological Support to Research, Development, Testing & Evaluation Activities	0605702A	1162
Military Engineering Advanced Technology	0603734A	447
Military Engineering Technology	0602784A	235
Military Human Immunodeficiency Virus (HIV) Research	0603105A	386
Minor Construction - Research, Development, Testing & Evaluation	0605876A	1254
Missile and Rocket Advanced Technology	0603313A	399
Missile Technology	0602303A	131
Missile/Air Defense Product Improvement Program	0203801A	1372
Modeling and Simulation Technology	0602308A	137
Multiple Launch Rocket System Product Improvement Program	0603778A	1467
Munitions Standardization Effectiveness and Safety	0605805A	1220
NATO Joint STARS	1001018A	1498
NATO Research & Development	0603790A	554
Night Vision Advanced Technology	0603710A	440
Night Vision Systems - Advanced Development	0603774A	549
Night Vision Systems - Engineering Development	0604710A	770
Night Vision Technology	0602709A	191
Non-System Training Devices - Engineering Development	0604715A	812
Other Missile Product Improvement Programs	0203802A	1383
Pollution Prevention	0605854A	1236
Positioning Systems Development (SPACE)	0604778A	909

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Programwide Activities	0605801A	1196
Radar Development	0604820A	1071
Rand Arroyo Center	0605103A	1104
Real Property Services (RPS)	0605879A	1269
Satellite Communications (SATCOM) Ground Environment (SPACE)	0303142A	1423
SCAMP BLK II (SPACE)	0603856A	644
Security and Intelligence Activities	0305128A	1464
Sense and Destroy Armor Munition - Engineering Development	0604814A	1032
Sensors and Electronic Survivability	0602120A	104
Smoke, Obscurant and Target Defeating System - Advanced Development	0603627A	482
Smoke, Obscurant and Target Defeating System - Engineering Development	0604609A	711
Soldier Support and Survivability	0603747A	528
Support of Operational Testing	0605712A	1179
Survivability/Lethality Analysis	0605604A	1138
Tactical Electronic Support Systems - Advanced Development (TIARA)	0603745A	524
Tactical Exploitation of National Capabilities (TENCAP) - Dem/Val (TIARA)	0603766A	544
Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)	0604766A	876
Tactical Surveillance System - Engineering Development	0604740A	842
Tactical Unmanned Ground Vehicle	0604641A	739
Target Systems Development	0604258A	1089
Technical Information Activities	0605803A	1203
Terrain Information - Engineering Development (TIARA)	0604716A	830
Threat Simulator Development	0604256A	1086
University and Industry Research Centers	0601104A	76
Weapons and Munitions - Advanced Development	0603802A	580

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Weapons and Munitions - Engineering Development	0604802A	923
Weapons and Munitions Advanced Technology	0603004A	346
Weapons and Munitions Technology	0602624A	173

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0604256A Threat Simulator Development

PROJECT: D976

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D976 Army Threat Simulator Program	13705	11383	14004	11877	13858	14083	16535	16452	Continuing	Continuing

A. Mission Description and Budget Item Justification: This program finances the design, fabrication, integration and fielding of realistic mobile threat simulators in support of Army training and developmental/operational testing. It provides the capabilities required to create realistic simulated tactical environments essential to user training and weapon system testing. Each capability is pursued in concert with the others so as to avoid duplication while providing the proper mix of test resources needed to support both Army and Tri-Service testing requirements. The development of the XM17S will be initiated in FY 98. The XM17S simulator represents an advanced air defense system for testing of U.S. weapon systems. It is highly mobile and very effective against low altitude targets and supports all U.S. electronic countermeasures development and operational tests including tactics evaluation. This is the only proposed simulation of a multiple target tracking system with enhanced low-altitude performance. This system is a very high value battlefield target and the simulator will support targeting evaluation as well as threat testing. The Army Threat Simulator Program (ATSP) is a continuing program which finances development of realistic mobile threat simulators for Army test organizations. These battlefield simulators represent systems (e.g. missile systems; command, control and communications systems; electronic warfare systems; helicopters; etc.) that are used to portray a realistic threat environment during testing of U.S. weapon systems. Simulator development is responsive to Office of the Secretary of Defense and General Accounting Office concerns that the Army conduct operational testing in a realistic threat environment. Initially created to develop simulators of Soviet equipment, the changing world order has expanded the scope of this program to address rest of world (ROW) threats. Actual threat equipment is being 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 CROSSBOW, which is administered by the Director for Test, Systems Engineering and Evaluation, Office of the Secretary of Defense (OSD). These affiliations eliminate any duplication within the U.S. Army or Department of Defense (DoD). Includes research and development effort directed toward support of installations or operations required for general research and development use and therefore is appropriate to Budget Activity 6.

FY 1996 Accomplishments:

•	4763	Air Defense Systems - Continued development of XM15A/S short-to-medium range SAM system.
•	979	Advanced/Land Combat Systems - Conducted proof-of-principal testing of eye safe lasers to simulate threat laser weapon XMDEWS.
•	3586	Advanced/Electronic Combat Systems - Continued development of XM330ES VHF communications jammer system.
•	384	Aviation Systems - Initiated/completed concept plan for Global Positioning System (GPS) Advanced Airborne Jammer.
•	3993	Battle Management Network - Continued development of regimental elements of XMC3S tactical air defense command and control system.
Total	13705	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0604256A Threat Simulator Development
	PROJECT: D976

FY 1997 Planned Program:

•	5843	Air Defense Systems - Continue development of XM15A/S system.
•	1717	Advanced/Electronic Combat Systems - Complete development of the XM330ES system.
•	1050	Advanced/Land Combat Systems - Initiate hardware simulator development of a low energy laser XMDEWS.
•	2559	Battle Management Network - Continue development of regimental elements of XMC3S.
•	214	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	11383	

FY 1998 Planned Program:

•	1292	Air Defense Systems - Complete development of XM15A/S system.
•	1657	Air Defense Systems - Implement modifications and upgrades to XM43S system.
•	6604	Air Defense Systems - Initiate development of XM17S short-to-medium range SAM system.
•	1657	Advanced Land Combat Systems - Continue development of XMDEWS.
•	2794	Battle Management Network - Continue development of regimental elements of XMC3S.
Total	14004	

FY 1999 Planned Program:

•	7499	Air Defense Systems - Continue development of XM17S system.
•	2488	Advanced Land Combat Systems - Continue development of XMDEWS.
•	1890	Battle Management Network - Continue development of regimental elements of XMC3S.
Total	11877	

THREAT SIMULATOR Test Programs Supported: Aircraft Survivability Equipment (ASE) (ALQ-36) (APR-39) Special Electronics Missions Aircraft (SEMA) ASE Force Development Test and Evaluation (FDTE); Unmanned Aerial Vehicle (UAV) Short Range Initial Operational Test and Evaluation (IOTE); Block 11A Ground Station Module (GSM) IOTE; SEMA ASE (ALQ-136 Radar Jammer); AN/APRA (XE-2) Advanced Threat Radar Warning Receiver, SEMA; 155MM and Multiple Launch Rocket System (MLRS) - Sense And Destroy Armor (SADARM); Special Operations (Special mission aircraft for performance and survivability test); Forward Area Air Defense Command, Control and Intelligence (FAAD C2I) (Light) FDTE; MLRS SADARM IOTE; Guardrail Common Sensor; OH-58D Kiowa Scout Attack Helicopter; Patriot Product Improvement Program (PIP); MH-60K; Firefinder; RAH-66; UAV - Close Range; Longbow Apache; Forward Area Air Defense (FAAD) C3I; Army Tactical Missile System (ATACMS); AN/ALQ-136; Joint Surveillance Target Attack Radar Systems (JSTARS); XM1106 Smoke Generating System; SEMA/ASE; Suite of Integrated Infrared Countermeasures (SIIRCM), and Suite of Integrated Radio Frequency Countermeasures (SIRFCM).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0604256A Threat Simulator Development / PROJECT: D976

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	14005	11627	14040	13976
Appropriated Value	14397	11383		
Adjustments to Appropriated Value	-692			
FY 1998 Pres Bud Request	13705	11383	14004	11877

Change Summary Explanation: Funding - FY 1999 decrease of ($-2099) realigned to fund higher priority requirements.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0604258A Target Systems Development

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	13557	9916	11688	13063	12794	13953	15918	14569	Continuing	Continuing
D238 Aerial Targets	8268	6564	6620	5567	5634	6178	6667	6450	Continuing	Continuing
D459 Ground Targets	5289	3352	5068	7496	7160	7775	9251	8119	Continuing	Continuing

Mission Description and Budget Item Justification: This program funds aerial and ground hardware and software target development, maintenance and upgrade. The overall objective is to allow validation of weapon system accuracy and reliability by developing the aerial and ground targets essential for test and evaluation (T&E). They are economical and expendable, remotely controlled or stationary, and often destroyed in use. The Army is the Tri-Service lead under Reliance for providing both rotary wing and ground targets for test and evaluation. 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 previously begun target materiel to maintain continuity. Includes research and development effort directed toward support of installations or operations required for general research and development use and therefore is appropriate to Budget Activity 6.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0604258A Target Systems Development

PROJECT: D238

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D238 Aerial Targets	8268	6564	6620	5567	5634	6178	6667	6450	Continuing	Continuing

A. Mission Description and Justification: Project D238 - Aerial Targets: Provides for development, acquisition, operation, storage, update, and maintenance of realistic surrogate or acquired threat high performance, multi-spectral aerial targets that can fully stress the latest air defense and air-to-air weapons. 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, ancillary devices and remote control systems. To stress systems under test, aerial targets must have flight characteristics, signatures and other performance factors which 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/enhancement/update engineering services of the developed and acquired threat targets to ensure availability for the Test and Evaluation (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.

FY 1996 Accomplishments:

- 3818 Continued development of HOKUM-X Rotary Wing Target (Canadian Cooperative Program).
- 1429 Continued enhancement of the MQM-107 Target System, including update of obsolete parts and ECPs to correct TDP deficiencies.
- 1220 Continued development of the Universal Drone Control System (UDCS), including integration into AH-1 helicopter.
- 483 Continued enhancement of the Target Tracking and Control System (TTCS), including technology upgrades (i.e., replacement of plotting boards with CRT displays).
- 755 Completed participation in Air Force led joint development of Full Scale Fixed Wing Target (QF-4) and continued to participate in and provide funding for Reliance.
- 563 Continued development, enhancement, maintenance, and storage for all Research Development Test and Evaluation (RDT&E) aerial targets, towed targets and ancillary devices.

Total 8268

FY 1997 Planned Program:

- 2190 Continue development of HOKUM-X Rotary Wing Target (Canadian Cooperative Program).
- 1095 Continue enhancement of the MQM-107 Target System, including updating of obsolete parts and improved engine performance.
- 1503 Continue development of Universal Drone Control System (UDCS), including integration into AH-1 helicopter.
- 717 Continue enhancement of the Target Tracking and Control System (TTCS), including conversion of data panels to graphic CRTs and development of multi-target capability.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0604258A Target Systems Development PROJECT D238

FY 1997 Planned Program: (continued)

•	570	Continue development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets and ancillary devices.
•	333	Initiate aerial virtual targets activity
•	156	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs..
Total	6564	

FY 1998 Planned Program:

•	2690	Continue development of HOKUM-X Rotary Wing Target (Canadian Cooperative Program).
•	859	Continue enhancement of the MQM-107 Target System, including updating of obsolete parts and improved airframe maneuverability.
•	1484	Complete development of Universal Drone Control System (UDCS) and initiate integration into an additional target (e.g., UH-1 Target).
•	664	Continue enhancement of the Target Tracking and Control System (TTCS). Includes development of GPS target positioning system.
•	592	Continue development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets and ancillary devices.
•	331	Continue development of aerial virtual targets. Includes models of HOKUM-S and AH-1 variants.
Total	6620	

FY 1999 Planned Program:

•	2129	Complete baseline configuration and initiate update for HOKUM-X Rotary Wing Target (Canadian Cooperative Program).
•	987	Continue enhancement of the MQM-107 Target System, including updating of obsolete parts and improved airframe maneuverability.
•	508	Continue integration of Universal Drone Control System (UDCS) into additional targets (e.g., complete UH-1 Target integration and initiate OH-58 target integration).
•	782	Continue enhancement of the Target Tracking and Control System (TTCS). Includes update of RMX operating system to more supportable system.
•	645	Continue development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets and ancillary devices.
•	502	Continue development of aerial virtual targets, including models of MQM-107 and its variants.
	14	Initiate study for development of Future Aerial Targets.
Total	5567	

AERIAL TARGETS Test Programs Supported: Forward Area Air Defense (FAAD) Missile (Stinger), Patriot, Medium Extended Air Defense System (MEADS), Non-Line-Of-Sight (NLOS), Comanche, and under Reliance, helicopter targets for the Air Force and Navy and technology programs which demand accurate threat representation in their aerial target.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0604258A Target Systems Development / PROJECT: D238

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	8478	6706	6626	6553
Appropriated Value	8717	6564		
Adjustments to Appropriated Value	-449			
FY 1998 Pres Bud Request	8268	6564	6620	5567

Change Summary Explanation: Funding: FY 1999 decreased (-986) to fund higher priority requirements.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0604258A Target Systems Development

PROJECT: D459

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D459 Ground Targets	5289	3352	5068	7496	7160	7775	9251	8119	Continuing	Continuing

A. Mission Description and Justification: Project D459 - Ground Targets: This program funds Army efforts to support test and evaluation (T&E) of advanced weapon systems by developing surrogate and acquiring foreign equipment, and developing virtual target computer models of ground vehicle targets. These computer models are compatible with Distributed Interactive Simulation (DIS). These products are required to adequately stress weapons systems undergoing test and evaluation. 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 engineering services of the 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 ground targets for test and evaluation.

FY 1996 Accomplishments:

•	2004	Managed and oversaw Primary Operating Centers operation, storage, maintenance, configuration management and repair of Ground Target assets including acquisition of new material and spare parts.
•	243	Continued validation, accreditation, certification, and configuration controls/studies of ground targets and developed safety and environmental plans.
•	1074	Continued development and prototype of BMP3-S surrogate armored infantry vehicle.
•	1027	Initiated development of virtual ground targets to support T&E. These computer models are compatible with the Distributed Interactive Simulation (DIS).
•	941	Continued concept exploration on the Main Battle Tank Surrogate.
Total	5289	

FY 1997 Planned Program:

•	1632	Manage and oversee Primary Operating Centers operation, storage, maintenance, configuration management and repair of Ground Targets assets including acquisition of new material and spare parts.
•	129	Continue validation, accreditation, and certification and configuration controls/studies of ground targets and develop safety and environmental plans.
•	414	Continue development of virtual ground targets to support test and evaluation. Initiate development of a configuration control plan for the virtual target models. Target models will be utilized in Virtual Proving Ground activities and other weapon systems T&E and Modeling and Simulation (M&S) activities.
•	870	Complete the development and prototype of BMP3-S armored infantry vehicle.
•	228	Complete concept exploration of a Main Battle Tank Surrogate.
	79	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	3352	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0604258A Target Systems Development
	PROJECT D459

FY 1998 Planned Program:

•	2878	Manage and oversee Primary Operating Centers operation, storage, maintenance, configuration management and repair of Ground Targets assets including acquisition of new material and spare parts.
•	121	Continue validation, accreditation, and certification and configuration controls/studies of ground targets and develop safety and environmental plans.
•	1195	Continue development of virtual ground targets to support T&E. Develop two new virtual target models and initiate development of a third based on customer requirements. Continue development and initiate implementation of configuration control plan for virtual targets. These target models will be utilized in Virtual Proving Ground activities and other weapon systems T&E and M&S activities.
•	874	Initiate development and prototype of a Main Battle Tank Surrogate.
Total	5068	

FY 1999 Planned Program:

•	4103	Manage and oversee Primary Operating Centers operation, storage, maintenance, configuration management and repair of Ground Targets assets including acquisition of new material and spare parts.
•	155	Continue validation, accreditation, and certification and configuration controls/studies of ground targets and develop safety and environmental plans.
•	1869	Continue development of virtual ground targets to support test and evaluation. Implement configuration control and initiate validation efforts. Target models will be utilized in Virtual Proving Ground and other weapon systems T&E and M&S activities.
•	1369	Continue development and prototype of a Main Battle Tank surrogate.
Total	7496	

GROUND TARGETS Test Programs Supported: Ground Targets efforts are investments which enable Department of Defense (DoD) customers to conduct appropriate developmental and operational testing, evaluation and training in the future. Weapon systems for which these developments are required include: Comanche, Longbow, Close Combat Anti-Armor Weapon System (CCAWS), Wide Area Mine (WAM), Non-Line of Sight (NLOS), Line-of-Sight Antitank (LOSAT), Army Tactical Missile System (Army TACMS), Brilliant Anti-Armor Submunition (BAT), Unmanned Aerial Vehicle, (UAV-SR), Short Range Anti-Armor Weapon System (SRAW). Javelin, Sense and Destroy Armor (SADARM).

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	5422	3423	5066	8813
Appropriated Value	5575	3352		
Adjustments to Appropriated Value	-286			
FY 1998 Pres Bud Request	5289	3352	5068	7496

Change Summary Explanation: Funding: FY 1999 decreased (-1317) to fund higher priority requirements.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0604759A Major Test and Evaluation Investment

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	62154	40833	40449	33407	35344	37692	42639	46204	Continuing	Continuing
DC55 Distributed Dev Simulation Tech*	2334	0	0	0	0	0	0	0	Continuing	Continuing
D983 Major Test & Evaluation - USAKA	2360	2373	2430	2427	2522	2620	2673	2731	Continuing	Continuing
D984 Major Technical Test Instrumentation	34992	31504	34515	28412	28060	29245	33307	36125	Continuing	Continuing
D986 Major User Test Instrumentation	22468	6956	3504	2568	4762	5827	6659	7348	Continuing	Continuing

*Project DC55, Distributed Development Simulation Technology, transfers in FY 1997 to PE 0604760A.

Mission Description and Budget Item Justification: This program funds development and acquisition of major developmental test instrumentation for the Test and Evaluation Command (TECOM) test activities including Major Ranges and Test Facility Bases (MRTFB): White Sands Missile Range (WSMR), NM; Yuma Proving Ground, (YPG), AZ; Aberdeen Test Center (ATC), MD; Dugway Proving Ground (DPG), UT; and US Army Kwajalein Atoll (USAKA), Marshall Islands (which is managed by the Space and Strategic Defense Command). Program also funds development and acquisition of major field instrumentation for U. S. Army Operational Test and Evaluation Command (OPTEC) test organizations. 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 required for these systems. Army testing facilities are also surveyed to determine current testing capability shortfalls. This PE is appropriate to Budget Activity 6 because it includes research and development effort directed toward support of installations or operations required for general research and development use.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0604759A Major Test and Evaluation Investment

PROJECT: DC55

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DC55 Distributed Dev Simulation Tech*	2334	0	0	0	0	0	0	0	Continuing	Continuing

A. Mission Description and Budget Item Justification **Project DC55 - Distributed Development Simulation Technology:** This project supports the Core Distributed Interactive Simulations (DIS) Facilities (CDF) at Fort Knox, KY, Fort Rucker, AL, Fort Benning, GA and the Operational Support Facility in Orlando, FL, which provide virtual combined arms battlefield with the warfighter-in-the-loop to evaluate weapon system concepts, tactics, doctrine and test plans. The project also develops and applies Distributed Simulation technology, and provides systems engineering management support to Force XXI and the Synthetic Theater of War (STOW). Funding Line Transfers in FY 1997 to 0604760A under project DC74 Developmental Simulation Technology.

FY 1996 Accomplishments:

•	868	Continued sustainment of Advanced Distributed Simulation Technology support which enables combat, materiel, and training developers and testers to perform experiments to test tactics, doctrine and weapon design
•	1100	Developed and integrated dismounted warrior simulation capabilities to support concept evaluations and materiel development experimentation.
•	366	Developed analysis tools to support experimentation in the Core DIS Facilities.
Total	2334	

FY 1997 Planned Program: Realigned to 0604760A project DC74 Developmental Simulation Technology.

FY 1998 Planned Program: Realigned to 0604760A project DC74 Developmental Simulation Technology.

FY 1999 Planned Program: Realigned to 0604760A project DC74 Developmental Simulation Technology.

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	2698	0	0	0
Appropriated Value	2773			
Adjustments to Appropriated Value	-439			
FY 1998 Pres Bud Request	2334	0	0	0

Change Summary Explanation: Realignment of funding to Program Element 0604760A, project DC74 starting in FY 97.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0604759A Major Test and Evaluation Investment

PROJECT: D983

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D983 Major Test & Evaluation - USAKA	2360	2373	2430	2427	2522	2620	2673	2731	Continuing	Continuing

A. Mission Description and Budget Item Justification: Project D983 - Major Test and Evaluation (T&E) Investment - USAKA: This project funds the purchase of major Improvement and Modernization (I&M) equipment at the US Army Kwajalein Atoll (USAKA) in the Marshall Islands. USAKA is a national test range supporting Army, Ballistic Missile Defense Organization (BMDO), US Air Force, National Aeronautics and Space Administration (NASA), and other customers. Upgrades to radar, telemetry, optics, command/control and other equipment are required to maintain USAKA as a national test range. Approximately $5 million of range improvements are required annually to maintain USAKA test range capability in support of current projected workload.

FY 1996 Accomplishments:

•	2360	Initiated instrumentation and integration for Global Positioning Translator Processor System (GPTPS). The GPTPS development is required to allow Kwajalein Missile Range (KMR) to maintain and improve its ability to acquire accurate timing and spacial positioning data on test objects and thus enhance the dynamic metric and miss-distance measurement capabilities
Total	2360	

FY 1997 Planned Program:

•	1881	Initiate Advanced Research Project Agency-Lincoln C-Band Observable Radar (ALCOR) Computer/Receiver Upgrade. The ALCOR computer/receiver upgrade is required to improve performance, increase system reliability and reduce maintenance costs
•	434	Complete Global Positioning System Translator Processory System GTP installation and integration.
•	58	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	2373	

FY 1998 Planned Program:

•	2430	Continue Advanced Research Project Agency-Lincoln C-Ban Observable Radar (ALCOR) Computer/Receiver Upgrade. The ALCOR computer/receiver upgrade is required to improve performance, increase system reliability and reduce maintenance costs.
Total	2430	

FY 1999 Planned Program:

•	1400	KMR Outside Communications Plant Upgrade - distribution cable required to support multi-service operational and developmental testing.
•	1027	Advanced Research Project Agency-Lincoln C-Band Observable Radar (ALCOR) computer/Receiver Upgrade. The ALCOR computer/receiver upgrade is required to improve performance, increase system reliability and reduce maintenance costs.
Total	2427	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0604759A Major Test and Evaluation Investment / PROJECT: D983

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	2421	2423	2412	2401
Appropriated Value	2488	2373		
Adjustments to Appropriated Value	-128			
FY 1998 Pres Bud Request	2360	2373	2430	2427

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0604759A Major Test and Evaluation Investment

PROJECT: D984

COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D984 Major Technical Test Instrumentation	34992	31504	34515	28412	28060	29245	33307	36125	Continuing	Continuing

A. Mission Description and Budget Item Justification: Project D984 - Major Technical Test Instrumentation: This project develops and acquires major test instrumentation to perform developmental testing of weapon systems at U. S. Army Test and Evaluation Command (TECOM) activities. Major instrumentation is defined by having one or more of the following attributes: joint service requirements, multiple command use, high visibility, large dollar value, produces a new capability or requires intensive management during acquisition. The Test Support Network (TSN) will provide complete secure coverage of automated and integrated voice, data and video in a single transport system; provide advanced encryption capabilities and remote control for switching capabilities for test configuration and total network data arrangement control. The Range Digital Transmission System (RDTS), initiated in FY 96, will improve test operations and reduce test costs allowing for efficient data collection and remote operations at YPG. The Frequency Surveillance System (FSS), initiated in FY 96, will replace and provide remote capabilities to daily operations for surveillance of the radio frequency spectrum used at White Sands Missile Range (WSMR) in support of all services and non-DoD agencies. The Land Combat Instrumentation (LCI) provides for upgrade and expansion for ATC's suite of instrumentation required for performance testing of combat and tactical vehicles, advanced armor concepts, and advanced munitions. The Dynamic Infrared Scene Projector (DIRSP) will conduct performance testing of night vision sensors and Infrared (IR) imaging seekers, and provide the capability to fully simulate and synthesize present and future battlefields with a mix of real and simulated objects at Redstone Technical Test Center (RTTC). The Fiber Optic Network (FON) provides instrumented test areas with high speed communication links to other test facilities and to central data processing/evaluation centers. The Hardened Subminiature Telemetry and Sensor System (HSTSS) is developing, miniaturizing and hardening an instrumentation/telemetry package that will provide continuous direct measurement of internal functioning and flight data for cannon launched munitions, smart submunitions, and small missiles/rockets.

FY 1996 Accomplishments:

- 3202 Continued the instrumentation of the Tank Warfare (TW) II Link, high speed networking, and ethernet hub. Initiated securing the Fiber Optic Network (FON) for classified data transmission located at Aberdeen Test Center (ATC).
- 3819 Completed instrumentation of Munson Test Area (MTA), acquisition of laser illuminator, development of fiber optics at C-field, Barricades B2 and B3 range instrumentation and continued development of vehicle on-board data acquisition, continued installation of Perryman Test Area (PTA) instrumentation and sensors for Land Combat Instrumentation (LCI) located at ATC.
- 13865 Continued Phase I installation of the Eastern Fiber Optic Backbone (1st of 3 segments completed, 2nd segment nearing completion, and the 3rd initiated) and continued installation of the Network Management System.
- 695 Initiated Frequency Surveillance System (FSS) modernization project, automating five sites capable of monitoring frequencies from 2 Mhz to 100 Ghz at WSMR.
- 5195 Continued WSMR execution of the Army's portion of the Global Positioning System (GPS) full rate production contract, acquiring and fielding hardware and software at all Army test organizations.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0604759A Major Test and Evaluation Investment
	PROJECT D984

FY 1996 Accomplishments: (continued)

•	210	Continued development of software integration for system level Army Tactical Command and Control System (ATCCS), Enhanced Position Location & Reporting System (EPLRS), & Single Channel Air to Ground Radio (SINCGARS) technical test projects at WSMR/Electronic Proving Ground (EPG).
•	1900	Initiated Hardened Subminiature Telemetry and Sensor System (HSTSS) project to develop transmitters, antennas, sensors, polymer batteries and electronic packaging techniques in support of flight tests of indirect/direct fire and smart munitions at Yuma Proving Ground (YPG), Aberdeen, and other Army locations. HSTSS is a five year Army project with Initial Operating Capability (IOC) in FY 01.
•	545	Completed range site surveys and system development plan for Yuma Proving Ground (YPG) Range Digital Transmission System which is a 5-year developmental project with Full Operating Capability (FOC) in FY 01.
•	2012	Conducted DIRSP system design trade off analysis and developed initial design.
•	2259	Provided in-house support, concept formulation and engineering analysis to future instrumentation requirements. Provided Fire Support Automated Test Set (FSATS) for developmental testing of Advanced Field Artillery Data System (AFATDS), TACFIRE, etc.
•	1290	Provided program management support.
Total	34992	

FY 1997 Planned Program:

•	1514	Complete the instrumentation of the TW II Link, high speed networking, and ethernet hub. Complete securing the FON for classified data transmission at ATC.
•	5005	Complete installation of PTA instrumentation, complete laser illuminator system, complete Barricade B2 and B3 range instrumentation, and complete development of vehicle on-board data acquisition and sensors for LCI at ATC.
•	9993	Complete Phase I of the Eastern Fiber Optic Backbone (2nd and 3rd segments) and continue installation of the Network Management System (NMS) for WSMR TSN. Initiate software qualification testing of the NMS.
•	3959	Award contract for FSS modernization project at WSMR. Purchase equipment including control center for initial site.
•	2599	Conclude the Army's portion of the GPS production contract for all Army test organizations.
•	228	Conclude enhancements to databases and data handling capabilities for system level ATCCS Technical Control Center (TCC) EPLRS, and SINCGARS technical test at EPG.
•	2703	Complete Concept Exploration and Definition (CED) phase, Test Capabilities and Benefits Analysis (TCBA), and system specification for HSTSS. Also, Conduct Milestone I/II in-process review, release request for proposal (RFP), and conduct source selection activities for HSTSS.
•	4761	Continue implementation of the DIRSP project at RTTC, developing critical subsystems and meeting Preliminary Design Review (PDR).
•	742	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	31504	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0604759A Major Test and Evaluation Investment
	PROJECT D984

FY 1998 Planned Program:

•	11199	Complete acceptance testing of the NMS and initiate the system integration and testing of the NMS which will support the Initial Operating Capability (IOC) for the WSMR TSN. Exercise contract option on Phase II to install feeder cable on the portion of the fiber optic cable trunk line running along the east side of WSMR known as the Eastern Backbone.
•	3579	Start and complete Barricade C and Hi Velocity range instrumentation for LCI at Aberdeen Test Center.
•	1491	Initiate/complete data link for FON to Fords Farm testing range at ATC. It is an enclosed facility that allows live firing of Depleted Uranium (DU) ammunition at a target without causing the uranium to be exposed into the surrounding environment upon impact.
•	8851	Continue contract support for FSS modernization project at WSMR. Acquisition and installation of equipment for all remaining sites and control center.
•	4359	Conduct Critical Design Review (CDR) and start fabrication of full up system for the DIRSP project at RTTC.
•	5036	Award contract for HSTSS in support of Yuma Proving Ground (YPG) and the Army Research Lab (ARL).
Total	34515	

FY 1999 Planned Program:

•	13335	Complete Phase I and initiate Phase II of WSMR TSN contract support for the Interim System. Full TSN capability will be reached upon completion of Phase III of the project.
•	2485	Complete DIRSP integration testing to meet IOC/FOC and field system.
•	5884	Continue installation of FSS equipment at surveillance sites at WSMR.
•	6088	Continue contractual effort for HSTSS to develop open architecture, reconfigurable test instrumentation systems designed to be embedded within future army munitions/smart weapon systems.
•	620	Continue Phase I of RDTS for the Yuma Cibola western test ranges.
Total	28412	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	36897	32197	34685	28495
Appropriated Value	37933	31504		
Adjustments to Appropriated Value	-2941			
FY 1998 Pres Bud Request	34992	31504	34515	28412

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0604759A Major Test and Evaluation Investment

PROJECT: D986

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D986 Major User Test Instrumentation	22468	6956	3504	2568	4762	5827	6659	7348	Continuing	Continuing

A. Mission Description and Budget Item Justification: Project D986 - Major User Test Instrumentation: This project finances the development of major field instrumentation for Operational Testing (OT), Force Development Testing and Experimentation (FDTE), and Army Warfighting Experiments (AWE). Each initiative set forth in this program element are directly tied to tactical systems that support each of the five Army Modernization Objectives; Project & Sustain; Protect The Force; Win Information War; Conduct Precision Strikes; and Dominate The Maneuver Battle. Cornerstone is the Mobile Automated Instrumentation Suite (MAIS) that provides users a high fidelity, realistic, real-time capability to measure the performance of hardware and personnel under tactical conditions for large scale operations (up to 1830 players). The MAIS will instrument combat systems in the operational forces to provide encrypted Real Time Casualty Assessment (RTCA) and Time, Space, and Positioning Information (TSPI) data. The MAIS system and its data are the tools that will enable objective assessments for new materiel acquisition, force structuring, doctrine and tactics modification, and, through the High Level Architecture (HLA) Protocol Data Unit (PDU) format provide data to validate the future DoD warfighting models and simulations, bridge the test analysis centers, and link multi-Service test and training exercises. The MAIS, a non-major system acquisition, achieved Milestone I/II in FY 90. Current program (one control center and 131 player units) reaches IOC in FY 97. One additional control center and 469 player units are programmed in Other Procurement, Army. Beginning in FY 97, enhancements to the MAIS program are Mobile Integrated Non-Intrusive Command, Control and Communications Instrumentation (MINI C3I). The MINI C3I system assesses the 21st Century's Armed Forces' ability to employ digital technology to obtain greater performance standards in lethality, survivability and tempo. It provides essential audio, video and digital information required for credible testing of command, control and communications systems. Beginning in FY 98 a MAIS Pre-Planned Product Improvement (P3I) program will be initiated with instrumentation packages for the Longbow Apache helicopter, Javelin, and Stinger weapons. MAIS P3I will provide insertion of enhancements to the RTCA algorithms, simulation of Opposing Force (OPFOR) weapons systems and player units for newly acquired weapons systems, and develop player units for the Comanche, Crusader, smart weapons, and antitank missile systems. These system enhancements are required as part of the basic program enabling the operational test community to effectively emulate current and future battlefield weapons in a high fidelity environment. The P3I program will develop and integrate additional weapon systems and capabilities to improve the fidelity and robustness of the MAIS system.

FY 1996 Accomplishments: Mobile Automated Instrumentation Suite (MAIS):

- 9573 Assembled Developmental and Operational Test player units.
- 900 Completed logistics shelter assembly and installed equipment.
- 5726 Completed system integration and test.
- 1600 Conducted player unit qualification test.
- 3104 Conducted Government In Plant Qualification Testing.
- 760 Initiated system Developmental Testing (DT).
- 805 Provided program management support.

Total 22468

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0604759A Major Test and Evaluation Investment / PROJECT: D986

FY 1997 Planned Program:

•	2313	Support system Developmental and Operational Testing for MAIS.
•	1354	Initiate MAIS product refurbishment upon completion of Operational Test.
•	700	Initiate development design alternatives for a MAIS interface to the AGES-II system implementation for the AH-64D Apache Longbow weapon system.
•	2191	Design and fabricate for MINI C3I a miniature Field Data Collectors (FDC) to support Army Force XXI design decisions and operational test and experiments.
•	244	Instrument two additional mobile command and control vehicles for MINI C3I , each vehicle to include necessary instrumentation and hardware to collect digital, video and audio data to support the Command Post Exercise portion of the Division Army Warfighting Experiment supporting Force XXI.
•	154	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	6956	

FY 1998 Planned Program:

•	2554	Initiate the design, development, and implementation of MAIS P3I for smart weapon player units to emulate the Longbow Apache, Javelin, Ground Designated Hellfire, Bradley Stinger, Stinger Surrogate, and Chemical Alarms critical to conducting realistic weapon system operational testing and force development testing.
•	950	Instrument five additional Command and Control Vehicle's (C2V's) and procure data transceivers to collect data from dispersed elements of the corps constructive experiment for Instrumentation XXI.
Total	3504	

FY 1999 Planned Program:

•	2568	Initiate for MAIS P3I, the design and development for rotary wing player units for the Comanche. Initiate for MAIS P3I, RTCA algorithm enhancement for exposure, evasive action and counter measures. Continue the design, development, and implementation of MAIS P3I for smart weapon player units to emulate the Longbow Apache, Javelin, Ground Designated Hellfire, Bradley Stinger, Stinger and Chemical Alarms, critical to conducting realistic weapon system operational testing and force development testing.
Total	2568	

Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	23033	7105	3489	2538
Appropriated Value	23680	6956		
Adjustments to Appropriated Value	-1212			
FY 1998 Pres Bud Request	22468	6956	3504	2568

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605103A Rand Arroyo Center

PROJECT: D732

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D732 Arroyo Center Support	17895	21108	17576	18040	18452	18833	19321	19815	Continuing	Continuing

A. Mission Description and Budget Item Justification: This is a level-of-effort program based on a stable level of 104 Member Technical Staff (MTS) per year. The FY 1997 program represents the Army's continuing effort to fund the Arroyo Center entirely within a single program element. Consolidation of Arroyo Center funding into one program element responds to congressional direction, which seeks to ensure appropriate visibility and stability for the core work programs of Federally Funded Research and Development Centers (FFRDCs) for studies and analysis, such as Arroyo. Greater visibility and stability help both the Congress to oversee and the senior Army leadership to actively manage the FFRDC. This consolidation of funding will result in no increase in Arroyo Center research activity or aggregate funding.

This program funds the RAND Arroyo Center, the Department of the Army's FFRDC for studies and analysis, which has operated at RAND since FY 1985. The Arroyo Center draws its researchers from RAND's staff of approximately 600 professionals trained in a broad range of disciplines. About 90 percent of RAND's staff is located at the corporate headquarters in Santa Monica, California; the remainder is based at RAND's Washington, DC, office. The RAND Arroyo Center provides for continuing analytical research across a broad spectrum of issues and concerns, which are grouped in four major research areas or core capabilities: Strategy and Doctrine; 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 impact senior leadership deliberations on major issues. Arroyo Center research is sponsored by the Secretary of the Army, the Assistant Secretaries, the Chief of Staff and Vice Chief of Staff of the Army, the Deputy Chiefs of Staff of the Army, 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 (Research, Development, and Acquisition). The ACPC reviews, monitors, and approves the annual Arroyo Center research plan as well as all individual research projects. 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. Although the Arroyo Center staff works with analysts in the Army's internal study program, the Arroyo Center is an independent organization that provides analysis for both the Army and the broader national security community. Work in this program element is consistent with the resource-constrained Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance. This program supports decision making and resource allocation for general research and development and, since it is not allocated to a specific R&D mission, it is appropriately funded in Budget Activity 6.

FY 1996 Accomplishments:

- 1670 Research addressing the geopolitical environment and its effects on the Army, including applying the Assumption-Based Planning process to documents defining Force XXI, relating critical assumptions in Army planning documents to current and planned programs, and analyzing the Army's role in the post Goldwater-Nichols DoD planning process with special attention to the need to stabilize funding for long-term experimentation and modernization of the force structure.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605103A Rand Arroyo Center
	PROJECT D732

FY 1996 Accomplishments: (continued)

•	582	Research addressing strategy, military planning, and regional security, including, developing a conceptual framework to understand ethnic conflicts in order to establish guidelines for potential Army responses to such conflicts; and identifying key mechanisms and related intelligence indicators associated with operational and technical innovation to enable the Army to improve its predictions about the security environment.
•	3933	Research addressing restructuring initiatives designed to make the Army more efficient, including identifying the means to alleviate potential problems with the Army's plans to fully digitize its forces; examining means of embedding the effects of information operations within constructive simulations; examining the joint implications of Force XXI to understand them in terms of joint doctrine and interoperability; building a knowledge base on the current state of Army logistics communications/information systems and developing and evaluating alternative approaches for improving logistics use of communications and information in support of emerging Army initiatives; assessing the information warfare dimensions of a wide range of U.S. and U.N. operations other than war to assist the Army in writing doctrine, thinking about how it can best organize for such operations, and understanding the intelligence demands of such operations; and examining advanced technologies that have the potential to significantly enhance force-projection capabilities against current and future threats.
•	4772	Research addressing force composition, size, and operational concepts, including analysis of how future requirements such as heavy-force conflict, limited armed conflict, peacekeeping, humanitarian assistance missions, and domestic disaster relief might be met by alternative Active-Reserve structures; exploring areas related to future recruiting success; assessing the effects of major changes made to the Reserve Officer Training Corps scholarship program; developing quantitative methods for analyzing personnel movements and applying them to describe alternative ways in which the Army personnel system could operate; developing incentives and policies aimed at reducing personnel turnover in the Reserve Component; analyzing performance and resource requirements of strategic alternatives for the future total Army School system; examining alternative methods for allocating instructional staff and training development resources; designing and testing improved approaches and methods for training logistics command and control at higher echelons; and assessing the use of simulations for training at home stations and Combat Training Centers.
•	1603	Research addressing alternative technology applications and technical strategies, including exploring opportunities for increased research collaborations with industry and government agencies to help the Army formulate an effective approach for managing R&D that will permit the exploitation of the best emerging technology now in the commercial sector; assessing the barriers to risk-taking in the Army acquisition system and recommending policy changes that will enhance the efficacy of acquisition reform; assessing the benefits and limitations of the decentralized military structures permitted by the proliferation of new information technologies to provide historical evidence for the development of Army doctrine; and assessing the military potential for structural changes now under way in commercial organizations in response to the information revolution, to give Army planners a better sense of the general military applicability of commercial developments to military organizations.
•	5335	Research addressing logistics, sustainment, and redesign initiatives, including conducting pilot implementations of "Velocity Management," aimed at dramatically improving the flow of materials through the logistics system and thereby improving responsiveness and lowering costs; determining whether centralized management and workloading of Army sustainment maintenance activities can provide acceptable readiness and weapon system availability at lower total cost, both in peacetime and wartime; developing and implementing alternatives to measure and improve performance related to materiel management and procurement functions; and evaluating and recommending alternatives for ensuring rapid and responsive distribution support both in peacetime and during contingencies.
Total	17895	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605103A Rand Arroyo Center
	PROJECT D732

FY 1997 Planned Program:

•	5119	Research on planning for the Army
•	1161	Research on the national security environment
•	2901	Research on force development and modernization
•	3481	Research on manning the force
•	2708	Research on training strategies
•	774	Research on acquisition reform
•	4448	Research on logistics redesign
•	516	Small Business Innovation Research/Small Business Transfer (SBIR/STTR) Programs.
Total	21108	

FY 1998 Planned Program:

•	3515	Research on planning for the Army
•	1055	Research on the national security environment
•	2636	Research on force development and modernization
•	3164	Research on manning the force
•	2461	Research on training strategies
•	703	Research on acquisition reform
•	4042	Research on logistics redesign
Total	17576	

FY 1999 Planned Program:

•	3608	Research on planning for the Army
•	1082	Research on the national security environment
•	2706	Research on force development and modernization
•	3247	Research on manning the force
•	2526	Research on training strategies
•	722	Research on acquisition reform
•	4149	Research on logistics redesign
Total	18040	

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605103A Rand Arroyo Center

PROJECT: D732

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	18356	21763	22138	22503
Appropriated Value	18872	21108		
Adjustments to Appropriated Value	-977			
FY 1998 Pres Bud Request	17895	21108	17576	18040

Change Summary Explanation: Funding: FY 1998 decrease of (-4562) and FY 1999 decrease of (-4463) realigned to meet higher priority requirements.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605301A Army Kwajalein Atoll

PROJECT: D614

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D614 US Army Kwajalein Atoll	140930	143789	138769	142125	141088	143888	145758	148925	Continuing	Continuing

A. **Mission Description and Budget Item Justification:** U.S. Army Kwajalein Atoll (USAKA) is a remote (located in the republic of the Marshall Islands), secure activity of the Major Range and Test Facility Base as constituted by DoD Directive 3200.11. Its function is to support test and evaluation of major Army and DoD missile systems, Army Space surveillance and object identification, and National Aeronautics and Space Administration (NASA) scientific and space programs. Programs supported include Army missile defense, Ballistic Missile Defense Organization (BMDO) 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. USAKA supports the Missile Defense Act of 1991 to put in place a Ground Based Defense System by 2006 or earliest date possible. The technical element of USAKA is the Kwajalein Missile Range 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 (RADOT) long range video-metric tracking systems, high density data recorders for high data-rate telemetry, and sonobuoy missile impact location system data analysis and reduction hardware and software. USAKA is contractor operated and is therefore totally dependent upon its associated support contractors. Program also provides funds for the contractors to accomplish installation operation and maintenance. The Army, Air Force, Navy and BMDO have programs planned which have significant test and data gathering requirements at USAKA. Air Force programs require firing at full range with complete data collection during late mid course and terminal trajectory. BMDO programs require range sensors to collect technical data in support of National Missile and Theater Missile Defense programs being conducted at USAKA. These test data cannot be obtained except through the use of technical facilities available on and in the vicinity of USAKA. Data collection on objects in space remains significant because the Advanced Research Project Agency (ARPA) Long-Range Tracking and Instrumentation Radar (ALTAIR), located at USAKA, is one of only three sensors world-wide that has deep-space tracking capability. Programs supported include Air Force programs Peacekeeper, Minuteman III, and Delta; Army/BMDO's Strategic Target System (STARS), Multi-Service Launch System (MSLS), Midcourse Space Experiment (MSX), Missile Defense Critical Measurements Program, Theater High Altitude Air Defense (THAAD), Patriot, and ground-based radar; NASA's Space Transportation System (STS), Orbital Debris Measurement Program, Small Expendable Deployer System and Orbital Debris Radar Calibration Spheres, along with the Air Force Space and Missile Center's associated programs. Funding is in support of site installations or operations required for general research and development, not allocable to specific R&D missions. This type of activity is appropriately funded in Budget Activity 6.

FY 1996 Accomplishments:

- 8110 Provided management support (salaries, training, travel, SSDC matrix support, etc.).
- 8306 Accomplished maintenance and repair projects.
- 10674 Procured petroleum, oils, and lubricants (POL).
- 10679 Procured other mission operating supplies.
- 6595 Provided air and sea transportation (cargo to and from continental United States).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605301A Army Kwajalein Atoll
	PROJECT D614

FY 1996 Accomplishments: (continued)

•	35332	Continued to support Army, BMDO, NASA, and Air Force developmental and operational missile testing. Continued integration of range technical support contract effort. Developed alternate launch site to support Theater Missile Defense (TMD).
•	58686	Provided logistical support to self contained islands of USAKA.
•	2548	Continued physical security support and upgrades to existing USAKA facilities.
Total	140930	

FY 1997 Planned Program:

•	8054	Provide management support (salaries, training, travel, SSDC matrix support, etc.).
•	9355	Accomplish maintenance and repair projects.
•	10100	Procure POL.
•	12800	Procure other mission operating supplies.
•	6200	Provide air and sea transportation (cargo to and from continental United States).
•	34516	Continue to support Army, BMDO, NASA, and Air Force developmental and operational missile testing. Continue integration of range technical support contract effort.
•	57000	Provide logistical support to self contained islands of USAKA.
•	2400	Continue physical security support and upgrades to existing USAKA facilities.
•	3364	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	143789	

FY 1998 Planned Program:

•	8040	Provide management support (salaries, training, travel, SSDC matrix support, etc.).
•	5600	Accomplish maintenance and repair projects.
•	10139	Procure POL.
•	12800	Procure other mission operating supplies.
•	6200	Provide air and sea transportation (cargo to and from continental United States).
•	35690	Continue to support Army, BMDO, NASA, and Air Force developmental and operational missile testing. Continue integration of range technical support contract effort.
•	57900	Provide logistical support to self contained islands of USAKA.
•	2400	Continue physical security support and upgrades to existing USAKA facilities.
Total	138769	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605301A Army Kwajalein Atoll / PROJECT: D614

FY 1999 Planned Program:

•	8062	Provide management support (salaries, training, travel, SSDC matrix support, etc.).
•	5700	Accomplish maintenance and repair projects.
•	10200	Procure POL.
•	13000	Procure other mission operating supplies.
•	6300	Provide air and sea transportation (cargo to and from continental United States).
•	36963	Continue to support Army, BMDO, NASA, and Air Force developmental and operational missile testing. Continue integration of range technical support contract effort
•	59500	Provide logistical support to self contained islands of USAKA.
•	2400	Continue physical security support and upgrades to existing USAKA facilities.
Total	142125	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	144439	136864	125739	120893
Appropriated Value	149769	143789		
Adjustments to Appropriated Value	-8839			
FY 1998 Pres Bud Request	140930	143789	138769	142125

Change Summary Explanation: Funding: FY 1998 increase of (+13030) provided to maintain infrastructure and range operations.
FY 1999 increase of (+21232) provided to maintain infrastructure and range operations.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605601A Army Test Ranges and Facilities

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	142694	130222	122117	128919	109578	111859	114406	117280	Continuing	Continuing
DF30 Army Test Ranges & Facilities	0	0	119728	126953	108082	110337	112856	115699	Continuing	Continuing
DE90 Yuma Proving Ground	19988	17054	0	0	0	0	0	0	0	37042
DE91 Aberdeen Test Center	34138	34436	0	0	0	0	0	0	0	68574
DE92 Dugway Proving Ground	12508	0	0	0	0	0	0	0	0	12508
DE93 White Sands Missile Range	55176	59945	0	0	0	0	0	0	0	115121
D618 Aviation Technical Test Center	14369	12557	0	0	0	0	0	0	0	26926
D630 TECOM Test Design and Evaluation	3871	4685	0	0	0	0	0	0	0	8556
D632 Redstone Technical Test Center	2644	1545	0	0	0	0	0	0	0	4189
D699 Non-Major Systems Test Design & Evaluation	0	0	2389	1966	1496	1522	1550	1581	Continuing	Continuing

NOTE: Effective FY 1998, this PE has been restructured to reflect under Project DF30 the US Army Test and Evaluation Command's (TECOM) new mission as Test Integrator under the Army's new Integrated Test and Evaluation (T&E) Process (funded in D630 in FY97) along with technical testing at all TECOM Test Centers (previously funded under Projects DE90, DE91, DE93, D618 and D632). (DE92 was moved in FY 1997 to DoD PE 0605384BP). The FY 1997 consolidation of the Army's materiel evaluation mission under the US Army Operational Test and Evaluation Command (OPTEC) is financed under Project D630 in FY97 and through new Project D699 beginning in FY 1998.

Mission Description and Budget Item Justification: Sustains an objective test capability for technical testing and support to operational testing of DoD materiel, weapons and weapons systems from concept through production within the acquisition cycle at four Major Range and Test Facility Bases: Yuma Proving Ground, AZ; Aberdeen Test Center, Aberdeen Proving Ground, MD; Dugway Proving Ground, UT (through FY 96 only), White Sands Missile Range, NM. This PE also sustains an objective technical test capability at: Aviation Technical Test Center, Fort Rucker AL; Redstone Technical Test Center, Redstone Arsenal, AL; and a capability to provide for integrated test planning plus safety assessment/verification, and to perform test design and evaluation functions for non-major programs. Technical test capabilities at each test range have been uniquely established, are in place to support independent 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. Program funding includes efforts toward leveraging technologies to include procurement of essential equipment, personnel training and facility modernization to support the

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605601A Army Test Ranges and Facilities

warfighter's testing requirements. It also provides for leverage, integration and use of virtual and synthetic test tools/capabilities for reduction of test costs and program acquisition costs. Current testing capabilities are not duplicated within DoD and represent baseline requirements to assure acceptable risk to the soldier as new technologies emerge into fielded weapons systems. As part of the DoD RELIANCE initiative, the Army (via this PE) has committed at the highest senior service levels to be the lead agency for ground vehicles, gun munitions, electric guns, surface-to-air missiles. This initiative is currently supported by the services Vice Chiefs of Staff in their role as the T&E Board of Directors. This PE finances indirect test operating costs not billable to test customers, replacement of test equipment and test facility modernization projects to maintain current testing capabilities and improvements to safety, environmental protection, efficiency of test operations, and technological advances. This PE does not finance reimbursable costs directly identified to a user of these ranges; these direct costs are borne by materiel developers and project/product managers in accordance with DoD Directive 3200.11. This PE also includes costs to downsize the workforce commensurate with T&E workload reductions. Starting in FY 1997, funding for Project DE92 has been transferred to DoD PE 0605384BP, Chemical and Biological Defense Program. Test and Evaluation operations are required for general research and development; therefore, this PE is appropriate for inclusion in Budget Activity 6.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605601A Army Test Ranges and Facilities

PROJECT: DF30

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DF30 Army Test Ranges & Facilities	0	0	119728	126953	108082	110337	112856	115699	Continuing	Continuing

A. Mission Description and Justification: Sustains an objective test capability for technical testing and support to operational testing of DoD materiel, weapons and weapons systems from concept through production within the acquisition cycle at three Major Range and Test Facility Bases: Yuma Proving Ground, AZ; Aberdeen Test Center, Aberdeen Proving Ground, MD; White Sands Missile Range, NM. This program also sustains an objective technical test capability at: Aviation Technical Test Center, Fort Rucker AL; Redstone Technical Test Center, Redstone Arsenal, AL; and a capability to provide for integrated test planning plus safety assessment/verification. Technical test capabilities at each test range have been uniquely established, are in place to support independent 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. Program funding includes efforts toward leveraging technologies to include procurement of essential equipment, personnel training and facility modernization to support the warfighter's testing requirements. It also provides for leverage, integration and use of virtual and synthetic test tools/capabilities for reduction of test costs and program acquisition costs. Current testing capabilities are not duplicated within DoD and represent baseline requirements to assure acceptable risk to the soldier as new technologies emerge into fielded weapons systems. Program also finances indirect test operating costs not billable to test customers, replacement of test equipment and test facility modernization projects to maintain current testing capabilities and improvements to safety, environmental protection, efficiency of test operations, and technological advances. It also includes costs to downsize the workforce commensurate with T&E workload reductions.

FY 1996 Accomplishments: Project funded under projects DE90, DE91, DE92, DE93, D618, D632 and that portion of D630 which provided for command-wide integrated test planning, safety assessment/verification and test operations.

FY 1997 Planned Program: Project funded under projects DE90, DE91, DE93, D618, D632 and that portion of D630 which provided for command-wide integrated test planning, safety assessment/verification and test operations.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605601A Army Test Ranges and Facilities / PROJECT: DF30

FY 1998 Planned Program:

•	119252	Command-wide integrated test planning, safety assessment/verification and test operations (previously funded under DE90, DE91, DE93, D618, D630, and D632). Some of the major systems to be tested include: ABRAMS Tank at Aberdeen Test Center (ATC), LONGBOW Apache at Yuma Proving Ground (YPG), Naval Ship Structures at ATC, Artillery Systems Dem/Val (Crusader) at YPG, LONGBOW HELLFIRE at Redstone Technical Test Center (RTTC), COMANCHE Helicopter subsystems at YPG and Aviation Technical Test Center (ATTC), Javelin at RTTC, Light/Medium Tactical Vehicles (4X4) at ATC, Army Tactical Missile System (ATACMS) Block IA and II at White Sands Missile Range (WSMR), Bradley Infantry Fighting Vehicle System at ATC and YPG, Theater Missile Defense and Theater Area High Altitude Area Defense at WSMR, Brilliant Anti-Armor Terminally Guided Submunition (BAT) at WSMR and RTTC, Multiple Launch Rocket System (MLRS) and Launcher at WSMR and RTTC, Improved Target Acquisition System/TOW missile at RTTC, Enhanced Fiber Optic Guided Missile (EFOG-M) at RTTC and WSMR, Aircraft Survivability Equipment at ATTC, Heavy Assault Bridge at ATC, Airborne Avionics at ATTC, Forward Area Air Defense Ground Based Sensor at WSMR, Air Reconnaissance Low at ATTC and WSMR, EH-60 QUICKFIX at WSMR, M915A2 Line Haul Truck at ATC, M1 Breacher at ATC, Advanced Field Artillery Tactical Data System (AFATDS) at YPG, Land Warrior at ATC and YPG, and Heavy Utility Truck at ATC.
•	476	Airborne Engineering Evaluation Support Activity (AEESA)
Total	119728	

FY 1999 Planned Program:

•	121089	Command-wide integrated test planning, safety assessment/verification and test operations. Some of the major systems to be tested include: ABRAMS Tank at Aberdeen Test Center (ATC), LONGBOW Apache at Yuma Proving Ground (YPG), Close Combat Tactical Trainer (CCTT) at ATC and White Sands Missile Range (WSMR), Naval Ship Structures at ATC, Artillery Systems Dem/Val (Crusader) at YPG, LONGBOW HELLFIRE at Redstone Technical Test Center (RTTC), COMANCHE Helicopter subsystems at YPG and Aviation Technical Test Center (ATTC), Javelin at RTTC, Medium and Light/Medium Tactical Vehicles (4X4) at ATC, Army Tactical Missile System (ATACMS) Block IA and II at WSMR, Bradley Infantry Fighting Vehicle System at ATC and YPG, Theater Missile Defense and Theater Area High Altitude Area Defense at WSMR, Mine Neutralization at YPG, Brilliant Anti-Armor Terminally Guided Submunition (BAT) at WSMR and RTTC, Multiple Launch Rocket System (MLRS) and Launcher at WSMR and RTTC, Improved Recovery Vehicle at ATC, Improved Target Acquisition System/TOW missile at RTTC, Follow-on to TOW at RTTC, SMART-T at WSMR, Enhanced Fiber Optic Guided Missile (EFOG-M) at RTTC and WSMR, Aircraft Survivability Equipment at ATTC, Heavy Assault Bridge at ATC, Airborne Avionics at ATTC, Forward Area Air Defense Ground Based Sensor at WSMR, Improved Cargo Helicopter at ATTC, EH-60 QUICKFIX at WSMR, 2-1/2 Ton, 5 Ton, and HMMWV Extended Service Life Program at ATC, M1 Breacher at ATC, Advanced Field Artillery Tactical Data System (AFATDS) at YPG, Land Warrior at ATC and YPG, and 10 Ton Recovery Truck (8X8) at ATC. Includes funding for workforce reduction commensurate with test workload.
•	486	Airborne Engineering Evaluation Support Activity (AEESA)
•	5378	Modernization of test facilities and equipment to maintain current test capabilities and improve the safety, environmental, efficiency, and technological aspects of test operations.
Total	126953	

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605601A Army Test Ranges and Facilities

PROJECT: DF30

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	0	0	0
Appropriated Value	0			
Adjustments to Appropriated Value				
FY 1998 Pres Bud Request	0	0	119728	126953

Change Summary Explanation:

Funding: This is a new project combining the prior individual projects for each TECOM test center and the TECOM HQ integrated test planning and safety assessment/verification functions. The funds shown represent no substantial change from the prior total guidance for all test projects in FY 98, less the realignment of the independent assessment function to D699 (+2371 in FY 98 and +1937 in FY 99). Remaining increase represents modernization requirements to meet documented workload changes driven by the funding profiles of DoD development and acquisition programs.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605601A Army Test Ranges and Facilities

PROJECT: DE90

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DE90 Yuma Proving Ground	19988	17054	0	0	0	0	0	0	0	37042

A. Mission Description and Justification: Project DE90 Yuma Proving Ground: Yuma Proving Ground (YPG), AZ is DoD's primary artillery, air delivery and desert test range. Vast tracts of varied desert terrain provide testers with conditions found in the Middle East and other desert areas. YPG's mission is to plan, conduct, analyze, and report the results of development and other tests of aircraft armament, long-range cannon artillery, air delivery, and mobility systems. Major facilities include an artillery firing range; Army's only air-to-ground aircraft armament range with precision real-time instrumentation; the Army's only weapons accuracy range with actual targets for testing direct fire aircraft and weapons; an instrumented air delivery test area; and desert and dust mobility test areas. YPG is designated as the DoD primary test site for electromagnetic/electrothermal gun systems under Project Reliance. Under Reliance, YPG is also designated as the primary site for the conduct of indirect fire gun munitions and a specialty site for land vehicle testing. YPG assumed the full munitions production acceptance testing mission from Jefferson Proving Ground in FY 95 under the Base Realignment and Closure Act (BRAC). Effective with FY 95, YPG assumed management of all extreme natural environment testing (desert, cold weather, and tropic) with no change in physical locations (tropic testing will continue in Panama and cold weather testing in Alaska), but with reduced management and manpower to support streamlined test operations. Cold Regions Test Activity (CRTA), Fort Greeley, AK is the only cold region environmental test center within DoD. This program includes support of development and production acceptance testing to determine the effects of extreme cold weather, wind, and snow on the performance of weapons systems and materiel in full operation and the man/materiel interface as well as the performance of extreme cold weather specific equipment. It also provides for leverage, integration and use of virtual and synthetic test tools/capabilities for reduction of test costs and program acquisition costs.

FY 1996 Accomplishments:

- 19988 Some of the largest system level programs tested were:
  Survivable Tire Test, CRUSADER Field Artillery System, C17 Aircraft - Army Interface, VOLCANO Mine, and USMC Light Armored Vehicle. Institutional funds were also used to modernize test facilities and equipment to maintain current test capabilities and improve the safety, environmental, efficiency, and technological aspects of test operations.

Total 19988

FY 1997 Planned Program:

- 17054 Key test programs are: COMANCHE, 2nd Generation FLIR, Ground Combat Identification, Air Drop Equipment Advanced Developments, Aircraft Survivability Equipment, CRUSADER Field Artillery System (AFAS), and Field Artillery Resupply Vehicle (FARV) Advanced Development. Institutional funds are also to be used to modernize test facilities and equipment to maintain current test capabilities and improve the safety, environmental, efficiency, and technological aspects of test operations.

Total 17054

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605601A Army Test Ranges and Facilities
	PROJECT DE90

FY 1998 Planned Program: Project consolidated under project DF30.

FY 1999 Planned Program: Project consolidated under project DF30.

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	22185	17418	15560	17305
Appropriated Value	22801	17054		
Adjustments to Appropriated Value	-2813			
FY 1998 Pres Bud Request	19988	17054	0	0

Change Summary Explanation:

Funding : FY 1996 decreased (-2813); (-692) for undistributed Congressional reductions and rescissions; and (-2121) reprogrammed to fund higher priorities. Project consolidated under project DF30 effective FY 1998.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605601A Army Test Ranges and Facilities

PROJECT: DE91

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DE91 Aberdeen Test Center	34138	34436	0	0	0	0	0	0	0	68574

A. Mission Description and Justification: Project DE91 Aberdeen Test Center: Aberdeen Test Center (ATC), formerly known as Combat Systems Test Activity, Aberdeen Proving Ground, MD is DoD's designated lead agency for land vehicle testing and Congressionally mandated live fire testing. Under Project Reliance, ATC is designated as primary test site for land vehicle and direct fire gun munitions testing. ATC is responsible for conducting development tests of weapons and weapon systems; munitions and components; survey and target acquisition equipment; combat, special, and general purpose vehicles and ancillary automotive equipment; combat engineer equipment; and troop support and individual equipment. ATC is the DoD tester for vulnerability/lethality of Army systems. Major facilities include the Munson automotive test courses, firing ranges addressing a wide variety of firing capabilities, cross-country automotive test sites, a unique robotics vehicle test facility, moving target projection facility, live fire evasive target, armor/anti-armor depleted uranium containment facility (Super Box), the elevated rail threat launch facility, underwater test facility for the conduct of tests for surface and subsurface ship structures (Navy support), and a number of special test laboratories. Includes personnel costs to downsize the workforce commensurate with the T&E workload. It also provides for leverage, integration and use of virtual and synthetic test tools/capabilities for reduction of test costs and program acquisition costs.

FY 1996 Accomplishments:

•	32993	Some of the largest systems level programs tested were: M1A2 ABRAMS Tank, Armored Gun System Closeout Testing, 120mm Mortar System, BRADLEY Fighting Vehicle System, and Navy Ship Structures Program. Institutional funds were also used to modernize test facilities and equipment to maintain current test capabilities and improve the safety, environmental, efficiency, and technological aspects of test operations.
•	1145	Personnel downsizing costs.
Total	34138	

FY 1997 Planned Program:

•	34436	Some of the systems programmed for testing are: Advanced Tank Armaments, M1A1 Block Improvement Program, Ground Combat Identification, M1A2 ABRAMS Tank, Halon Substitutes for Automatic Fire Extinguishers, and SEAWOLF Hull Structure Shock Tests. Institutional funds are also to be used to modernize test facilities and equipment to maintain current test capabilities and improve the safety, environmental, efficiency, and technological aspects of test operations.
Total	34436	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605601A Army Test Ranges and Facilities
	PROJECT DE91

FY 1998 Planned Program: Funding consolidated under project DF30.

FY 1999 Planned Program: Funding consolidated under project DF30.

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	36378	35172	34161	34790
Appropriated Value	37388	34436		
Adjustments to Appropriated Value	-3250			
FY 1998 Pres Bud Request	34138	34436	0	0

Change Summary Explanation: Funding consolidated under project DF30 effective FY 1998.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605601A Army Test Ranges and Facilities

PROJECT: DE92

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DE92 Dugway Proving Ground	12508	0	0	0	0	0	0	0	0	12508

A. Mission Description and Justification: Project DE92 Dugway Proving Ground: Dugway Proving Ground (DPG), UT, is the DoD designated primary test facility under Project Reliance for Chemical/Biological defense testing. This project provides for maintaining a capability for development, production, and product improvement tests of chemical/biological defense systems and smoke munitions systems; battle field obscurant/smoke testing; and chemical biological defense (CBD) support for DoD agencies and treaty compliance. Effective with FY 1997, this project was transferred to DoD (PE 0605384BP) in accordance with PL 103-160. It also provides, within mission area, for leverage, integration and use of virtual and synthetic test tools/capabilities for reduction test and program acquisition costs.

FY 1996 Accomplishments:

- 11411 Some of the largest system level programs tested were:
  Joint Chemical Biological Contact Point and Test, Chemical Warfare Treaty Support, XM22 Automatic Chemical Agent Alarm, Advanced Chemical/ Biological Battledress Overgarment, and M56 Smoke Generating System.
  Institutional funds were also used to modernize test facilities and equipment to maintain current test capabilities and improve the safety, environmental, efficiency, and technological aspects of test operations.
- 1097 Personnel downsizing costs

Total 12508

FY 1997 Planned Program: Project transferred to DoD effective FY 1997.

FY 1998 Planned Program: Project transferred to DoD effective FY 1997.

FY 1999 Planned Program: Project transferred to DoD effective FY 1997

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	13302	0	0	0
Appropriated Value	13671			
Adjustments to Appropriated Value	-1163			
FY 1998 Pres Bud Request	12508	0	0	0

Change Summary Explanation: Funding: Project transferred to DoD PE 0605384BP, Chemical and Biological Defense Program, effective FY 1997

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605601A Army Test Ranges and Facilities

PROJECT: DE93

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DE93 White Sands Missile Range	55176	59945	0	0	0	0	0	0	0	115121

A. Mission Description and Justification: Project DE93 White Sands Missile Range: White Sands Missile Range (WSMR), NM, is the largest, multi-purpose, overland test range within DoD. This project provides for testing of ballistic and guided missiles, air defense systems, and artillery missile systems for all services. It is the DoD designated primary test facility for overland surface-to-air and surface-to-surface missile testing and nuclear effects under Project Reliance. Launch complexes are integrated into a modern, real-time data collection and data reduction processing system. Facilities include optical and calibration laboratories, inertial guidance test facilities, full spectrum nuclear effects facilities (i.e., radiation, thermal, blast, electromagnetic pulse), temperature, shock, vibration, and electromagnetic effects, and a fully landlocked/secure test missile flight facility. WSMR facilities and services are extensively utilized by the Tri-Services, National Aeronautics and Space Administration, and other government agencies and includes support to the High Energy Laser Systems Test Facility located at WSMR. Effective FY 95, management of the Electronic Proving Ground (EPG), Fort Huachuca, AZ (DE94) was consolidated under WSMR. EPG is unique within DoD because of the electromagnetically "clean" environment, extensive real estate, low annual rainfall, and special facilities required to perform development tests for communications, command and control, optical/electro-optical, signal intelligence, and electronic warfare equipment and systems. EPG operates an electro-magnetic environment test facility, an unmanned aerial vehicle test facility, antenna pattern measurement facility, Electro-Magnetic Interference (EMI)/Electro-Magnetic Compatibility (EMC)/TEMPEST test facility, communication test facility, outdoor compact antenna range, high frequency test facility, stress loading facility, and an electro-optical systems test facility. The mission of creating, developing, and maintaining data bases at EPG for standard tactical deployment scenarios for electromagnetic capability and vulnerability will be continued. It also provides for leverage, integration and use of virtual and synthetic test tools/capabilities for reduction of test and program costs.

FY 1996 Accomplishments:

- 55176 Some of the largest system level programs tested were:
  PATRIOT Missile System, Theater High Altitude Area Defense (THAAD), Theater Missile Defense (TMD), Army Tactical Command & Control System (ATCCS), and Multiple Launch Rocket System.
  Institutional funds were also used to modernize test facilities and equipment to maintain current test capabilities and improve the safety, environmental, efficiency, and technological aspects of test operations.

Total 55176

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605601A Army Test Ranges and Facilities
	PROJECT DE93

FY 1997 Planned Program:

•	59945	Some of the key systems programmed for testing are: Theater Missile Defense/Theater High Altitude Area Defense, PATRIOT Advanced Configuration, STINGER Product Improvement, BAT Pre-Planned Product Improvements, All Source Analysis System (ASAS) Evolutionary Developments, Command and Control Vehicle, Navy STANDARD Missile, Navy Research Rockets, and Air Force AMRAAM. Institutional funds are also to be used to modernize test facilities and equipment to maintain current test capabilities and improve the safety, environmental, efficiency, and technological aspects of test operations.
Total	59945	

FY 1998 Planned Program: Funding consolidated under project DF30.

FY 1999 Planned Program: Funding consolidated under project DF30.

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	51766	61233	57883	57878
Appropriated Value	53203	59945		
Adjustments to Appropriated Value	+1973			
FY 1998 Pres Bud Request	55176	59945	0	0

Change Summary Explanation: Funding consolidated under project DF30 effective FY98.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605601A Army Test Ranges and Facilities

PROJECT: D618

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D618 Aviation Technical Test Center	14369	12557	0	0	0	0	0	0	0	26926

A. Mission Description and Justification: Project D618 Aviation Technical Test Center: Aviation Technical Test Center (ATTC), Fort Rucker, AL provides a capability for development, production, verification, and materiel change testing of Army aircraft, Aircrew systems/subsystems, and various items of related ground support equipment. Fleet Aircraft Sustainment Testing (FAST) is also conducted to provide continuous reliability/supportability data on new and modified aircraft systems/subsystems. Operates DoD's only helicopter icing spray capability and low speed, fixed wing cloud physics instrumented aircraft which provide for qualification of helicopters for flight under icing conditions. Also funds the Airborne Engineering Evaluation Support Activity (AEESA) at CECOM which includes night vision research, aircraft modeling, flight support, modification of airframes and installation of night vision systems. It also provides for leverage, integration and use of virtual and synthetic test tools/capabilities for reduction of test and program acquisition costs.

FY 1996 Accomplishments:

•	9773	Some of the largest system level programs tested were: UH-1H Helicopter, OH-58D KIOWA Warrior, COMANCHE, Lead-the-Fleet, and Special Operations Aircraft. Institutional funds were also used to modernize test facilities and equipment to maintain current test capabilities and improve the safety, environmental, efficiency, and technological aspects of test operations.
•	4043	Personnel and other one time costs associated with downsizing and consolidation.
•	553	AEESA
Total	14369	

FY 1997 Planned Program:

•	11731	Some of the key systems programmed for testing are: COMANCHE Subsystems, Aircraft Survivability Equipment, 2nd Generation FLIR, CH-47D Product Improvements, and Aircraft Avionics. Institutional funds are also to be used to modernize test facilities and equipment to maintain current test capabilities and improve the safety, environmental, efficiency, and technological aspects of test operations.
•	519	AEESA
•	307	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	12557	

FY 1998 Planned Program: Project not funded in FY 98

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605601A Army Test Ranges and Facilities
	PROJECT D618

FY 1999 Planned Program: Project not funded in FY 99.

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	14033	12826	9074	8659
Appropriated Value	14424	12557		
Adjustments to Appropriated Value	-55			
FY 1998 Pres Bud Request	14369	12557	0	0

Change Summary Explanation: Funding consolidated into project DF30 effective FY 1998.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605601A Army Test Ranges and Facilities

PROJECT: D630

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D630 TECOM Test Design and Evaluation	3871	4685	0	0	0	0	0	0	0	8556

A. <u>Mission Description and Justification</u>: **Project D630 TECOM Test Design and Evaluation:** This project provides for independent assessment of over 300 non-major systems. It encompasses design of developmental and initial production assessment plans, test design, and subsequent independent analysis and assessment reports in support of all acquisition milestones to include recommendations for type classification and materiel release of non-major systems. Includes some 125-150 independent assessment plans and reports annually in the areas of munitions, weapons, electronics, communications, electronic warfare training devices, automotive and engineering equipment, bridging, clothing and individual equipment and chemical detection alarms and protection equipment. It also provides for HQ TECOM's test management, safety assessment/verification and, in FY97, Test Integration functions in support of the Army's new Integrated T&E process.

FY 1996 Accomplishments:

- 2206 Continued test design and assessment program, addressing new developments, production, and materiel changes. Program items included:
  - Close Combat Tactical Trainer
  - Joint Tactical Ground Station
  - Combat Service Support Training System
  - Electro-Optic Helmet Sight System
  - Vehicular Intercommunications System
  - Advanced Battle Dress Overgarment (JSLIST)
  - Land Warrior
  - Improved Chemical Glove
  - Self-Contained Toxic Environmental Protection (TAP) Suit
  - Individual Soldier Enhanced Ration
  - Advanced Combat Vehicle Crewman Helmet
  - Inflatable Body and Head Restraint System
  - Digital Topographic Support System/Quick Response Multicolor Printer
  - Driver's Vision Enhancer
  - Launched Grapnel Hook
  - Heavy Assault Bridge System
  - Vapor Protective Flame Resistant Undergarment (JSLIST)
  - C-17 Transport, Army Interface
  - Biological Point Detector
  - Automatic Chemical Agent Alarm
  - Force Provider
  - Truck, 2-1/2 Ton Extended Service Program
- 1665 Test management and safety assessment/verification

Total 3871

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605601A Army Test Ranges and Facilities / PROJECT: D630

FY 1997 Planned Program:

- 2321 Continue test design and assessment program, addressing new developments, production, and materiel changes. Programmed items include:
  - Aviation Combined Arms Tactical Trainer
  - Army Key Management System
  - Tactical Standoff Biological Detector
  - Deployable Universal Combat Earthmover
  - Air Warrior
  - Airborne Standoff Minefield Detection System
  - Close Combat Tactical Trainer
  - Land Warrior
  - SHORTSTOP
  - Air Traffic Navigation and Communication System
  - Mobile Automated Instrumentation Suite
  - Joint Service Lightweight Integrated Suit Technology (JSLIST)
  - Containerized Kitchen
  - Remote Activation Munitions System
  - Handheld Mine Detection System
  - Selectable Lightweight Attack Munition
  - Multiple Integrated Laser Engagement System - 2000
  - IEW Common Sensor
- 2310 Integrated test planning and safety assessment/verification
- 54 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs..

Total 4685

FY 1998 Planned Program: Project not funded in FY 98

FY 1999 Planned Program: Project not funded in FY 99

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	4623	4785	4937	5094
Appropriated Value	4753	4685		
Adjustments to Appropriate Value	-882			
FY 1998 Pres Bud Request	3871	4685	0	0

Change Summary Explanation:

Funding: FY 1996 decreased (-882); (-130) undistributed Congressional reductions and rescissions; and (-752) reprogrammed to fund higher priorities.
FY 1998 - The test design and assessment portion of this project (-2371) was realigned to project D699 upon the transfer of the Test Design and Evaluation function to the US Army Operational Test and Evaluation Command. The remaining portion of this project (-2566), which supports HQ TECOM integrated test planning and safety assessment/verification functions, was consolidated into project DF30 effective FY 1998.
FY 1999 - These efforts transferred to projects D699 and DF30 (-5094).

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605601A Army Test Ranges and Facilities

PROJECT: D632

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D632 Redstone Technical Test Center	2644	1545	0	0	0	0	0	0	0	4189

A. Mission Description and Justification: Project D632 Redstone Technical Test Center: Redstone Technical Test Center (RTTC), Redstone Arsenal, AL provides technical test expertise, facilities and capabilities for conduct of research, development, production and post-production testing of missiles, rockets, and low energy/precision guidance lasers. RTTC conducts system level tests on small rockets and missiles and component/subsystem tests for all categories of Army rockets, guided missiles, and associated equipment. RTTC is the Army lightning tester for hazardous/explosive materials. Major capabilities include a) extensive component/subsystem test facilities, b) ranges for flight testing small missiles and evaluating warhead effects, c) rocket motor static test stands, and d) facilities for climatic, vibration, shock, and electromagnetic environmental effects testing. RTTC is the Product Assurance tester for the Army's Missile Command for repair parts testing and evaluating missile stockpile reliability at storage sites around the world. Through stockpile reliability testing, missile shelf life extension has resulted in cost avoidance greater than $7.9 billion. It also provides for leverage, integration and use of virtual and synthetic test tools/capabilities for reduction of test and program acquisition costs.

FY 1996 Accomplishments:

- 2644 Some of the largest system level programs tested are:
  JAVELIN, Missile Repair Parts, TOW Improved Target Acquisition System, Air to Ground Missile System, and Multiple Launch Rocket System.

Total 2644

FY 1997 Planned Program:

- 1545 Some of the key systems programmed for testing are:
  Unmanned Ground Vehicle, Brilliant Anti-Armor Submunition (BAT), MLRS Family of Munitions, PATRIOT Advanced Configurations, Army Tactical Missile System Block Improvements, JAVELIN, TOW missile and target acquisition systems, and Missile Repair Parts.
  Institutional funds are also to be used to modernize test facilities and equipment to maintain current test capabilities and improve the safety, environmental, efficiency, and technological aspects of test operations.

Total 1545

FY 1998 Planned Program: Funding consolidated under project DF30.

FY 1999 Planned Program: Funding consolidated under project DF30.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605601A Army Test Ranges and Facilities

PROJECT: D632

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	1060	1578	1178	1591
Appropriated Value	1090	1545		
Adjustments to Appropriated Value	+1554			
FY 1998 Pres Bud Request	2644	1545	0	0

Change Summary Explanation:

Funding: FY 1996 increased (+1554) for reprioritization of the Army's modernization programs and development of the Virtual Proving Ground. Project consolidated into project DF30, effective FY 1998.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605601A Army Test Ranges and Facilities

PROJECT: D699

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D699 Non-Major Systems Test Design & Evaluation	0	0	2389	1966	1496	1522	1550	1581	Continuing	Continuing

A. Mission Description and Justification: Project D699, Non-Major Systems Test Design and Evaluation: This is not a new start. It is the continuation of the Independent Test Design and Assessment effort previously funded in project D630 and realigned to US Army Operational Test and Evaluation Command (OPTEC) as part of the Army's consolidation of the materiel evaluation mission. Project D699 provides for independent developmental evaluation of all Army non-major systems. This project supports integrated Army evaluation for decision makers at milestone reviews, includes the development of test design, evaluation plans, and subsequent independent evaluations of all acquisition milestones to include recommendations for type classification and materiel release of non-major systems. Evaluation results will be incorporated into a single Army evaluation and presented at all acquisition milestones.

FY 1998 Planned Program:

- 2389 Continue test design and evaluation programs, addressing new developments, production, and materiel changes. Programmed items include:
  - Non-Lethal Ammo Family
  - TRAILBLAZER
  - Air Warrior
  - Modular Body Armor
  - Joint Biological Detector
  - Suite of Integrated Radio Frequency Countermeasures
  - Sorbont Decontamination System
  - Mounted Warrior
  - Armored Security Vehicle
  - Counter Proliferation Long Range Biological Standoff Detector

Total 2389

FY 1999 Planned Program:

- 1966 Continue test design and evaluation programs, addressing new developments, production, and material changes. Programmed items include:
  - WARSIM 2000 Simulation
  - Special Operations Forces Demolition Kit
  - Joint Biological Detector
  - Special Driver's Air Support System
  - Advanced Integrated Collective Protection System
  - Modular Decon System

Total 1966

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605601A Army Test Ranges and Facilities
	PROJECT D699

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	0	0	0
Appropriated Value	0			
Adjustments to Appropriated Value				
FY 1998 Pres Bud Request	0	0	2389	1966

Change Summary Explanation: Funding: Reflects realignment of the test design and assessment function from project D630.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605602A Army Test Technology and Sustaining Instrumentation

PROJECT: D628

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D628 Test Technology & Sustaining Instrumentation	25422	21944	33184	32976	34373	35189	35121	36322	Continuing	Continuing

A. Mission Description and Budget Item Justification : **Project D628 - Test Technology & Sustaining Instrumentation:** Test technology provides critical front-end efforts for development of new test methodologies, test standards, advanced test technology concepts for long range requirements, future test capabilities, and advanced instrumentation prototypes for US Army Test and Evaluation Command (TECOM) which includes: Yuma Proving Ground (YPG), AZ; Aberdeen Test Center (ATC), Aberdeen Proving Ground (APG), 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. Within this element, a major initiative is directed towards efficiency and covers downsizing offsets, and virtual test capabilities. Sustaining instrumentation maintains existing technical testing capabilities at TECOM test facilities by replacing unreliable, uneconomical and irreparable instrumentation, as well as incremental upgrades of instrumentation and software, to assure adequate test data for acquisition milestone decisions for projects such as Patriot Advanced Capability Phase 3 (PAC 3), M1A2 Main Battle Tank, Joint Service Lightweight Integrated Suit Technology (JSLIST), Crusader, the Theater High Altitude Area Defense (THAAD), Comanche and Javelin. Funding increase in FY 1998 and FY 1999 is to fully implement the TECOM Virtual Proving Ground (VPG). This innovative Acquisition Streamlining Initiative in testing will significantly improve the ability of the Army to provide early influence on system design, reduce test costs, extend the envelope of information to reduce risk and reduce acquisition costs. This initiative is critical to achieving long term efficiencies not only within the T&E mission to offset funding and manpower but also within the acquisition process at large. Includes research and development effort directed toward support of installations or operations required for general research and development use and therefore is appropriate to Budget Activity 6.

FY 1996 Accomplishments:

- 1484 Provided quick reaction capability to respond to failed instrumentation replacement needs, provided support for technical committees forging future instrumentation technology developments and maintained and improved existing capability by replacement and limited upgrade of worn out, obsolete or unserviceable equipment/instrumentation at Army technical test ranges (such as bulky, obsolete airborne data recorders used for helicopter testing at Aviation Technical Test Center (ATTC)). Developed prototype instrumentation (such as the development of the Bridge Crossing Model capability at Aberdeen Test Center (ATC) which will be used to evaluate system performance without risk to testers) and performed advanced concept studies for development of new technologies. Continued to develop test operations procedures (TOPs) and international test operations procedures (ITOPs) to ensure quality and consistency of test results throughout Army and for international cooperative applications, developed prototype instrumentation and performed advanced concept studies for development of new technologies.
- 8819 Continued support of TECOM Virtual Proving Ground (VPG):
  Aberdeen Test Center (ATC): Developed databases and detailed models and systems interfaces to link VPG tools with legacy systems.
  Aviation Technical Test Center (ATTC): Developed integration of aircraft, terrain and targeting models in support of aviation survivability testing.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605602A Army Test Technology and Sustaining Instrumentation
	PROJECT D628

FY 1996 Accomplishments: (continued)

Dugway Proving Ground (DPG): Began development of the plan to identify requirements for the VPG training program for the command and developed software to be used for chemical biological/aerosol testing.

Redstone Technical Test Center (RTTC): Acquired the capability to support virtual component/subsystem tests for IR Sensors with open loop and closed loop non-destructive testing of imaging IR Seekers, night sights and all-up-round missiles. Initiated development of the virtual range (launch conditions engagement scenarios, target dynamics, real-time flight or vehicle dynamics and operational environments).

White Sands Missile Range (WSMR): Initiated the development of mission planning & real-time data analysis capability. Developed ground truth database missile testing, and developed the capability to evaluate Low Cost Competent Munitions.

HQTECOM: Continued VPG design and integration.

- 301 Developed and acquired additional Flight Test Cockpit Indicators and replaced a telemetry antenna and controller which were destroyed by lightning at ATTC.
- 1386 Continued to acquire high-speed, multi-media data handling equipment, developed test methodology and requirements/specifications for instrumentation used for combat vehicle testing, such as the M1A2, Crusader and Component Advanced Technology Demonstrator (CAT-D) at ATC. These processes are needed to accommodate pending reductions in the workforce.
- 1037 Continued to replace chemical/biological laboratory analysis instrumentation to sustain the Nuclear, Biological, Chemical (NBC) Defense mission at DPG.
- 5070 Completed the acquisition of the capability to test advanced Command, Control, Communication and Intelligence Systems of future weapon systems at WSMR C4I Directorate. Continued to acquire instrumentation to ensure personnel safety and compliance with EPA Regulations, sustain optical and radar tracking systems, and replaced the obsolete Telemetry Tracking and Acquisition Systems (TTAS) with new state-of-the art systems which provides increased data rate and reduces the number of personnel required to operate the instrumentation at WSMR.
- 1780 Completed the acquisition of Subsystem Test Facility which provides high fidelity models to test small missile weapon systems. Began development of a vibro-acoustic flight capability which produces dynamically accurate missile flights necessary to reduce the number of costly missile test flights. Continued the fabrication of the Thermal Ablative Test Stand used to characterize materials in advanced missile systems at RTTC.
- 1002 Acquired Tank Accuracy Real Time Processing instrumentation, continued the refurbishment of Climatic Chambers which brought them into EPA compliance and upgraded the Kineto Tracking Mounts at Yuma Proving Ground (YPG). Procured a Millimeter Wavelength Transmissometer, Telephoto Lenses and other cold weather instrumentation at YPG Cold Regions Test Activity (CRTA).
- 4543 Provided technical support costs to include salaries and benefits, travel, training and developmental assignments for Directorate for Technical Mission personnel, who managed requirements development, project prioritization, and execution of investment accounts for Small Business Innovative Research, Production Base Support, Army Test Technology and Sustaining Instrumentation, Major Test and Evaluation Investment, and the Central

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605602A Army Test Technology and Sustaining Instrumentation
	PROJECT D628

FY 1996 Accomplishments: (continued)

Test and Evaluation Investment Program, totaling $80-$100M/yr. Management and support costs also provided direct interface to the T&E Executive Agent, managing needs and solutions calls for T&E Reliance oversight, and supporting the Army TERIB co-chair and the Army principal on the T&E Board of Operating Directors. Also provided administrative support for Local Area Network and TECNET, contracts, patents, Symposia and Conferences, exhibits and printing. Continued funding (Army portion) support to Joint Projects Office (JPO) for Test and Evaluation.

Total 25422

FY 1997 Planned Program:

- 1423 Provide quick reaction capability to respond to failed instrumentation replacement needs, provide support for technical committees forging future instrumentation technology developments and maintain and improve existing capability by replacement and limited upgrade of worn out, obsolete or unserviceable equipment/instrumentation at Army technical test ranges. Develop prototype instrumentation and perform advanced concept studies for development of new technologies. Continue to develop Test Operations Procedures (TOPs) and International Test Operations Procedures (ITOPs) to ensure quality and consistency of test results throughout Army and for international cooperative applications.
- 7454 Continue support of TECOM Virtual Proving Ground (VPG):
  ATC: Continue to develop databases, detailed models and system interfaces to link VPG tools with legacy systems. Develop Distributed Simulation Architecture.
  ATTC: Complete integration of aircraft, terrain and targeting models in support of aviation survivability testing
  DPG: Continue development of software to be used for chemical biological/aerosol testing. Develop a multimedia communications network.
  RTTC: Continue to acquire the capability to support virtual component/subsystem tests for small missile systems with open loop and closed loop non-destructive testing of imaging IR/MMW Seekers and all-up-round missiles. Complete networking of ground truth databases and the capability to replicate flight dynamic motion environments.
  WSMR: Develop Virtual test capabilities for C4I systems and continue development of virtual mission planning & real-time data analysis capability. Complete software development for modeling large scale C4I deployments in electromagnetic environments.
  YPG: Develop digital database and graphics capability for system applications.
  HQTECOM: Continue VPG design and integration.
- 427 Continue replacement of Flight Test Cockpit Indicators and acquire low dynamics Global Positioning System equipment for programs such as Comanche and Special Ops aircraft at ATTC.
- 1530 Continue to acquire high-speed data analysis and processing equipment. Support for Land Warrior Test Suite, an integrated soldier system test capability. Acquire range and system safety instrumentation at ATC.
- 856 Continue to replace chemical/biological laboratory analysis instrumentation to sustain the Nuclear, Biological, Chemical (NBC) Defense mission at DPG.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605602A Army Test Technology and Sustaining Instrumentation
	PROJECT D628

FY 1997 Planned Program: (continued)

•	1897	Continued to modify the WSMR Command Destruct system for remote control capability IAW personnel downsizing and safety assurance initiatives. Continue the design and acquisition of software and hardware to support the Standoff and Tactical Jammer capability for C4I testing. Develop an upgrade to the laser tracking capability at WSMR.
•	1310	Continue to upgrade YPG data acquisition, processing and display capabilities for air-to-ground and ground-to-ground armaments testing to include a mobile mission control system.
•	925	Continue development of the vibro-acoustic flight capability to produce dynamically accurate missile flights necessary to reduce the number of costly missile test flights. Acquire fiber optics cables for data transfer and communications. Replace solid state power amplifiers used in physical environments testing. Complete the fabrication of the Thermal Ablative Test Stand used to characterize materials in advanced missile systems at RTTC.
•	5618	Provide technical support costs to include salaries and benefits, travel, training and developmental assignments for Directorate for Technical Mission personnel, who manage requirements development, project prioritization, and execution of investment accounts for Small Business Innovative Research, Production Base Support, Army Test Technology and Sustaining Instrumentation, Major Test and Evaluation Investment, and the Central Test and Evaluation Investment Program, totaling $80-$100M/yr. Management and support costs also provide direct interface to the T&E Executive Agent, managing needs and solutions calls for T&E Reliance oversight, and supporting the Army TERIB co-chair and the Army principal on the T&E Board of Operating Directors. Also provides administrative support for Local Area Network and TECNET, contracts, patents, Symposia and Conferences, exhibits and printing. Continues funding support to Joint Projects Office (JPO) for test and evaluation.
•	504	Small Business Innovation Research/Small business Technology Transfer (SBIR/STTR) Programs.
Total	21944	

FY 1998 Planned Program:

•	1466	Provide quick reaction capability to respond to failed instrumentation replacement needs, provide support for technical committees forging future instrumentation technology developments and maintain and improve existing capability by replacement and limited upgrade of worn out, obsolete or unserviceable equipment/instrumentation at Army technical test ranges. Develop prototype instrumentation and perform advanced concept studies for development of new technologies. Continue to develop Test Operations Procedures (TOPs) and International Test Operations Procedures (ITOPs) to ensure quality and consistency of test results throughout Army and for international cooperative applications.
•	15940	Continue support of TECOM Virtual Proving Ground (VPG): ATC: Continue to develop databases, detailed models and system interfaces to include a reconfigurable man-in-the-loop testing capability of ground vehicle systems. Continue development of the Distributed Simulation Architecture. ATTC: Complete integration of Comanche aircraft model with ground truth telemetry data for virtual flight visualization testing. DPG: Continue the development of software to be used in support of chemical biological/aerosol testing. Continue development of the multimedia communications network and develop new models for evaluating smoke/obscuration tests.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605602A Army Test Technology and Sustaining Instrumentation PROJECT D628

FY 1998 Planned Program: (continued)

RTTC: Continue to acquire the capability to support virtual component/subsystem tests for small missile systems with open loop and closed loop non-destructive testing of imaging IR/MMW Seekers, and all-up-round missiles. Development of the virtual range (launch conditions engagement scenarios, target dynamics, real-time flight or vehicle dynamics and operational environments). Complete the capability to model small missile mechanical components fit and function tests.

WSMR: Complete development of virtual reality mission planning and continue development of real-time data analyses. Continue C4I testing capability. Develop terrain and ground truth databases, and virtual test capability (computer models used to replicate actual test conditions) for the Aerial Cable Facility. Develop DIS interfaces between test control centers and VPG models. Develop an Airblast Survivability Model for Comanche.

YPG: Continue development of databases and graphics capability. Develop digital mapping and clutter characteristics, aviation fire control and line of sight models.

HQTECOM: Continue VPG design and integration.

- 686 Acquire airborne data recorders and local telemetry receiving and processing equipment. Continue to acquire low dynamics GPS equipment at ATTC.
- 3120 Continue to acquire high-speed analysis and processing equipment. Complete support for Land Warrior Test Suite. Continue to acquire range and system safety instrumentation at ATC.
- 1130 Continue to replace chemical/biological laboratory analysis instrumentation to sustain the Nuclear, Biological, Chemical (NBC) Defense mission at DPG.
- 2667 Complete the modification of the WSMR Command Destruct system for remote control capability IAW personnel downsizing and safety assurance initiatives. Continue the design and acquisition of software and hardware to support the Standoff and Tactical Jammer capability for C4I testing. Continue the acquisition of environmental monitors for nuclear effects testing, continue the upgrade to the laser tracking equipment, and continue to replace obsolete Telemetry Tracking and Acquisition Systems (TTAS) with new state-of-the art systems at WSMR.
- 1545 Continue to upgrade YPG data acquisition, processing and display capabilities for air-to-ground and ground-to-ground armaments testing to include a mobile mission control system. Acquire ammo conditioning chambers and video equipment for CRTA.
- 1075 Continue development of a vibro-acoustic flight capability to produce dynamically accurate missile flights necessary to reduce the number of costly missile test flights. Acquire fiber optics cables for data transfer and communications. Acquire solid state power amplifiers used in physical environments testing at RTTC.
- 5555 Provide technical support costs to include salaries and benefits, travel, training and developmental assignments for Directorate for Technical Mission personnel, who manage requirements development, project prioritization, and execution of investment accounts for Small Business Innovative Research, Production Base Support, Army Test Technology and Sustaining Instrumentation, Major Test and Evaluation Investment, and the Central. Test and Evaluation Investment Program, totaling $80-$100M/yr. Management and support costs also provide direct interface to the T&E Executive Agent, managing needs and solutions calls for T&E Reliance oversight, and supporting the Army TERIB co-chair and the Army principal on the T&E

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605602A Army Test Technology and Sustaining Instrumentation
	PROJECT D628

FY 1998 Planned Program: (continued)

Board of Operating Directors. Also provides administrative support for Local Area Network and TECNET, contracts, patents, Symposia and Conferences, exhibits and printing. Provides management and support costs to include salaries and benefits for Directorate for Technical Mission personnel, support contracts, patents, exhibits and printing

Total 33184

FY 1999 Planned Program:

- 1152 Provide quick reaction capability to respond to failed instrumentation replacement needs, provide support for technical committees forging future instrumentation technology developments and maintain and improve existing capability by replacement and limited upgrade of worn out, obsolete or unserviceable equipment/instrumentation at Army technical test ranges. Develop prototype instrumentation and perform advanced concept studies for development of new technologies. Continue to develop Test Operations Procedures (TOPs) and International Test Operations Procedures (ITOPs) to ensure quality and consistency of test results throughout Army and for international cooperative applications.
- 11814 Continue support of TECOM Virtual Proving Ground (VPG):
  ATC: Continue to develop databases, detailed models and system interfaces to include a reconfigurable man-in-the-loop testing capability of ground vehicle systems. Continue development of the Distributed Simulation Architecture.
  ATTC: Continue support of Comanche modeling.
  DPG: Complete development and integration of chem/bio hazard assessment models for Army materiel. Continue development of the multimedia communications network. Continue development of new models for evaluating smoke/obscuration tests.
  RTTC: Continue to acquire the capability to support virtual component/subsystem tests for small missile systems with open loop and closed loop non-destructive testing of imaging IR/MMW Seekers, and all-up-round missiles. Continue development of the virtual range (launch conditions engagement scenarios, target dynamics, real-time flight or vehicle dynamics and operational environments). Complete development of virtual reality databases to generate digital input images/scenes for IR projection.
  WSMR: Complete development of virtual reality post mission analysis and 3-D graphic representation. Continue to develop terrain and ground truth databases, continue development of real-time data analyses and virtual test capability (computer models used to replicate actual test conditions) for the Aerial Cable Facility. Continue development of DIS interfaces between test control centers and VPG models.
  YPG: Continue development of VPG databases. Develop digital mapping and clutter characteristics, and aviation fire control and line of sight models.
  HQTECOM: Continue VPG design and integration.
- 752 Acquire GPS and local telemetry capabilities, flight test measurement sensors, and front-end data processing equipment at ATTC.
- 1355 Continue to acquire high-speed analysis and processing equipment. Continue to acquire range and system safety instrumentation at ATC.
- 1221 Continue to replace chemical/biological laboratory analysis instrumentation to sustain the Nuclear, Biological, Chemical (NBC) Defense mission at DPG.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605602A Army Test Technology and Sustaining Instrumentation
	PROJECT D628

FY 1999 Planned Program: (continued)

- 6383 Continue the design and acquisition of software and hardware to support the Standoff and Tactical Jammer capability for C4I testing. Continue the acquisition of environmental monitors, continue the upgrade to data analysis and processing equipment, acquire the equipment for drone control integration, and continue to replace obsolete Telemetry Tracking and Acquisition Systems (TTAS) with new state-of-the art systems at WSMR.
- 1612 Continue to upgrade YPG data acquisition, processing and display capabilities for air-to-ground and ground-to-ground armaments testing to include a mobile mission control system. Develop an automated input scoring system for vehicle armaments testing.
- 2935 Continue development of a vibro-acoustic flight capability to produce dynamically accurate missile flights necessary to reduce the number of costly missile test flights. Acquire an automated data acquisition and distribution capability, and acquire an upgraded laser tracker capability at RTTC.
- 5752 Provide technical support costs to include salaries and benefits, travel, training and developmental assignments for Directorate for Technical Mission personnel, who manage requirements development, project prioritization, and execution of investment accounts for Small Business Innovative Research, Production Base Support, Army Test Technology and Sustaining Instrumentation, Major Test and Evaluation Investment, and the Central Test and Evaluation Investment Program, totaling $80-$100M/yr. Management and support costs also provide direct interface to the T&E Executive Agent, managing needs and solutions calls for T&E Reliance oversight, and supporting the Army TERIB co-chair and the Army principal on the T&E Board of Operating Directors. Also provides administrative support for Local Area Network and TECNET, contracts, patents, Symposia and Conferences, exhibits and printing. Provides management and support costs to include salaries and benefits for Directorate for Technical Mission personnel, support contracts, patents, exhibits and printing.

Total 32976

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 97 President's Budget	26846	22413	23621	24624
Appropriated Value	27600	21944		
Adjustments to Appropriated Value	-2178			
FY 1998 Pres Bud Request	25422	21944	33184	32976

Change Summary Explanation: Funding: FY 98/FY 99 increase (+9563) and (+8352) respectively required to fully implement the TECOM Virtual Proving Ground (VPG).

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	32250	30675	32330	30678	17036	19427	20161	20961	Continuing	Continuing
D670 Emerging Technology Systems	5153	4776	5278	4759	2583	3055	3171	3298	Continuing	Continuing
D671 Air Defense/Missile Defense Systems	6199	5687	5950	5779	3220	3643	3785	3940	Continuing	Continuing
D672 Aviation Systems	4076	3660	3323	3174	1877	2027	2104	2188	Continuing	Continuing
D675 C4I/IEW Systems	4683	4921	4501	4033	2227	2625	2728	2841	Continuing	Continuing
D677 Ground Combat Systems	5680	5225	5190	5403	2920	3376	3510	3656	Continuing	Continuing
D678 Munitions Systems	5672	5609	5613	5615	3115	3569	3706	3855	Continuing	Continuing
D679 Soldier Systems	787	797	825	735	421	449	463	478	Continuing	Continuing
D734 Survivability Evaluation	0	0	1650	1180	673	683	694	705	Continuing	Continuing

NOTE: This PE has been restructured to reflect consolidation of the Army's materiel evaluation mission under the US Army Operational Test and Evaluation Command (OPTEC). Effective FY 1998, all US Army Research Laboratory (ARL) Survivability/Lethality Analysis Directorate (SLAD) evaluation functions in support of survivability/lethality testing will be financed through the new project D734 under the direction of OPTEC. Project D734 funding was realigned from SLAD projects within this PE.

Mission Description and Budget Item Justification: This Program Element (PE) funds activities and functions to conduct objective and integrated survivability and lethality analyses (SLA) for all major and designated non-major Army systems. The analyses quantify the effects of electronic warfare (EW), ballistic, nuclear, chemical, and biological battlefield threats and meteorological conditions on Army individual soldiers and systems. The work is accomplished through threat research, theoretical and engineering analyses, signature measurements, modeling, simulations, laboratory experiments, and field investigations. Activities in progress include assessment of the effects of smokes and obscurants, passive countermeasures, tactics, lasers, high-power microwave, electro-optical/radio frequency (EO/RF) jammers, electromagnetic environment effects (E3), information warfare (IW), decoys, conventional ballistics and nuclear/biological/chemical (NBC) effects 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 PE funds civilian salaries, travel, development and maintenance of equipment and facilities, general management, administrative and contractor support required for program execution. This effort is conducted by the U.S. Army Research Laboratory (ARL) Survivability/Lethality Analysis Directorate (SLAD) . This PE supports Headquarters, Department of the Army (HQDA), Program Executive Offices

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605604A Survivability/Lethality Analysis

(PEOs), Program Managers (PMs), and independent evaluators with EW, chemical, biological, nuclear, and ballistic expertise to conduct special studies, support Test Integration Working Groups (TIWG) and program reviews, review acquisition documentation, provide government testers with technical support, and support milestone decision reviews; and is appropriately funded in Budget Activity 6.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D670

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D670 Emerging Technology Systems	5153	4776	5278	4759	2583	3055	3171	3298	Continuing	Continuing

A. Mission Description and Justification: Project D670 - Emerging Technology Systems: This project performs integrated SLA for a category of systems which includes Horizontal Technology Integration systems, and Advanced Technology Demonstration initiatives. Survivability deficiencies are identified and recommendations are made to PEO/PMs to provide hardening fixes early on in program development. This work is accomplished through theoretical and engineering analyses, signature measurements, modeling, simulations, laboratory experiments, and field investigations. This effort also supports HQDA, PEOs, PMs and independent evaluators with EW, chemical, biological, nuclear, meteorological, and ballistic expertise to conduct special studies, support TIWGs and program reviews, acquisition documentation review, and provides Government testers with technical support. Horizontal Technology Integration systems include 2ND Generation FLIR (2ND GEN FLIR), Battlefield Combat Identification System (BCIS), Global Positioning System (GPS), and Enhanced Position Location Reporting System (EPLRS). Advanced Technology Demonstration initiatives include Advanced Armored Vehicle Technology, Defensive Aided Suites (DAS), and Missile Countermeasure Devices (MCD). This project also provides oversight of the Army's Electromagnetic Environmental Effects (E3) Program.

FY 1996 Accomplishments:

- 2696 Conducted EW performance analyses, to include infrared (IR), radio frequency (RF), and electro-optical spectrums to support integrated survivability and lethality analyses. Developed necessary test beds to conduct laboratory and field investigations, and prepared interim survivability analysis reports. This work supported 2ND GEN FLIR, BCIS, GPS, DAS, EPLRS, and E3.
- 1420 Conducted analyses to determine ballistic effects. Developed system description models, performed damage simulations, and collected experimental data to support integrated survivability and lethality analyses. Developed necessary test beds to conduct experiments, and prepared interim survivability analysis reports. This work supported 2ND FLIR, BCIS, GPS, DAS, and EPLRS.
- 1037 Conducted analyses to address nuclear hardening and survivability, chemical and biological warfare contamination and decontamination, and dirty battlefield conditions. Developed necessary test beds to conduct laboratory and field investigations, and prepare interim survivability analysis reports. This work supported 2ND GEN FLIR, BCIS, GPS, DAS, EPLRS, and E3.

Total 5153

FY 1997 Planned Program:

- 2397 Conduct EW vulnerability assessments to support integrated survivability and lethality analyses of emerging technology systems and horizontal technology applications. Develop necessary test beds to conduct laboratory and field investigations, and prepare interim survivability analysis reports. Support the Army's E3 program.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605604A Survivability/Lethality Analysis
	PROJECT D670

FY 1997 Planned Program (Continued)

•	1382	Conduct ballistic effects investigations, develop system description models, perform damage simulations, and collect experimental data to support integrated survivability and lethality analysis reports.
•	880	Conduct engineering investigations addressing nuclear hardening and survivability, chemical and biological warfare contamination and decontamination, and dirty battlefield conditions to support integrated survivability/lethality analyses of emerging technology systems and horizontal technology applications. Develop necessary test beds to conduct laboratory and field investigations, and prepare interim survivability analysis reports.
	117	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	4776	

FY 1998 Planned Program:

•	2675	Perform integrated EW survivability and lethality analyses of emerging technology systems and horizontal technology applications. Develop necessary brassboard and prototype test beds to conduct laboratory and field investigations, and prepare interim survivability analysis reports. Recommend Electronic Counter Counter Measure (ECCM) enhancements. Support the Army's E3 program.
•	1498	Conduct ballistic effects investigations, develop system description models, perform damage simulations, and collect experimental data to support integrated survivability and lethality analysis reports.
•	1105	Conduct engineering investigations addressing nuclear hardening and survivability, chemical and biological warfare contamination and decontamination, and dirty battlefield conditions to support integrated survivability/lethality analyses of emerging technology systems and horizontal technology applications. Develop necessary test beds to conduct laboratory and field investigations, and prepare interim survivability analysis reports.
Total	5278	

FY 1999 Planned Program:

•	2447	Conduct EW vulnerability assessments to support integrated survivability and lethality analyses of advanced 2nd and 3rd generation emerging technology systems and horizontal technology applications. Develop necessary test beds to conduct laboratory and field investigations, and prepare interim survivability analysis reports. Support the Army's E3 program.
•	1263	Conduct ballistic effects investigations, develop system description models, perform damage simulations, and collect experimental data to support integrated survivability and lethality analysis reports.
•	1049	Conduct engineering investigations addressing nuclear hardening and survivability, chemical and biological warfare contamination and decontamination, and dirty battlefield conditions to support integrated survivability/lethality analyses of emerging technology systems and horizontal technology applications. Develop necessary test beds to conduct laboratory and field investigations, and prepare interim survivability analysis reports.
Total	4759	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605604A Survivability/Lethality Analysis PROJECT D670

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	5418	4879	5278	5243
Appropriated Value	5570	4776		
Adjustments to Appropriated Value	-417			
FY 1998 Pres Bud Request	5153	4776	5278	4759

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D671

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D671 Air Defense/Missile Defense Systems	6199	5687	5950	5779	3220	3643	3785	3940	Continuing	Continuing

A. <u>Mission Description and Justification:</u> **Project D671 - Air Defense/Missile Defense Systems:** Provides the survivability/lethality analysis of U.S. Army air defense and missile defense systems to the full spectrum of battlefield threats and recommends fixes to improve their battlefield survivability. 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 user to develop doctrine and tactics; and by decision makers in formulating program/production decisions. Anti-Radiation Missile (ARM) Counter-Arm efforts assess threat technologies against Theater Missile Defense (TMD), PATRIOT, JSTARS, Medium Extended Air Defense System (MEADS), and FAAD-C21 ground based sensors. Also funds salaries, travel, equipment/facilities, and management/administrative support needed to execute the program.

FY 1996 Accomplishments:

•	3852	Conducted the electronic warfare vulnerability assessment for U.S. Army air defense and missile defense systems that are in development, undergoing P3I, or have been recently fielded. Examples of such systems are PATRIOT, MEADS, Stinger, Avenger, Ground Based Sensor (GBS), Theater Missile Defense (TMD-GBR), THAAD, and Bradley Stinger Fighting Vehicle Enhanced (BSFV-E).
•	917	Conducted the ballistic survivability/lethality analysis for U.S. Army air defense and missile defense systems.
•	1150	Conducted the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army air defense and missile defense systems.
•	280	Provided integrated survivability/lethality analyses to support scheduled air defense/missile defense program decision milestones in FY 96.
Total	6199	

FY 1997 Planned Program:

•	3025	Conduct the electronic warfare vulnerability assessment for U.S. Army air defense and missile defense systems that are in development, undergoing P3I, or have been recently fielded. Examples of such systems are PATRIOT, MEADS, Stinger, GBS, LINEBACKER, THAAD and National Missile Defense (NMD).
•	860	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army air defense and missile defense systems.
•	864	Conduct the ballistic survivability/lethality analysis for U.S. Army air defense and missile defense systems.
•	250	Provide integrated survivability/lethality analyses to support scheduled air defense/missile defense program decision milestones in FY 97.
•	549	Support Consolidated Army Evaluation Function.
	139	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	5687	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605604A Survivability/Lethality Analysis
	PROJECT D671

FY 1998 Planned Program:

•	3526	Perform integrated electronic warfare vulnerability/survivability analysis and assessment of U.S. Army air defense and missile defense systems that are in development, undergoing P3I, or have been recently fielded to include PATRIOT, MEADS, Stinger, GBS, LINEBACKER, THAAD, and NMD.
•	1020	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army air defense and missile defense systems.
•	1025	Conduct the ballistic survivability/lethality analysis for U.S. Army air defense and missile defense systems.
•	379	Provide integrated survivability/lethality analyses to support scheduled air defense/missile defense program decision milestones in FY 98.
Total	5950	

FY 1999 Planned Program:

•	3476	Conduct the electronic warfare vulnerability assessment for developmental U.S. Army air defense and missile defense systems , pre-planned product improvements of current systems, and recently fielded systems. Provide interim susceptibility reports. Recommend ECCM enhancements.
•	1012	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army air defense and missile defense systems.
•	1016	Conduct the ballistic survivability/lethality analysis for U.S. Army air defense and missile defense systems.
•	275	Provide integrated survivability/lethality analyses to support scheduled air defense/missile defense program decision milestones in FY 99.
Total	5779	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	6359	5818	6224	6570
Appropriated Value	6537	5687		
Adjustments to Appropriated Value	-338			
FY 1998 Pres Bud Request	6199	5687	5950	5779

Change Summary Explanation: Funding - FY 99 Funds decreased (-791); reprogrammed to higher priority requirements.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D672

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D672 Aviation Systems	4076	3660	3323	3174	1877	2027	2104	2188	Continuing	Continuing

A. Mission Description and Justification: Project D672 - Aviation Systems: Project investigates the Survivability/Lethality/Vulnerability (SLV) of Army aviation systems to the full spectrum of battlefield threats. Aircraft SLV deficiencies are identified and hardening fixes identified as appropriate. SLV analysis directly supports major decision milestone reviews, acquisition documentation, test and evaluation master plans, and cost/operational effectiveness analyses.

FY 1996 Accomplishments:

•	2406	Provided for assessment of acoustic technology which might be developed to exploit potential susceptibilities of helicopters. Included electronic warfare vulnerability assessment for U.S. Army aviation systems that are in development, undergoing P3I, or have been recently fielded. Examples of such systems are RAH-66 Comanche, AH-64D Longbow Apache, MH-60K & MH-47E Special Operations Aircraft, OH-58D Kiowa Warrior, CH-47D Chinook, and UH-60Q Ambulance.
•	869	Conducted the ballistic survivability/lethality analysis for U.S. Army aviation systems.
•	601	Conducted the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army aviation systems.
•	200	Provided integrated survivability/lethality analyses to support scheduled aviation systems program decision milestones in FY 96.
Total	4076	

FY 1997 Planned Program:

•	1894	Conduct the electronic warfare vulnerability assessment for U.S. Army aviation systems that are in development, undergoing P3I, or have been recently fielded. Examples of such systems are AH-64D Longbow Apache, OH-58D Kiowa Warrior, MH-60K & MH-47E Special Operations Aircraft, RAH-66 Comanche, CH-47D Chinook, and UH-60Q Ambulance.
•	574	Conduct the ballistic survivability/lethality analysis for U.S. Army aviation systems.
•	555	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army aviation systems.
•	205	Provide integrated survivability/lethality analyses to support scheduled aviation systems program decision milestones in FY 97.
•	343	Support Consolidated Army Evaluation Function.
	89	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	3660	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605604A Survivability/Lethality Analysis
	PROJECT D672

FY 1998 Planned Program:

•	1894	Perform integrated electronic warfare vulnerability analysis and assessment of U.S. Army aviation systems and aviation support equipment to include: AH-64D Longbow Apache; OH-58D Kiowa Warrior; MH-60K & MH-47E Special Operations Aircraft; RAH-66 Comanche; CH-47D Chinook; UH-60Q Ambulance; Suite of Integrated RF Countermeasures; Suite of Integrated IR Countermeasures; Bird Dog; and Star Streak.
•	671	Conduct the ballistic survivability/lethality analysis for U.S. Army aviation systems.
•	573	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army aviation systems.
•	185	Provide integrated survivability/lethality analyses to support scheduled aviation systems program decision milestones in FY 98.
Total	3323	

FY 1999 Planned Program:

•	1831	Conduct the electronic warfare vulnerability assessment for U.S. Army aviation systems and aviation support equipment that are in development, undergoing P3I, or have been recently fielded. Examples of such systems are AH-64D Longbow Apache, OH-58D Kiowa Warrior, MH-60K & MH-47E Special Operations Aircraft, RAH-66 Comanche, CH-47D Chinook, UH-60Q Ambulance, Suite of Integrated RF Countermeasures, Suite of Integrated IR Countermeasures, Bird Dog, and Star Streak. Provide interim susceptibility reports. Provide electronic counter-countermeasures recommendations.
•	617	Conduct the ballistic survivability/lethality analysis for U.S. Army aviation systems
•	581	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army aviation systems.
•	145	Provide integrated survivability/lethality analyses to support scheduled aviation systems program decision milestones in FY 99.
Total	3174	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	4346	3739	3673	3777
Appropriated Value	4467	3660		
Adjustments to Appropriated Value	-391			
FY 1998 Pres Bud Request	4076	3660	3323	3174

Change Summary Explanation: Funding - FY 99 Funds decreased (-603); reprogrammed to higher priority requirements.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D675

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D675 C4I/IEW Systems	4683	4921	4501	4033	2227	2625	2728	2841	Continuing	Continuing

A. Mission Description and Justification: Project D675 - C4I/IEW Systems: Supports survivability analysis of Army communications and electronic equipment against the full spectrum of 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 and intelligence (C4I) 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 the full spectrum of battlefield threats, including information warfare.

FY 1996 Accomplishments:

- 1904 Conducted integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for U.S. Army command and control systems. This effort supports Maneuver Control System, Common Hardware and Software, Standard Integrated Command Post Shelter, Advanced Field Artillery Tactical Data System, FAAD-C21, and Combat Service Support Control System.
- 1589 Conducted integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for U.S. Army communications systems such as Mobile Subscriber Equipment, Single Channel Ground/Airborne Radio System (SINCGARS), GPS, Single Channel Anti-jam Man Portable radio, Secure Mobile Anti-jam Reliable Tactical Terminal, and Enhance Manpack UHF-Terminal.
- 996 Conducted integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for U.S. Army IEW systems such as the BCIS, enhanced Firefinder radar, and Joint Surveillance Target Attack Radar System/Ground Station Module.
- 194 Provided integrated survivability/lethality analyses to support scheduled C4I/IEW systems program decision milestones in FY 96.

Total 4683

FY 1997 Planned Program:

- 1421 Conduct integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for U.S. Army command and control systems. This effort supports the Advanced Field Artillery Tactical Data System, Common Hardware and Software, Maneuver Control System, FAAD-C21, Standard Integrated Command Post Shelter, all Source Analysis System, and Combat Service Support Control System.
- 1335 Conduct integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for U.S. Army communications systems such as SINCGARS, GPS, Mobile Subscriber Equipment, Single Channel Anti-jam Man Portable radio, Secure Mobile Anti-jam Reliable Tactical Terminal, next Tactical Data Radio, and Enhance Manpack UHF Terminal.
- 1433 Conduct integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for U.S. Army IEW systems such as the BCIS, Joint Surveillance Target Attack Radar System/Ground Station Module, improved FLIR, and enhanced Firefinder radar.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605604A Survivability/Lethality Analysis
	PROJECT D675

FY 1997 Planned Program: (continued)

•	200	Provide integrated survivability/lethality analyses to support OPTEC for scheduled C4I/IEW systems program decision milestones in FY 97.
•	412	Support Consolidated Army Evaluation Function.
	120	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	4921	

FY 1998 Planned Program:

•	1915	Conduct integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for U.S. Army command and control systems. This effort supports the Advanced Field Artillery Tactical Data System, Common Hardware and Software, Maneuver Control System, FAAD-C21, Standard Integrated Command Post Shelter, All Source Analysis System, and Combat Service Support Control System.
•	1539	Conduct integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for U.S. Army communications systems such as SINCGARS, GPS, Mobile Subscriber Equipment, Single Channel Anti-jam Man Portable radio, Secure Mobile Anti-jam Reliable Tactical Terminal, and the next Tactical Data Radio.
•	847	Conduct integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for U.S. Army IEW systems such as the BCIS, Joint Surveillance Target Attack Radar System/Ground Station and enhanced Firefinder radar.
•	200	Provide integrated survivability/lethality analyses to support scheduled C4I/IEW systems program decision milestones in FY 98.
Total	4501	

FY 1999 Planned Program:

•	1705	Conduct integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for U.S. Army command and control systems. This effort supports the Advanced Field Artillery Tactical Data System, Common Hardware and Software, Maneuver Control System, FAAD-C21, Standard Integrated Command Post Shelter, all Source Analysis System and Combat Service Support Control System.
•	1405	Conduct integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for U.S. Army communications systems such as Mobile Subscriber Equipment, Single Channel Anti-jam Man Portable radio, Secure Mobile Anti-jam Reliable Tactical Terminal, and the next Tactical Data Radio.
•	776	Conduct integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for U.S. Army IEW systems such as the BCIS, Joint Surveillance Target Attack Radar System/Ground Station Module, and enhanced Firefinder radar.
•	147	Provide integrated survivability/lethality analyses to support scheduled C4I/IEW systems program decision milestones in FY 99.
Total	4033	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605604A Survivability/Lethality Analysis PROJECT D675

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	4999	5027	4947	4827
Appropriated Value	5140	4921		
Adjustments to Appropriated Value	-457			
FY 1998 Pres Bud Request	4683	4921	4501	4033

Change Summary Explanation: Funding - FY 99 Funds decreased (-794); reprogrammed to higher priority requirements.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D677

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D677 Ground Combat Systems	5680	5225	5190	5403	2920	3376	3510	3656	Continuing	Continuing

A. Mission Description and Justification: Project D677 - Ground Combat Systems: Project investigates the survivability and vulnerability of Army ground combat systems to the full spectrum of battlefield threats. Analysis will support weapon requirements, test and evaluation master plans, cost/operational effectiveness analysis, and major decision milestones.

FY 1996 Accomplishments:

•	1758	Conducted the electronic warfare vulnerability assessment for U.S. Army ground combat systems. This effort supported such systems as Bradley A3, Command and Control Vehicle (C2V), Crusader (AFAS/FARV), ABRAMS M1A2, Breacher, and Heavy Assault Bridge.
•	2367	Conducted the ballistic survivability/lethality analysis for U.S. Army ground combat systems.
•	1327	Conducted the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army ground combat systems.
•	228	Provided integrated survivability/lethality analyses to support scheduled ground combat systems program decision milestones in FY 96.
Total	5680	

FY 1997 Planned Program:

•	1073	Conduct the electronic warfare vulnerability assessment for U.S. Army ground combat systems such as Crusader , Bradley A3, Command and Control Vehicle, ABRAMS M1A2, Breacher, Heavy Assault Bridge and the Family of Medium Tactical Vehicles (FMTV).
•	1747	Conduct the ballistic survivability/lethality analysis for U.S. Army ground combat systems.
•	1202	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army ground combat systems.
•	300	SLAD2000 pilot program. Demonstrate integrated analysis of the Defense Aided Suite Program.
•	227	Provide integrated survivability/lethality analyses to support scheduled ground combat systems program decision milestones in FY 97.
•	549	Support Consolidated Army Evaluation Function.
	127	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs
Total	5225	

FY 1998 Planned Program:

•	1360	Conduct integrated electronic warfare vulnerability analysis and assessment of U.S. Army ground combat systems such as Crusader, Bradley A3, Command and Control Vehicle, ABRAMS M1A2, Breacher, and the Family of Medium Tactical Vehicles (FMTV). Provide interim susceptibility reports. Recommend EW survivability enhancements.
•	2232	Conduct the ballistic survivability/lethality analysis for U.S. Army ground combat systems.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D677

FY 1998 Planned Program (continued)

•	1340	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army ground combat systems.
•	258	Provide integrated survivability/lethality analyses to support scheduled ground combat systems program decision milestones in FY 98.
Total	5190	

FY 1999 Planned Program:

•	1410	Conduct the electronic warfare vulnerability assessment for U.S. Army ground combat systems such as Crusader, Bradley A3, Command and Control Vehicle, ABRAMS M1A2, Breacher, and the Family of Medium Tactical Vehicles (FMTV).
•	2318	Conduct the ballistic survivability/lethality analysis for U.S. Army ground combat systems.
•	1405	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army ground combat systems.
•	270	Provide integrated survivability/lethality analyses to support scheduled ground combat systems program decision milestones in FY 99.
Total	5403	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	5846	5337	5732	6349
Appropriated Value	6010	5225		
Adjustments to Appropriated Value	-330			
FY 1998 Pres Bud Request	5680	5225	5190	5403

Change Summary Explanation: Funding - FY 99 Funds decreased (-946); reprogrammed to higher priority requirements.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D678

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D678 Munitions Systems	5672	5609	5613	5615	3115	3569	3706	3855	Continuing	Continuing

A. Mission Description and Justification: Project D678 - Munitions Systems: This project funds the investigation of the lethality/vulnerability of Army fire support smart weapons (smart and conventional) to the full spectrum of battlefield threats. The analysis is integrated across all battlefield threats, i.e., conventional ballistic, electronic warfare, directed energy, nuclear weapons effects, and nuclear and chemical/biological contamination effects. This work is accomplished through theoretical and engineering analyses, signature measurements, modeling, simulations, laboratory experiments, and field investigations.

FY 1996 Accomplishments:

•	3106	Conducted the electronic warfare vulnerability assessment for U.S. Army munitions systems such as the Hellfire Longbow Missile, Brilliant Anti-Armor Sub-Munition (BAT), Wide Area Mine, Smart Target Activated Fire and Forget (STAFF), and Javelin.
•	800	Conducted the ballistic survivability/lethality analysis for U.S. Army munitions systems.
•	1315	Conducted the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army munitions systems.
•	451	Provided integrated survivability/lethality analyses to support scheduled munitions systems program decision milestones in FY 96.
Total	5672	

FY 1997 Planned Program:

•	2253	Conduct integrated electronic warfare vulnerability assessment for advanced developmental U.S. Army conventional and smart munitions systems such as BAT, Hellfire Longbow Missile, Wide Area Mine, and Javelin and any associated pre-planned product improvement programs. Conduct electronic warfare vulnerability assessments of U.S. Army munitions systems early in the development cycle to include BAT P3I, STAFF, Enhanced Fiber Optic Guided Missile (EFOG-M), Follow on to Tube launched Optically tracked Wired guided munition (FOT TOW), and Multiple Launch Smart Tactical Rocket (MSTAR).
•	930	Conduct the ballistic survivability/lethality analysis for U.S. Army munitions systems.
•	920	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army munitions systems.
•	820	Provide integrated survivability/lethality analyses to support scheduled munitions systems program decision milestones in FY 97.
•	549	Support Consolidated Army Evaluation Function.
	137	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs
Total	5609	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605604A Survivability/Lethality Analysis
	PROJECT D678

FY 1998 Planned Program:

•	2742	Conduct the electronic warfare vulnerability assessment for developmental U.S. Army munitions systems and any associated P3I. Conduct electronic warfare countermeasure analysis/support for U.S. Army munitions to include FOT TOW, MSTAR, Precision Guided Mortar Munition (PGMM), and EFOG-M.
•	1251	Conduct the ballistic survivability/lethality analysis for U.S. Army munitions systems.
•	1220	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army munitions systems.
•	400	Provide integrated survivability/lethality analyses to support scheduled munitions systems program decision milestones in FY 98.
Total	5613	

FY 1999 Planned Program:

•	2642	Conduct the electronic warfare vulnerability assessment for U.S. Army munitions systems such as Army Tactical Missile System (ATACMS) with smart payloads such as BAT and BAT P3I, Hellfire-Longbow Missile, STAFF, Wide Area Mine (WAM)/WAM PIP, Javelin, EFOG-M, FOT TOW, Sense and Destroy Armor (SADARM) P3I, and MSTAR.
•	1324	Conduct the ballistic survivability/lethality analysis for U.S. Army munitions systems.
•	1249	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army munitions systems.
•	400	Provide integrated survivability/lethality analyses to support scheduled munitions systems program decision milestones in FY 99.
Total	5615	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	5819	5729	5614	6193
Appropriated Value	5982	5609		
Adjustments to Appropriated Value	-310			
FY 1998 Pres Bud Request	5672	5609	5613	5615

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D679

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D679 Soldier Systems	787	797	825	735	421	449	463	478	Continuing	Continuing

A. Mission Description and Justification: Project D679 - Soldier Systems: This project provides the MANPRINT Soldier Survivability Assessments (SSvA) required for the MANPRINT Soldier Survivability Domain. The survivability of soldier systems is investigated and reported to milestone decision reviews. Broad areas addressed by SSvA are: Fratricide reduction; soldier detectability reduction; attack prevention if detected; damage prevention; medical injury reduction; the reduction of mental and physical fatigue. The SSvA addresses the operation; maintenance and support of the system being evaluated and how these factors might impact the system's pre-established Manpower, Personnel, and Training goals and constraints. A major thrust of this project is to support individual-soldier related programs and materiel to maximize survivability and functionality against the full spectrum of battlefield threats.

FY 1996 Accomplishments:

•	558	Conducted integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for the U.S. Army Land Warrior System Force XXI Land Warrior and Air Warrior, including the Protective Clothing and Individual Equipment, Chem/Bio Mask, Integrated Headgear, Computer and Commo System, and Weapon System.
•	114	Coordinated preparation and direct execution of MANPRINT Soldier Survivability Assessments and Reports.
•	115	Provided integrated survivability/lethality analyses to support scheduled soldier systems program decision milestones in FY 96.
Total	787	

FY 1997 Planned Program:

•	392	Conduct integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for the U.S. Army Land Warrior System including the Computer and Commo System, Weapon System, Protective Clothing and Individual Equipment, Chem/Bio Mask, and Integrated Headgear.
•	100	Coordinate preparation and direct execution of MANPRINT Soldier Survivability Assessments and Reports.
•	47	Sustainment of international soldier activities (NATO); provide chem/bio/physiology expertise for operations other than war and less-than-lethal efforts.
•	102	Provide integrated survivability/lethality analyses to support scheduled soldier systems program decision milestones in FY 97.
•	137	Support Consolidated Army Evaluation Function.
	19	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs
Total	797	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605604A Survivability/Lethality Analysis
	PROJECT D679

FY 1998 Planned Program:

•	494	Conduct integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for the U.S. Army Land Warrior and Air Warrior Systems including the Computer and Commo System, Weapon System, Protective Clothing and Individual Equipment, Chem/Bio Mask, and Integrated Headgear, and Target Acquisition System.
•	184	Coordinate preparation and direct execution of MANPRINT Soldier Survivability Assessments and Reports.
•	47	Sustainment of international soldier activities (NATO); provide chem/bio/physiology expertise for operations other than war and less-than-lethal efforts.
•	100	Provide integrated survivability/lethality analyses to support scheduled soldier systems program decision milestones in FY 98.
Total	825	

FY 1999 Planned Program:

•	422	Conduct integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for the U.S. Army Land Warrior and Air Warrior Systems including the Computer and Commo System, Weapon System, Protective Clothing and Individual Equipment, Chem/Bio Mask, and Integrated Headgear, and Target Acquisition System.
•	166	Coordinate preparation and direct execution of MANPRINT Soldier Survivability Assessments and Reports.
•	47	Sustainment of international soldier activities (NATO); provide chem/bio/physiology expertise for operations other than war and less-than-lethal efforts
•	100	Provide integrated survivability/lethality analyses to support scheduled soldier systems program decision milestones in FY 99.
Total	735	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	808	814	798	775
Appropriated Value	829	797		
Adjustments to Appropriated Value	-42			
FY 1998 Pres Bud Request	787	797	825	735

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D734

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D734 Survivability Evaluation	0	0	1650	1180	673	683	694	705	Continuing	Continuing

A. Mission Description and Justification : Project D734 - Survivability Evaluation: This is not a new start. Funds were realigned from other projects in this PE to reflect consolidation of the Army materiel evaluation function under the US Army Operational Test and Evaluation Command. This project provides for evaluation of soldier and materiel system survivability into an integrated Army evaluation supporting decision makers at milestone reviews. It includes the planning and coordination of developmental tests, experiments, and subsequent evaluation of results to determine system survivability in battlefield threat environments. Evaluators will develop the strategy and incorporate SLAD efforts to ensure that electronic warfare (EW), conventional ballistics, nuclear, chemical, biological, electromagnetic environmental effects (E3), atmospheric/obscuration and meteorological effects on soldier/system survivability are properly addressed. Evaluation results will be incorporated into a single Army evaluation and presented at all acquisition milestones.

FY 1996 Accomplishments: Project funded by SLAD under other projects in this PE.

FY 1997 Planned Program: Project funded by SLAD under other projects in this PE.

FY 1998 Planned Program:

•	130	Conduct evaluation of PATRIOT and Armored Scout Vehicle (ASV).
•	440	Review analysis methodology and data for MLRS A1, BFIST, BREACHER, AND C2V.
•	300	Review BRADLEY simulation, testing, and analysis plans.
•	70	Review and analyze WAM MS III results.
•	70	Establish requirements for WAM PIP.
•	370	Review analysis methodology and data for C4I systems, Suite Of Integrated RF Countermeasures (SIRFCM), and SADARM.
•	270	Perform evaluations of HELLFIRE LONGBOW, BAT P3I, and FOT TOW.
Total	1650	

FY 1999 Planned Program:

•	300	Evaluate survivability/lethality analysis of BRADLEY.
•	300	Evaluate survivability/lethality of MLRS A1, BFIST, BREACHER, and C2V.
•	300	Analyze methodology and data for THAAD.
•	280	Conduct evaluations of WAM PIP, BAT P3I, SIRFCM.
Total	1180	

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D734

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	0	0	0
Appropriated Value	0	0		
Adjustments to Appropriated Value	0	0		
FY 1998 Pres Bud Request	0	0	1650	1180

Change Summary Explanation: Funding - FY 98 Funds (+1650) - funding realigned from other projects within this PE.
FY 99 Funds (+1180) - funding realigned from other projects within this PE.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605605A DOD High Energy Laser System Test Facility (HELSTF)

PROJECT: DE97

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DE97 DoD High Energy Laser Systems Test Facility (HELSTF)	33231	29974	14952	14976	14952	14938	14924	14943	Continuing	Continuing

A. <u>Mission Description and Budget Item Justification</u> - **Project DE97 DoD High Energy Laser Systems Test Facility (HELSTF):** The HELSTF provides a broad based high energy laser (HEL) RDTE capability at White Sands Missile Range, NM in support of Tri-Service HEL research and development and damage, vulnerability, and lethality laser testing. The HELSTF's laser development support capabilities include a certified laser test range, a fully integrated laser support facility, an extensive array of fully instrumented test sites and the Sea Lite Beam Director (SLBD). This multiple use facility supports testing of laser effects for targets ranging from scaled laboratory up through full scale flying target tests. Test facility support operations are required for general research and development; therefore, this PE is appropriate for inclusion in Budget Activity 6.

FY 1996 Accomplishments:

•	23737	Performed required site operations and maintenance activities.
•	4747	Joint US/Israeli Nautilus Program
•	4747	Joint US/Israeli Tactical High Energy Laser (THEL) Program.
Total	33231	

FY 1997 Planned Program:

•	23555	Provide funding to perform required site operations and maintenance activities to maintain laser system testing infrastructure.
•	5730	Solid State Laser.
•	689	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	29974	

FY 1998 Planned Program:

•	9952	Perform Operation and 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.
•	5000	Provide operations and maintenance for organic high energy laser systems and associated optical trains. Provide the means to conduct ballistic missile signature information gathering and data collection on ballistic missile defense systems tests conducted at White Sands Missile Range.
Total	14952	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605605A DOD High Energy Laser System Test Facility (HELSTF)
	PROJECT DE97

FY 1999 Planned Program:

- 9976 Perform Operation and 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.

- 5000 Operations, maintenance and upgrades on organic high energy lasers and associated optical trains. Support ballistic missile defense signature data collection efforts.

Total 14976

NOTE: Effective FY 1997 the Nautilus/THEL program transfers to PE 0603308A.

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	34043	2967	0	0
Appropriated Value	35000	29974		
Adjustments to Appropriated Value	-1769			
FY 1998 Pres Bud Request	33231	29974	14952	14976

Change Summary Explanation: FY1997 - Congressional Increase for minimum HELSTF operations and Solid State Laser.
FY 1998/1999 - Army restored funding to provide for minimum essential operations and maintenance of HELSTF.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605606A Aircraft Certification

PROJECT: D092

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D092 Aircraft Certification	2821	2840	2919	2924	2935	2976	3209	3293	Continuing	Continuing

A. Mission Description and Budget Item Justification Performs all engineering functions essential for certifying the airworthiness of assigned Army aircraft. Performs safety-of-flight investigations/assessments and issues messages to the field. Manages/executes the Army's Aeronautical Design Standards (ADS) Program; ADS is a continuously evolving process incorporating revisions for each change to the standard design of an aircraft system. Manages airworthiness approval of new vendor qualification/testing on fielded aircraft and materiel changes for all assigned Army aircraft systems. Provides airworthiness engineering support to the Army Aviation Program Executive Office and the Army Aviation and Troop Command Program/Project/Product Manager requirements for major development/modification and any future system/subsystems. Manages the test and evaluation process to support the airworthiness qualification of developmental and fielded aircraft systems. This project funds activities required for general research and development on support of aircraft qualification. Since these activities are not allocable to specific R&D missions, this project is appropriately funded in Budget Activity 6.

FY 1996 Accomplishments:

- 760 Managed/executed technical and airworthiness qualification mission for PEO Aviation force modernization aircraft systems.
- 598 Continued to ensure safety-of-flight investigations/assessments to include PEO Aviation force modernization aircraft systems.
- 150 Managed/executed the Army Aeronautical Design Standards Program.
- 865 Provided continuing engineering support for emerging technology upgrades to PEO Aviation force modernization aircraft systems.
- 448 Continued to provide test management capability for PEO Aviation program/project/product managers.

Total 2821

FY 1997 Planned Program:

- 767 Manage/execute technical and airworthiness qualification mission for PEO Aviation force modernization aircraft systems.
- 596 Continue to ensure safety-of-flight investigations/assessments to include PEO Aviation force modernization aircraft systems.
- 143 Manage/execute the Army Aeronautical Design Standards Program.
- 880 Provide continuing engineering support for emerging technology upgrades to PEO Aviation force modernization aircraft systems.
- 385 Continue to provide test management capability for PEO Aviation program/project/product managers.
- 69 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.

Total 2840

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605606A Aircraft Certification
	PROJECT D092

FY 1998 Planned Program:

- 790 Manage/execute technical and airworthiness qualification mission for PEO Aviation force modernization aircraft systems.
- 598 Continue to ensure safety-of-flight investigations/assessments to include PEO Aviation force modernization aircraft systems.
- 150 Manage/execute the Army Aeronautical Design Standards Program.
- 933 Provide continuing engineering support for emerging technology upgrades to PEO Aviation force modernization aircraft systems.
- 448 Continue to provide test management capability for PEO Aviation program/project/product managers.

Total 2919

FY 1999 Planned Program:

- 789 Manage/execute technical and airworthiness qualification mission for PEO Aviation force modernization aircraft systems.
- 597 Continue to ensure safety-of-flight investigations/assessments to include PEO Aviation force modernization aircraft systems.
- 150 Manage/execute the Army Aeronautical Design Standards Program.
- 940 Provide continuing engineering support for emerging technology upgrades to PEO Aviation force modernization aircraft systems.
- 448 Continue to provide test management capability for PEO Aviation program/project/product managers.

Total 2924

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	2894	2905	2901	2898
Appropriated Value	2976	2840		
Adjustments to Appropriated Value	-155			
FY 1998 Pres Bud Request	2821	2840	2919	2924

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605702A Meteorological Support to Research, Development, Testing & Evaluation Activities

PROJECT: D128

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D128 Meteorological Support to TECOM Activities	6458	6348	6434	6658	6639	6801	6947	7096	Continuing	Continuing

A. Mission Description and Budget Item Justification: Project D128 - Meteorological Support to Test and Evaluation Command (TECOM) Activities: Provides standard and specialized weather forecasts and data for test reports to satisfy Army/DoD RDT&E-unique test requirements for modern weaponry, i.e., (1) Unique atmospheric analysis sampling to include atmospheric transmittance, extinction, optical scintillation, infrared temperature, aerosol/smoke cloud dispersion characteristics, ballistic meteorological measurements, snow characterization and crystal structure; (2) Unique consultation forecasting to include prediction of sound propagation for ballistic tests, specialized prediction of light level and target to background predictions for electro-optical testing and ballistic meteorology; (3) Advisory and warning products such as go-no-go advisories for ballistic and atmospheric probe missiles, smoke obscurant tests, hazard predictions for chemical agent munitions disposal, simulated nuclear blasts, and weather warnings for range/test safety. Provides technical support to Army Program Executive Officers (PEOs), Project Managers (PMs) and the Army test ranges. Develops methodologies and acquires instrumentation/systems that allow meteorological teams to support current and future Army/DoD RDTE requirements. Includes research and development efforts directed towards support of installations or operations required for general research and development use, therefore, is appropriate to Budget Activity 6.

FY 1996 Accomplishments:

- 4535 Provided weather forecasts, severe weather/advisories, staff meteorological services, and atmospheric measurements in support of all Army/DoD tests and projects at 11 Army test sites/ranges and as safari to off range test sites.
- 1168 Modernized operational equipment to meet customer requirements for meteorological support.
  - Start Phase III (last) upgrade of Surface Automated Meteorological System (SAMS) to increase data transmission rates, and data reduction and analysis.
  - Electro-optical (EO) Instrumentation: Developed Small Portable Transmissometer Systems (SPOT) which measure IR, Near IR and Visible spectrum over 2Km. Path length.
  - Sustainment of mobile systems.
  - Validation of atmospheric profilers.
- 755 Provided program management for meteorological support to RDTE and technical review/assistance to ranges and meteorological teams.
  - Weather forecast support systems/data.
  - Installed 3 National Weather Service "Next Generation Doppler Weather Radar" (NEXRAD) principal user processors at Redstone Arsenal, White Sands Missile Range, and Aberdeen Proving Ground.

Total 6458

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605702A Meteorological Support to Research, Development, Testing & Evaluation Activities
	PROJECT D128

FY 1997 Planned Program:

- 4568 Provide weather forecasts, severe weather warnings/advisories, staff meteorological services, and atmospheric measurements in support of all Army/DoD tests and projects at 10 Army test sites/ranges and as safari to off range test sites. (Ft. Hunter Liggett closed)
- 1180 Modernize operational equipment to meet customer requirements for meteorological support.
  - Complete Phase III upgrade of SAMS to increase data transmission rates and data reduction and analysis.
  - Electro-optical Instrumentation: complete SPOT, initiate buy of Commercial Off the Shelf (COTS) Millimeter Wave instrumentation.
  - Sustainment of mobile systems.
  - GPS upgrades to upper air systems.
  - Install atmospheric profilers
- 600 Provide program management for meteorological support to RDTE and technical review/assistance to ranges and meteorological teams.
  - Weather forecast support systems/data: Evaluate initial meteorological data sets for environmental modules to virtual testing.
  - Major Range and Test Facility Base (MRTFB) "4D" Weather System validation of real time, three dimensional integration of meteorological data from multiple and various sensor types to include EO and phenomena affecting weapons into a system that displays in a scale compatible with test needs for forecasts, go-nogo decisions, and allows for the replay of test conditions for forensic analyses of why a test may have failed.

Total 6348

FY 1998 Planned Program:

- 4404 Provide weather forecast, severe weather/advisories, staff meteorological services, and atmospheric measurements in support of all Army/DoD tests and projects at 10 Army test sites/ranges and as safari to off range test sites.
- 1210 Modernize operational equipment to meet customer requirements for meteorological support.
  - Electro-optical Instrumentation: purchase COTS Millimeter Wave instrumentation.
  - Sustainment of mobile systems and atmospheric profilers.
  - Integrate meteorological instrumentation into MRTFB "4D" Weather System.
- 820 Provide program management for meteorological support to RDTE and technical review/assistance to ranges and meteorological teams.
  - Weather forecast support systems/data: Improve/provide data sets for environmental modules to virtual testing.
  - MRTFB "4D" Weather System Installation at Dugway Proving Ground (DPG).

Total 6434

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605702A Meteorological Support to Research, Development, Testing & Evaluation Activities
	PROJECT D128

FY 1999 Planned Program:

- 4580 Provide weather forecasts, severe weather warnings/advisories, staff meteorological services, and atmospheric measurements in support of all Army DoD tests and projects at 10 Army sites/ranges and as safari to off range test sites.
- 1230 Modernize operational equipment to meet customer requirements for meteorological support.
  - Electro-optical Instrumentation: purchase Millimeter Wave instrumentation and upgrade SPOT IR instrumentation.
  - Sustainment of mobile systems and atmospheric profilers.
  - Integrate meteorological instrumentation into MRTFB "4D" Weather System.
- 848 Provide program management for meteorological support to RDTE and technical review/assistance to ranges and meteorological teams.
  - Weather forecast support systems/data: Provide data sets for environmental modules to virtual testing.
  - MRTFB "4D" Weather System Installation at WSMR.

Total 6658

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 97 President's Budget	6480	6484	6420	6640
Appropriated Value	6660	6348		
Adjustments to Appropriated Value	-202			
FY 1998 Pres Bud Request	6458	6348	6434	6658

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605706A Materiel Systems Analysis

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	17241	14126	29707	28675	26095	26829	27501	28129	Continuing	Continuing
D026 Test Design and Evaluation	5191	4169	0	0	0	0	0	0	0	9360
M541 Materiel Systems Analysis	12050	9957	8993	8664	7632	7978	8257	8543	Continuing	Continuing
M542 Major Systems Test, Design and Evaluation	0	0	20714	20011	18463	18851	19244	19586	Continuing	Continuing

NOTE: This PE has been restructured to reflect consolidation of the Army's materiel evaluation mission under the US Army Operational Test and Evaluation Command (OPTEC). Project D026 funding is realigned to project M542 in FY 1998 to reflect transfer of the Test Design and Evaluation function from the US Army Materiel Systems Analysis Activity (AMSAA) to OPTEC. Project M542 also increases due to the realignment of the Operational Evaluation Command funding from the OMA appropriation. These realignments complete the consolidation of Army Evaluation under OPTEC.

Mission Description and Budget Item Justification: The U.S. Army Materiel Systems Analysis Activity (AMSAA), as the Army's center for materiel systems analysis, provides the technical capability for the conduct of materiel systems analysis in support of Army decision makers throughout the materiel acquisition process. Additionally, AMSAA performs the independent evaluation of major Army systems as an integral part of the technical test design and evaluation mission. In both of these roles, AMSAA responds to analyses and evaluations required by the Army Acquisition Executive (AAE), Program Executive Officers/Program Managers (PEO/PM), and other decision makers of the Army and the Department of Defense (DoD). These projects fund efforts in support of operations required for general research and development and, since they are not allocable to specific research and development missions, are appropriately funded in Budget Activity 6.

In accomplishing its Materiel Systems Analysis Mission, AMSAA analyzes the performance and combat effectiveness of conceptual, developmental, and existing systems. AMSAA conducts and supports systems analyses, such as: cost and operational effectiveness analyses, system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, requirements analyses, technology insertion, advanced technology demonstration analyses, advanced concept technology demonstration analyses, and technology base analyses. AMSAA provides Army-wide support in the development of methodologies, models, simulations, and databases for use in its and other Army agencies' analyses. AMSAA supports the Army modeling and simulation (M&S) community by providing item level performance methodology/data, standardized algorithms, and comprehensive verification, validation, and accreditation capabilities that help ensure the credibility of Army M&S. AMSAA is the Army's designated source of item level performance data and, as such, develops, maintains, and provides a diverse range of data for its and other Army and DoD agencies' analyses. AMSAA also develops reliability, availability, and maintainability (RAM) methodologies for use in its and other Army agencies' analyses.

The Army's independent technical evaluation role has been transferred from AMSAA to the Evaluation Analysis Center (EAC) in the Operational Test and Evaluation Command as part of the Army consolidation of materiel evaluation. In the role of the independent technical evaluator, EAC provides the technical input to the Single Evaluation Report (SER) for Army acquisition programs. EAC provides technical evaluations for major milestone decisions, materiel changes, and materiel releases in support of the Army Acquisition Executive. EAC designs technical, developmental, and production tests to address factors pertinent to the decision process, such as:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605706A Materiel Systems Analysis

technical maturity, technical risk, technical system performance, producibility, supportability, etc. EAC conducts technical assessments for milestone acquisition evaluations of system tests (e.g. performance, reliability, availability, and maintainability assessments). EAC has a lead role in the planning and execution of the Army Live Fire Tests through its test design and evaluation responsibilities. Operational Evaluation Command (OEC), transferred from the OMA appropriation effective FY 1998, plans and conducts independent operational evaluations to determine and report the effectiveness and suitability of Army systems in support of the OPTEC test and evaluation role in Army acquisition and force development. Responsible for T&E and Continuous Evaluation of assigned Major Defense Acquisition Programs (MDAP), Major Automated Information Systems Review Council (MAISRC) programs, and In-Process Reviews (IPR).

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605706A Materiel Systems Analysis

PROJECT: D026

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D026 Test Design and Evaluation	5191	4169	0	0	0	0	0	0	0	9360

A. **Mission Description and Justification:** Project D026 funded the U.S. Army Materiel Systems Analysis Activity (AMSAA) mission of test design and evaluation in FY1996. In FY1997, this project funds the U.S. Army Operational Test and Evaluation Command (OPTEC), Evaluation Analysis Center (EAC) mission of technical test design and evaluation. Provides for the Army's technical evaluator of developmental systems and tests for all major Army acquisition programs. Provides technical evaluations for major milestone decisions, materiel changes, and materiel releases in support of the Army Acquisition Executive (AAE). Designs technical, developmental, and production tests to address factors pertinent to the decision process, such as: technical maturity, technical risk, technical system performance, producibility, supportability, etc. Conducts performance and technical assessments for milestone acquisition evaluations of system tests (e.g. risk assessments and reliability, availability and maintainability assessments). Has lead role in the planning and execution of the Army live fire tests through its test design and evaluation responsibilities. This project funds the salaries of civilian employees assigned to the test design and evaluation mission. This project does not finance test facilities, test instrumentation or test equipment.

FY 1996 Accomplishments:

- 3393 Provided test design and evaluation support for systems that are either in development, undergoing major materiel change programs or have been fielded. System evaluations supported program milestone decision reviews during FY 1996. Examples of evaluations support of AAE decisions/DA IPRs include: Bradley Upgrades, Sense and Destroy Armor, Command and Control Vehicle, All Source Analysis System, Advanced Field Artillery Tactical Data System, and the Abrams Battlefield Combat Identification System.
- 1798 Developed test design and evaluation plans for developmental tests to be conducted in FY 1997 through FY 2001. This effort included test design and evaluation planning for systems projected to undergo live fire testing in FY 1997-1998. Early planning and analysis assures the early identification of requirements for long lead procurement of experimental/prototype equipment or test instrumentation and the integration of developmental and operational evaluations to support accelerated acquisition and technology transition programs.

Total 5191

FY 1997 Planned Program:

- 2790 Provide test design and evaluation for systems that are either in development phase or undergoing major materiel change/technology insertion. System evaluations will support program milestone decision reviews during FY 97. Examples of evaluations in support of AAE decisions/DA IPRs include: Javelin, Army Tactical Missile System - Blocks IA and II, Extended Range Multiple Launch Rocket System, Enhanced Position Location and Reporting System, Armored Gun System, and the Wide Area Mine System.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605706A Materiel Systems Analysis
	PROJECT D026

FY 1997 Planned Program: (continued)

•	1379	Develop test design and evaluation plans for developmental tests to be conducted in FY 98 through FY 02. This effort includes test design and evaluation planning for systems projected to undergo live fire testing in FY 98-99. Early planning and analysis assures the early identification of requirements for long lead procurement of experimental/prototype equipment or test instrumentation and the integration of developmental and operational evaluations to support accelerated acquisition. Reduced funding will focus test design and evaluation mission on ACAT I and II development programs.
Total	4169	

FY 1998 Planned Program: The AMSAA Test Design and Evaluation (TD&E) mission has been transferred to the Army Operational Test and Evaluation Command (OPTEC) (project M542).

FY 1999 Planned Program: The AMSAA Test Design and Evaluation (TD&E) mission has been transferred to the Army Operational Test and Evaluation Command (OPTEC) (project M542).

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	5254	4258	4168	4359
Appropriated Value	5399	4169		
Adjustments to Appropriated Value	-208			
FY 1998 President's Budget Request	5191	4169	0	0

Change Summary Explanation: Funding: FY98/99 - The AMSAA Test Design and Evaluation (TD&E) mission has been transferred to the Army Operational Test and Evaluation Command (OPTEC) (project M542).

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605706A Materiel Systems Analysis

PROJECT: M541

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M541 Materiel Systems Analysis	12050	9957	8993	8664	7632	7978	8257	8543	Continuing	Continuing

A. **Mission Description and Justification:** Project M541 funds the Army Materiel Systems Analysis Activity (AMSAA) primary mission of materiel systems analysis. AMSAA analyzes the performance and combat effectiveness of conceptual, developmental, and existing systems to conduct and support systems analyses, such as: cost and operational effectiveness analyses, system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, requirements analyses, technology insertion, advanced technology demonstration analyses, advanced concept technology demonstration analyses, and technology base analyses. AMSAA provides Army-wide support in the development of methodologies, models, simulations, and databases for use in its and other Army agencies' analyses. AMSAA supports the Army modeling and simulation (M&S) community by providing item level performance methodology/data, standardized algorithms, and comprehensive verification, validation, and accreditation capabilities that help ensure the credibility of Army M&S. AMSAA is the Army's designated source of item level performance data and, as such, develops, maintains, and provides a diverse range of data for its and other Army and DoD agencies' analyses. AMSAA also develops reliability, availability, and maintainability (RAM) methodologies for use in its and other Army agencies' analyses. This project funds the salaries of civilian employees assigned to the materiel system analysis mission.

FY 1996 Accomplishments:

- 566 Developed and certified system performance data for U.S. and foreign systems to be used to support Army COEAs, force structure studies and theater level studies.
- 9938 Provided analyses of performance and combat effectiveness of materiel systems and tech base programs in support of HQDA, AMC, PEOs/PMs and R&D Centers. Included were performance analyses, risk assessments, and reliability, availability, and maintainability assessments for HQDA in support of milestone acquisition decisions. Provided performance data and analytic support for Advanced Technology Demonstrations (ATD), Distributed Interactive Simulation (DIS) projects and Advanced Warfighting Experiments (AWE) supporting Force XXI.
- 1546 Developed methodologies to characterize the performance and combat effectiveness of conceptual, developmental, and fielded systems in a variety of scenarios and conditions for support of force-on-force analyses and for virtual and constructive simulations used in ATDs/Advanced Concept Technology Demonstration s (ACTDs)/AWEs supporting Force XXI. Performed a validation and accreditation of algorithms portraying physical representation of systems in DIS to support the TRADOC Battle Labs and Study Centers.

Total 12050

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605706A Materiel Systems Analysis — PROJECT: M541

FY 1997 Planned Program:

- 478 Develop and certify system performance data for U.S. and foreign systems to be used to support Army COEAs, force structure studies and theater level studies.
- 7309 Provide analyses of performance and combat effectiveness of materiel systems and tech base programs in support of HQDA, AMC, PEOs/ PMs and R&D Centers. Included are performance analyses, risk assessments, and reliability, availability, and maintainability assessments for HQDA in support of milestone acquisition decisions. Provide performance data and analytic support for ATD, DIS projects, and AWE supporting Force XXI.
- 1260 Develop methodologies to characterize the performance and combat effectiveness of conceptual, developmental, and fielded systems in a variety of scenarios and conditions for support of force-on-force analyses and for virtual and constructive simulations used in ATD/ACTDs/AWEs supporting Force XXI. Will perform validation and accreditation of algorithms portraying physical representation of systems in Distributed Interactive Simulations to support the TRADOC Battle Labs and Study Centers.
- 910 Provide analyses of performance and combat effectiveness of materiel systems in support of the AAE. Included are performance analyses, reliability, availability, and maintainability assessments for HQDA in support of milestone acquisition decisions.

Total 9957

FY 1998 Planned Program:

- 463 Develop and certify system performance data for U.S. and foreign systems to be used to support Army COEAs, force structure studies and theater level studies.
- 7310 Analyze the performance and combat effectiveness of materiel systems and tech base programs in support of HQDA, AMC, PEOs/ PMs and R&D Centers. Included are conduct of and support to: cost and operational effectiveness analyses, system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, requirements analyses, technology insertion, advanced technology demonstration analyses, advanced concept technology demonstration analyses, and technology base analyses. Provide performance data and analytic support for ATD, DIS projects, and AWEs supporting Force XXI.
- 1220 Develop methodologies to characterize the performance and combat effectiveness of conceptual, developmental, and fielded systems in a variety of scenarios and conditions for support of force-on-force analyses and for virtual and constructive simulations used in ATDs/ACTDs/AWEs supporting Force XXI. Perform verification, validation, and accreditation of algorithms portraying physical representation of systems in DIS to support the TRADOC Battle Labs and Study Centers.

Total 8993

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605706A Materiel Systems Analysis / PROJECT: M541

FY 1999 Planned Program:

- 433 Develop and certify system performance data for U.S. and foreign systems to be used to support Army COEAs, force structure studies and theater level studies.
- 7089 Analyze the performance and combat effectiveness of materiel systems and tech base programs in support of HQDA, AMC, PEOs/ PMs and R&D Centers. Included are conduct of and support to: COEA, system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, requirements analyses, technology insertion, ATD analyses, ACTD analyses, and technology base analyses. Provide performance data and analytic support for ATD, DIS projects, and AWE supporting Force XXI.
- 1142 Develop methodologies to characterize the performance and combat effectiveness of conceptual, developmental, and fielded systems in a variety of scenarios and conditions for support of force-on-force analyses and for virtual and constructive simulations used in ATDs/ACTDs/AWEs supporting Force XXI. Perform verification, validation, and accreditation of algorithms portraying physical representation of systems in DIS to support the TRADOC Battle Labs and Study Centers.

Total 8664

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	12128	10170	10116	10094
Appropriated Value	12465	9957		
Adjustments to Appropriated Value	-415			
FY 1998 President's Budget Request	12050	9957	8993	8664

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605706A Materiel Systems Analysis

PROJECT: M542

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M542 Major Systems Test, Design and Evaluation	0	0	20714	20011	18463	18851	19244	19586	Continuing	Continuing

A. **Mission Description and Justification** This is not a new start. Funds were realigned from project D026 in support of the Army consolidation of the materiel evaluation function under the US Army Operational Test and Evaluation Command. Also reflects the realignment of the Operational Evaluation Command (OEC) previously funded in the OMA appropriation. These realignments complete the consolidation of Army Evaluation. Project M542 funds the OPTEC mission of test design and evaluation. OPTEC is the Army's technical evaluator of developmental systems and tests for all major Army acquisition programs. OPTEC provides technical evaluations for major milestone decisions, materiel changes, and materiel releases in support of the Army Acquisition Executive. OPTEC designs technical, developmental, and production tests to address factors pertinent to the decision process, such as: technical maturity, technical risk, technical system performance, producibility, supportability, etc. OPTEC conducts performance assessments for milestone acquisition evaluations of system tests (e.g. risk assessments and reliability, availability and maintainability assessments). OPTEC has a lead role in the planning and execution of the Army live fire tests through its test design and evaluation responsibilities. OEC plans and conducts independent operational evaluations to determine and report the effectiveness and suitability of Army systems in support of the OPTEC test and evaluation role in Army acquisition and force development. Responsible for testing and evaluation and continuous evaluation of assigned Major Defense Acquisition Programs (MDAP), Major Automated Information Systems Review Council (MAISRC), and In-Process Review (IPR) programs for their specific functional area. This project funds the salaries of civilian employees assigned to the test design and evaluation missions. This project does not finance test facilities, test instrumentation or test equipment.

FY 1996 Accomplishments: Project funded under project D026.

FY 1997 Planned Program: Project funded under project D026.

FY 1998 Planned Program:

•	5248	Provides test designs and evaluations for weapon systems, concepts, technologies that are either in demonstration or development phases or undergoing major materiel change. System evaluations will support program milestone decision reviews during FY 98. Develops test design and evaluation plans for tests to be conducted in FY 99 through FY 03. These efforts include test design and evaluation planning for systems projected to undergo live fire testing in FY 99-00. Early planning and analysis assures early identification of requirements for long lead procurement of experimental/prototype equipment or test instrumentation and integration of developmental and operational evaluations to support accelerated acquisition and technology transition programs.
•	15466	Provides funding for the Operational Evaluation Command staff and continuous evaluation mission.
Total	20714	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605706A Materiel Systems Analysis PROJECT M542

FY 1999 Planned Program:

- 3493 Provides test designs and evaluations for weapon systems, concepts, technologies that are either in demonstration or development phases or undergoing major materiel change. System evaluations will support program milestone decision reviews during FY 98. Develop test design and evaluation plans for tests to be conducted in FY 00 through FY 04. These efforts include test design and evaluation planning for systems projected to undergo live fire testing in FY 00-01. Early planning and analysis assures the early identification of requirements for long lead procurement of experimental/prototype equipment or test instrumentation and the integration of developmental and operational evaluations to support accelerated acquisition and technology transition programs.
- 16518 Provides funding for the Operational Evaluation Command spaces and continuous evaluation mission.

Total 20011

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	0	0	0
Appropriated Value	0			
Adjustments to Appropriated Value	0			
FY 1998 President's Budget Request	0	0	20714	20011

Change Summary Explanation:

Funding: FY 98/99 - Increase reflects the realignment of the Operational Evaluation Command (OEC) from the OMA appropriation, and realignment of the Test Design and Evaluation (TD&E) mission from AMSAA to OPTEC. These realignments complete the consolidation of Army Evaluation under OPTEC.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605709A Exploitation of Foreign Items

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	8413	7193	7762	4349	8287	8211	8645	8658	Continuing	Continuing
D650 Exploitation of Foreign Items	3315	3235	3342	0	0	0	0	0	0	9947
DC28 Acquisition/Exploitation of Threat Items	5098	3958	4420	4349	8287	8211	8645	8658	Continuing	Continuing

Mission Description and Budget Item Justification: This is a continuing project for acquisition and exploitation of foreign materiel to support force and materiel development, scientific and technical intelligence needs, operations and training. Primary program objectives are to reduce research and development times for U.S. systems by analyzing innovations and technology in foreign materiel, and to make research and development more efficient by reducing uncertainties concerning potential advanced technology threats to U.S. systems. The program also serves to develop counter measures and to support operational commanders with items for training the force. This program enables the Army to conserve research and development funds and man-hours, enhance and improve U.S. designs, and provide realistic testing and training. These projects fund foreign materiel acquisitions and exploitations in support of the U.S. Army testing, training and intelligence programs required for general research and development and, since they are not allocable to specific R&D missions, are appropriately funded in Budget Activity 6.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605709A Exploitation of Foreign Items

PROJECT: D650

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D650 Exploitation of Foreign Items	3315	3235	3342	0	0	0	0	0	0	9947

A. Mission Description and Justification: Project D650 - Exploitation/Evaluation of Foreign Items: This project affords the Army's research and development (R&D) community an opportunity to acquire and exploit/evaluate worldwide leading edge technologies. This exploitation/evaluation of foreign technological capabilities is required in order to prevent technological surprise, eliminate or compress the R&D time cycle, contribute to R&D cost avoidance, enhance U.S. system and program designs, and to explore non-developmental items.

FY 1996 Accomplishments:

•	1300	Continued on-going project evaluations and exploitations identified prior to FY 96.
•	1203	New start FY 96 acquisitions of 25 projects.
•	812	New start FY 96 evaluations and exploitations of foreign materiel and/or technologies.
Total	3315	

FY 1997 Planned Program:

•	1300	Continue on-going project evaluations and exploitations identified prior to FY 97.
•	1124	Plan new start FY 97 acquisitions of 23 projects.
•	735	Plan new start FY 97 evaluations and exploitations of foreign materiel and/or technologies.
	76	Small Business Innovation Research/Small Business Transfer Technology (SBIR/STTR) Programs.
Total	3235	

FY 1998 Planned Program:

•	1300	Continue on-going project evaluations and exploitations identified prior to FY 98.
•	1200	Plan new start FY 98 acquisitions of 24 projects.
•	842	Plan new start FY 98 evaluations and exploitations of foreign materiel and/or technologies.
Total	3342	

FY 1999 Planned Program: Project not funded in FY 99.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605709A Exploitation of Foreign Items
	PROJECT: D650

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 97 President's Budget	3398	3304	3328	3289
Appropriated Value	3493	3235		
Adjustments to Appropriated Value	-178			
FY 1998 Pres Bud Request	3315	3235	3342	0

Change Summary Explanation: Funding: FY 1999 realigned to fund higher priority programs (-3289).

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605709A Exploitation of Foreign Items

PROJECT: DC28

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DC28 Acquisition/Exploitation of Threat Items	5098	3958	4420	4349	8287	8211	8645	8658	Continuing	Continuing

A. Mission Description and Justification: Project DC28 - Acquisition/Exploitation of Threat Items: This is a continuing project for acquisition and exploitation of foreign materiel constituting potential advanced technology threats to U.S. systems. The primary aim of this project is to maximize the efficiency of research and development for force and materiel development by reducing the uncertainties concerning these threats. The project also answers general scientific and technical intelligence requirements, aids in the development of countermeasures to threat materiel and threat technology, and provides materiel for realistic testing and training. Acquisitions and exploitations are executed according to an Army Foreign Materiel Review Board and with the approval of the Army Deputy Chief of Staff for Intelligence (DCSINT).

FY 1996 Accomplishments:

•	1000	Acquired threat systems identified and prioritized in the FY 96 Army Foreign Materiel Program (FMP) Five Year Plan.
•	2148	Initiated, continued or completed exploitation projects on ground systems of Army interest identified in the FY 96 Army FMP Exploitation Plan.
•	1950	Initiated, continued or completed exploitation projects on missile systems of Army interest identified in the FY 96 Army FMP Exploitation Plan.
Total	5098	

FY 1997 Planned Program:

•	450	Acquire threat systems identified and prioritized in the FY 97 Army Foreign Materiel Program (FMP) Five Year Plan.
•	2412	Initiate, continue or complete exploitation projects on ground systems of Army interest identified in the FY 97 Army FMP Exploitation Plan.
•	1000	Initiate, continue or complete exploitation projects on missile systems of Army interest identified in the FY 97 Army FMP Exploitation Plan.
	96	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	3958	

FY 1998 Planned Program:

•	900	Acquire threat systems identified and prioritized in the FY 98 Army Foreign Materiel Program (FMP) Five Year Plan.
•	2320	Initiate, continue or complete exploitation projects on ground systems of Army interest identified in the FY 98 Army FMP Exploitation Plan.
•	1200	Initiate, continue or complete exploitation projects on missile systems of Army interest identified in the FY 98 Army FMP Exploitation Plan.
Total	4420	

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605709A Exploitation of Foreign Items

PROJECT: DC28

FY 1999 Planned Program:

•	900	Acquire threat systems identified and prioritized in the FY 99 Army Foreign Materiel Program (FMP) Five Year Plan.
•	2300	Initiate, continue, or complete exploitation projects on ground systems of Army interest identified in the FY 99 Army FMP Exploitation Plan.
•	1149	Initiate, continue, or complete exploitation projects on missile systems of Army interest identified in the FY 99 Army FMP Exploitation Plan.
Total	4349	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 97 President's Budget	5229	4043	4429	4349
Appropriated Value	5376	3958		
Adjustments to Appropriated Value	-278			
FY 1998 Pres Bud Request	5098	3958	4420	4349

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605712A Support of Operational Testing

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	41078	49614	81672	68949	64255	64979	66331	66981	Continuing	Continuing
DV02 Test Directorates	14918	14631	37207	32453	31761	31683	31631	31703	Continuing	Continuing
D001 OPTEC IOTE	9782	20355	22501	20743	15725	16525	16871	17267	Continuing	Continuing
D985 Concepts Evaluation of Materiel	7738	10324	16739	10541	10490	10394	10943	10956	Continuing	Continuing
D987 OPTEC Instrumentation Sustainment & Development	8640	4304	5225	5212	6279	6377	6886	7055	Continuing	Continuing

Mission Description and Budget Item Justification: This program finances the operational testing of developmental materiel systems. Its efforts are directed toward the support of operations required for use in general research and development (R&D). Project DV02 provides for the recurring costs of operating the test activities of the U.S. Army Operational Test and Evaluation Command (OPTEC). Increase starting in FY 1998 reflects restructure directed by OSD of manpower and funds for the Test and Evaluation Coordination Offices (TECO's), Operational Threat Support Activity (OTSA), Test and Evaluation Support Activity and test support funds previously programmed and budgeted in the OMA appropriation. Project D001 provides for direct operational and joint test costs incurred by OPTEC. Excludes funding for Acquisition Category I (ACAT I) major weapons systems which are programmed within the PE funding development for each system. Funding increase beginning in FY 1997 is necessary to execute ACAT II-IV and joint test workload scheduled for FY 1997-1999. Project D985 enables U.S. Army Training and Doctrine Command (TRADOC) battle labs and schools to evaluate emerging technologies and other equipment to help define Army mission needs and operational requirements. Projects selected for funding are relatively low cost conceptual evaluations, with high potential for warfighting return on investment. Program provides direct support to battle lab minor Advanced Warfighter Experiments (AWEs). Program growth in Project D985 reflects increased emphasis on accelerated acquisition methods. Program is also a first look at emerging technologies that have the potential to support the Army's Force XXI design needs. Project D987 provides 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 provides for replacement and improvements of existing obsolete inventory and for the development of new technologies to keep abreast of new weapon advancements. These projects fund operational testing and concept evaluation of materiel in support of the Army and DoD general research and development. Since they are not allocable to specific R&D missions, they are appropriately funded in Budget Activity 6.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605712A Support of Operational Testing

PROJECT: DV02

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DV02 Test Directorates	14918	14631	37207	32453	31761	31683	31631	31703	Continuing	Continuing

A. **Mission Description and Budget Item Justification: Project DV02 - Test Directorates**: This project finances recurring costs, including civilian pay, support contracts, temporary duty, supplies and equipment of subordinate elements of the Test and Experimentation Command (TEXCOM): Airborne and Special Operations Test Directorate, Fort Bragg, NC; Air Defense Test Directorate, Fort Bliss, TX; Fire Support Test Directorate, Fort Sill, OK; and the Intelligence and Electronic Warfare Test Directorate, Fort Huachuca, AZ and test directorates located at Fort Hood, TX (Aviation; Close Combat; Engineer/Combat Support; Command, Control, and Communications-Information Mission Area; Advanced Concepts). The primary mission of these test directorates is to conduct operational testing of developmental materiel and force development test and experimentation (FDTE). Increase starting in FY 1998 reflects transfer of manpower and funds for the Test and Evaluation Coordination Offices (TECO's), Operational Threat Support Activity (OTSA), Test and Evaluation Support Activity and test support from the OMA appropriation.

FY 1996 Accomplishments:

- 3202 Operational Costs for Fort Hood, TX Test Directorates
- 2657 Operational Costs for Fort Sill, OK Test Directorate
- 3045 Operational Costs for Fort Huachuca, AZ Test Directorate
- 3087 Operational Costs for Fort Bragg, NC Test Directorate
- 2927 Operational Costs for Fort Bliss, TX Test Directorate

Total 14918

FY 1997 Planned Program:

- 3674 Operational Costs for Fort Hood, TX Test Directorates
- 2336 Operational Costs for Fort Sill, OK Test Directorate
- 3020 Operational Costs for Fort Huachuca, AZ Test Directorate
- 2519 Operational Costs for Fort Bragg, NC Test Directorate
- 3023 Operational Costs for Fort Bliss, TX Test Directorate
- 59 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.

Total 14631

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605712A Support of Operational Testing
	PROJECT DV02

FY 1998 Planned Program:

•	4442	Operational Costs for Fort Hood, TX Test Directorates
•	2298	Operational Costs for Fort Sill, OK Test Directorate
•	3064	Operational Costs for Fort Huachuca, AZ Test Directorate
•	2604	Operational Costs for Fort Bragg, NC Test Directorate
•	2910	Operational Costs for Fort Bliss, TX Test Directorate
•	5279	Operational Costs for Operational Threat Support Activity, Fort Bliss TX
•	15097	Operational Costs for Test and Evaluation Support Activity, Fort Hood, TX
•	1513	Operational Costs for Test and Evaluation Coordination Offices
Total	37207	

FY 1999 Planned Program:

•	4600	Operational Costs for Fort Hood, TX Test Directorates
•	2379	Operational Costs for Fort Sill, OK Test Directorate
•	3172	Operational Costs for Fort Huachuca, AZ Test Directorate
•	2696	Operational Costs for Fort Bragg, NC Test Directorate
•	3014	Operational Costs for Fort Bliss, TX Test Directorate
•	15043	Operational Costs for Test and Evaluation Support Activity
•	1549	Operational Costs for Test and Evaluation Coordination Offices
Total	32453	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	14851	14944	15318	15861
Appropriated Value	15263	14631		
Adjustments to Appropriated Value	-345	0		
FY 1998 President's Budget Request	14918	14631	37207	32453

Change Summary Explanation:

Funding: Increase starting in FY 1998 reflects the reprogramming of manpower and funds previously programmed and budgeted in the OMA appropriation for Test and Evaluation Coordination Offices (TECO's), Operational Threat Support Activity (OTSA), test support funds, and Test and Evaluation Support Activity.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605712A Support of Operational Testing

PROJECT: D001

COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D001 OPTEC IOTE	9782	20355	22501	20743	15725	16525	16871	17267	Continuing	Continuing

A. **Mission Description and Budget Item Justification: Project D001 - OPTEC IOTE:** This project finances the direct costs of planning and conducting operational testing on major and non-major materiel systems (ACAT II-IV), including Multi-Service systems (all ACATs) and Joint tests. It funds those costs directly attributable to conducting an early user test and evaluation (EUTE), a limited user test (LUT), or an initial operational test and evaluation (IOTE) on major and non-major materiel systems. Test funding for ACAT I systems is programmed with the PE funding development of each system. Funding increase beginning in FY 1997 is necessary to execute ACAT II-IV and joint test workload scheduled for FY 1997-1999. Operational testing is conducted under conditions, as close as possible, to those encountered in actual combat with typical user troops trained to employ the system. OPTEC provides Army leadership with an independent test and evaluation of effectiveness, suitability, and survivability of the system.

FY 1996 Accomplishments:

•	10	SSP-S PI - Strategic Sealift Program
•	179	SEP 95-2 - Soldier Enhancement Program
•	21	JTAGS - Joint Tactical Ground Station
•	26	AMCS - Aircrew Microclimate Conditioning System
•	161	AGES II - Air Ground Engagement System II
•	13	GLPS - Gun Laying and Positioning System
•	399	C2V PHASE I/II - Command and Control Vehicle I/II
•	71	SICPS RWS - Standardized Integrated Command Post System Rigid Wall Shelter
•	226	SEP 96-1 - Soldier Enhancement Program
•	9	SNS SNIPER - Sniper Night Sight
•	909	GBCS LIGHT - Ground Based Common Sensor Light
•	2234	EPLRS - Enhanced Position Location Reporting System
•	607	Grizzly
•	2776	SSP - Strategic Sealift Program
•	62	TTCS - Tactical Terminal Control System
•	47	UMARK - Unit Maintenance Aerial Recovery Kit
•	2032	JSLIST - Joint Service Lightweight Integrated Suit Technology
Total	9782	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605712A Support of Operational Testing
	PROJECT D001

FY 1997 Planned Program:

•	86	SSP - Strategic Sealift Program
•	1472	GBCS LIGHT IOT&E - Ground Based Common Sensor Light
•	150	ITAS - Improved Target Acquisition System
•	49	ASTAMIDS/JT-UAV - Airborne Standoff Minefield Detection System, Unmanned Air Vehicle
•	108	TWS - Thermal Weapon Sight
•	149	AIRTERM/KY-100 - Advanced Narrowband Digital Voice Terminal
•	9	IRV - Improved Recovery Vehicle
•	3	ACPM - Aircrew Protective Mask
•	1131	PKG 11 - FATDS - Field Artillery Tactical Data System
•	2409	ISYSCON - Integrated System Control
•	1	M270A1 - Multiple Launch Rocket System
•	351	BFIST (XM7) LUT #1 - Bradley Fire Support Team (XM7)
•	413	BFIST LUT #2 - Bradley Fire Support Team
•	213	RSCCE - Replacement Satellite Configuration Control Element
•	838	ASV - Armored Security Vehicle
•	10065	CCTT (OT) - Close Combat Tactical Trainer
•	42	IFCS ESIT - Improved Fire Control System Extended System Integration Test
•	587	AKMS - Automated Key Management System
•	802	BIDS P3I - Biological Integrated Detection System
•	197	SOFTACS / STAR-T - Special Operations Forces Tactical Assured Connectivity System/SHF Tri-Band
•	60	CCTT (TT) - Close Combat Tactical Trainer
•	15	SIRFC - Suite of Integrated Radio Frequency Countermeasures
•	132	SEPS - SHORTSTOP Electronic Protection System
•	6	CABS UH-60 - Cockpit Airbag System (UH-60)
•	535	MICAD - Multipurpose Integrated Chemical Agent Alarm
•	2	ATNAVICS - Air Traffic Navigation, Integration and Coordination System
•	4	LW-IOTE - Land Warrior
•	4	NBCRS - Nuclear Biological and Chemical Reconnaissance System
•	2	ER-MLRS - Extended Range-Multiple Launch Rocket System
•	19	SEP 97-1 - Soldier Enhancement Program (Machine Gun, Optic)
•	4	SICPS RWS 3 - Standardized Integrated Command Post System Rigid Wall Shelter
•	497	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	20355	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605712A Support of Operational Testing / PROJECT: D001

FY 1998 Planned Program:

•	173	ISYSCON - Integrated System Control
•	59	AKMS - Automated Key Management System
•	92	GBCS-Light - Ground Based Common Sensor Light
•	197	JCSAR JT&E - Joint Combat Search & Rescue (JT&E)
•	105	JADS JT&E Ph I - Joint Advanced Disputed Simulation Phase I
•	1200	JWF JT&E - Joint Warfighter
•	8	JSEAD JT&E - Joint Suppression of Enemy Air Defense
•	8	JECSIM JT&E - Joint Electronic Combat Test Using Simulation
•	37	ASTAMIDS-UAV - Airborne Standoff Minefield Detection System, Unmanned Air Vehicle
•	34	RSCCE - Replacement Satellite Configuration Control Element
•	500	ASCIET - All Services Combat Identification Evaluation Team
•	2986	ASCIET 97 - All Services Combat Identification Evaluation Team
•	71	MICAD - Multipurpose Integrated Chemical Agent Alarm
•	2850	PKG-11 FATDS - Field Artillery Tactical Data System
•	1981	PKG-11 AFATDS - Advanced Field Artillery Tactical Data System
•	2078	LW-IOTE - Land Warrior
•	821	SOFTACS / STAR-T - Special Operations Forces Tactical Assured Connectivity System/SHF Tri-Band
•	980	AQF - Advanced QuickFix
•	33	MACS - Live Fire - Modular Artillery Charge System
•	2422	JCSAR JT&E RF98-1 - Joint Combat Search & Rescue
•	1064	JADS JT&E Ph II - Joint Advanced Disputed Simulation Phase II
•	1434	JADS JT&E Ph III - Joint Advanced Disputed Simulation Phase III
•	885	JADS JT&E Ph IV - Joint Advanced Disputed Simulation Phase IV
•	264	SAAS-MOD - Standard Army Ammunition System- Modernization
•	2219	FBCB2 - Force Battle Command Brigade and Below
Total	22501	

FY 1999 Planned Program:

•	124	LW-IOTE - Land Warrior
•	60	AQF-IOTE - Advanced QuickFix
•	36	JSCAR - Joint Advanced Disputed Simulation Phase I
•	427	JADS JT&E II - Joint Advanced Disputed Simulation Phase II

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605712A Support of Operational Testing / PROJECT: D001

FY 1999 Planned Program: (continued)

•	818	JADS JT&E III - Joint Advanced Disputed Simulation Phase III
•	1200	JWF - Joint Warfighter
•	8	JSEAD - Joint Suppression of Enemy Air Defense
•	8	JECSIM - Joint Electronic Combat Test Using Simulation
•	315	ER-MLRS - Extended Range-Multiple Launch Rocket System
•	3320	ACSIET 97 - All Services Combat Identification Evaluation Team
•	336	ATPS - Advanced Tactical Parachute System
•	20	CBPS - Chemically and Biologically Protected Shelter
•	98	MACS Live Fire - Modular Artillery Charge System
•	135	SIRFC - Suite Integrated Radio Frequency Countermeasures
•	2794	FBCB2 - Force Battle Command Brigade and Below
•	1793	M270A1 - Multiple Launch Rocket System
•	401	Grizzly
•	993	HAB - Heavy Assault Bridge
•	71	ABE - Advanced Boresight Equipment
•	596	ASTAMIDS - UAV - Airborne Standoff Minefield Detection System, Unmanned Air Vehicle
•	460	BFIST (XM-7 IOTE) - Bradley Fire Support Team (XM7)
•	255	CK - Containerized Kitchen
•	1862	GBCS Heavy - Ground Based Common Sensor Heavy
•	135	BCIS - Battlefield Combat Identification System
•	23	GLPS IOTE - Gun Laying and Positioning System
•	2426	RCAS Block II - Reserve Component Automation System
•	2029	Digitization effort for procurement of FORCE XXI appliqué
Total	20743	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605712A Support of Operational Testing
	PROJECT D001

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	16937	21021	22078	18224
Appropriated Value	17413	20355		
Adjustments to Appropriated Value	-7631	0		
FY 1998 President's Budget Request	9782	20355	22501	20743

Change Summary Explanation:

Funding: FY 1996 decreased (-7631); (-5160) reprogrammed for higher priority requirements and contingency operations and (-2471) reprogrammed into project D987 for critical instrumentation requirements in support of near term operational tests and war fighting exercises.

FY 1999 increase (+2029) realigned to support evaluation of appliqués for Force XXI initiatives.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605712A Support of Operational Testing

PROJECT: D985

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D985 Concepts Evaluation of Materiel	7738	10324	16739	10541	10490	10394	10943	10956	Continuing	Continuing

A. Mission Description and Budget Item Justification: Project D985 - Concepts Experimentation Program: The Concepts Experimentation Program (CEP) is a key innovative tool which provides TRADOC battle labs and schools the ability to capitalize on emerging technology, emerging operational concepts, and new materiel initiatives. Program growth reflects increased emphasis on Force XXI initiatives and accelerated acquisition methods. Funds are used to acquire, lease or fabricate equipment to conduct tests and experiments to determine military utility or potential to satisfy Army Doctrine, Training, Leader Development, Organization, Materiel and Soldiers (DTLOMS) needs. TRADOC battle labs build on initiatives with greatest potential payoff. Program is also used as a first look at emerging technologies and emerging operational concepts that have the potential to support the Army's Force XXI design needs. As the Army moves toward Force XXI, the critical task of designing the force around information requires major investment in information-age capabilities. Constructive, virtual, and live simulations are used to examine warfighting concepts across doctrine, training, leader development, organizational design, materiel, and soldier systems domains. They cover all aspects of command and control, lethality, survivability, and tempo and are essential to technology insertion in future Army systems and force structure.

FY 1996 Accomplishments:

- 86 Military Operations in Built-up Area
- 500 Modeling in Corps Battle Simulations
- 100 Army Company Info System (ARCIS) Interface w/Multi-Tech Automated Reader Card (MARC)
- 107 Generation II Soldier
- 173 Pointman Sensor Enhancement
- 100 Precision Delivery for Remote Warfare
- 195 Synthetic Theater of War
- 125 Dismounted Combat Identification
- 195 Scout Laser Communications
- 124 Soldier Power Requirements
- 93 Aided Target Recognitions
- 150 Electronic Warfare (EW) Systems Effectiveness
- 97 Joint Surveillance Target Attack Radar System (JSTARS)
- 98 Interactive Distributed Early Entry Analysis Simulation/Force Projection Model
- 350 Direct Broadcast Satellite
- 75 Rapidly Installed Breakwater System
- 240 PLS-E Force XXI Tactical Wheeled Vehicle (TWV) Combat Multiplier

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605712A Support of Operational Testing / PROJECT: D985

FY 1996 Accomplishments: (continued)

- 411 Information Operations Situational Awareness
- 150 Composite Structure for Robot Engineer
- 94 Dismounted Situational Awareness
- 100 Analytical Applications for Early Entry
- 42 Tactical Airspace Integration System (TAIS)
- 96 Field of View vs. Magnification
- 255 Force Protection
- 96 Passive Sensor Fusion
- 125 Interest Manager/Reflector for Intelligence, Artillery and Air Defense Artillery Systems
- 69 3rd Generation AN/VSS-2 Driver's Sight for M1A2
- 150 Pointman Mine Detection
- 98 Non-Lethal Technologies
- 210 Laser Radar Targeting Systems (LATARS)
- 91 Fly Ferret
- 65 Global 24 hour Overhead Surveillance
- 186 MOS Consolidation
- 140 Dynamic Intelligence Preparation of the Battlefield (IPB)
- 488 Signature Reduction Coatings
- 55 Precision Delivery by Deployable Wing
- 98 Early Entry Sustainment Sim/Interface
- 325 Voice Recognition Prototype
- 395 Classroom 21 Leadership Development
- 310 Prototype Flat Panel Display
- 98 Advanced Command and Control Enroute System
- 31 Asynchronous Transfer Mode (ATM)
- 86 Central Tire Inflation System
- 15 New Battery Technology
- 12 Low Cost Anti-Armor Submunition 6-Degree of Freedom (LOCAAS 6-DOF)
- 86 Dismounted Countermine
- 55 Guidance Navigation and Control (GNC) for Guided Parafoil Aerial Delivery
- 75 Desktop Simulation
- 30 Canard Control System for Global Positioning System Guidance & Control Module for Artillery Projectile

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605712A Support of Operational Testing
	PROJECT D985

FY 1996 Accomplishments: (continued)

•	22	Information Distribution System (IDS) 2000 Operational Capability
•	28	Enhanced Radar TPQ-37
•	343	Motor Fire Control System
Total	7738	

FY 1997 Planned Program:

•	115	MATTRACKS
•	130	Encapsulating Foam for Cover and Assault Lane Breacher
•	97	Skid Steer
•	41	Light Assault Treadway Bridge
•	70	Assault Breach Marking System
•	5	Removable Ripper Tooth for the Combat Earthmover
•	60	Field Deployable Soil Probe for Mobility Prediction
•	160	Seismic Detection in Military Operations
•	80	Modernized Cold Weather Road Construction Technology
•	99	Ground Penetrating Radar-Soil Freeze or Surface Thaw
•	50	Programmable Digital Radio (PDR) Aircraft Certification
•	150	PDR Demonstration
•	100	Simulations-Protect the Force/EADSIM
•	125	Telepathy Battle Command
•	100	Modular Causeway System (MCS) Sea State 3 Upgrade
•	100	Multi-Variant Analysis Tool
•	25	Rapid Runway Repair
•	100	Force XXI Mobile Strike Force (MSF)
•	392	Battle Damage Assessment (BDA) Variant to BAT
•	199	Deep Integrated Battlefield Architecture for ATACMS IB
•	300	Common Launcher
•	300	Beyond Visual Range Identification (BVRID)
•	275	Automation and Simulation Technology in the Classroom
•	298	Light Digital TOC - Phase I
•	150	Dismounted Soldier Power Initiative
•	186	Dismounted Combat Identification Phase IV

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605712A Support of Operational Testing
	PROJECT D985

FY 1997 Planned Program: (continued)

- 147 Multipurpose Mission Platform
- 173 Counterdrug
- 171 Dismounted Image Transmission
- 237 Non-Lethal Technology
- 165 Soldier Physiological Monitoring
- 150 Lightweight Minefield and Obstacle Breacher
- 235 Military Operations in Urban Terrain (MOUT)
- 127 Countersniper
- 65 Controlled Penetration Ammunition Study
- 115 Network Management and Troubleshooting for Tactical Internet
- 60 Multipurpose Sensor & Security Mission Platform
- 49 Modular Crowd Control Munition
- 45 Situational Awareness Technology in MOUT
- 40 Vehicle Immobilization System
- 38 Driver Viewer Enhancement/Battlefield Viewing System
- 55 MARC-EPW Integration with Force XXI Appliqué
- 126 MODSAF Logistics Concepts Simulation
- 100 Detection Signature Application Technology (DSAT)
- 62 Armored Treatment and Transport Vehicle
- 132 Digital Diagnostics and Prognostics (DDAP)
- 10 Lifetime Oil Filter
- 200 HEMITT Load Handling System (LHS) Employment
- 73 Disease Vectors
- 74 Personal Protection for Force XXI-a Force Multiplier
- 70 Forward Repair System-Heavy (FRS-H)
- 240 PLS-E - Integrated TWV Movement Tracking
- 150 Artificial Intelligence Communications Maintenance System
- 471 Combat Synthetic Test and Training Assessment Range
- 220 Division/Brigade Trainer - Surrogate Common Ground Station
- 288 Interactive Large Screen Display Prototype Testing
- 305 Active Dialogue on the Move: Applications
- 20 Laser Radar Targeting Systems (LATARS)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605712A Support of Operational Testing
	PROJECT D985

FY 1997 Planned Program: (continued)

•	90	Virtual Prototype of Small Package Sort Facility
•	56	Dynamic Collective Management Tool
•		AWEs for division/corps level experiments will start up in FY97 and continue in FY 98 and out.
•	1806	Division XXI AWE Support. Development and evaluation of digital training products. Simulation, experimentation and analytical support.
•	252	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	10324	

FY 1998 Planned Program:

•	9665	Test and Experimentation initiatives continue based on the results of the FY 1997 Concepts Experimentation Program
•	7074	Continue Division XXI AWE Support. Experimentation to examine Division level digital connectivity to validate digital training products. Simulation and analysis to validate doctrine, training, leader development, organization, material, and soldier insights that will fuel Army investments in FY 99-FY 06.
Total	16739	

FY 1999 Planned Program:

•	10541	Test and Experimentation initiatives continue based on the results of the FY 1998 Concepts Experimentation Program
Total	10541	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	7738	10545	16776	10551
Appropriated Value		10324		
Adjustments to appropriated Value				
FY 1998 President's Budget Request	7738	10324	16739	10541

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605712A Support of Operational Testing

PROJECT: D987

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D987 OPTEC Instrumentation Sustainment & Development	8640	4304	5225	5212	6279	6377	6886	7055	Continuing	Continuing

A. Mission Description and Budget Item Justification: Project D987 - OPTEC Instrumentation Sustainment & Development: This project provides for the technical upgrade and maintainability of essential instrumentation to achieve cost effective data collection, telemetry, and processing capability for support of robust and credible operational tests as required by the DoD and Congress. Increased sophistication of new weapon and communication and control systems demand the need to capture test data at greater rates and increased volumes and then to reduce the information rapidly to only those essential to effectively evaluate the test. As digitization of the battlefield continues, this effort allows OPTEC to modernize and develop its non-major instrumentation allowing it 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. The Mobile Automated Instrumentation Suite (MAIS) will soon be fielded in FY 1997 that will serve as a platform for integrating new instrumentation capability in support of Real-Time Casualty Assessment (RTCA) which measures simulated attrition of forces. This project supports multiple efforts associated with MAIS and of separate, independent initiatives that lead to improved command and control, increased mobility, and expanded remote data collection at various tactical sites with transmit capability to central receiving, control, and evaluation stations at various test directorates. These directorates are located at Fort Hood, TX; Fort Bliss, TX; Fort Huachuca, AZ; Fort Sill, TX; and Fort Bragg, NC.

FY 1996 Accomplishments:.

Acquired/modified instrumentation to support ACAT I, ACAT II - IV, and Multi-Service tests and acquired equipment/software to provide interim RTCA capability to support tests requiring RTCA

- 509 Fiberoptics Range Network
- 504 Improved Field Data Collector
- 154 High-Speed Video Systems
- 633 High Performance Aircraft Tracking & Recording System
- 250 Mobile Command Post
- 397 Multimedia Data Transfer System
- 397 Video Telemetry and Recording System
- 190 Automated and Intelligence/Electronic Warfare Test System (AI/EWTS) External Modulation Sources
- 2041 Mobile TEXCOM Experimentation Center (MTEC) Real Time Casualty Assessment (RTCA) Capability
- 610 MAIS/FDC Interface
- 89 MAIS Operational Test
- 250 Fire Support Automated Test Set (FSATS)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605712A Support of Operational Testing
	PROJECT D987

FY 1996 Accomplishments: (continued)

•	57	Infrared Seeker Data Collection Station
•	151	GPS Receiver - Global Positioning System Receiver
•	564	Threat Aircraft (Mi-17 Hip "H") for OTSA
•	125	Airborne Position Location System
•	200	MAIS/MTEC Merger
•	250	FORTS Engineering Study - Force XXI Operations, Rehearsal and Test Support Engineering Study
•	250	FORT - JANUS Suite - FORT - Battalion/Brigade Level Real-Time Integrated Battlefield Computer/Graphic Simulation Suite
•	20	Xybion GPS Receiver
•	15	Field Hardened Pentium Processor
•	615	High Performance Aircraft Tracking Recording System
•	95	VTRS/BIT Sync Cards - Video Telemetry and Recording System/Binary Digit
•	64	VTRS Receiver Tunable C-Band
•	21	Computer, Cyber Research
•	19	IGI POD Racks for Storage - Inertial Gps Integration
•	85	Mobile Command Post
•	85	Video Telemetry and Recording System (VTRS)
Total	8640	

FY 1997 Planned Program:

•	600	VTRS
•	400	Multimedia Data Transfer System
•	125	High-Speed Video Systems
•	700	MAIS/FDC Interface
•	200	Fiberoptic Range Network
•	373	MTEC/MAIS Merger
•	330	AI/EWTS First Generation Upgrade
•	556	Hi-Speed Telemetry System
•	150	Data Collection Vehicles
•	198	OPT V2 - Operational Test Perceptive View and Visualization
•	187	Telemetry System Upgrade
•	380	RTCA Support
•	105	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	4304	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605712A Support of Operational Testing
	PROJECT: D987

FY 1998 Planned Program:

•	276	Video Telemetry and Recording System
•	400	Multimedia Data Transfer System
•	1070	AI/EWTS First Generation Upgrade
•	176	High-Speed Telemetry System
•	300	Radio Frequency Monitoring System
•	765	Telemetry System Upgrade
•	450	Command Audio / Visual Upgrade
•	100	Pairing Through Obscuration
•	350	Laser System Upgrade
•	500	Image System Upgrade
•	100	Command, Control, Communications / FSATS
•	41	Instrumented Personnel Parachutes
•	200	Secure Wide-Band Satellite Common Link
•	172	Airborne Position Location System
•	325	Mobile TEXCOM Experimentation Center (MTEC)/MAIS Merger
Total	5225	

FY 1999 Planned Program:

•	250	Multimedia Data Transfer System
•	578	Airborne Position Location System
•	970	Pairing Through Obscuration - CO2 RTCA
•	100	C3I Interface/FSATS
•	150	Radar Data Recorder Upgrade
•	1150	Secure Wide-Band Satellite Common Link
•	325	Vehicle Performance Measuring System
•	100	Radar Instrumentation Control System (Workshop Upgrade)
•	798	High Speed Telemetry System
•	400	MAIS Stand Alone Work Station
•	180	TV FOW - Test and Evaluation with Fog of War
•	211	Electro-Optics Facility
Total	5212	

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605712A Support of Operational Testing

PROJECT: D987

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	6002	4396	5223	5198
Appropriated Value	6169	4304		
Adjustments to Appropriated Value	2471			
FY 1998 President's Budget Request	8640	4304	5225	5212

Change Summary Explanation: Funding: FY 1996 increase of (+2471) reprogrammed to fund critical instrumentation requirements for support of near term operational tests and war fighting exercises.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605801A Programwide Activities

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	64859	59708	86208	85604	57794	60280	63680	65213	Continuing	Continuing
M881 RDTE Command/Center/General	64859	56980	56964	55896	52593	53827	57095	58477	Continuing	Continuing
MM75 Federal Workforce Restructure	0	2728	29244	29708	5201	6453	6585	6736	Continuing	Continuing

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. Project M881 reflects 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 fulfills international memorandum of understanding requirements (especially the American, British, Canadian and Australia mission). Includes research and development effort directed toward support of installations or operations required for general research and development use and therefore is appropriate to Budget Activity 6.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605801A Programwide Activities

PROJECT: M881

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M881 RDTE Command/Center/General	64859	56980	56964	55896	52593	53827	57095	58477	Continuing	Continuing

A. Mission Description and Justification: Project M881 RDTE Command/Center/General Administrative Support: Supports the non-AMHA management and administrative functions at the following Army RDTE commands, centers and activities: U.S. Army Research Institute for the Behavioral and Social Sciences, Alexandria, VA; U.S. Army Armament Research, Development and Engineering (RDE) Center, Picatinny Arsenal, NJ; U.S. Army Aviation RDE Center, St. Louis, MO; U.S. Army Research Laboratory, Adelphi, MD; U.S. Army Missile RDE Center, Redstone Arsenal, AL; U.S. Army Tank-Automotive RDE Center, Warren, MI; U.S. Army Aviation and Troop Command R&D Integration Office, St. Louis , MO; U. S. Army Chemical Biological Defense Command, Aberdeen Proving Ground, MD; U.S. Army Communications-Electronics Command RDE Center, Ft. Monmouth, NJ; U.S. Army Belvoir RDE Center, Ft. Belvoir, VA; U.S. Army Test and Evaluation Command, Aberdeen Proving Ground, MD; and provides funding for salaries, administrative support other than that provided by Department of State agreements to include rent, utilities, guards, and travel for five international RDTE Standardization Groups located in Australia, Canada, France, Germany, and United Kingdom. This project also provides continued operations of contracting and acquisition management and related administrative functions performed by the Army Medical Research Acquisition Activity (USAMRAA) in support of the Army Medical Research and Materiel Command (USAMRMC) RDT&E programs and its tenant organizations at Ft. Detrick, MD, 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, beginning in FY 1997, funding for the headquarters activities at the USAMRMC, Ft. 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.

FY 1996 Accomplishments:

•	56725	Provided continued operation of management and administrative functions at a level consistent with mission requirements and support needs at Army non-AMHA RDTE commands, centers and activities.
•	4095	Continued operation of five Standardization Groups in support of international R&D and rationalization, standardization and interoperability missions. Funded pay of people, travel and contracts for non-Department of Defense administrative support.
•	292	Funded travel of the Army Science Board.
•	3747	Continued to provide research, development, and acquisition management functions support of USAMRMC RDT&E programs and its tenant organizations, Ft. Detrick, MD, including medical materiel procurement contracts, and procurement of biological defense vaccines. Program resources from Program Element (PE) 0605898A, project MM03 moved into this PE.
Total	64859	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605801A Programwide Activities
	PROJECT M881

FY 1997 Planned Program:

•	45668	Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at Army non-AMHA RDTE commands, centers and activities.
•	3960	Continue operation of five Standardization Groups in support of international R&D and rationalization, standardization and interoperability missions. Funds salaries, travel and contracts for non-Department of State administrative support.
•	7201	Continue to provide acquisition management functions in support of USAMRMC RDT&E programs and its tenant organizations, Ft. Detrick, MD, including medical materiel procurement contracts, and procurement of biological defense vaccines. Funds the operation of the USAMRMC HQ activities which administers the medical research, development, and acquisition program to sustain military technology superiority.
•	151	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	56980	

FY 1998 Planned Program:

•	45654	Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at Army non-AMHA RDTE commands, centers and activities.
•	3883	Continue operation of five Standardization Groups in support of international R&D and rationalization, standardization and interoperability missions. Funds salaries, travel and contracts for non-Department of State administrative support.
•	7427	Continue to provide acquisition management functions in support of USAMRMC RDT&E programs and its tenant organizations, Ft. Detrick, MD, including medical materiel procurement contracts, and procurement of biological defense vaccines. Fund the operation of the USAMRMC HQ activities which administers the medical research, development, and acquisition program to sustain military technology superiority.
Total	56964	

FY 1999 Planned Program:

•	44727	Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at Army non-AMHA RDTE commands, centers and activities.
•	3806	Continue operation of five Standardization Groups in support of international R&D and rationalization, standardization and interoperability missions. Funds pay of people, travel and contracts for non-Department of State administrative support.
•	7363	Continue to provide acquisition management functions in support of USAMRMC RDT&E programs and its tenant organizations, Ft. Detrick, MD, including medical materiel procurement contracts, and procurement of biological defense vaccines. Fund the operation of the USAMRMC HQ activities which administers the medical research, development, and acquisition program to sustain military technology superiority.
Total	55896	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605801A Programwide Activities / PROJECT: M881

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	61913	58305	58988	57853
Appropriated Value	63649	56980		
Adjustments to Appropriated Value	1210			
FY 1998 President's Budget Request	64859	56980	56964	55896

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605801A Programwide Activities

PROJECT: MM75

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
MM75 Federal Workforce Restructure	0	2728	29244	29708	5201	6453	6585	6736	Continuing	Continuing

A. Mission Description and Justification: **Project MM75 Federal Workforce Restructure.** Requirements were defined by the Federal Workforce Restructuring Act of 1994. Funds are to be used to offset the expenses of VERA/VSIP, the $80 per capita tax to be remitted to the Treasury (Civil Service Retirement and Disability Fund) for on-board personnel as of 31 March and the 9% 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. Distribution will be made in the year of execution.

FY 1996 Accomplishments: Project not funded in FY 96.

FY 1997 Planned Program:

- 2661 Funds will be distributed to qualifying program elements.
- 67 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.

Total 2728

FY 1998 Planned Program:

- 29244 Funds will be distributed to qualifying program elements.

Total 29244

FY 1999 Planned Program:

- 29708 Funds will be distributed to qualifying program elements.

Total 29708

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	2787	29355	29766
Appropriated Value		2728		
Adjustments to Appropriated Value				
FY 1998 President's Budget Request	0	2728	29244	29708

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605802A International Cooperative Research and Development

PROJECT: M798

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M798 International Cooperative Research and Development-Army Research Institute	1555	1534	1581	1581	1559	1542	1571	1604	Continuing	Continuing

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. 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 Industrial Advisory Group (NIAG) and the Special Fund for Cooperative Planning; partially funds the Four Power Senior National Representatives Army [SNR(A)], the American, British, Canadian, Australian (ABCA) Standardization Program, the Technical Cooperative Program, bilateral staff talks, and Army armaments working groups with many nations. This project supports general research and development activities and since it is not allocable to specific R&D missions is appropriately funded in Budget Activity 6.

FY 1996 Accomplishments:

•	705	Funded domestic and international travel linked to scientific and technological exchanges having military application and mutual benefits to the United States and its Allies.
•	850	Funded the United States' share of the NIAG and Special Fund for cooperative planning budget.
Total	1555	

FY 1997 Planned Program:

•	697	Fund domestic and international travel linked to scientific and technological exchanges having military application and mutual benefits to the United States and its Allies.
•	800	Fund the United States' share of the NIAG and Special Fund for cooperative planning budget.
•	37	Small Business Innovation/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	1534	

FY 1998 Planned Program:

•	731	Fund domestic and international travel linked to scientific and technological exchanges having military application and mutual benefits to the United States and its Allies.
•	850	Fund the United States' share of the NIAG and Special Fund for cooperative planning budget.
Total	1581	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605802A International Cooperative Research and Development PROJECT M798

FY 1999 Planned Program:

•	731	Fund domestic and international travel linked to scientific and technological exchanges having military application and mutual benefits to the United States and its Allies.
•	850	Fund the United States' share of the NIAG and Special Fund for cooperative planning budget.
Total	1581	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	1561	1566	1559	1551
Appropriated Value	1561	1534		
Adjustments to Appropriated Value	-6			
FY 1998 Pres Bud Request	1555	1534	1581	1581

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	13549	16552	15451	15872	16097	16551	16672	16965	Continuing	Continuing
DC16 Field Assistance in Science and Technology	2343	2739	2887	3015	3135	3265	3332	3404	Continuing	Continuing
DC18 Board on Army Science and Technology	651	675	734	758	755	769	783	797	Continuing	Continuing
M720 Technical Information Functional Activities	2456	2562	3152	3222	3221	3301	3369	3443	Continuing	Continuing
M727 Technical Information Activities	2683	2805	3060	3187	3315	3520	3593	3672	Continuing	Continuing
M729 Youth Science Activities	1985	2261	2372	2431	2470	2525	2572	2633	Continuing	Continuing
D730 Personnel and Training Analysis Activities	3381	3376	1025	1033	1015	1011	1008	1005	Continuing	Continuing
M731 Government/Industry Data Exchange Program/ Advisory Group on Electronic Devices (GIDEP/AGED)	50	0	0	0	0	0	0	0	0	428
M733 Acquisition Technology Act	0	2134	2221	2226	2186	2160	2015	2011	Continuing	Continuing

Mission Description and Budget Item Justification: This program provides for upgrading the accuracy, timeliness, availability, and accessibility of scientific, technical, and management information at all levels of Army Research and Development (R&D). This 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. It accomplishes this through outreach programs that provide direct working experience for high school students in Army laboratories, thereby exposing these students to the working world of science and engineering. Funding under this program provides for the conduct 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 provides for science advisors to Commanders-in-Chief (CINCs) and major Army commands and engineering teams to directly solve field Army technical problems. Coordination of this program with other Services is achieved through interservice working groups. The work in this program element is consistent with rigorous peer review and the Army Science and Technology Master Plan (ASTMP). These programs are accomplished under the management of 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. The projects in this Program Element include management support of Science and Technology efforts and therefore are correctly placed in Budget Activity 6.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

PROJECT: DC16

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DC16 Field Assistance in Science and Technology	2343	2739	2887	3015	3135	3265	3332	3404	Continuing	Continuing

A. **Mission Description and Justification**: This program focuses Army Materiel Command (AMC) resources to rapidly identify and solve field Army technical problems affecting improved readiness, safety, training, and operations and support (O&S) cost reductions. 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 CINCs and commanders and to operate the director's office. FAST tours provide major professional growth for scientists and engineers. Science advisers are recruited from AMC engineering centers to serve Commanders-in-Chief (CINCs) and major Army commanders world-wide and are supported by assigned Quick Reaction Coordinators (QRCs) within each AMC engineering center. All costs associated with science advisor assignments are funded by AMC subordinate commands who 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.

FY 1996 Accomplishments:

•	2343	- Provided continuous activity on over 265 FAST projects. Defined, tested and recommended technological solutions to materiel problems identified by CINCs worldwide and prepared operational needs statements and test results for the highest priority programs. - Provided professional growth opportunity for 20 science advisers on two year and three year tours and 30 FAST-junior scientists and engineers on two to eight week tours. - Provided professional growth opportunity for 55 personnel in the Science and Engineers Field Experience with Soldiers (SEFEWS) program.
Total	2343	

FY 1997 Planned Program:

•	2683	- Provide continuous activity on over 280 FAST projects. Define, test and recommend technological solutions to materiel problems identified by CINCs worldwide and prepare operational needs statements and test results for the highest priority programs. - Provide professional growth opportunity for 20 science advisers on two year and three year tours and 40 FAST-junior scientists and engineers on two to eight week tours. - Provide professional growth opportunity for 70 personnel in the SEFEWS program.
	56	- Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	2739	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605803A Technical Information Activities PROJECT DC16

FY 1998 Planned Program:

•	2887	- Provide continuous activity on over 280 FAST projects. Define, test and recommend technological solutions to materiel problems identified by CINCs worldwide and prepare operational needs statements and test results for the highest priority programs. - Provide professional growth opportunity for 20 science advisers on two year and three year tours and 40 FAST-junior scientists and engineers on two to eight week tours. - Provide professional growth opportunity for 70 personnel in the SEFEWS program.
Total	2887	

FY 1999 Planned Program:

•	3015	- Provide continuous activity on over 280 FAST projects. Define, test and recommend technological solutions to materiel problems identified by CINCs worldwide and prepare operational needs statements and test results for the highest priority programs. - Provide professional growth opportunity for 20 science advisers on two year and three year tours and 40 FAST-junior scientists and engineers on two to eight week tours. - Provide professional growth opportunity for 70 personnel in the SEFEWS program.
Total	3015	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	2703	2798	2871	2990
Appropriated Value	2778	2739		
Adjustments to Appropriated Value	-435			
FY 1998 Pres Bud Request	2343	2739	2887	3015

Change Summary Explanation: Funding: FY 1996- Funding reprogrammed (-435) to higher priority requirements.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

PROJECT: DC18

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DC18 Board on Army Science and Technology	651	675	734	758	755	769	783	797	Continuing	Continuing

A. Mission Description and Justification: The Board on Army Science and Technology (BAST) was created in 1982 by the National Research Council (NRC) through its Commission on Engineering and Technology Systems at the request of the Under Secretary of the Army. The BAST designs, conducts, and supervises the NRC's Army-related studies of scientific and technological issues. As such, the BAST defines problems, brings together leading experts to study them, and most importantly, draws conclusions, identifies alternatives and implications, and makes recommendations as appropriate. The major activities of this group include board meetings, special requests, standing committees, study committees and workshops and seminars.

FY 1996 Accomplishments:

•	651	- Provided technical expert support for forecast of Army science and technology needs and responded to immediate science and technology requirements. - Provided experts to participate in peer reviews for annual Independent Laboratory In-house Research (ILIR) and Research and Development Achievement (RDA) awards review. - Concluded study addressing research status of space-based communications technology for Command, Control, Communications and Intelligence (C3I) to "win the information war".
Total	651	

FY 1997 Planned Program:

•	658	- Provide technical expert support for forecast of Army science and technology needs and respond to immediate science and technology requirements. - Provide experts to participate in peer reviews for annual ILIR and RDA awards review. - Initiate BAST study on "Compact Power".
	17	- Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	675	

FY 1998 Planned Program:

•	734	- Provide technical expert support for forecast of Army science and technology needs and respond to immediate science and technology requirements. - Provide experts to participate in peer reviews for annual ILIR and RDA awards review. - Complete BAST study on "Compact Power".
Total	734	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605803A Technical Information Activities
	PROJECT DC18

FY 1999 Planned Program:

•	758	- Provide technical expert support for forecast of Army science and technology needs and respond to immediate science and technology requirements. - Provide experts to participate in peer reviews for annual ILIR and RDA awards review.
Total	758	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	668	690	707	724
Appropriated Value	687	675		
Adjustments to Appropriated Value	-36			
FY 1998 Pres Bud Request	651	675	734	758

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

PROJECT: M720

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M720 Technical Information Functional Activities	2456	2562	3152	3222	3221	3301	3369	3443	Continuing	Continuing

A. **Mission Description and Justification:** Technology transfer activities to support acquisition, storage, and utilization of technical information for both military and domestic applications. Activities supported are: Army participation in the Defense Technical Information Center (DTIC) Work Unit Information Summary (WUIS) database; Army support for the Federated Laboratory Consortium (FLC); the Army Science Board; administration of the Army's Small Business Innovative Research (SBIR) and Small Business Technology Transfer Pilot Program (STTR) in accordance with the "Small Business Research and Development Enhancement Act of 1992". These costs are funded here because the Act prohibits use of PE 0605502 for funding administrative costs, studies and analyses to support the Acquisition Corps acquisition and retention of scientists and engineers and improvement of productivity of laboratories and centers. 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 fees and patent legal expenses for all U. S. Army Materiel Command (AMC) subordinate commands and laboratories. The requirement to fund this effort 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.

FY 1996 Accomplishments:

- 1052 - Continued managerial, programming, database, clerical and personnel support to process, store, control and report the WUIS, 1498's.
  - Provided the Army funding for the annual data collection and printing of the DoD Tri-Service In-House RDT&E Facilities Report.
  - Provided Army funding support for FLC as required by Public Law 99-502.
  - Provided administrative and contractual support for the Army Science Board.
- 1404 - Provided Army Science and Technology Summer Study and awards.
  - Provided administrative support for SBIR/STTR programs.
  - Provided funding for patent fees and patent legal expenses for AMC commands and laboratories.

Total 2456

FY 1997 Planned Program:

- 995 - Continue managerial, programming, database, clerical and personnel support to process, store, control and report the WUIS, 1498's.
  - Provide the Army funding for the annual data collection and printing of the DoD Tri-Service In-House RDT&E Facilities Report.
  - Provide Army funding support for FLC as required by Public Law 99-502.
  - Provide administrative and contractual support for the ASB.
- 1504 - Provide administrative support for SBIR/STTR programs.
  - Provide Army Science and Technology Reports.
  - Provide funding for patent fees and patent legal expenses for AMC commands and laboratories.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605803A Technical Information Activities
	PROJECT M720

FY 1997 Planned Program: (continued)

		- Provide funding for Army Science and Technology Summer Study and awards.
		- Provide funding for support of Government/Industry Data Exchange Program (GIDEP).
	63	- Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	2562	

FY 1998 Planned Program:

•	1052	- Continue managerial, programming, database, clerical and personnel support to process, store, control and report the WUIS, 1498's.
		- Provide the Army funding for the annual data collection and printing of the DoD Tri-Service In-House RDT&E Facilities Report.
		- Provide Army funding support for FLC as required by Public Law 99-502.
		- Provide administrative and contractual support for the ASB.
•	2100	- Provide administrative support for SBIR/STTR programs.
		- Provide Army Science and Technology Reports.
		- Provide funding for patent fees and patent legal expenses for AMC commands and laboratories.
		- Provide funding for Army Science and Technology Summer Study and awards.
		- Provide funding for support of GIDEP.
Total	3152	

FY 1999 Planned Program:

•	1088	- Continue managerial, programming, database, clerical and personnel support to process, store, control and report the WUIS, 1498's.
		- Provide the Army funding for the annual data collection and printing of the DoD Tri-Service In-House RDT&E Facilities Report.
		- Provide Army funding support for FLC as required by Public Law 99-502.
		- Provide administrative and contractual support for the ASB.
•	2134	- Provide administrative support for SBIR/STTR programs.
		- Provide Army Science and Technology Reports.
		- Provide funding for patent fees and patent legal expenses for AMC commands and laboratories.
		- Provide funding for Army Science and Technology Summer Study and awards.
		- Provide funding for support of GIDEP.
Total	3222	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605803A Technical Information Activities
	PROJECT: M720

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	2277	2626	2727	2779
Appropriated Value	2341	2562		
Adjustments to Appropriated Value	+115			
FY 1998 Pres Bud Request	2456	2562	3152	3222

Change Summary Explanation: Funding: FY 98 and FY 99 - Funding increase of (+425) and (+443) respectively required to improve the provision of Technical Information Functional Activities.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

PROJECT: M727

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M727 Technical Information Activities	2683	2805	3060	3187	3315	3520	3593	3672	Continuing	Continuing

A. Mission Description and 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, Secretary of Defense (OSD), Department of the Army (DA), Corps of Engineers and Army Materiel Command (AMC) levels. This project includes support of the Acquisition Management Integration Subgroup (AMIS) dealing with acquisition management systems.

FY 1996 Accomplishments:

•	2683	- Continued the Science and Technology (S&T) database computer engineering support contract. - Continued support to Army S&T strategic planning, analysis, and prioritization . - Continued support to AMC database and Defense Reliance management. - Provided guidance and policy relative to the content, utilization, and requirements of current and future acquisition management systems for AMIS.
Total	2683	

FY 1997 Planned Program:

•	2740	- Continue the S&T database computer engineering support contract. - Continue support to Army S&T strategic planning, analysis, and prioritization. - Continue support to AMC database and Defense Reliance management. - Provide guidance and policy relative to the content, utilization, and requirements of current and future acquisition management systems for AMIS.
	65	- Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	2805	

FY 1998 Planned Program:

•	3060	- Continue the S&T database computer engineering support contract. - Continue support to Army S&T strategic planning, analysis, and prioritization. - Continue support to AMC database and Defense Reliance management. - Provide guidance and policy relative to the content, utilization, and requirements of current and future acquisition management systems for AMIS.
Total	3060	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605803A Technical Information Activities / PROJECT: M727

FY 1999 Planned Program:

•	3187	- Continue the S&T database computer engineering support contract. - Continue support to Army S&T strategic planning, analysis, and prioritization. - Continue support to AMC database and Defense Reliance management. - Provide guidance and policy relative to the content, utilization, and requirements of current and future acquisition management systems for AMIS.
Total	3187	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	2615	2870	3046	3166
Appropriated Value	2731	2805		
Adjustments to Appropriated Value	-48			
FY 1998 Pres Bud Request	2683	2805	3060	3187

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

PROJECT: M729

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M729 Youth Science Activities	1985	2261	2372	2431	2470	2525	2572	2633	Continuing	Continuing

A. Mission Description and Justification: Supports science activities to encourage over 100,000 high school youths to develop interest and achieve higher levels in science, engineering, and mathematics. These activities are consolidated within this program to "present the Army" to a potential pool of technical talent to fill future Army needs. No other program fulfills this long-range Army goal. The joint Army/Navy Washington regional area Science and Engineering Apprenticeship Program (SEAP) has been included in the overall effort. This provides an eight week hands-on learning experience for high school students working with bench level scientists within Army laboratories in hopes of encouraging more of them to enter scientific fields of study in the future. This program enhances the National Laboratory Science and Engineering pool which in turn supports Defense industry and laboratory needs.

FY 1996 Accomplishments:

• 1985	- Continued to foster high school student interest in science, mathematics, engineering and computer science, nationally, by sponsoring: the Junior Science Humanities Symposium (JSHS), International Mathematics Olympiad (IMO), and Research and Engineering Apprenticeship Program (REAP). - Continued the Joint Army/Navy Washington Regional Area SEAP and increase Army Laboratory/Research Development and Engineering (RDE) Center sponsorship of students. - Continued special tutorial programs for Native Americans, African Americans, and Spanish-speaking Americans designed to increase their chances of attending and completing engineering and/or science curriculum at the university level.
Total 1985	

FY 1997 Planned Program:

• 2206	- Continue to foster high school student interest in science, mathematics, engineering and computer science, nationally, by sponsoring: JSHS, IMO, and REAP. - Continue the Joint Army/Navy Washington Regional Area SEAP and increase Army Laboratory/RDE Center sponsorship of students. - Continue special tutorial programs for Native Americans, African Americans, and Spanish-speaking Americans designed to increase their chances of attending and completing engineering and/or science curriculum at the university level. - Continue the West Point cadet research internship program to enhance cadet training through field experience within Army research laboratories and centers.
55	- Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total 2261	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605803A Technical Information Activities
	PROJECT M729

FY 1998 Planned Program:

•	2372	- Continue to foster high school student interest in science, mathematics, engineering and computer science, nationally, by sponsoring: JSHS, IMO, and REAP. - Continue the Joint Army/Navy Washington Regional Area SEAP and increase Army Laboratory/RDE Center sponsorship of students. - Continue special tutorial programs for Native Americans, African Americans, and Spanish-speaking Americans designed to increase their chances of attending and completing engineering and/or science curriculum at the university level. - Continue the West Point cadet research internship program to enhance cadet training through field experience within Army research laboratories and centers.
Total	2372	

FY 1999 Planned Program:

•	2431	- Continue to foster high school student interest in science, mathematics, engineering and computer science, nationally, by sponsoring: JSHS, IMO, and REAP. - Continue the Joint Army/Navy Washington Regional Area SEAP and increase Army Laboratory/RDE Center sponsorship of students. - Continue special tutorial programs for Native Americans, African Americans, and Spanish-speaking Americans designed to increase their chances of attending and completing engineering and/or science curriculum at the university level. - Continue the West Point cadet research internship program to enhance cadet training through field experience within Army research laboratories and centers.
Total	2431	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	1924	2309	2368	2425
Appropriated Value	1977	2261		
Adjustments to Appropriated Value	8			
FY 1998 Pres Bud Request	1985	2261	2372	2431

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

PROJECT: D730

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D730 Personnel and Training Analysis Activities	3381	3376	1025	1033	1015	1011	1008	1005	Continuing	Continuing

A. Mission Description and Justification: This project provides for the application of behavioral science-based analytical technologies by the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) to current and near-term 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 readiness, the personnel costs of alternative force structures and the effects of a smaller Army on retention and readiness of quality soldiers. Requirements for studies and analyses for critical personnel and training issues of immediate importance are solicited on an annual basis.

FY 1996 Accomplishments:

•	3381	- Determined effects of alternative compensation and personnel policies upon enlistment, attrition, retention, and separation decisions and costs in an era of downsizing. - Determined skills and task training requirements for effective back-up operations to digitization when systems are degraded, disrupted or compromised. - Determined training, career and professional concerns of active duty Special Forces NCOs. - Determined impact of reductions in training resources on the quality of TRADOC graduates' performance.
Total	3381	

FY 1997 Planned Program:

•	3293	- Develop alternative design specifications to improve forecasting accuracy of Army strength management models. - Identify capabilities and actions that can be automated to reduce personnel costs associated with exercise control and feedback functions in a live training environment. - Analyze impact on training and readiness resources with the consolidation of specified maintenance and combat engineering jobs. - Analyze training requirements to enhance skill proficiency for backup operations on the digitized battlefield.
	83	- Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	3376	

FY 1998 Planned Program:

•	1025	- Analyze training issues associated with specific training devices and systems identified by TRADOC.
Total	1025	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605803A Technical Information Activities / PROJECT: D730

FY 1999 Planned Program:

•	1033	- Continue analyses of training issues associated with training devices and systems.
Total	1033	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	2955	3448	3535	3622
Appropriated Value	3038	3376		
Adjustments to Appropriated Value	+343			
FY 1998 Pres Bud Request	3381	3376	1025	1033

Change Summary Explanation: Funding: FY 1996- Funding increase (+343) reprogrammed for increased study efforts in training requirements for the digitized battlefield.
FY 1998- Funding reprogrammed (-2510) to higher priority requirements.
FY 1999- Funding reprogrammed (-2589) to higher priority requirements.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

PROJECT: M731

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M731 Government/Industry Data Exchange Program/ Advisory Group on Electronic Devices (GIDEP/AGED)	50	0	0	0	0	0	0	0	0	428

A. Mission Description and Justification: The GIDEP is a joint government/industry effort for the exchange of data to enhance development, design, engineering logistics and cost of defense weapon systems equipment. Funds support GIDEP reliability, maintainability and failure experiences interchange databases. Documents technical design information not commercially available. The Engineering Design Handbook/Information Program (EDHP) was established in 1954 to provide an effective vehicle for documenting commercially unavailable military vital design information. The EDHP benefits the Army by preserving vital design information, providing a focal point for Army and/or Tri-Service coordination of critical design issues, eliminating redundant acquisition actions, providing customized contracting services, and assuring Army standardization.

FY 1996 Accomplishments:

•	50	Completed the information exchange of data between industry and government in the Complete Engineering Design Handbooks: Fuse Shock and Vibration Design Handbook, Vol. I; Rotorcraft and Light Aircraft Qualification; Documentation of Electronic Systems; Design for Projection; Rotorcraft and Light Aircraft Qualification
Total	50	

FY 1997 Planned Program: Project not funded in FY 97.

FY 1998 Planned Program: Project not funded in FY 98.

FY 1999 Planned Program: Project not funded in FY 99.

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	278	0	0	0
Appropriated Value	285			
Adjustments to Appropriated Value	-235			
FY 1998 Pres Bud Request	50	0	0	0

Change Summary Explanation: Funding: FY 1996- Funding (-235) reprogrammed to higher priority requirements

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

PROJECT: M733

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M733 Acquisition Technology Act	0	2134	2221	2226	2186	2160	2015	2011	Continuing	Continuing

A. Mission Description and Justification: This project provides for the engineering of Army acquisition process improvement through the application of decision support and expert information systems. This project provides funds to conduct analysis and evaluation of alternative acquisition strategies using techniques such as V value-added analysis. Supports integrated management activities such as Horizontal Technology Integration and Army Ballistic Missile Defense. This project also provides an environment for the analysis and evaluation of new information technologies, concepts and applications in support of the Army acquisition community's dynamic requirements and for the engineering of Army acquisition process improvement through the application of decision support and expert information systems.

FY 1996 Accomplishments: Program not funded in FY 1996.

FY 1997 Planned Program:

•	2082	- Develop a simulation and logical modeling test and evaluation environment that provides a prototype development tool in support of technology base initiatives. - Design application program and user interface utilities for executive level information systems that offer Standard Query Language (SQL) services to Army Acquisition Corps (AAC) corporate and global databases. - Continue analysis of acquisition program financial programming and budgeting requirements. Initiate development of Weapon Systems Handbook, Analytic/Technical Support for Army 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, Synthetic Aperture Radar (SAR) Technology Application Concept Research/Analysis.
	52	- Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	2134	

FY 1998 Planned Program:

•	2221	- Continue development of simulation and logical modeling test and evaluation environment that provides a prototype development tool in support of technology base initiatives, and beta test selected modules. - Validate application programs and user interface utilities for executive level information systems that offer SQL services to AAC corporate and global databases.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605803A Technical Information Activities
	PROJECT M733

FY 1998 Planned Program: (continued)

- Continue analysis of acquisition program financial programming and budgeting requirements. Continue development of Weapon Systems Handbook, Analytic/Technical Support for Army 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, SAR Technology Application Concept Research/Analysis.

Total 2221

FY 1999 Planned Program:

• 2226
- Validate simulation and logical modeling test and evaluation environment that provides a prototype development tool in support of technology base initiatives.
- Distribute and beta test application programs and user interface utilities for executive level information systems that offer Standard Query Language (SQL) services to AAC corporate and global databases.
- Continue analysis of acquisition program financial programming and budgeting requirements. Continue development of Weapon Systems Handbook, Analytic/Technical Support for Army 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, SAR Technology Application Concept Research/Analysis.

Total 2226

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	2180	2170	2161
Appropriated Value	0	2134		
Adjustments to Appropriated Value				
FY 1998 Pres Bud Request	0	2134	2221	2226

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

DATE: February 1997

BUDGET ACTIVITY: **6 - Management Support**

PE NUMBER AND TITLE: **0605805A Munitions Standardization Effectiveness and Safety**

COST *(In Thousands)*	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	16692	3211	6317	5895	6331	6275	5609	5731	Continuing	Continuing
DF21 North Atlantic Treaty Organization (NATO) Small Arms Evaluation	273	274	311	0	0	0	0	0	0	858
DF24 Conventional Ammunition Demilitarization	15571	1694	4616	4607	4728	4691	4785	4892	Continuing	Continuing
D293 Field Artillery Ammunition (NATO) Engineering Development	260	0	83	86	0	0	0	0	0	1672
M296 Pyrotechnic Reliability and Safety	0	667	708	614	782	774	0	0	0	3545
M857 Explosive Safety Standards	588	576	599	588	821	810	824	839	Continuing	Continuing

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; joint munitions 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; 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. Pyrotechnic Reliability and Safety (Project M296) is a new start for FY 1997. The projects in this Program Element support studies and analyses of numerous Army and Joint-Services programs and are correctly placed in Budget Activity 6.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605805A Munitions Standardization Effectiveness and Safety

PROJECT: DF21

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DF21 North Atlantic Treaty Organization (NATO) Small Arms Evaluation	273	274	311	0	0	0	0	0	0	858

A. **Mission Description and Justification:** This program assures complete interchangeability of small caliber and automated cannon-caliber ammunition and weapons among all NATO countries with all of the associated logistic, strategic and tactical advantages. Project involves development, maintenance and testing compliance of NATO STANAGS and staffing of the NARTC.

FY 1996 Accomplishments:

•	55	Continued to staff, equip and maintain the NARTC for 9mm, 5.56mm, and 7.62mm only
•	70	Continued to maintain standardization of previously qualified calibers, including 25mm
•	39	Incorporated use of new environmentally safe test method as an alternate to current hazardous procedures
•	71	Initiated implementation of the 6215 pressure transducer for use in all NATO standardization testing, including the 25mm
•	10	Completed qualification of 5.56mm, M856 Trace ammunition
•	28	Completed STANAG for 12.7mm ammunition
Total	273	

FY 1997 Planned Program:

•	60	Continue to staff, equip and maintain the NARTC for 9mm, 5.56mm and 7.62mm only
•	70	Continue to maintain standardization of previously qualified calibers, including 25mm
•	39	Complete implementation of the 6215 pressure transducer for all NATO standardization testing, including 25mm
•	42	Other activities, including Partners in Peace initiatives
•	32	Initiate facilitization of NARTC for 12.7mm testing
•	27	Complete 12.7mm Manual of Proof and Inspection (MOPI)
•	4	Small Business Innovation Research (SBIR) Program
Total	274	

FY 1998 Planned Program:

•	60	Continue to staff, equip and maintain the NARTC for 9mm, 5.56mm and 7.62mm only
•	70	Continue to maintain standardization of previously qualified calibers, including 25mm

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605805A Munitions Standardization Effectiveness and Safety PROJECT DF21

FY 1998 Planned Program: (continued)

- 26 Initiate standardization of 35mm and/or 45mm cased telescoped ammunition
- 32 Partners in Peace and other initiatives

58 Complete facilitization of NARTC for 12.7mm testing

65 Initiate facilitization of NARTC for 40mm testing

Total 311

FY 1999 Planned Program: Project not funded in FY 99

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	278	280	278	275
Appropriated Value	286	274		
Adjustments to Appropriated Value	-13	0		
FY 1998 Pres Bud Request	273	274	311	0

Change Summary Explanation: Funding realigned in FY 1999 to support higher priority requirements.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605805A Munitions Standardization Effectiveness and Safety

PROJECT: DF24

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DF24 Conventional Ammunition Demilitarization	15571	1694	4616	4607	4728	4691	4785	4892	Continuing	Continuing

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

FY 1996 Accomplishments:

- 3614 Initiated supercritical water oxidation (SCWO) of carcinogenic/toxic-colored smokes and dyes
- 8715 Developed plasma arc furnace system for demilitarization of pyrotechnic ordnance
- 1292 Initiated development of explosives rework process for cast-loaded munitions
- 727 Cryofracture demilitarization for explosives-loaded small munitions
- 524 Developed a real-time metal emissions monitoring system
- 108 Developed a high pressure CO^2 blastout system for removal of press-loaded explosives
- 366 Converted CS (tear gas) to saleable products via hydrolysis
- 125 Developed advanced prototype energetic materials removal technology
- 100 Completed type classification of the XM221 Demolition shaped clipped charge (AMC to ARDEC)

Total 15571

FY 1997 Planned Program:

- 656 Continue supercritical water oxidation of carcinogenic/toxic-colored smokes and dyes
- 1000 Continue cryofracture demilitarization for explosives-loaded small munitions
- 38 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs

Total 1694

FY 1998 Planned Program:

- 790 Complete testing and evaluation of prototype SCWO system for demilitarization of colored smokes and dyes
- 451 Continue development of explosives rework process for cast loaded munitions
- 2500 Complete cryofracture development for demilitarization

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605805A Munitions Standardization Effectiveness and Safety PROJECT DF24

FY 1998 Planned Program: (continued)

•	187	Continue development of advanced energetic materials removal technology
•	583	Initiate development of recycle/reuse technology for magnesium/aluminum
•	105	Explore destruction of residual energetic material via gas phase (hot hydrogen) reduction
Total	4616	

FY 1999 Planned Program:

•	470	Continue development of recycle/reuse technology for magnesium/aluminum
•	1225	Continue development of residual energetic material destruction via gas phase (hot hydrogen) reduction
•	950	Initiate development of recycle/reuse technology for smoke pot oils
•	586	Initiate development of single base propellant reclamation technology demonstration
•	650	Initiate development of military applications for recycle/reuse of recovered energetics
•	600	Explore advanced cutting technology
•	126	Explore electrochemical oxidation technology for energetics
Total	4607	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	16459	731	4609	4589
Appropriated Value	16922	1694		
Adjustments to Appropriated Value	-1351	0		
FY 1998 Pres Bud Request	15571	1694	4616	4607

Change Summary Explanation: Funding-FY 1997 (+963) Congressional increase for continuation of testing of cryofracture for demilitarization of selected difficult-to-destroy conventional munitions

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605805A Munitions Standardization Effectiveness and Safety

PROJECT: D293

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D293 Field Artillery Ammunition (NATO) Engineering Development	260	0	83	86	0	0	0	0	0	1672

A. **Mission Description and Justification:** This project supports US/NATO howitzer and ammunition rationalization, standardization, interoperability, and compatibility.

FY 1996 Accomplishments:

- 184 Engineering support
- 76 Interoperability testing; translation and interpretation

Total 260

FY 1997 Planned Program: Project not funded in FY 97

FY 1998 Planned Program:.

- 50 Engineering support of 155mm joint interoperability requirements
- 33 Interoperability testing of Modular Charge System (MCS); translation

Total 83

FY 1999 Planned Program:

- 50 Engineering support of 155mm joint interoperability requirements
- 36 Interoperability testing of NATO projectiles and MCS; translation

Total 86

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	267	0	0	0
Appropriated Value	274	0		
Adjustments to Appropriated Value	-14	0		
FY 1998 Pres Bud Request	260	0	83	86

Change Summary Explanation: Funding increase in FY 98 (+83)/FY 99 (+86) to support continuation of US/NATO howitzer and ammunition rationalization, standardization, interoperability and compatibility.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605805A Munitions Standardization Effectiveness and Safety

PROJECT: M296

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M296 Pyrotechnic Reliability and Safety	0	667	708	614	782	774	0	0	0	3545

A. Mission Description and Justification: New start in FY 1997. This project will support pyrotechnic research, development and testing to identify, characterize and resolve reliability, safety, storage and manufacturing issues that impact production availability and field use of pyrotechnics, including training realism. Project will result in the development and demonstration of new, safe, reliable and environmentally acceptable munitions.

FY 1996 Accomplishments: Project not funded in FY 1996

FY 1997 Planned Program:

•	185	Initiate development of safer pyrotechnic munitions/systems (e.g., simulators, flares, igniters)
•	96	Initiate development of alternative materials and designs for munitions/systems utilizing magnesium
•	185	Initiate development of materials and process changes to preclude magnesium moisture reaction and hydrogen generation
•	185	Initiate technology determination for shelf life of pyrotechnics
•	16	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs
Total	667	

FY 1998 Planned Program:

•	108	Initiate development and investigate merit of substitute materials for carcinogenic and critical materials
•	400	Continue development of safer pyrotechnic munitions/systems.
•	200	Continue development of materials and process changes to preclude magnesium moisture reaction and hydrogen generation
Total	708	

FY 1999 Planned Program:

•	240	Continue development of safer pyrotechnic munitions/systems
•	174	Continue technology determination for shelf life of pyrotechnics
•	200	Continue development and investigate merit of substitute materials for carcinogenic and critical materials
Total	614	

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605805A Munitions Standardization Effectiveness and Safety

PROJECT: M296

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	682	679	579
Appropriated Value	0	667		
Adjustments to Appropriated Value	0	0		
FY 1998 Pres Bud Request	0	667	708	614

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605805A Munitions Standardization Effectiveness and Safety

PROJECT: M857

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M857 Explosive Safety Standards	588	576	599	588	821	810	824	839	Continuing	Continuing

A. Mission Description and Justification: Supports explosive effects research and testing to quantify hazards and to develop techniques to mitigate these hazards in all DOD manufacturing, testing, transportation, maintenance, storage and disposal of ammunition and explosives operations. Results are essential to the development and improvement of quantity-distance standards, hazard classification procedure, cost effective explosion-resistant facility design procedures, and personnel hazard/protection criteria.

FY 1996 Accomplishments:

•	170	Collected and analyzed data for revising tri-service and NATO hazard interpretations for Hazard Divisions 1.2 and 1.6 ammunition outside and inside structures
•	120	Developed improved tri-service design procedures and improved computer codes for explosion-resistant structures
•	50	Developed improved explosives and munitions tests and collect characterization data
•	208	Developed improved DOD guidelines for munitions storage facilities
•	40	Conducted other hazards analyses and expanded/automated explosives safety databases
Total	588	

FY 1997 Planned Program:

•	177	Collect and analyze data for revising DOD and NATO hazard interpretation for Hazard Divisions 1.1, 1.3, 1.4, and 1.6 ammunition outside and inside structures
•	149	Continue development of improved tri-service design procedures and improved computer codes for explosion-resistant structures
•	78	Continue development of improved explosives and munitions tests and characterization data
•	118	Continue development of improved DOD guidelines for munitions storage facilities
•	40	Continue to conduct other hazards analyses and expand/automate explosives safety data bases
•	14	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs
Total	576	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605805A Munitions Standardization Effectiveness and Safety PROJECT M857

FY 1998 Planned Program:

•	200	Continue to collect and analyze data for revising DOD and NATO hazard interpretation for Hazard Divisions 1.1, 1.3, 1.4, and 1.6 ammunition outside and inside structures
•	99	Continue development of improved tri-service design procedures and improved computer codes for explosion-resistant structures
•	50	Continue development of improved explosives and munitions tests and characterization data
•	150	Develop improved DOD and NATO explosives safety guidelines for munitions storage, explosives operating and field operation facilities
•	100	Continue to conduct other hazards analyses and expand/automate explosives safety data bases
Total	599	

FY 1999 Planned Program:

•	190	Collect and analyze airblast/fragment/thermal data for revising DOD, NATO and United Nations hazard classification interpretations for Hazard Divisions 1.1, 1.2, 1.3, 1.4, 1.4S, 1.5 and 1.6
•	106	Continue development of improved tri-service design procedures and improved computer codes for explosion-resistant structures
•	50	Continue development of improved explosives and munitions tests and characterization data
•	150	Continue to develop improved DOD and NATO explosives safety guidelines for munitions storage, explosives operating and field operation facilities
•	92	Continue to conduct other hazards analyses and expand/automate explosives safety data bases
Total	588	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	604	589	570	552
Appropriated Value	621	576		
Adjustments to Appropriated Values	-33	0		
FY 1998 Pres Bud Request	588	576	599	588

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605853A Environmental Conservation

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	2493	1723	1778	2977	3598	3267	3297	3362	Continuing	Continuing
M0CC Environmental Conservation - AMC Test Ranges	2203	1467	1498	2636	3147	2969	3042	3109	Continuing	Continuing
M1CC Environmental Conservation - AMC Major Subordinate Commands/Laboratories	10	113	148	203	188	182	140	139	Continuing	Continuing
M5CC Environmental Conservation - USASSDC	280	143	132	138	263	116	115	114	Continuing	Continuing

Mission Description and Budget Item Justification: This program ensures that resources are available to fund actions specifically required to protect or enhance natural and cultural resources, preserve access to improved and unimproved training areas, and make necessary repairs to minimize erosion and otherwise rehabilitate lands and waters at Army RDTE installations, laboratories and test ranges. No Operation and Maintenance, Army (OMA) appropriation funds are budgeted for environmental conservation efforts at RDTE facilities. It focuses on compliance with natural and cultural resource laws and on responsible management of natural and cultural resources to ensure resources are used wisely and are protected. It finances studies and surveys to identify, inventory, and manage natural (endangered or threatened species, other wildlife, timber, agricultural lands, training areas, etc.) and cultural resources and evaluation of the resources so identified and inventoried; Integrated Training Area Management; preparation of natural and cultural resource management plans; design, construction, maintenance or repair costs specifically required to restore, improve or maintain natural or cultural resources; supplies and equipment required to carry out applicable natural and cultural resources management activities. It includes appropriated RDTE funds attributable to fish, wildlife, agricultural outleasing and timber management activities. It does not include normal maintenance required for appearance, including landscaping, or normal building maintenance associated with present day, non-cultural uses of historic buildings. Army defines environmental effort as: Class O - Project needed to cover essential administrative, personnel, and other costs required to manage environmental activities and monitor environmental conditions associated with compliance. Class I - support compliance with legally binding agreements or judgments under applicable Federal, State, local or host nation natural or cultural resource environmental laws; correct deficiencies cited in an inspection or notice of violation by a natural or cultural resource regulatory agency, or host nation equivalent; correct deficiencies where a statutory or regulatory deadline has passed; Class II - projects required to comply with an established natural or cultural resource standard, and deadline for compliance is in the future. Includes effort directed toward support of installations or operations required for general research and development use and therefore is appropriate to Budget Activity 6.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605853A Environmental Conservation

PROJECT: M0CC

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M0CC Environmental Conservation - AMC Test Ranges	2203	1467	1498	2636	3147	2969	3042	3109	Continuing	Continuing

A. **Mission Description and Justification:** Project MOCC resources in this project ensure an adequate level of funding for environmental natural and cultural resource management requirements, at Yuma Proving Ground (YPG), AZ; Aberdeen Proving Ground (APG), MD; Dugway Proving Ground (DPG), UT; and White Sands Missile Range (WSMR), NM. The operations are critical to the infrastructure and execution of the Army testing mission. Improper management of natural and cultural resources at these installations could shut down the test mission.

FY 1996 Accomplishments:

•	2203	Funded Class I and Class II environmental natural and cultural resource management programs such as, management/protection of endangered species, preparation of historic preservation plans, and preservation of historic sites and wetlands management/studies and shoreline erosion.
Total	2203	

FY 1997 Planned Program:

•	1431	Fund Class O, Class I and Class II environmental natural and cultural resource management programs such as management/protection of endangered species, and preservation of cultural resources, national historic preservation, wet lands management/studies and shoreline erosion.
•	36	Small Business Innovation Research Small Business Technology Transfer (SBIR/STTR) Programs.
Total	1467	

FY 1998 Planned Program:

•	1498	Fund Class O, Class I and Class II environmental natural and cultural resource management programs such as management/protection of endangered species, and preservation of cultural resources according to the national historic preservation plans. Also funds ecosystem management, wildlife surveys and habitat delineation.
Total	1498	

FY 1999 Planned Program:

•	2636	Fund Class O, Class I and Class II environmental natural and cultural resource management programs such as management/protection of endangered species, and preservation of cultural resources according to the historic preservation plans. Also fund ecosystem management, wildlife surveys and habitat delineation.
Total	2636	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605853A Environmental Conservation
	PROJECT M0CC

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	2261	1498	658	1700
Appropriated Value	2324	1467		
Adjustments to Appropriated Value	-121			
FY 1998 President's Budget Request	2203	1467	1498	2636

Change Summary Explanation:

Funding: FY 1998 increase of (+840) required for "must fund" environmental compliance.
FY 1999 increase of (+936) required for "must fund" environmental compliance.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605853A Environmental Conservation

PROJECT: M1CC

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M1CC Environmental Conservation - AMC Major Subordinate Commands/Laboratories	10	113	148	203	188	182	140	139	Continuing	Continuing

A. **Mission Description and Justification:** Project M1CC resources in this project ensure an adequate level of funding for environmental natural and cultural resource management requirements, as discussed in the program element's mission description and budget item justification on page one of this exhibit, at Army Research Laboratory (ARL), Adelphi, MD; Armament Research, Development and Engineering Center (ARDEC), Picatinny Arsenal, Dover, NJ; Soldier Systems Command (SSCOM), formerly, Natick Research, Development and Engineering Center (NRDEC), Natick, MA.

FY 1996 Accomplishments:

•	10	Funded Class I and Class II environmental natural and cultural resource management programs such as survey of critical habitats and species to assess potential existence of threatened/endangered species on installations.
Total	10	

FY 1997 Planned Program:

•	110	Fund Class I and Class II environmental natural and cultural resource management programs such as required surveys of historical buildings and preservation of the building.
•	3	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	113	

FY 1998 Planned Program:

•	148	Fund Class I and Class II environmental natural and cultural resource management programs such as required surveys of historical buildings and preservation of the building.
Total	148	

FY 1999 Planned Program:

•	203	Fund Class I and Class II environmental natural and cultural resource management programs such as required surveys of historical buildings and preservation of the building.
Total	203	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 6 - Management and Support	PE NUMBER AND TITLE: 0605853A Environmental Conservation / PROJECT: M1CC

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	10	115	117	120
Appropriated Value	10	113		
Adjustments to Appropriated Value	0			
FY 1998 President's Budget Request	10	113	148	203

Change Summary Explanation:

Funding: FY 1998 increase of (+31) required for "must fund" environmental compliance.
FY 1999 increase of (+83) required for "must fund" environmental compliance.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605853A Environmental Conservation

PROJECT: M5CC

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M5CC Environmental Conservation - USASSDC	280	143	132	138	263	116	115	114	Continuing	Continuing

A. Mission Description and Justification: Project M5CC Environmental Conservation - U.S. Army Space and Strategic Defense Command (USASSDC): Resources in this project ensure an adequate level of funding for environmental natural and cultural resource management requirements, at USASSDC.

FY 1996 Accomplishments:

•	280	Developed an Historic Preservation Plan for management of historic properties to comply with National Historic Preservation Act.
Total	280	

FY 1997 Planned Program:

•	140	Continue development of Historic Preservation Plan for management of historic properties to comply with National Historic Preservation Act.
•	3	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	143	

FY 1998 Planned Program:

•	132	Continue development of Historic Preservation Plan for management of historic properties to comply with National Historic Preservation Act.
Total	132	

FY 1999 Planned Program:

•	138	Continue development of Historic Preservation Plan for management of historic properties to comply with National Historic Preservation Act
Total	138	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	193	146	0	0
Appropriated Value	199	143		
Adjustments to Appropriated Value	81			
FY 1998 President's Budget Request	280	143	132	138

Change Summary Explanation:

Funding: FY 1996 increase (+81) reprogrammed for environmental compliance.
FY 1998 increase of (+132) required for "must fund" environmental compliance.
FY 1999 increase of (+138) required for "must fund" environmental compliance.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605854A Pollution Prevention

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	11004	13602	5353	4681	9899	2275	2308	2347	Continuing	Continuing
M0PP Pollution Prevention - AMC Test Ranges	1537	534	0	1248	921	827	841	855	Continuing	Continuing
M1PP Pollution Prevention - AMC Major Subordinate Commands/Laboratories	254	140	156	159	140	135	134	135	Continuing	Continuing
M5PP Pollution Prevention - USASSDC	3228	1916	2290	1231	1273	447	452	459	Continuing	Continuing
M7PP Pollution Prevention - Ozone Depleting Chemicals (ODC) Elimination	1926	782	0	0	6688	0	0	0	Continuing	Continuing
M8PP Pollution Prevention - Acquisition Pollution Prevention	4059	10230	2907	2043	877	866	881	898	Continuing	Continuing

Mission Description and Budget Item Justification: This program funds the non-research portion of the Army's RDTE funded environmental pollution prevention program. It finances primarily test and evaluation pollution prevention efforts addressing environmental compliance and mission readiness issues effecting Army weapon systems; supporting industrial facilities; and RDTE funded installations, laboratories and test ranges. Pollution prevention is any action designed to reduce or eliminate (rather than control or treat), through source reduction actions, the procurement and use of hazardous materials and the generation of hazardous waste; more efficient use of natural resources; recycling; and /or reduced emissions of toxins and other waste to the environment. Acquisition pollution prevention addresses the adverse impact of hazardous materials and hazardous waste on the operational readiness of Army weapon systems and facilities. Issues include prove-out/engineering of alternatives to (1) ozone-depleting chemicals and (2) hazardous and toxic chemicals and materials used in weapon system fire protection, cooling and refrigeration applications, manufacturing and maintenance processes and specialized test practices throughout the weapon system life cycle. These activities account for approximately 90 percent of the hazardous waste generated by the U.S. Army. This program includes the review and revision of standardized technical documentation containing design, procurement and maintenance requirements, and procedures supporting materiel procurement such as the Joint Group for Acquisition Pollution Prevention. No Operations and Maintenance, Army (OMA) funds are programmed for these purposes. Projects under this program meet Army definitions: Class 0 - Projects needed to cover essential administrative, personnel, and other costs required to manage environmental activities and monitor environmental condition associated with compliance; Class I - support compliance with legally binding agreements or judgments under applicable federal, state, local or host nation environmental laws; Class II - projects required to comply with established standard, and deadline for compliance in the future. Class I and II projects comply with the Montreal Protocol, the Clean Air Act, the Pollution Prevention Act, the Emergency Planning and Right-to-Know Act, and Executive Order 12856 (and others). The program support installations and operations required for general research and development use and therefore is appropriate to Budget Activity 6.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605854A Pollution Prevention

PROJECT: M0PP

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M0PP Pollution Prevention - AMC Test Ranges	1537	534	0	1248	921	827	841	855	Continuing	Continuing

A. Mission Description and Justification: Project M0PP - Pollution Prevention - AMC Test Ranges: Resources in this project ensure an adequate level of funding for pollution prevention requirements, at Yuma Proving Ground (YPG), AZ; Aberdeen Proving Ground (APG), MD; Dugway Proving Ground (DPG), UT; and White Sands Missile Range (WSMR), NM. These operations are critical to the infrastructure and execution of the Army testing mission.

FY 1996 Accomplishments:

- 1537 Funded Class I and Class II pollution prevention projects such as conducting and reporting of Toxic Release Inventories, solid and hazardous waste reduction programs, implementation of storm water pollution prevention plans, purchase of spill response supplies and equipment, etc.

Total 1537

FY 1997 Planned Program:

- 521 Fund Class O, Class I and Class II pollution prevention projects such as reporting of Toxic Release Inventories, solid and hazardous waste reduction programs, implementation of storm water pollution prevention plans, purchase of spill response supplies and equipment, etc.
- 13 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.

Total 534

FY 1998 Planned Program: Project not funded in FY 1998.

FY 1999 Planned Program:

- 1248 Fund Class O, Class I and Class II pollution prevention projects such as reporting of Toxic Release Inventories, solid and hazardous waste reduction programs, implementation of storm water pollution prevention plans, purchase of spill response supplies and equipment, etc. Also fund Emergency Planning and Community Right-to-Know Act (EPCRA) compliance preventive projects.

Total 1248

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	3398	546	0	1217
Appropriated Value	3493	534		
Adjustments to Appropriated Value	-1956			
FY 1998 President's Budget Request	1537	534	0	1248

Change Summary Explanation: Funding: FY 1996 decrease of (-1956) was reprogrammed into Environmental Compliance PE 0605856A for "must fund" requirements.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605854A Pollution Prevention

PROJECT: M1PP

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M1PP Pollution Prevention - AMC Major Subordinate Commands/Laboratories	254	140	156	159	140	135	134	135	Continuing	Continuing

A. Mission Description and Justification: Project M1PP - Pollution Prevention - AMC Major Subordinate Commands/Laboratories: Resources in this project ensure an adequate level of funding for pollution prevention requirements, at Army Research Laboratory (ARL), Adelphi, MD; Armament Research, Development and Engineering Center (ARDEC), Picatinny Arsenal, Dover, NJ; Soldier Systems Command (SSCOM), formerly, Natick Research, Development and Engineering Center (NRDEC), Natick, MA; and Army Research Laboratory Materials Technology Directorate (ARLMTD), APG, MD.

FY 1996 Accomplishments:

- 254 Funded Class I and Class II pollution prevention programs such as natural gas conversion at boiler plants, waste solvent replacement programs, purchase of recycling equipment, implementation of storm water pollution prevention plans, purchase of spill response equipment, etc.

Total 254

FY 1997 Planned Program:

- 137 Fund Class I and Class II pollution prevention programs such as waste solvent replacement programs, purchase of alternate fuel vehicles, construction of sound-absorbing barriers, implementation of storm water pollution prevention plans, purchase of spill response equipment, etc.
- 3 Small Business Innovation Research Small Business Technology Transfer (SBIR/STTR) Programs.

Total 140

FY 1998 Planned Program:

- 156 Fund Class I and Class II pollution prevention programs such as waste solvent replacement programs, purchase of alternate fuel vehicles, construction of sound-absorbing barriers, implementation of storm water pollution prevention plans, purchase of spill response equipment, etc.

Total 156

FY 1999 Planned Program:

- 159 Fund Class I and Class II pollution prevention programs such as waste solvent replacement programs, purchase of alternate fuel vehicles, construction of sound-absorbing barriers, implementation of storm water pollution prevention plans, purchase of spill response equipment, etc.

Total 159

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605854A Pollution Prevention

PROJECT: M1PP

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	260	143	121	121
Appropriated Value	267	140		
Adjustments to Appropriated Value	-13			
FY 1998 President's Budget Request	254	140	156	159

Change Summary Explanation:

Funding: FY 1998 increase (+35) required for "must fund" environmental projects.
FY 1999 increase (+38) required for "must fund" environmental projects.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605854A Pollution Prevention

PROJECT: M5PP

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M5PP Pollution Prevention - USASSDC	3228	1916	2290	1231	1273	447	452	459	Continuing	Continuing

A. Mission Description and Justification: Project M5PP - U.S. Army Space and Strategic Defense Command (USASSDC): Resources in this project ensure an adequate level of funding for pollution prevention requirements at the USASSDC.

FY 1996 Accomplishments:

•	3228	Funded pollution prevention programs such as hazardous material satellite areas, Halon reduction, removal and disposal of PCBs, etc.
Total	3228	

FY 1997 Planned Program:

•	1869	Fund pollution prevention programs such as hazardous material satellite areas, recycling of metals, Halon reduction, pollution prevention, etc.
•	47	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	1916	

FY 1998 Planned Program:

•	2290	Fund pollution prevention programs such as hazardous material satellite areas, recycling of metals, Halon reduction, pollution prevention, etc.
Total	2290	

FY 1999 Planned Program:

•	1231	Fund pollution prevention programs such as hazardous material satellite areas, recycling of metals, Halon reduction, pollution prevention, etc.
Total	1231	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	2855	1957	1371	685
Appropriated Value	2935	1916		
Adjustments to Appropriated Value	-293			
FY 1998 President's Budget Request	3228	1916	2290	1231

Change Summary Explanation: Funding: FY 1996 increase (+293) reprogrammed for "must fund" environmental compliance projects.
FY 1998 increase of (+919) and FY 1999 increase of (+546) required for environmental compliance "must fund" project.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605854A Pollution Prevention

PROJECT: M7PP

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M7PP Pollution Prevention - Ozone Depleting Chemicals (ODC) Elimination	1926	782	0	0	6688	0	0	0	Continuing	Continuing

A. Mission Description and Justification: Project M7PP - Pollution Prevention - ODC Elimination: Develop and implement the Army program to eliminate the use of ozone depleting chemicals on/for weapon systems. The program has been developed due to International Agreements (Montreal Protocol) Title VI of the Clean Air Act of 1990 and section 326 of P.L. 102-484. Funding for this program has been transferred to 0605854/M8PP Pollution Prevention - Acquisition Pollution Prevention beginning with FY 2001.

FY 1996 Accomplishments:

•	284	Toxicological Assessment Support to Evaluate New Alternative Materials
•	162	Test and evaluation (T&E) alternative cleaning agents at the National Defense Center for Environmental Excellence (NDCEE)
•	225	T&E of alternative Chemical-Biological Protective Overgarments testing agents
•	100	T&E of Nuclear Biological Protective Filter testing agents
•	1155	Development of Fire Safety Test Enclosure
Total	1926	

FY 1997 Planned Program:

•	125	T&E of alternative Chemical-Biological Protective Overgarments testing agents
•	125	T&E of Nuclear Biological Protective Filter testing agents
•	104	Development of Fire Safety Test Enclosure
•	409	T&E of Ammunition Inspection Cleaning Process Alternatives
•	19	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	782	

FY 1998 Planned Program: Project not funded in FY 1998.

FY 1999 Planned Program: Project not funded in FY 1999.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605854A Pollution Prevention

PROJECT: M7PP

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	1976	799	0	0
Appropriated Value	2031	782		
Adjustments to Appropriated Value	-105			
FY 1998 President's Budget Request	1926	782	0	0

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605854A Pollution Prevention

PROJECT: M8PP

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M8PP Pollution Prevention - Acquisition Pollution Prevention	4059	10230	2907	2043	877	866	881	898	Continuing	Continuing

A. Mission Description and Justification: Project M8PP - Pollution Prevention - Acquisition Pollution Prevention: Develop and implement the Army Acquisition Pollution Prevention to reduce requirements for hazardous materials and toxic chemicals used throughout the weapon system life cycle. The program supports Army compliance with the Montreal Protocol, the Clean Air Act, the Pollution Prevention Act and Executive Order 12856 (and others). This program primarily funds test and evaluation of environmentally acceptable alternative materials and processes used in weapon system design, testing , production, maintenance, operation and support. Issues directly affecting operational readiness of weapon systems and supporting facilities take top priority. Support is also provided for the Joint Group for Acquisition Pollution Prevention.

FY 1996 Accomplishments:

•	675	Toxicological Assessment of Alternative New Materials
•	300	Program Management and Oversight
•	40	Igniter Mix Testing
•	200	T&E of Aviation Materials and Processes
•	500	T&E of alternative Materials and Processes for Missile Production
•	300	T&E of alternative Materials and Process for Tank Automotive and Armament Production
•	150	Implementation of Laser Stripping Processes for Helicopter Blades
•	200	Implementation of Ultrasonic Aqueous Cleaning Processes
•	194	Optimization of Aqueous Cleaning Processes
•	1500	Development of Fire Safety Test Enclosure
Total	4059	

FY 1997 Planned Program:

•	675	Toxicological Assessment of Alternative New Materials
•	300	Program Management and Oversight
•	1715	T&E of Alternative Materials and Process Related to Paint Coating and Stripping Processes, Engine Oil Life Extension and Propylene Glycol Antifreeze
•	300	T&E of Aviation Materials and Processes (Non-Chromate Processes)
•	610	T&E of alternative Materials and Processes for Missile Production (Powder Coating Processes and Alternative Fuels)
•	250	Implementation of Laser Stripping Processes for Helicopter Components

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605854A Pollution Prevention
	PROJECT M8PP

FY 1997 Planned Program: (continued)

•	1848	T&E related to Ammunition/Munitions Production
•	500	T&E for Alternative Battery Production
•	450	T&E related Chemical Biological Defense Test Procedures
•	125	T&E related to Soldier System products
•	200	Development of Solvent Substitution Selection Procedures
•	1281	Development of Fire Safety Test Enclosure
•	250	Joint Group for Acquisition Pollution Prevention (JG-APP)
•	1476	Implementation of Alternative Processes at Depots, Arsenals and Ammunition
•	250	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	10230	

FY 1998 Planned Program:

•	302	Toxicological Assessment of Alternative New Materials
•	350	Program Management and Oversight
•	450	Test and Evaluation related to Ammunition/Munition Production (test procedures, tracer composition, sealing and coating
•	350	Test and Evaluation related to Aviation and Missile Production (powder coating, and alternative fuels)
•	250	Test and Evaluation related to Electronics Production and Support (batteries)
•	250	Test and Evaluation related to Chemical Biological Defense test procedures.
•	75	Test and Evaluation related to Soldier System test procedures
•	855	Process Support in the Industrial Base.
•	25	Joint Group for Acquisition Pollution Prevention
Total	2907	

FY 1999 Planned Program:

•	203	Toxicological Assessment of Alternative New Materials
•	250	Program Management and Oversight
•	350	Test and Evaluation related to Ammunition/Munition Production
•	250	Test and Evaluation related to Aviation and Missile Production
•	100	Test and Evaluation related to Electronics Production and Support
•	75	Test and Evaluation related to Chemical Biological Defense
•	75	Test and Evaluation related to Soldier System
•	740	Process Support in the Industrial Base
Total	2043	

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605854A Pollution Prevention

PROJECT: M8PP

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	4163	10449	2892	2015
Appropriated Value	4279	10230		
Adjustments to Appropriated Value	-220			
FY 1998 President's Budget Request	4059	10230	2907	2043

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605856A Environmental Compliance - Research, Development, Testing & Evaluation

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	65985	54251	51378	47604	44157	42716	43610	44607	Continuing	Continuing
M0VV Environmental Compliance - AMC Test Ranges	39579	34126	36655	34849	31446	30831	31477	32213	Continuing	Continuing
M1VV Environmental Compliance - AMC Major Subordinate Commands/Laboratories	20371	13680	12727	10733	11076	10033	10246	10466	Continuing	Continuing
M4VV Environmental Compliance - Corps of Engineers	1897	1469	0	0	0	0	0	0	Continuing	Continuing
M5VV Environmental Compliance - USASSDC	4138	4976	1996	2022	1635	1852	1887	1928	Continuing	Continuing

Mission Description and Budget Item Justification: This program ensures that resources are available to fund legally mandated environmental compliance activities at U.S. Army RDTE installations, laboratories and test ranges. (No Operation and Maintenance, Army (OMA) appropriation funds are budgeted for environmental compliance efforts at RDTE facilities). It finances environmental staff salaries; minor construction, repair and upgrade of facilities to meet environmental standards, including waste treatment and disposal; radon abatement; repair and clean up of underground storage tank hazards; management of hazardous waste storage and disposal; permits and licensing fees; environmental training, plans and studies; and environmental monitoring and audits. Funds cost of complying with Federal Facility Compliance Agreements (FFCA) and other environmental agreements, and correcting notices of violation. It does not finance construction or repairs unrelated to environmental compliance or Defense Environmental Restoration Account (DERA) funded environmental restoration. In summary, this program provides for environmental quality control of current defense operations and disposal of hazardous waste incident to defense operations funded by the RDTE appropriation. Army defines environmental effort as: Class O - projects needed to cover essential administrative, personnel, and other costs required to manage environmental activities and monitor environmental conditions associated with compliance . Class I - support compliance with legally binding agreements or judgments under applicable federal, state, local or host nation environmental law; correct deficiencies cited in an inspection or notice of violation by a regulatory agency, or host nation equivalent; correct deficiencies where a statutory or regulatory deadline has passed; Class II - projects required to comply with an established standard, and deadline for compliance is in the future; Class III - salaries and training for environmental personnel and projects required to maintain/improve environmental quality, but where non-compliance is not imminent. Includes effort directed toward support of installations or operations required for general research and development use and therefore is appropriate for Budget Activity 6.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605856A Environmental Compliance - Research, Development, Testing & Evaluation

PROJECT: M0VV

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M0VV Environmental Compliance - AMC Test Ranges	39579	34126	36655	34849	31446	30831	31477	32213	Continuing	Continuing

A. Mission Description and Justification: Project M0VV - Environmental Compliance - AMC Test Ranges: Resources in the project ensure an adequate level of funding for legally mandated environmental compliance requirements at Yuma Proving Ground (YPG), AZ; Aberdeen Proving Ground (APG), MD; Dugway Proving Ground (DPG), UT; and White Sands Missile Range (WSMR), NM. These operations are critical to the infrastructure of the Army testing program.

FY 1996 Accomplishments:

•	39579	Funded Class I, Class II, and other "Must Fund" environmental compliance programs such as underground storage tank removal/remediation, Environmental Impact Statements, asbestos disposal, wastewater compliance, emissions inventory and permits, responses to Notices of Deficiency (NOD) for hazardous waste management permits. Also funded hazardous waste disposal and program management.
Total	39579	

FY 1997 Planned Program:

•	33494	Fund Class O, Class I, Class II, and other "Must Fund" environmental compliance programs such as underground storage tank removal/remediation, Environmental Impact Statement, asbestos disposal, wastewater compliance, expansion of solid waste landfill, backflow prevention program and closure of solid waste management units. Also funds hazardous waste disposal and program management.
•	632	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	34126	

FY 1998 Planned Program:

•	36655	Fund Class O, Class I, Class II, and other "Must Fund" environmental compliance programs such as underground storage tank removal/remediation, Environmental Impact Statement, asbestos disposal, wastewater compliance, expansion of solid waste landfill, backflow prevention program and closure of solid waste management units. Also funds hazardous waste disposal and program management.
Total	36655	

FY 1999 Planned Program:

•	34849	Fund Class O, Class I, Class II, and other "Must Fund" environmental compliance programs such as underground storage tank removal/remediation, Environmental Impact Statement, asbestos disposal, wastewater compliance, expansion of solid waste landfill, backflow prevention program and closure of solid waste management units. Also funds hazardous waste disposal and program management.
Total	34849	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605856A Environmental Compliance - Research, Development, Testing & Evaluation
	PROJECT M0VV

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	38657	34856	34215	31742
Appropriated Value	39693	34126		
Adjustments to Appropriated Value	-114			
FY 1998 President's Budget Request	39579	34126	36655	34849

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605856A Environmental Compliance - Research, Development, Testing & Evaluation

PROJECT: M1VV

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M1VV Environmental Compliance - AMC Major Subordinate Commands/Laboratories	20371	13680	12727	10733	11076	10033	10246	10466	Continuing	Continuing

A. Mission Description and Justification: Project M1VV - Environmental Compliance - AMC MSC/LAB: Resources in this project ensure an adequate level of funding for legally mandated environmental compliance requirements at Army Research Laboratory (ARL), Adelphi, MD; Armament Research, Development and Engineering Center (ARDEC), Picatinny Arsenal, Dover, NJ; and Soldier Systems Command (SSCOM), formerly, Natick Research, Development and Engineering Center (NRDEC), Natick, MA.

FY 1996 Accomplishments:

•	20371	Funded Class I, Class II, and other environmental programs such as the conversion of the central boiler house to natural gas and the upgrade of the hazardous waste storage building at SSCOM; hazardous waste closures, rehabilitation of sanitary sewer west, upgrade lift stations and complete installation of reduced emission burner at powerhouse at ARDEC; and environmental program management and administration and Phase III of underground Storage Tank Upgrade at ARL. Funded remaining compliance requirements such as hazardous waste disposal and program management.
Total	20371	

FY 1997 Planned Program:

•	13588	Fund Class I, Class II, and other environmental programs, such as, drinking water cross-connection program and compliance with sewage prevention requirement at ARDEC; upgrade of fume hood exhaust controls and final phase of underground storage tank upgrade program at SSCOM; final phase of underground storage tank upgrade program at ARL. Fund remaining compliance requirements such as hazardous waste disposal and program management.
•	92	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	13680	

FY 1998 Planned Program:

•	12727	Fund Class I, Class II, and other environmental programs, such as, drinking water cross-connection program and compliance with sewage prevention requirement at ARDEC; upgrade of fume hood exhaust controls and final phase of underground storage tank upgrade program at SSCOM; final phase of underground storage tank upgrade program at ARL. Fund remaining compliance requirements such as hazardous waste disposal and program management.
Total	12727	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605856A Environmental Compliance - Research, Development, Testing & Evaluation PROJECT M1VV

FY 1999 Planned Program:

•	10733	Fund Class I, Class II, and other environmental programs, such as, drinking water cross-connection program and compliance with sewage prevention requirement at ARDEC; upgrade of fume hood exhaust controls and final phase of underground storage tank upgrade program at SSCOM; final phase of underground storage tank upgrade program at ARL. Fund remaining compliance requirements such as hazardous waste disposal and program management.
Total	10733	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	20900	13972	12709	10698
Appropriated Value	21481	13680		
Adjustments to Appropriated Value	-1110			
FY 1998 President's Budget Request	20371	13680	12727	10733

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605856A Environmental Compliance - Research, Development, Testing & Evaluation

PROJECT: M4VV

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M4VV Environmental Compliance - Corps of Engineers	1897	1469	0	0	0	0	0	0	Continuing	Continuing

A. Mission Description and Justification: **Project M4VV-Environmental Compliance - Corps of Engineers:** Resources in this project are for an industry cost-share demonstration of a 3000 HP low emission natural gas boiler. The funds went to Construction Engineering Research Laboratory (CERL) for demonstration at Watervliet Army Arsenal, New York.

FY 1996 Accomplishments:

•	1897	Development of an industry cost-shared demonstration of a 3000 HP low emission natural gas boiler.
Total	1897	

FY 1997 Planned Program:

•	1433	Development of an industry cost-shared demonstration of a 3000 HP low emission natural gas boiler.
•	36	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	1469	

FY 1998 Planned Program: Program not funded in FY 98.

FY 1999 Planned Program: Program not funded in FY 99.

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	0	0	0
Appropriated Value	2000	1469		
Adjustments to Appropriated Value	-103			
FY 1998 President's Budget Request	1897	1469	0	0

Change Summary Explanation:

Funding: FY 1996 Congressional increase provided for the development of a natural gas boiler.
FY 1997 Congressional increase provided for the development of a natural gas boiler.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605856A Environmental Compliance - Research, Development, Testing & Evaluation

PROJECT: M5VV

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M5VV Environmental Compliance - USASSDC	4138	4976	1996	2022	1635	1852	1887	1928	Continuing	Continuing

A. **Mission Description and Justification:** Project M5VV - Environmental Compliance - U.S. Army Space and Strategic Defense Command (USASSDC): Resources in this project ensure an adequate level of funding for legally mandated environmental compliance requirements at the USASSDC.

FY 1996 Accomplishments:

- 4138 Funded environmental compliance programs such as testing for hazardous materials, shipment of hazardous wastes, environmental staff training, quarterly testing of potable water, clean up fuel/oil contamination, environmental standards documentation, environmental awareness training, removal of Polychlorinated Biphenyls (PCBs), removal and disposal of asbestos, water quality, etc.

Total 4138

FY 1997 Planned Program:

- 4854 Fund environmental compliance programs such as PCB removal, testing for hazardous materials, shipment and disposal of hazardous wastes, environmental staff training, water quality, clean up fuel/oil contamination, underground storage tank compliance, asbestos removal and shipment, mitigation monitoring, etc.
- 122 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.

Total 4976

FY 1998 Planned Program:

- 1996 Fund environmental compliance programs such as PCB removal, testing for hazardous materials, shipment and disposal of hazardous wastes, environmental staff training, water quality, clean up fuel/oil contamination, underground storage tank compliance, asbestos removal and shipment, mitigation monitoring, etc.

Total 1996

FY 1999 Planned Program:

- 2022 Fund environmental compliance programs such as PCB removal, testing for hazardous materials, shipment and disposal of hazardous wastes, environmental staff training, water quality, clean up fuel/oil contamination, underground storage tank compliance, asbestos removal and shipment, mitigation monitoring, etc.

Total 2022

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605856A Environmental Compliance - Research, Development, Testing & Evaluation PROJECT M5VV

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	4792	5083	2976	2607
Appropriated Value	4927	4976		
Adjustments to Appropriated Value	-789			
FY 1998 President's Budget Request	4138	4976	1996	2022

Change Summary Explanation:

Funding: FY 1996 decrease (-789) reprogrammed for higher priority requirements.
FY 1998 (-980) reduction realigned to higher priority requirements.
FY 1999 (-585) reduction realigned to higher priority requirements.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605876A Minor Construction - Research, Development, Testing & Evaluation

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	6035	4229	4393	4537	4481	4533	4618	4714	Continuing	Continuing
M0WW Minor Construction - Test Ranges	3874	2708	2746	2807	2875	2941	3000	3065	Continuing	Continuing
M1WW Minor Construction - AMC Subordinate Commands and Laboratories	1601	1040	1133	1216	1115	1109	1128	1151	Continuing	Continuing
M4WW Minor Construction - Corps of Engineers	560	481	514	514	491	483	490	498	Continuing	Continuing

Mission Description and Budget Item Justification: This program element finances activities and functions necessary to provide facility related minor construction for U.S. Army RDTE installations, laboratories and test ranges. Minor construction includes: erection, installation, or assembly of a new real property facility; expansion, extension, alteration, conversion, relocation or replacement of an existing real property facility. Includes design costs directly associated with accomplishing a designated project undertaking. These projects substantially prolong the useful life of the facility and are all actually facility investments. Includes effort directed toward support of installations or operations required for general research and development use and therefore is appropriate to Budget Activity 6.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605876A Minor Construction - Research, Development, Testing & Evaluation

PROJECT: M0WW

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M0WW Minor Construction - Test Ranges	3874	2708	2746	2807	2875	2941	3000	3065	Continuing	Continuing

A. **Mission Description and Justification:** Finances RDTE minor construction projects for U.S. Army Materiel Command (AMC) technical test ranges assigned to Test and Evaluation Command (TECOM), i.e., Yuma Proving Ground, AZ; Aberdeen Proving Ground, MD; Dugway Proving Ground, UT; and White Sands Missile Range, NM. In addition, project provides common service host support for over 100 tenants and satellites located on these four TECOM ranges. Facility assets managed include over approximately 4 million acres of land, over 24 million square feet of building space, 3 thousand miles of roads, and 2 thousand miles of utility lines.

FY 1996 Accomplishments:

•	1980	Funded minor construction projects at Aberdeen Proving Ground, MD
•	457	Funded minor construction projects at Dugway Proving Ground, UT
•	850	Funded minor construction projects at White Sands Missile Range, NM
•	587	Funded minor construction projects at Yuma Proving Ground, AZ
Total	3874	

FY 1997 Planned Program:

•	1374	Fund minor construction projects at Aberdeen Proving Ground, MD
•	291	Fund minor construction projects at Dugway Proving Ground, UT
•	660	Fund minor construction projects at White Sands Missile Range, NM
•	317	Fund minor construction projects at Yuma Proving Ground, AZ
•	66	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	2708	

FY 1998 Planned Program:

•	1429	Fund minor construction projects at Aberdeen Proving Ground, MD
•	301	Fund minor construction projects at Dugway Proving Ground, UT
•	686	Fund minor construction projects at White Sands Missile Range, NM
•	330	Fund minor construction projects at Yuma Proving Ground, AZ
Total	2746	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605876A Minor Construction - Research, Development, Testing & Evaluation PROJECT M0WW

FY 1999 Planned Program:

•	1459	Fund minor construction projects at Aberdeen Proving Ground, MD
•	309	Fund minor construction projects at Dugway Proving Ground, UT
•	702	Fund minor construction projects at White Sands Missile Range, NM
•	337	Fund minor construction projects at Yuma Proving Ground, AZ
Total	2807	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	3450	2766	2731	2781
Appropriated Value	3548	2708		
Adjustments to Appropriated Value	+326			
FY 1998 President's Budget Request	3874	2708	2746	2807

Change Summary Explanation: Funding: FY 1996 increased (+326) for barracks repairs.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605876A Minor Construction - Research, Development, Testing & Evaluation

PROJECT: M1WW

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M1WW Minor Construction - AMC Subordinate Commands and Laboratories	1601	1040	1133	1216	1115	1109	1128	1151	Continuing	Continuing

A. Mission Description and Justification: This project finances minor construction projects for U.S. Army Materiel Command major subordinate command RDTE installations and laboratories, i.e., Army Research Laboratory (ARL), Adelphi , MD; Armament Research, Development and Engineering Center (ARDEC), Picatinny Arsenal, Dover, NJ; and Soldier Systems Command (SSCOM), formerly, Natick Research, Development and Engineering Center (NRDEC), Natick, MA. Also provides common service host support to 36 tenants located at these installations. Facilities managed include 8,996 acres of land and 6.4 million square feet of building space.

FY 1996 Accomplishments:

- 981 Funded minor construction projects at ARDEC, Picatinny Arsenal, NJ
- 222 Funded minor construction projects at ARL, Adelphi, MD
- 398 Funded minor construction projects at SSCOM, Natick, MA.

Total 1601

FY 1997 Planned Program:

- 815 Fund minor construction projects at ARDEC, Picatinny Arsenal, NJ
- 147 Fund minor construction projects at ARL, Adelphi, MD
- 78 Fund minor construction projects at SSCOM, Natick, MA.

Total 1040

FY 1998 Planned Program:

- 891 Fund minor construction projects at ARDEC, Picatinny Arsenal, NJ
- 158 Fund minor construction projects at ARL, Adelphi, MD
- 84 Fund minor construction projects at SSCOM, Natick, MA.

Total 1133

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605876A Minor Construction - Research, Development, Testing & Evaluation PROJECT M1WW

FY 1999 Planned Program:

- 718 Fund minor construction projects at ARDEC, Picatinny Arsenal, NJ
- 315 Fund minor construction projects at ARL, Adelphi, MD
- 183 Fund minor construction projects at SSCOM, Natick, MA.

Total 1216

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	1271	1062	1118	1197
Appropriated Value	1305	1040		
Adjustments to Appropriated Value	+296			
FY 1998 President's Budget Request	1601	1040	1133	1216

Change Summary Explanation: Funding - FY 1996 increased (+296) for employees' quality of life and work environment improvements.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605876A Minor Construction - Research, Development, Testing & Evaluation

PROJECT: M4WW

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M4WW Minor Construction - Corps of Engineers	560	481	514	514	491	483	490	498	Continuing	Continuing

A. Mission Description and Justification: Project finances those minor construction projects for U.S. Army Corps of Engineers RDTE laboratories located at Waterways Experiment Station (WES), Vicksburg, MS; Cold Regions Research and Engineering Laboratory (CRREL), Hanover, NH; Topographic Engineering Center (TEC), Alexandria, VA and Construction Engineering Research Laboratory (CERL), Champaign, IL.

FY 1996 Accomplishments:

- 328 Funded minor construction projects at CRREL, Hanover, NH
- 232 Funded minor construction projects at WES, Vicksburg, MS

Total 560

FY 1997 Planned Program:

- 94 Fund minor construction projects at TEC, Alexandria, VA
- 220 Fund minor construction projects at CRREL, Hanover, NH
- 155 Fund minor construction projects at WES, Vicksburg, MS
- 12 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.

Total 481

FY 1998 Planned Program:

- 103 Fund minor construction projects at TEC, Alexandria, VA
- 242 Fund minor construction projects at CRREL, Hanover, NH
- 169 Fund minor construction projects at WES, Vicksburg, MS

Total 514

FY 1999 Planned Program:

- 103 Fund minor construction projects at TEC, Alexandria, VA
- 242 Fund minor construction projects at CRREL, Hanover, NH
- 169 Fund minor construction projects at WES, Vicksburg, MS

Total 514

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605876A Minor Construction - Research, Development, Testing & Evaluation

PROJECT: M4WW

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	626	491	484	479
Appropriated Value	644	481		
Adjustments to Appropriated Value	-84			
FY 1998 President's Budget Request	560	481	514	514

Change Summary Explanation: Funding: FY 1996 decreased (-34) for Congressional reductions and rescissions and ($-50K) reprogrammed to higher priority requirements.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605878A Maintenance and Repair - Research, Development, Testing & Evaluation

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	86907	68580	85119	74681	69861	67370	68643	70072	Continuing	Continuing
M0YY Maintenance and Repair - AMC Test Ranges	65303	49797	60347	58714	54263	52482	53466	54573	Continuing	Continuing
M1YY Maintenance and Repair - AMC Subordinate Commands/Laboratories	16866	15476	11243	11965	12140	11438	11663	11921	Continuing	Continuing
M4YY Maintenance and Repair - U.S. Army Corps of Engineers	4738	3307	3557	4002	3458	3450	3514	3578	Continuing	Continuing
M744 Modernization of Utilities	0	0	9972	0	0	0	0	0	0	0

Mission Description and Budget Item Justification: This program element finances activities and functions necessary for maintenance and repair of real property at U.S. Army RDTE installations, laboratories and test ranges. Maintenance and repair of real property includes applicable expenses of cyclic and preventive maintenance and annual recurring repair incurred by building trade shops, construction units, grounds and pavements units, machine shops and contracts. Funding also provide for modernization of utility systems. These projects substantially prolong the useful life of the facility, and are all actually facility investments. Includes effort directed toward support of installations or operations required for general research and development use and therefore is appropriate to Budget Activity 6.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605878A Maintenance and Repair - Research, Development, Testing & Evaluation

PROJECT: M0YY

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M0YY Maintenance and Repair - AMC Test Ranges	65303	49797	60347	58714	54263	52482	53466	54573	Continuing	Continuing

A. Mission Description and Justification: This project finances the maintenance and repair for sustaining the infrastructure of the U.S. Army Materiel Command (AMC) installations assigned to the Test and Evaluation Command (TECOM), i.e. Aberdeen Proving Ground, MD; Dugway Proving Ground, Utah; Yuma Proving Ground, AZ and White Sands Missile Range, NM. Funding provides maintenance and repair to over 24 million square feet of facilities, 3 thousand miles of road, 1400 miles of electric distribution systems, and over 600 miles of water and sewage distribution systems.

FY 1996 Accomplishments:

•	34004	Funded minimum operational maintenance requirement and $12 million for repair projects at Aberdeen Proving Ground, MD.
•	6772	Funded minimum operational maintenance requirement and $2 million for repair projects at Dugway Proving Ground, UT.
•	15638	Funded minimum operational maintenance requirement and $5 million for repair projects at White Sands Missile Range, NM.
•	8889	Funded minimum operational maintenance requirement and $4 million for repair projects at Yuma Proving Ground, AZ.
Total	65303	

FY 1997 Planned Program:

•	25884	Fund minimum operational maintenance requirements at Aberdeen Proving Ground, MD.
•	4030	Fund minimum operational maintenance requirements at Dugway Proving Ground, UT.
•	10014	Fund minimum operational maintenance requirements at White Sands Missile Range, NM.
•	4971	Fund minimum operational maintenance requirements at Yuma Proving Ground, AZ.
•	4000	Funds Federal Energy Management projects.
•	898	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	49797	

FY 1998 Planned Program:

•	34374	Fund minimum operational maintenance requirements and $7 million for repair projects at Aberdeen Proving Ground, MD.
•	5462	Fund minimum operational maintenance requirements and $1 million for repair projects at Dugway Proving Ground, UT.
•	13736	Fund minimum operational maintenance requirements and $3 million for repair projects at White Sands Missile Range, NM.
•	6775	Fund minimum operational maintenance requirements and $1 million for repair projects at Yuma Proving Ground, AZ.
Total	60347	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605878A Maintenance and Repair - Research, Development, Testing & Evaluation PROJECT M0YY

FY 1999 Planned Program:

•	33456	Fund minimum operational maintenance requirements and $3 million for repair projects at Aberdeen Proving Ground, MD.
•	5315	Fund minimum operational maintenance requirements and $.6 million for repair projects at Dugway Proving Ground, UT.
•	13354	Fund minimum operational maintenance requirements and $2 million for repair projects at White Sands Missile Range, NM.
•	6589	Fund minimum operational maintenance requirements and $.7 million for repair projects at Yuma Proving Ground, AZ.
Total	58714	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	70690	50862	52400	50793
Appropriated Value	72670	49797		
Adjustments to Appropriated Value	-7367			
FY 1998 President's Budget Request	65303	49797	60347	58714

Change Summary Explanation:

Funding: FY 1996 decrease of (-7367) reprogrammed to higher priority requirements.

FY 1998 increase of (+7947) required for emergency and major repairs at the following installations: Aberdeen Proving Ground, MD; Dugway Proving Ground, UT; White Sands Missile Range, NM; Yuma Proving Ground, AZ.

FY 1999 increase of (+7921) required for emergency and major repairs at the following installations: Aberdeen Proving Ground, MD; Dugway Proving Ground, UT; White Sands Missile Range, NM; Yuma Proving Ground, AZ.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605878A Maintenance and Repair - Research, Development, Testing & Evaluation

PROJECT: M1YY

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M1YY Maintenance and Repair - AMC Subordinate Commands/Laboratories	16866	15476	11243	11965	12140	11438	11663	11921	Continuing	Continuing

A. **Mission Description and Justification:** This project finances those maintenance and repair activities and functions necessary for maintaining and repairing infrastructure for the U.S. Army Materiel Command major subordinate command RDTE installations and laboratories, i.e., Army Research Laboratory, Adelphi, Maryland; Armament Research, Development and Engineering Center, Picatinny Arsenal, Dover, New Jersey; and Soldier System Command (SSCOM), formerly, Natick Research, Development and Engineering (RDE) Center, Natick, Massachusetts. Also provides common service host support to 36 tenants located at these installations. Facilities managed include 8,996 acres of land and 6.4 million square feet of building space with necessary utilities and road systems.

FY 1996 Accomplishments:

•	10234	Funded maintenance and repair projects at Picatinny Arsenal, NJ.
•	4342	Funded maintenance and repair projects at Army Research Laboratory, Adelphi, MD.
•	2290	Funded maintenance and repair projects at Soldier Systems Command, Natick, MA.
Total	16866	

FY 1997 Planned Program:

•	7675	Funds maintenance and repair projects at Picatinny Arsenal, NJ.
•	2804	Funds maintenance and repair projects at Army Research Laboratory, Adelphi, MD.
•	4619	Funds maintenance and repair projects at Soldier Systems Command, Natick, MA.
•	378	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	15476	

FY 1998 Planned Program:

•	6545	Funds maintenance and repair projects at Picatinny Arsenal, NJ.
•	3118	Funds maintenance and repair projects at Army Research Laboratory, Adelphi, MD.
•	1580	Funds maintenance and repair projects at Soldier Systems Command, Natick, MA.
Total	11243	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605878A Maintenance and Repair - Research, Development, Testing & Evaluation PROJECT M1YY

FY 1999 Planned Program:

•	7326	Funds maintenance and repair projects at Picatinny Arsenal, NJ.
•	2690	Funds maintenance and repair projects at Army Research Laboratory, Adelphi, MD.
•	1949	Funds maintenance and repair projects at Soldier Systems Command, Natick, MA.
Total	11965	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	17644	11807	11964	13548
Appropriated Value	18140	15476		
Adjustments to Appropriated Value	-1274			
FY 1998 President's Budget Request	16866	15476	11243	11965

Change Summary Explanation: Funding: FY 1999 decrease of (-1583) realigned to higher priority requirements.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605878A Maintenance and Repair - Research, Development, Testing & Evaluation

PROJECT: M4YY

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M4YY Maintenance and Repair - U.S. Army Corps of Engineers	4738	3307	3557	4002	3458	3450	3514	3578	Continuing	Continuing

A. Mission Description and Justification: This project finances those maintenance and repair activities and functions necessary for maintaining and repairing infrastructure for the U.S. Army Corps of Engineers RDTE laboratories located at Waterways Experiment Station (WES), Vicksburg, MS; Cold Regions Research and Engineering Laboratory (CRREL), Hanover, NH; Construction Engineering Research Laboratory (CERL), Champaign, IL and Topographic Engineering Center (TEC), Alexandria, VA.

FY 1996 Accomplishments:

•	965	Funded maintenance and repair projects at CERL, Champaign, IL.
•	2235	Funded maintenance and repair projects at CRREL, Hanover, NH.
•	621	Funded maintenance and repair projects at TEC, Alexandria, VA.
•	917	Funded maintenance and repair projects at WES, Vicksburg, MS.
Total	4738	

FY 1997 Planned Program:

•	676	Fund maintenance and repair projects at CERL, Champaign, IL.
•	1550	Fund maintenance and repair projects at CRREL, Hanover, NH.
•	439	Fund maintenance and repair projects at TEC, Alexandria, VA.
•	642	Fund maintenance and repair projects at WES, Vicksburg, MS.
Total	3307	

FY 1998 Planned Program:

•	709	Fund maintenance and repair projects at CERL, Champaign, IL.
•	1708	Fund maintenance and repair projects at CRREL, Hanover, NH.
•	467	Fund maintenance and repair projects at TEC, Alexandria, VA.
•	673	Fund maintenance and repair projects at WES, Vicksburg, MS.
Total	3557	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605878A Maintenance and Repair - Research, Development, Testing & Evaluation PROJECT M4YY

FY 1999 Planned Program:

•	796	Fund maintenance and repair projects at CERL, Champaign, IL.
•	1912	Fund maintenance and repair projects at CRREL, Hanover, NH.
•	528	Fund maintenance and repair projects at TEC, Alexandria, VA.
•	766	Fund maintenance and repair projects at WES, Vicksburg, MS.
Total	4002	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	4755	3378	3543	3983
Appropriated Value	4886	3307		
Adjustments to Appropriated Value	-148			
FY 1998 President's Budget Request	4738	3307	3557	4002

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605878A Maintenance and Repair - Research, Development, Testing & Evaluation

PROJECT: M744

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M744 Modernization of Utilities	0	0	9972	0	0	0	0	0	0	0

A. Mission Description and Justification: Project M744 Modernization of Utilities. This is not a new start. It is the repair to an existing facility and system infrastructure. This project will finance the repair of the steam heat distribution system, Edgewood Area, Aberdeen Proving Ground. This steam heat distribution system is 40 to 50 years old. Corrosion-related problems and other deficiencies are discharging condensate into the ground. Some areas of the system are beyond repair and must be replaced. The condensate piping is severely corroded and in extremely poor condition. Leaks and steaming are common place. Standing water exists in many manholes causing deterioration and excessive spalling and cracking, posing serious safety and environmental concerns. Boilers in the Central Plant (Vintage 1940) need to be replaced. They are inefficient, in poor shape and technically obsolete. The estimated $10 million will repair the entire steam system.

FY 1996 Accomplishments: Project not funded in FY 96.

FY 1997 Planned Program: Project not funded in FY 97.

FY 1998 Planned Program:

•	9972	Repair steam heat distribution system, Edgewood Area, Aberdeen Proving Ground, MD
Total	9972	

FY 1999 Planned Program: Project not funded in FY 99.

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	0	0	0
Appropriated Value				
Adjustments to Appropriated Value				
FY 1998 President's Budget Request	0	0	9972	0

Change Summary Explanation: Funding: FY 1998 funds (+9972) required for utility modernization.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605879A Real Property Services (RPS)

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	0	90457	88945	88936	88504	88959	90807	92916	Continuing	Continuing
M0UU Real Property Services - TECOM	0	61601	57925	57715	57278	56850	58037	59393	Continuing	Continuing
M1UU Real Property Services - AMC MSC/LAB	0	24338	26248	26261	26114	26826	27380	28011	Continuing	Continuing
M4UU Real Property Services - COE	0	4518	4772	4960	5112	5283	5390	5512	Continuing	Continuing

Mission Description and Budget Item Justification: This program is not a new start. Program represents a zero sum transfer from Program Element 0605896A Base Operations - RDT&E of alpha account "J" Operation of Utilities and "M" Other Engineering to this new program element. Element finances activities and functions necessary for operation of utilities (with the exception of communications). It includes purchase of electricity, operations of heating plants and water distribution and sewage systems. Element also finances the labor associated with real property support along with fire prevention, custodial service contracts, collection and disposal of refuse, pest control management, snow/ice and sand removal. It also supports the engineering, general management, supervision, mapping, planning, utilization inspection and other activities of a general nature performed by the Directorate for Public Works (DPW) both in-house and by contract. Includes effort directed toward support of installations or operations required for general research and development use and therefore is appropriate to Budget Activity 6.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605879A Real Property Services (RPS)

PROJECT: M0UU

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M0UU Real Property Services - TECOM	0	61601	57925	57715	57278	56850	58037	59393	Continuing	Continuing

A. Mission Description and Justification: Project M0UU - Operation of Utilities & Other Engineering - AMC Test Ranges: This project funds the operations of utilities and other engineering services for the U.S. Army Materiel Command (AMC) installations assigned to the Test and Evaluation Command (TECOM), i.e. Aberdeen Proving Ground, MD; Dugway Proving Ground, UT; Yuma Proving Ground, AZ and White Sands Missile Range, NM. Funding provides for the utility costs and system operation of 1400 miles of electric distribution and 600 miles of water and sewer systems. Additionally, this project provides utilities services to the TECOM test mission and over 100 tenants and satellites that reside in 24 million square feet of facilities. Another major responsibility is the removal of snow and sand, extremely important to the safety of the workforce that travel on approximately 3000 mile road systems located on the TECOM installations. This account also funds the contracts for custodial and refuse collections and civilian firefighters responsible for the safety and health of the workforce that support the varied Army missions located on these installations.

FY 1996 Accomplishments: Program funded in Program Element 0605896A.

FY 1997 Planned Program:

•	36179	Fund operations of utilities and other engineering at Aberdeen Proving Ground, Maryland.
•	5596	Fund operations of utilities and other engineering at Dugway Proving Ground, Utah.
•	13949	Fund operations of utilities and other engineering at White Sands Missile Range, New Mexico.
•	4372	Fund operations of utilities and other engineering at Yuma Proving Ground, Arizona.
•	1505	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	61601	

FY 1998 Planned Program:

•	33874	Fund operations of utilities and other engineering at Aberdeen Proving Ground, Maryland.
•	5504	Fund operations of utilities and other engineering at Dugway Proving Ground, Utah.
•	14095	Fund operations of utilities and other engineering at White Sands Missile Range, New Mexico.
•	4452	Fund operations of utilities and other engineering at Yuma Proving Ground, Arizona.
Total	57925	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605879A Real Property Services (RPS)
	PROJECT M0UU

FY 1999 Planned Program:

•	37635	Fund operations of utilities and other engineering at Aberdeen Proving Ground, Maryland.
•	5068	Fund operations of utilities and other engineering at Dugway Proving Ground, Utah.
•	11367	Fund operations of utilities and other engineering at White Sands Missile Range, New Mexico.
•	3645	Fund operations of utilities and other engineering at Yuma Proving Ground, Arizona.
Total	57715	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	62918	58244	57934
Appropriated Value		61601		
Adjustments to Appropriated Value				
FY 1998 President's Budget Request	0	61601	57925	57715

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605879A Real Property Services (RPS)

PROJECT: M1UU

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M1UU Real Property Services - AMC MSC/LAB	0	24338	26248	26261	26114	26826	27380	28011	Continuing	Continuing

A. Mission Description and Justification: **Project M1UU - Operation of Utilities and Other Engineering - AMC MSC/LAB:** Finances the operation of utilities and other engineering services for U.S. Army Materiel Command (AMC) installations and laboratories, i.e., Armament Research, Development and Engineering Center (ARDEC), Picatinny Arsenal, NJ; Army Research Laboratory (ARL), Adelphi, MD; and Soldier Systems Command (SSCOM), formerly Natick Research, Development and Engineering Center (NRDEC), Natick, MA.

FY 1996 Accomplishments: Program funded in Program Element 0605896A.

FY 1997 Planned Program:

•	15620	Armament Research, Development and Engineering Center, Picatinny Arsenal, NJ.
•	5476	Army Research Laboratory, Adelphi, MD.
•	2647	Soldier Systems Command, Natick, MA.
•	595	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	24338	

FY 1998 Planned Program:

•	16493	Armament Research, Development and Engineering Center, Picatinny Arsenal, NJ.
•	6839	Army Research Laboratory, Adelphi, MD.
•	2916	Soldier Systems Command, Natick, MA.
Total	26248	

FY 1999 Planned Program:

•	16373	Armament Research, Development and Engineering Center, Picatinny Arsenal, NJ.
•	7229	Army Research Laboratory, Adelphi, MD.
•	2659	Soldier Systems Command, Natick, MA.
Total	26261	

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605879A Real Property Services (RPS)

PROJECT: M1UU

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget		24858	24937	26098
Appropriated Value		24338		
Adjustments to Appropriated Value				
FY 1998 President's Budget Request		24338	26248	26261

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605879A Real Property Services (RPS)

PROJECT: M4UU

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M4UU Real Property Services - COE	0	4518	4772	4960	5112	5283	5390	5512	Continuing	Continuing

A. Mission Description and Justification: Project M4UU - Operation of Utilities and Other Engineering - COE: Finances the operation of utilities and other engineering services for U.S. Corps of Engineers Laboratories, i.e., Waterways Experiment Station (WES), Vicksburg, MS; Cold Regions Research and Engineering Laboratories (CRREL); Hanover, NH; Construction Engineering Research Laboratory (CERL), Champaign, IL; and Topographic Engineering Center (TEC), Alexandria, VA.

FY 1996 Accomplishments: Program funded in Program Element 0605896A.

FY 1997 Planned Program:

•	1080	Waterways Experiment Station, Vicksburg, MS
•	1102	Cold Regions Research and Engineering Laboratories; Hanover, NH
•	1098	Construction Engineering Research Laboratory, Champaign, IL
•	1128	Topographic Engineering Center, Alexandria, VA
•	110	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	4518	

FY 1998 Planned Program:

•	1150	Waterways Experiment Station, Vicksburg, MS
•	1193	Cold Regions Research and Engineering Laboratories; Hanover, NH
•	1188	Construction Engineering Research Laboratory, Champaign, IL
•	1241	Topographic Engineering Center, Alexandria, VA
Total	4772	

FY 1999 Planned Program:

•	1195	Waterways Experiment Station, Vicksburg, MS
•	1240	Cold Regions Research and Engineering Laboratories; Hanover, NH
•	1235	Construction Engineering Research Laboratory, Champaign, IL
•	1290	Topographic Engineering Center, Alexandria, VA
Total	4960	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE
	February 1997

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
6 - Management and Support	0605879A Real Property Services (RPS)	M4UU

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	4614	4769	4944
Appropriated Value		4518		
Adjustments to Appropriated Value				
FY 1998 President's Budget Request	0	4518	4772	4960

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605896A Base Operations - Research, Development, Testing & Evaluation

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	306481	219946	231653	233633	240512	246149	249966	254143	Continuing	Continuing
M0ZZ Base Operations - Army Materiel Command (AMC) Test Ranges	190564	145038	148043	152287	160030	165914	168898	171368	Continuing	Continuing
M1ZZ Base Operations - AMC Major Subordinate Commands and Laboratories	99156	62727	71863	71311	70380	70076	70709	72184	Continuing	Continuing
M4ZZ Base Operations - Corps of Engineers	16761	12181	11747	10035	10102	10159	10359	10591	Continuing	Continuing

Mission Description and Budget Item Justification: The Base Operations (BASEOPS) program finances those activities and functions necessary for operating and maintaining U.S. Army RDTE installations, laboratories, test ranges and a significant tenant/satellite population. BASEOPS activities and functions include: (1) operation of post supply functions; (2) direct and general maintenance activities; (3) operation and maintenance of transportation equipment and local transportation; (4) operation of laundry and dry cleaning plants and contractual services where Army-owned plants are not operated; (5) Army food service program; (6) support to military and civilian personnel; (7) operation and administration of unaccompanied personnel housing; (8) command element activities required for commanding all Army units assigned or attached to the installation; (9) automation activities; (10) reserve component support; (11) development and administration of morale, welfare and recreation facilities and activities along with quality of life initiatives for the military and their families; (12) police and security services and counterintelligence; (13) resource management operations; (14) Defense Finance and Accounting Service (DFAS); (15) contracting operations; and (16) records management and publications. This is a labor intensive program, providing salaries and related personnel benefits for authorized civilian personnel and associated administrative support functions outlined above. FY 1997 reflects realignment of "J" Operation of Utilities and "M" Other Engineering to 0605879A, Operation of Utilities and Other Engineering. Includes effort directed toward support of installations or operations required for general research and development use and therefore is appropriate to Budget Activity 6.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605896A Base Operations - Research, Development, Testing & Evaluation

PROJECT: M0ZZ

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M0ZZ Base Operations - Army Materiel Command (AMC) Test Ranges	190564	145038	148043	152287	160030	165914	168898	171368	Continuing	Continuing

A. Mission Description and Justification: Finances installation management for operating and maintaining technical test ranges assigned to the U.S. Army Test and Evaluation Command (TECOM), i.e., Yuma Proving Ground, AZ; Aberdeen Proving Ground, MD; Dugway Proving Ground, UT; and White Sands Missile Range, NM. Provides for the test infrastructure base support along with common service base support to over 100 tenants and satellites served by the four TECOM Major Range & Test Facility Bases (MRTFB). Base Operations infrastructure includes fixed costs for payroll as well as personnel costs associated with downsizing and re-engineering to civilian workforce commensurate with technical testing, diverse Army R&D tenants, and a principal training mission at the Ordnance Center and School. Effective FY 97 operations of utilities and other engineering support funds transferred to the new PE 0605879A. Effective FY 98, funding for Youth Activities, Child Development and Army Community Services will transfer from OMA to RDTE.

FY 1996 Accomplishments:

- 103278 Garrison, Aberdeen Proving Ground Support Activity, MD
- 19437 Dugway Proving Ground, UT
- 49440 White Sands Missile Range, NM
- 18409 Yuma Proving Ground, AZ
- Above funding included specific projects below:
  - Civilian Illness and Injury Compensation Costs.
  - Defense Finance and Accounting Services
  - Military Police (MP) conversion to civilian police/guards

Total 190564

FY 1997 Planned Program:

- 74915 Garrison, Aberdeen Proving Ground Support Activity, MD
- 15738 Dugway Proving Ground, UT
- 38653 White Sands Missile Range, NM
- 15604 Yuma Proving Ground, AZ

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605896A Base Operations - Research, Development, Testing & Evaluation PROJECT M0ZZ

FY 1997 Planned Program: (continued)

- Above funding includes specific projects below:
  - Civilian Illness and Injury Compensation Costs.
  - Defense Finance and Accounting Services.
  - Funds transfer of Materials Technology Laboratory, Watertown, MA to Aberdeen Proving Ground, MD. (BRAC Action)
  - Funds Military Police (MP) conversion to civilian police/guards (partial workyears)
- 128 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.

Total 145038

FY 1998 Planned Program:

- 78702 Garrison, Aberdeen Proving Ground Support Activity, MD
- 14350 Dugway Proving Ground, UT
- 39142 White Sands Missile Range, NM
- 15849 Yuma Proving Ground, AZ
- Above funding includes specific projects below:
  - Civilian Illness and Injury Compensation Costs
  - Defense Finance and Accounting Services
  - Fund transfer of Materials Technology Laboratory, Watertown, MA to Aberdeen Proving Ground, MD (BRAC Action)
  - Military Police (MP) conversion to civilian police/guards

Total 148043

FY 1999 Planned Program:

- 80842 Garrison, Aberdeen Proving Ground Support Activity, MD
- 14785 Dugway Proving Ground, UT
- 40348 White Sands Missile Range, NM
- 16312 Yuma Proving Ground, AZ
- Above funding includes specific projects below:
  - Civilian Illness and Injury Compensation Costs
  - Defense Finance and Accounting Services
  - Fund transfer of Materials Technology Laboratory, Watertown, MA to Aberdeen Proving Ground, MD (BRAC Action)
  - Military Policy (MP) conversion to civilian police/guards

Total 152287

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605896A Base Operations - Research, Development, Testing & Evaluation
	PROJECT M0ZZ

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	192211	143043	135950	141028
Appropriated Value	197560	145038		
Adjustments to Appropriated Value	-6996			
FY 1998 President's Budget Request	190564	145038	148043	152287

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605896A Base Operations - Research, Development, Testing & Evaluation

PROJECT: M1ZZ

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M1ZZ Base Operations - AMC Major Subordinate Commands and Laboratories	99156	62727	71863	71311	70380	70076	70709	72184	Continuing	Continuing

A. Mission Description and Justification: Finances installation management for operating and maintaining other U.S. Army Materiel Command RDTE installations and laboratories, i.e., Army Research Laboratory (ARL), Adelphi, MD; Armament Research, Development and Engineering Center (ARDEC), Picatinny Arsenal, NJ; and Soldier Systems Command (SSCOM), formerly, Natick Research, Development and Engineering Center (NRDEC), MA. Provides for the infrastructure base support along with common service base support to tenants and satellites. Effective FY 97, operations of utilities and other engineering support funds will transfer to the new PE 0605879A.

FY 1996 Accomplishments: Funding by installation as follows:

- 41404 ARL, Adelphi, MD
- 40851 ARDEC, Picatinny Arsenal, NJ
- 16901 SSCOM, Natick, MA

Total 99156

FY 1997 Planned Program: Funding by installation as follows:

- 23918 ARL, Adelphi, MD
- 26292 ARDEC, Picatinny Arsenal, NJ
- 12182 SSCOM, Natick, MA
- 335 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.

Total 62727

FY 1998 Planned Program: Funding by installation as follows:

- 24380 ARL, Adelphi, MD
- 34626 ARDEC, Picatinny Arsenal, NJ
- 12857 SSCOM, Natick, MA

Total 71863

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605896A Base Operations - Research, Development, Testing & Evaluation PROJECT M1ZZ

FY 1999 Planned Program:. Funding by installation as follows:

- 22933 ARL, Adelphi, MD
- 34980 ARDEC, Picatinny Arsenal, NJ
- 13398 SSCOM, Natick, MA

Total 71311

NOTE: Effective FY 98, ARDEC includes OMA transfer of Youth Activities, Child Development Services, Army Community Services, Public Affairs, ADP and Base Communications to RDTE.

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	101902	61588	57687	57551
Appropriated Value	104739	62727		
Adjustments to Appropriated Value	-5583			
FY 1998 President's Budget Request	99156	62727	71863	71311

Change Summary Explanation:

Funding: FY 1998 increase reflects an OMA to RDTE transfer (+14176).
FY 1999 increase reflects an OMA to RDTE transfer (+13760).

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605896A Base Operations - Research, Development, Testing & Evaluation

PROJECT: M4ZZ

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M4ZZ Base Operations - Corps of Engineers	16761	12181	11747	10035	10102	10159	10359	10591	Continuing	Continuing

A. **Mission Description and Justification:** Finances BASEOPS activities and functions necessary for operating and maintaining the following U.S. Army Corps of Engineers RDTE laboratories: Waterways Experiment Station (WES), Vicksburg, MS; Cold Regions Research and Engineering Laboratories (CRREL), Hanover, NH; Construction Engineering Research Laboratory (CERL), Champaign, IL; and Topographic Engineering Center (TEC), Alexandria, VA.

FY 1996 Accomplishments:

- 4006 WES, Vicksburg, MS
- 4209 CRREL, Hanover, NH
- 4042 CERL, Champaign, IL
- 4504 TEC, Alexandria, VA

Total 16761

FY 1997 Planned Program:

- 2961 CERL, Champaign, IL
- 2973 CRREL, Hanover, NH
- 3044 TEC, Alexandria, VA
- 2914 WES, Vicksburg, MS
- 289 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.

Total 12181

FY 1998 Planned Program:

- 2925 CERL, Champaign, IL
- 2937 CRREL, Hanover, NH
- 3054 TEC, Alexandria, VA
- 2831 WES, Vicksburg, MS

Total 11747

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605896A Base Operations - Research, Development, Testing & Evaluation
	PROJECT M4ZZ

FY 1999 Planned Program:

- 2499 CERL, Champaign, IL
- 2509 CRREL, Hanover, NH
- 2609 TEC, Alexandria, VA
- 2418 WES, Vicksburg, MS

Total 10035

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	16709	12018	11660	9933
Appropriated Value	17179	12181		
Adjustments to Appropriated Value	-418			
FY 1998 President's Budget Request	16761	12181	11747	10035

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

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

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	15007	18407	4837	4765	5156	5142	5111	5109	Continuing	Continuing
MM03 Command Headquarters - MRDC	3597	0	0	0	0	0	0	0	Continuing	Continuing
MM65 Army Research Laboratory	4773	4700	4837	4765	5156	5142	5111	5109	Continuing	Continuing
M831 AKAMAI	6637	13707	0	0	0	0	0	0	0	0

Mission Description and Budget Item Justification: This program funds the Research, Development, Test and Evaluation (RDTE) Army Management Headquarters Activities (AMHA) for the U.S. Army Research Laboratory (ARL), Adelphi, MD, and the U.S. Army Medical Research and Materiel Command (USAMRMC), Ft Detrick, MD. This program provides for (1) the development of policy and guidance, (2) long-range planning, (3) programming and budgeting, (4) management of resources (manpower and dollars), and (5) review and evaluation of program performance. Provides salaries and related personnel benefits for authorized civilian personnel and the associated administrative support (travel, supplies and equipment). Beginning FY 1997, Command Headquarters - MRDC is funded in PE 0605801A. Includes research and development effort directed toward support of installations or operations required for general research and development use and therefore is appropriate to Budget Activity 6.

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

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

PROJECT: MM03

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
MM03 Command Headquarters - MRDC	3597	0	0	0	0	0	0	0	Continuing	Continuing

A. Mission Description and Justification: This project provides the funding for management headquarters activities at the U.S. Army Medical Research and Materiel Command (USAMRMC), Ft Detrick, MD, 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. This project provides salaries and related personnel benefits for authorized civilian personnel and the administrative support (temporary duty travel, operating supplies and equipment).

FY 1996 Accomplishments:

- 3597 Funded the operation of the USAMRDC headquarters activities which administers the medical research, development and acquisition program to sustain military medical technological superiority.

Total 3597

FY 1997 Planned Program: Program resources realigned to PE 0605801A.

FY 1998 Planned Program: Program resources realigned to PE 0605801A.

FY 1999 Planned Program: Program resources realigned to PE 0605801A.

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	3690	0	0	0
Appropriated Value	3795			
Adjustments to Appropriated Value	-198			
FY 1998 President's Budget Request	3597	0	0	0

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

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

PROJECT: MM65

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
MM65 Army Research Laboratory	4773	4700	4837	4765	5156	5142	5111	5109	Continuing	Continuing

A. **Mission Description and Justification:** This project provides the funding for management headquarters activities at the U.S. Army Research Laboratory (ARL), Adelphi, MD, to (1) develop RDTE program policy and guidance; (2) perform long range planning, programming and budgeting; (3) provide for the management of resources; and (4) conduct program performance review and evaluation. This project provides for the salaries and related personnel benefits for the authorized civilian personnel and the administrative support (temporary duty travel, operating supplies and equipment).

FY 1996 Accomplishments:

- 4773 Funded the operation of ARL headquarters activities which administers the Army laboratory research and development program to sustain technological superiority.

Total 4773

FY 1997 Planned Program:

- 4700 Funds the operation of ARL headquarters activities which administers the Army laboratory research and development program to sustain technological superiority.

Total 4700

FY 1998 Planned Program:

- 4837 Funds the operation of ARL headquarters activities which administers the Army laboratory research and development program to sustain technological superiority.

Total 4837

FY 1999 Planned Program:

- 4765 Funds the operation of ARL headquarters activities which administers the Army laboratory research and development program to sustain technological superiority.

Total 4765

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 6 - Management and Support	PE NUMBER AND TITLE 0605898A Management Headquarters (Research and Development)
	PROJECT MM65

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	4837	4801	4822	4727
Appropriated Value	4971	4700		
Adjustments to Appropriated Value	-198			
FY 1998 President's Budget Request	4773	4700	4837	4765

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

DATE: February 1997

BUDGET ACTIVITY: 6 - Management and Support

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

PROJECT: M831

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M831 AKAMAI	6637	13707	0	0	0	0	0	0	0	0

A. Mission Description and Justification: This is a state-of-the art tele-imaging advanced development effort to implement the medical diagnostic imaging support (MDIS) system at Tripler Army Medical Center, HI, for tele-imaging throughout the Pacific Rim and to further the proliferation of clinically effective time and distance independent medicine techniques through the use of state-of-the-art telecommunications.

FY 1996 Accomplishments:

•	6637	Expanded number of spokes and continued hub infrastructure development.
Total	6637	

FY 1997 Accomplishments:

•	13372	Expand number of spokes and continued hub infrastructure development.
•	335	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	13707	

FY 1998 Planned Program: Project is not funded in FY 1998.

FY 1999 Planned Program: Project is not funded in FY 1999.

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	6807	0	0	0
Appropriated Value	7000	13707		
Adjustments to Appropriated Value	-363			
FY 1998 President's Budget Request	6637	13707	0	0

Change Summary Explanation: Funding - FY 97 increase of (+13707) provided by Congress to support AKAMAI efforts at Tripler Army Hospital.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102419A Aerostat Joint Program Office

PROJECT: DE55

COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DE55 Aerostat Joint Program	4000	26376	86193	134298	109450	113399	0	0	130900	604616

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 Aerostat Joint Project Office (JPO) for Land Attack Cruise Missile Defense (LACMD) and directed the funding for FY 96-01. This is a multiservice effort with the Army as the lead service. The Aerostat JPO is assigned to the AAE with operational control assigned to the U. S. Army Space and Strategic Defense Command. The program mission is to maximize the battle space of land, sea and air based missile systems by providing Over-the-Horizon (OTH) surveillance and precision track for broad area defense against land attack cruise missiles. Aerostats are theater based systems employing advanced technologies with specific focus on LACMD. Aerostat sensors provide the OTH surveillance/precision tracking for the Air Directed Surface to Air Missile (ADSAM) concept. The role of the aerostat is to expand the battlefield commander's surveillance and engagement capability against cruise missiles and other low flying aircraft by extending the battle space for systems such as Patriot, Medium Extended Air Defense System/Corps SAM, Aegis and Advanced Medium Range Air-to-Air Missile (AMRAAM). This project supports upgrades to existing surveillance and tracking systems and is appropriately placed in Budget Activity 7.

Acquisition Strategy: The Aerostat JPO executed a Concept Studies Phase by soliciting CMD architecture concepts that employ aerostats. The most promising concept(s), up to 2, will be carried to a subsequent phase for design and risk mitigation of the aerostat system. The government will downselect at contract award (1st Qtr FY98), at the Preliminary Design Review (PDR) or at the Critical Design Review (CDR). Risk reduction activities will include testbed type activities and/or testing at the component level. Risk reduction activities are being conducted in parallel by DARPA and Other Government Agencies (OGAs) to mitigate technical and operation risk areas. Testbed and modeling/simulation activities support the risk mitigation effort. One prototype aerostat system will be developed utilizing the design and risk mitigation effort and products.

FY 1996 Accomplishments:

•	4000	Established the Joint Project Office (JPO) and awarded 3 Concept Definition Contracts.
Total	4000	

FY 1997 Planned Program:

•	11994	Complete Concept Definition and initiate ACTD Risk Mitigation & Design Phase .
•	1435	Conduct Test and Evaluation (Testbed)
•	4602	Joint Project Office.
•	7701	Risk reduction program.
•	644	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	26376	

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102419A Aerostat Joint Program Office

PROJECT: DE55

FY 1998 Planned Program:

•	61700	ACTD Risk Mitigation & Design Contracts
•	18534	Risk Mitigation, Test & Evaluation, Demonstrations and exercises.
•	5959	Aerostat Joint Project Office. Army, Navy, and Air Force on-site and off-site costs.
Total	86193	

FY 1999 Planned Program:

•	94648	Complete ACTD Risk Mitigation & Design contracts and award ACTD Development & Demo contract.
•	31900	Conduct Test and Evaluation (Testbed) and proof of concepts.
•	7750	Aerostat Joint Project Office. Army, Navy and Air Force on-site and off-site costs.
Total	134298	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	12993	38940	106592	134940
Appropriated Value	4000	26376		
Adjustments to Appropriated Value				
FY 1998 BES/Pres Bud Request	4000	26376	86193	134298

Change Summary Explanation:

Funding: FY 96 - Congressional reprogramming request (12993), Congress approved $4000.
FY 97 - Congressional reduction (-12000) during appropriation markup
Futher reduction (-564) reprogrammed to higher priority programs.

Schedule: Funding reductions required restructuring of the acquisition strategy. The concept definition phase will extend through 3rd qtr FY 97. ACTD risk mitigation/design contract will be awarded in 1st qtr FY 98. The acquisition strategy allows downselect at contract award, PDR, or CDR. Decision will be dependent upon maturity of technology. One prototype aerostat system will be completed and delivered in FY02.

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
Army Missile Command PE 0603009A	5000	0	0	0	0	0	0	0	0	6000
DARPA	1000									

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102419A Aerostat Joint Program Office

PROJECT: DE55

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Program Office established		X*														
Program Plan to OSD		X*														
Definition Phase**				X	X	X	X									
OSD Review									X						X	
ACTD Risk Mitigation/Design**									X	X	X	X	X	X	X	
ACTD Development & Demo**															X	X
Test Bed**			X*	X	X	X	X	X	X	X	X	X	X	X	X	X

*Denotes completed milestone

**Efforts are/will be on-going. Will be denoted by an asterisk when completed.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102419A Aerostat Joint Program Office

PROJECT: DE55

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Product Development & Risk Mitigation	2598	21130	80234	126548
Program Management	1402	4602	5959	7750
SBIR/STTR		644		
Total	4000	26376	86193	134298

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
H&R	C/CPFF	30 Sep 96	2000	2000	0	666	1334				2000
Lockheed Martin	C/CPFF	30 Sep 96	2000	2000	0	666	1334				2000
Northrop Grum	C/CPFF	30 Sep 96	2000	2000	0	666	1334				2000
OGA	MIPR			4872			4872				4872
ACTD Risk Mit/ Design - TBD	C/CPAF	3 Nov 97	117600	0	0	0	0	56000	53700	7900	117600
OGAs	MIPR			27600				5700	18900	3000	27600
Dev & Demo TBD	C\CPAF	Jul 99		257048					22048	23500	45548
Support and Management Organizations											
Aerostat JPO				44401		1402	4602	5959	7750	24688	44401
Support Contracts	C/CPFF	TBD		29465		600	3120	4000	5000	16745	29465
SBIR/STTR				644			644				644
Test and Evaluation Organizations											
OGAs	MIPR			103551	0	0	7701	8534	20900	66416	103551
Test Bed - TBD				13435	0	0	1435	6000	6000	0	13435

Government Furnished Property: None

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102419A Aerostat Joint Program Office

PROJECT: DE55

	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Subtotal Product Development		1998	8874	61700	94648	34400	201620
Subtotal Support and Management		2002	8366	9959	12750	41433	74510
Subtotal Test and Evaluation			9136	14534	26900	66416	116986
Total Project		4000	26376	86193	134298	142249	393116

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203726A Advanced Field Artillery Tactical Data System

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	36973	38512	39039	34939	25536	3345	3488	626	0	531776
D322 AFATDS Development	36973	33735	34354	30951	23816	3345	3488	626	0	513339
D2ET AFATDS Operational Test	0	4777	4685	3988	1720	0	0	0	0	18437

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. As a battle management system, AFATDS will provide automated fire support in the Army Battle Command System (ABCS) architecture in support of close, rear and deep operations, 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 missiles) 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. These projects support development of a replacement system for the Initial Fire Support Automated System (IFSAS) systems and are appropriately funded in Budget Activity 7.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203726A Advanced Field Artillery Tactical Data System

PROJECT: D322

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D322 AFATDS Development	36973	33735	34354	30951	23816	3345	3488	626	0	513339

A. Mission Description and Justification: Project D322 - AFATDS Development: The project is composed of a common suite of hardware [Army Tactical Command and Control System (ATCCS) 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. Both hardware and software will be capable of being tailored to perform the fire support command, control and coordination requirements at any level of command. This will permit variable command and control relationships and full fire support functionality at all echelons of field artillery and maneuver, from corps to battery or company in support of all levels of conflict. The Marine Corps will also utilize AFATDS. AFATDS will interoperate with Navy and Air Force Command and Control weapon systems as well as the German fire support system (ADLER), the French fire support system (ATLAS) and British fire support system (BATES).

Acquisition Strategy: AFATDS software will be developed in incremental releases. The previously identified software versions have been redesignated as AFATDS '97, '98, '99 and '00 to better reflect the current plan to release increments of software functionality in each program year. AFATDS '96, previously named Version 1, received Materiel Release 13 Dec 96. It automates 51% of the required tasks including fire support planning, target nomination, order of fire, and meteorological/survey operations. AFATDS Releases '97, '98 and '99, previously identified as Version 2, will add additional functions, providing automated capabilities for 73% of the required tasks including fire support sensor planning and additional munitions. Completion of AFATDS '00, previously identified as Version 3, will result in automation of all the required tasks to meet the objective system, including full fire support planning, target acquisition support and field artillery mission support. Additionally, the completed software will utilize the Army Common Operating Environment (ACOE) architecture.

FY 1996 Program:

•	300	Conduct Army Systems Acquisition Review Council (ASARC) (Milestone III)
•	36673	Continue AFATDS '97 and '98 software development
Total	36973	

FY 1997 Planned Program:

•	10089	Complete AFATDS '97 and Support Testing
•	800	Prepare for AFATDS '97 Operational Testing
•	12011	Continue AFATDS '98 software development
•	10024	Initiate AFATDS '99 software development
•	811	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)
Total	33735	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203726A Advanced Field Artillery Tactical Data System PROJECT D322

FY 1998 Planned Program:

•	10356	Complete AFATDS '98 and Support Testing
•	800	Prepare for AFATDS '98 Operational Testing
•	18004	Continue AFATDS '99 software development
•	5194	Initiate AFATDS '00 software development
Total	34354	

FY 1999 Planned Program:

•	10573	Complete AFATDS '99 and Support Testing
•	800	Prepare for AFATDS '99 Operational Test
•	19578	Continue AFATDS '00 software development
Total	30951	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	35420	34564	4570	2980
Appropriated Value	35778	33735		
Adjustments to Appropriated Value	1195			
FY 1998 Pres Bud Request	36973	33735	34354	30951

Change Summary Explanation:

Funding: FY98 increased (+29784) for software development IAW Army Cost Position as directed by Acquisition Decision Memorandum.
FY99 increased (+27971) for software development IAW Army Cost Position as directed by Acquisition Decision Memorandum.

Schedule: Subsequent AFATDS releases development moved up from post FYDP to FY00 completion

Technical: Not applicable

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
OPA - B28600	31730	31530	33245	37491	38899	40729	43372	41926	144495	472078
Spares (BA9708/MA9708/BS9708)	256	3081	1970	2467	2848	2824	3028	2740	8100	27314

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203726A Advanced Field Artillery Tactical Data System

PROJECT: D322

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ASARC - Mile III	X*															
Begin Fielding Total Force				X*												
Release AFATDS '97								X								
Multi Service OT								X								
Release AFATDS '98												X				
Release AFATDS '99																X

*Milestone Complete

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203726A Advanced Field Artillery Tactical Data System

PROJECT: D322

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Software Development	29846	27374	29195	25465
Support Contracts	2411	1486	1615	1580
In-House Support	2495	1695	1739	1712
GFE	1043	2269	1076	2021
Test and Evaluation	1178	100	729	173
SBIR/STTR		811		
Total	36973	33735	34354	30951

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
HDC (prev. MX)	SS/CPAF	27 Apr 90		208664	121270	27291	24578	23886	11639		208664
TBD		FY 01		39876				3105	11592	25179	39876
Various, MX BOA		FY 87	34891	34891	34891					0	34891
STRICOM/FSATS	MIPR		12092	12092	12092					0	12092
COE/ATCCS	MIPR		11460	11460	5560	1500	2000	1200	1200	0	11460
SED	MIPR			8201	3564	811	796	1004	1034	992	8201
NRAD (USMC/NAVY)				244		244					244
ADCCS	MIPR	FY95		2200	2200					0	2200
SBIR/STTR				811			811				811
Support and Management Organizations											
CSC/ARC	C/CPFF	Dec 92	12214	12214	6977	1545	900	958	938	896	12214
PROGRAM MANAGEMENT: PM FATDS					16494	1589	763	787	767	828	21228

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203726A Advanced Field Artillery Tactical Data System

PROJECT: D322

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
MATRIX					13920	906	932	952	945	938	18593
Misc. Contracts											
CECOM					70351	866	586	657	642	620	73722
Test and Evaluation Organizations											
OPTEC					5924	157					6081
MISC. (Ft. Hood)	MIPR				2334	1021	100	729	173	625	4982

Government Furnished Property

Item Description	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property									
LCU, TCU, PSE C/FFP			32433	1043	2269	1076	2021	1197	40039
Support and Management Property: None									
Test and Evaluation Property									
TEST HARDWARE			18041						18041
Subtotal Product Development			212010	30889	30454	30271	27486	27368	358478
Subtotal Support and Management			107742	4906	3181	3354	3292	3282	125757
Subtotal Test and Evaluation			26299	1178	100	729	173	625	29104
Total Project			346051	36973	33735	34354	30951	31275	513339

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203726A Advanced Field Artillery Tactical Data System

PROJECT: D2ET

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D2ET AFATDS Operational Test	0	4777	4685	3988	1720	0	0	0	0	18437

A. Mission Description and Justification: Project D2ET - Operational Test: The project finances the direct costs of planning and conducting operational testing and evaluation of the Advanced Field Artillery Tactical Data System (AFATDS) by the Operational Test and Evaluation Command (OPTEC). AFATDS is an Acquisition Category (ACAT) I system which passed the Initial Operational Tests and Evaluation (IOTE) in FY 95. Follow on Operational Tests (OTs) are planned for AFATDS software releases in FY 97, FY98, FY99 and FY00. Operational Testing is conducted under conditions, as close as possible, to those encountered in actual combat with typical user troops trained to employ the system. OPTEC provides Army leadership with an independent test and evaluation of effectiveness and suitability of the system. Project D2ET is restructured from within this PE (0203726A) and is not a new start.

Acquisition Strategy: Not Applicable.

FY 1996 Program: Project not funded in FY 96

FY 1997 Planned Program:

•	3638	Conduct AFATDS '97 IOTE testing
•	682	Evaluate AFATDS '97 IOTE test results
•	340	Complete IOTE unit (Test Players) preparation and conduct of AFATDS '97 IOTE
•	117	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)
Total	4777	

FY 1998 Planned Program:

•	3617	Conduct AFATDS '98 Operational Test
•	714	Evaluate AFATDS '98 OT test results
•	354	Complete OT unit preparation for AFATDS '98
Total	4685	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203726A Advanced Field Artillery Tactical Data System PROJECT D2ET

FY 1999 Planned Program:

•	2899	Conduct AFATDS '99 Operational Test
•	728	Evaluate AFATDS '99 OT test results
•	361	Complete OT unit preparation for AFATDS '99
Total	3988	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	4933	4868	4149
Appropriated Value		4777		
Adjustments to Appropriated Value				
FY 1998 Pres Bud Request	0	4777	4685	3988

C. Other Program Funding Summary: Not Applicable.

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Multi Service OT (AFATDS '97)								X								
AFATDS '98 OT												X				
AFATDS '99 OT																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203726A Advanced Field Artillery Tactical Data System

PROJECT: D2ET

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Operational Test and Evaluation	0	4660	4685	3988
SBIR/STTR		117		
Total		4777	4685	3988

B. Budget Acquisition History and Planning Information:

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations: None											
Support and Management Organizations: None											
Test and Evaluation Organizations											
OPTEC					3267	0	4660	4685	3988	1710	18310
SBIR/STTR							117				117
Government Furnished Property: None											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation					3267		4777	4685	3988	1710	18427
Total Project					3267		4777	4685	3988	1710	18427

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	206625	206816	136520	69443	27384	6586	26714	111211	Continuing	Continuing
D2TT Bradley A3 IOTE	0	2013	5771	3154	0	0	0	0	0	10938
D2UT Abrams IOTE	0	1415	0	0	0	0	0	0	0	1415
D280 Recovery Vehicle Improvement Program	2925	3051	0	0	0	0	0	0	0	53807
D330 Abrams Improvement	40691	69749	33287	6421	2982	3973	9923	34805	Continuing	Continuing
D344 Fire Support Team Vehicle	21993	17915	7920	8974	2106	0	0	0	0	72881
D371 Bradley Base Sustainment Program	115758	87753	69494	33989	1012	1008	0	0	0	447164
D377 Bradley A3 P3I (BFV A4)	0	0	0	0	0	0	15185	74793	Continuing	Continuing
D392 Armored Gun System Improvements	9861	0	0	0	0	0	0	0	0	9861
D718 Ground Combat Vehicles HTI	0	11651	2009	2012	16039	1010	1004	1003	0	34728
DC64 TRACTOR DUMP	15397	13269	18039	14893	5245	595	602	610	0	68650

Mission Description and Budget Item Justification: This Program Element (PE) responds to vehicle deficiencies identified during Desert Storm, continues technical system upgrades, and addresses needed evolutionary enhancements to tracked combat (Abrams, Bradley) and tactical (Recovery Vehicle, Bradley FIST) vehicles. This PE provides combat effectiveness enhancements for the Abrams Tank through a series of product improvements to the current M1A2 production vehicles. Additional improvements allow the M1A2 SEP tank to operate effectively with the M2A3 Bradley. This PE also addresses future product improvements to the M2A3. These projects support development of upgrades to current production vehicles and are appropriate to Budget Activity 7.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D2TT

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D2TT Bradley A3 IOTE	0	2013	5771	3154	0	0	0	0	0	10938

A. Mission Description and Justification: This project provides for the initial operational test and evaluation (IOTE) of Bradley A3 prototypes and pre-production vehicles in order to generate a system performance profile in support of a Milestone III decision. Critical areas for test include command and control, lethality, survivability, mobility, and sustainability.

Acquisition Strategy: Not Applicable

FY 1996 Accomplishments: Program not funded in FY 1996

FY 1997 Planned Program:

•	1964	Testing Support (Limited User Test (LUT) 1)
•	49	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs
Total	2013	

FY 1998 Planned Program:

•	5771	Testing Support (LUT 2)
Total	5771	

FY 1999 Planned Program:

•	3154	Testing Support (Initial Operational Test and Evaluation (IOTE))
Total	3154	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	2079	4315	5880
Appropriated Value		2013		
Adjustments to Appropriated Value				
FY 1998 President's Budget Request	0	2013	5771	3154

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203735A Combat Vehicle Improvement Programs PROJECT D2TT

Change Summary Explanation:

Funding: 1456 increase in FY 98 due to movement of WTCV funds to RDTE IAW OSD/DA LRIP funding policy.
2726 decrease in FY 99 due to reprogramming of funds to higher priority Army programs.

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
Bradley Base Sustainment (G80717)		172296	118325	328409	366648	445709	376194	388939	Cont'd	Cont'd

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LUT 1									X							
LUT 2											X					
IOTE															X	

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D2UT

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D2UT Abrams IOTE	0	1415	0	0	0	0	0	0	0	1415

A. **Mission Description and Justification:** This project funds planning and the procurement of a parts support package for 4 M1A2 SEP tank prototypes (See Project D330). The prototypes will participate in a combined arms war game whose main purpose is to demonstrate the operational effectiveness of the first fully digital version of the Bradley Infantry Fighting Vehicle. This is commonly referred to as the M2A3 Initial Operational Test & Evaluation (IOT&E) [See Project D2TT].

Acquisition Strategy: Not Applicable

FY 1996 Accomplishments: Program not funded in FY 96

FY 1997 Planned Program:

- 1380 Testing Support
- 35 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs

Total 1415

FY 1998 Planned Program: Program not funded in FY 98

FY 1999 Planned Program: Program not funded in FY 99

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	1460	969	0
Appropriated Value		1415		
Adjustments to Appropriated Value				
FY 1998 President's Budget Request	0	1415	0	0

Change Summary Explanation:

Funding: FY 98 (-969) decrease reflects movement of funding to Project D330 Abrams Improvements.

C. **Other Program Funding Summary**

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
Abrams Improvement Program (D330)	40691	69749	33287	6421	2982	3973	9923	34805	Con't	Con't

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D2UT

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Procure parts support package						X										
Test site preparation									X							
Bradley IOT&E Participation																X

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D280

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D280 Recovery Vehicle Improvement Program	2925	3051	0	0	0	0	0	0	0	53807

A. **Mission Description and Justification:** The M88A2 Improved Recovery Vehicle (IRV), also known as the HERCULES, is an armored, full-tracked, diesel-powered recovery vehicle configured with an A-frame boom, two winches, and a spade. The HERCULES has a 1050 HP engine, an improved transmission to handle the additional towing capability, and hydraulic assisted brakes. The boom has a 35 ton lift capacity. The main winch has a constant pull capability of 70 tons. There is an additional 3 ton auxiliary winch which is used to deploy the main winch. The hull is armored for protection against small arms fire, artillery fragments, and anti-personnel mines. The vehicle has a .50 caliber machine gun mounted for self-protection. The M88A2 IRV is capable of performing recovery, evacuation, and limited repair of the main battle tank. The HERCULES is currently migrating from the Engineering, Manufacturing and Development Phase with Low Rate Initial Production (LRIP) to Full Rate Production (FRP), with a Milestone III decision scheduled for 2Q97.

Acquisition Strategy: All development and production contract actions are on a sole source basis to United Defense Limited Partnership.

FY 1996 Accomplishments:

•	1268	Completed Initial Operational Test & Evaluation
•	636	Completed Electronic Data Development (TDP)
•	165	Integrated Electronic Tech Manual Development
•	841	Integrated Logistic Support Development
•	15	Program Management
Total	2925	

FY 1997 Planned Program:

•	1664	Refurbishment of Test Vehicles
•	1300	Depot Maintenance Work Requirements (DMWR) Development
•	13	Program Management
•	74	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs
Total	3051	

FY 1998 Planned Program: Program not funded in FY 98

FY 1999 Planned Program: Program not funded in FY 99

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D280

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	3000	3116	0	0
Appropriated Value	3085	3051		
Adjustments to Appropriated Value	-160	0		
FY 1998 President's Budget Request	2925	3051	0	0

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
GA0570 Improved Recovery Vehicle (M88 Mod)	54363	55687	28601	40229	59702	73974	87084	109808	Con't	Con't
GE0171 Spares (Initial) M88E1	1615	299	833	1051	1260	978	1631	1628	Con't	Con't

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Award LRIP level III Provisioning Spares and Repairs		X*														
Definitize Initial Production release TDP and Packaging		X*														
Definitize LRIP Option - 15 Veh		X*														
Definitize LRIP Option - 14 Veh		X*														
Begin IOT&E				X*												
End IOT&E					X*											
Milestone III Decision						X										
First Unit Equipped (FUE)							X									

* Milestone Completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D280

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Initial Operational Test and Evaluation	1268			
Electronic Data Development	636			
Integrated Electronic Tech Manual Development	165			
Integrated Logistic Support Development	841			
Test Vehicle Refurbishment		1664		
Depot Maintenance Work Requirement (DMWR) Development		1300		
Program Management	15	13		
SBIR/STTR		74		
Total	2925	3051		

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
United Defense York, PA	SS-CPFF	Various	N/A		39075	2451	2964				44490
TACOM Warren, MI						285					285
Other						50					50
Support and Management Organizations											
PMO/TACOM Warren, MI					1507	15	13				1535
Other Government Agencies					278						278
SBIR/STTR							74				74
Test and Evaluation Organizations											
TECOM/CSTA-APG, MD					5498	56					5554

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D280

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
TACOM Warren, MI					542						542
Other					931	68					999
Government Furnished Property: None											
Subtotal Product Development					39075	2786	2964				44825
Subtotal Support and Management					1785	15	87				1887
Subtotal Test and Evaluation					6971	124					7095
Total Project					47831	2925	3051				53807

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D330

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D330 Abrams Improvement	40691	69749	33287	6421	2982	3973	9923	34805	Continuing	Continuing

A. **Mission Description and Justification:** This project funds improvements to the Abrams Main Battle Tank (M1 series) which began production in 1979. Its mission is to close with and destroy enemy forces on the integrated battlefield using firepower, maneuver, and shock effect. The current production model, the M1A2, is the Army's first fully digital ground combat system. The first Army unit was equipped with M1A2 tanks in October 1995.

The M1A2 System Enhancement Program (SEP) is the name given to the latest group or "block" of improvements funded under this project. SEP is an upgrade to the computer core that is the essence of the M1A2. It provides better microprocessors, color flat panel displays, more memory capacity, better Soldier-Machine Interface (SMI), and a new open operating system. An Under Armor Auxiliary Power Unit (UAAPU) is being developed for production in order to mitigate power demands on the batteries so that all systems may operate without turning on the main engine. A new thermal management system will dissipate the heat generated by the electronic components. The M1A2's formidable target acquisition capabilities will also be significantly enhanced with the development for production of the 2nd Generation Forward Looking Infra-Red (2nd Gen FLIR) technology. Both the Gunner's Primary Sight (GPS) and the Commander's Independent Thermal Viewer (CITV) will be modified to integrate the improved thermal imaging capabilities of the new FLIR technology.

The first M1A2 SEP tank is scheduled for production at the end of FY1999. The M1A2 SEP tank will be capable of running the Army's Common Operating Environment (ACOE) software for digital communication with the rest of the combined arms team. Its computer systems will also accommodate future growth through FY2003 without significant hardware changes. The Army plans to develop and incorporate a series of target acquisition, fire control, and survivability enhancements which will bridge the gap between the Abrams Main Battle Tank (M1A2 SEP) and the Future Combat System (PE 63645, Project DQ19).

Acquisition Strategy: General Dynamics Land Systems Division (GDLS) is the prime contractor for this development program. Texas Instruments, Inc. is the principal contractor developing the FLIR sights, which the Government will provide to General Dynamics. The cost plus fixed fee contract with General Dynamics was awarded on 14 September 1994.

FY 1996 Accomplishments:

•	32574	Completed SEP/2nd Gen FLIR Critical Design Review (CDR); Continued development and began manufacturing SEP (GDLS) and FLIR (TI) prototypes; GDLS also began Direct Support Electrical System Test Set (DSESTS) efforts with sub-contractor Pentastar
•	8117	Provided Government Support / Government Furnished Equipment (GFE)
Total	40691	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203735A Combat Vehicle Improvement Programs
	PROJECT D330

FY 1997 Planned Program:

•	60200	Continue development, prototype fabrication and complete component testing; Evaluate M1A2 compatibility with ACOE and continue Command and Control (C2) integration efforts
•	3900	Begin testing of hardware/software on tank
•	3945	Provide Government Support/GFE
•	1704	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs
Total	69749	

FY 1998 Planned Program:

•	15000	Complete fabrication and assembly of demonstration hardware, continue logistics, quality and other concurrent engineering development efforts
•	12169	Continue testing of hardware/software on tank
•	6118	Provide Government Support/GFE
Total	33287	

FY 1999 Planned Program:

•	3000	Complete logistics, quality and other concurrent engineering developmental efforts, and finalize documentation
•	1900	Complete testing of hardware/software on tank
•	1521	Provide Government Support/GFE
Total	6421	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	38047	70046	32415	1933
Appropriated Value	39116	69749		
Adjustments to Appropriated Value	+1575			
FY 1998 President's Budget Request	40691	69749	33287	6421

Change Summary Explanation:

Funding: FY 99 +4488 increase reflects funding added to initiate pre-planned product improvements.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D330

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
Abrams IOTE (D2UT)	0	1415	0	0	0	0	0	0	0	1415
Abrams Upgrade Program (GA0750)	565132	463872	594856	690984	670723	505264	292352	357267	Con't	Con't
Abrams Vehicle Modification (GA0700)	50094	63157	29843	30070	23894	68786	107084	129766	Con't	Con't
M1A2 Training Devices (GB1302)	6133	12590	13351	13850	8527	11236	12646	13070	Con't	Con't
Training Device Mod (GA5208)	3017	3181	2222	6440	2784	5703	5937	5965	Con't	Con't
Initial Spares (GE0161)	16045	9281	13948	10129	10298	11324	18778	19071	Con't	Con't

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Program Milestones																
Preliminary Design Review (PDR) - SEP/2nd Gen FLIR	X*															
Critical Design Review (CDR) - SEP/2nd Gen FLIR			X*													
PDR - Software						X										
CDR - Software							X									
Preliminary Mfg TDP Complete							X									
Begin Government/Contractor Testing					X*											
Complete Government/Contractor Testing														X		
Contract Completion																X

* Milestone Completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D330

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
GDLS Contract	24574	53000	13000	3000
Texas Instruments Contract	8000	7200	2000	0
Government/Contractor Testing	445	3900	12169	1900
Government Support/GFE	7672	3945	6118	1521
SBIR/STTR		1704		
Total	40691	69749	33287	6421

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Prior Contracts				472549	472549						472549
GDLS Sterling Hgts, MI	SS-CPFF	Sep 94		127000	17190	24574	53000	13000	3000	Con't	110764
Texas Instruments McKinney, TX	C-CPAF	Jul 94		25030	7830	8000	7200	2000	0	Con't	25030
Note: FY 95 and FY 96 GDLS SEP contract efforts partially funded by 0203758A/D374											
Support and Management Organizations											
PMO / TACOM Warren, MI	MIPR				32221	2617	3245	2000	1021	Con't	41104
GFE / TACOM	MIPR					5055	700	4118	500	Con't	10373
SBIR / STTR							1704			Con't	1704
Test and Evaluation Organizations											
TECOM	MIPR				29675	445	3900	12169	1900	Con't	48089
Government Furnished Property None											
Subtotal Product Development					497569	32574	60200	15000	3000		608343
Subtotal Support and Management					32221	7672	5649	6118	1521		53181
Subtotal Test and Evaluation					29675	445	3900	12169	1900		48089
Total Project					559465	40691	69749	33287	6421		709613

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D344

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D344 Fire Support Team Vehicle	21993	17915	7920	8974	2106	0	0	0	0	72881

A. **Mission Description and Justification:** The Bradley Fire Support (BFIST) vehicle program integrates Mission Equipment Packages (MEP) into a Bradley Fighting Vehicle and supports heavy maneuver force operations. BFIST replaces the aging M981 Fire Support Vehicle allowing for fire support teams and Combat Observation Lasing Teams in our heavy divisions. BFIST allows fire support operations to be performed on the battlefield in vehicles with the same signature, survivability, and mobility as other of Bradley maneuver units. This program supports material development and conversion of selected Bradley A2 Operation Desert Storm (ODS) based upgrades and Bradley A3 vehicles to the BFIST configuration. The A2 ODS based BFIST is designated M7 and the A3 based BFIST designated M7A1.

Acquisition Strategy: The BFIST program is executed in two-phases: Phase I converts Bradley A2 ODS platforms to the M7 BFIST configuration and Phase II converts Bradley A3 platforms to the M7A1 BFIST configuration. A Phase I Cost Plus Incentive Fixed Fee (CPIF), Engineering and Manufacturing Development (EMD) contract through full and open competition requires design and fabrication of four (4) BFIST prototypes for pre-production/user testing. Sole Source/Firm Fixed Price (SS/FFP) Low Rate Initial Production (LRIP) and Full Rate Production contracts with options will follow successful milestone decisions. Follow-on Phase II focuses on the A3 based BFIST (M7A1) with CPFF EMD, LRIP. Full Rate Production contracts will be awarded for development and production of the Bradley BFIST.

FY 1996 Accomplishments:

- 17623 Phase I Design Engineering
- 1310 Phase I Prototype Manufacturing
- 3060 Program Management

Total 21993

FY 1997 Planned Program:

- 12213 Phase I Design Engineering
- 104 Phase I Prototype Manufacturing
- 1000 Phase II Design Engineering
- 4160 Program Management
- 438 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs

Total 17915

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203735A Combat Vehicle Improvement Programs
	PROJECT D344

FY 1998 Planned Program:

•	1052	Phase I Design Engineering
•	972	Phase II Prototype Manufacturing
•	1989	Phase II Design Engineering
•	1701	Program Management
	2206	3 LRIP IOTE vehicles
Total	7920	

FY 1999 Planned Program:

•	5526	Phase II Design Engineering
•	930	Phase II Prototype Manufacturing
•	2518	Program Management
Total	8974	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	22559	20398	3818	0
Appropriated Value	23192	17915		
Adjustments to Appropriated Value	-1199			
FY 1998 President's Budget Request	21993	17915	7920	8974

Change Summary Explanation:

Funding: 4102 increase in FY98 due to movement of WTCV funds to RDTE IAW OSD/DA LRIP funding policy. FY99 increase to support continued M7A1 development.

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
GZ2300 FIST Vehicle (M7/M7A1)			14656	16169	29286	36626	51650	64140	378409	590936

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Phase I																
Preliminary Design Review	X*															
Critical Design Review		X*														

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D344

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
First A2 ODS BFIST Prototype				X*												
Pre-Production Verification Test C/G						X										
Limited User Test #1							X									
LRIP Contract Award									X							
Phase II																
Contract Award						X										
Critical Design Review													X			
Pre-Production Verification Test C/G															X	

* Milestone Completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D344

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Phase I Design Engineering	17623	12213	1052	
Phase I Prototype Manufacturing	1310	104		
Phase II Design Engineering		1000	1989	5526
Phase II Prototype Manufacturing			972	930
Program Management	3060	4160	1701	2518
LRIP IOTE Vehicles			2206	
SBIR/STTR		438		
Total	21993	17915	7920	8974

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
UDLP	C/CPIF	Jun 95		48484	11499	18933	11917	1052	0	0	43401
UDLP	SS/CPIF	Mar 97					1000	2961	6456	1515	11932
UDLP	SS/FFP	Oct 97						2206			2206
Support and Management Organizations:											
PM/Govt					2474	3060	2933	1701	1993	591	12752
SBIR/STTR							438				438
Test and Evaluation Organizations:											
ATC/TECOM							1627		525		2152
Subtotal Product Development					11499	18933	12917	6219	6456	1515	57539
Subtotal Support and Management					2474	3060	3371	1701	1993	591	13190
Subtotal Test and Evaluation							1627		525		2152
Total Project					13973	21993	17915	7920	8974	2106	72881

Government Furnished Property: None

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D371

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D371 Bradley Base Sustainment Program	115758	87753	69494	33989	1012	1008	0	0	0	447164

A. **Mission Description and Justification:** The Bradley A3 program upgrades a proven, tracked combat vehicle with digital command and control, increased situational awareness, enhanced lethality and survivability, and supportability/sustainability improvements. This project funds engineering and manufacturing development (EMD) of the Bradley A3. The effort develops and fully integrates digital electronics featuring a 1553 databus core electronic architecture and upgraded vehicle system software packages (command and control, navigation, communications, fire control, system/component diagnostics, and embedded training capabilities), 2nd Gen FLIR, and other systems/components into renovated (overhauled) Bradley A2s. Current plans call for conversion of 1602 Bradley A2s to the Bradley A3 configuration.

Acquisition Strategy: Milestone II/IV for the Bradley A3 was held in FY94 and the program was approved for EMD. United Defense was subsequently awarded a Cost Plus Incentive Fee (CPIF) contract for development and integration of advanced A3 systems and components. Ten principal subcontractors, comprising approximately 33% of the contract cost, are participating in the EMD work effort. The first of eight prototypes was completed in 4QFY96; six prototypes are currently undergoing contractor and government production qualification testing. A Low Rate Initial Production (LRIP) decision is planned for 3QFY97. Live Fire and Limited User Testing will follow the LRIP decision.

FY 1996 Accomplishments:

•	87590	Continue Design Engineering Effort
•	20620	Began Prototype Manufacturing
•	7548	Project Management
Total	115758	

FY 1997 Planned Program:

•	69081	Continue Design Engineering Effort
•	4688	Continue Prototype Manufacturing
•	5150	Begin Production Qualification Testing (PQT) and Contractor Test Support; begin Live Fire Testing
•	6690	Project Management
•	2144	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs
Total	87753	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203735A Combat Vehicle Improvement Programs
	PROJECT D371

FY 1998 Planned Program:

•	58689	Continue Design Engineering Effort
•	579	Complete Prototype Manufacturing Effort
•	6455	Continue Live Fire Testing; Continue Production Qualification Testing; Begin Production Verification Testing (PVT)
•	3771	Project Management
Total	69494	

FY 1999 Planned Program:

•	23413	Continue Design Engineering Effort
•	9144	Complete Live Fire , PQT, and PVT Testing
•	1432	Project Management
Total	33989	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 97 President's Budget	114638	87135	61952	32115
Appropriated Value	117858	87753		
Adjustments to Appropriated Value	-2100			
FY 98 President's Budget Request	115758	87753	69494	33989

Change Summary Explanation:

Funding: 7542 increase in FY 98 due to digitization plus-up.
1874 increase in FY 99 due to digitization plus-up.

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
G80717 Bradley Base Sustainment		172296	118325	328409	366648	445709	376194	388939	Con't	Con't
GE0163 Spares (Initial) BFVS	5198	9297	298	1464	1873	1420	4088	4080	Con't	Con't
G20900 Bradley FVS Training Devices		572	1417	9544	21019	13228	4772	3425	Con't	Con't

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Critical Design Review	X*															
Software Critical Design Review	X*															

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D371

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
First A3 Prototype				X*												
PQT-Government					X											
Live Fire Test and Evaluation					X											
LRIP IPR							X									
LRIP Award (Phased Awards)							X			X			X			
Limited User Test #1									X							
Production Verification Testing (PVT) - Government									X							
Limited User Test #2											X					

* Milestone Completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D371

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Design Engineering	87590	69081	58689	23413
Prototype Manufacture	20620	4688	579	0
Testing		5150	6455	9144
Project Management	7548	6690	3771	1432
SBIR/STTR		2144		
Total	115758	87753	69494	33989

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
United Defense San Jose, CA	CPIF	Aug 95	302900	302900	80119	85115	54086	43900	14600		277820
Texas Instruments McKinney, TX	SS/CPIF	Feb 94	62800	64200	35782	17562	7710	1100	0		62154
Other Contracts					9585	5533	11973	14268	8813	2020	52192
SBIR/STTR							2144				2144
Support and Management Organizations:											
PMO					1936	1914	1700	1675	1277		8502
PM CCAWS					8421	4522	4500	1706			19149
Other					2307	1112	490	390	155		4454
Test and Evaluation Organizations:											
TECOM							5150	6455	9144		20749
Government Furnished Property: None											
Subtotal Product Development					125486	108210	75913	59268	23413	2020	394310
Subtotal Support and Management					12664	7548	6690	3771	1432		32105
Subtotal Test and Evaluation							5150	6455	9144		20749
Total Project					138150	115758	87753	69494	33989	2020	447164

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D392

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D392 Armored Gun System Improvements	9861	0	0	0	0	0	0	0	0	9861

A. Mission Description and Budget Item Justification: This project supports the engineering efforts associated with integration of the 2nd GEN FLIR into the Armored Gun System (AGS). The 2nd GEN FLIR will increase target detection, recognition and identification at night or through smoke, fog and other battlefield obscurants significantly increasing lethality and survivability of the AGS. The use of a common 2nd GEN FLIR will increase force effectiveness by allowing all host platforms to "see the same battlefield". Additional benefits will be realized through procurement economies of scale, common training and reduced logistics burden.

Acquisition Strategy: The AGS program was terminated. The funding in FY 1996 pays for work accomplished prior to stop of work and efforts associated with program termination.

FY 1996 Planned Program:

•	9861	Engineering/Manufacturing Development
Total	9861	

FY 1997 Planned Program: Project not funded in FY 97

FY 1998 Planned Program: Project not funded in FY 98

FY 1999 Planned Program: Project not funded in FY 99

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY97 President's Budget Request	16269	0	0	0
Appropriated Value	16727			
Adjustments to Appropriated Value	-6408			
FY 1998 President's Budget Request	9861	0	0	0

Change Summary Explanation:

Funding: In FY 1996 (-6408) funds reprogrammed to higher priority requirements.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203735A Combat Vehicle Improvement Programs PROJECT D392

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
64710/DL69 HTI 2nd GEN FLIR ED	28584									
23735/D330 Abrams 2nd GEN FLIR	23998									

D. Schedule Profile: All efforts have been put on hold due to program termination

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D392

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Prototype Design & Fabrication	9861	0		
Total	9861			

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Night Vision Labs	MIPR	MAR 96	9861	9861		9861					9861
United Defense	CPIF	TBD	TBD	TBD							
Support and Management Organizations	Not Applicable										
Test and Evaluation Organizations	Not Applicable										

Government Furnished Property: None

Subtotal Product Development						9861					9861
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project						9861					9861

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D718

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D718 Ground Combat Vehicles HTI	0	11651	2009	2012	16039	1010	1004	1003	0	34728

A. Mission Description and Budget Item Justification: This project encompasses two efforts which will provide increased survivability/offensive capability to multiple ground combat platforms. Current efforts include the Suite of Survivability Enhancement System (SSES) and the Field Emissive Display (FED) programs.

The SSES program is a Horizontal Technology Integration (HTI) effort to develop, produce and apply an integrated suite of common electronic sensors and countermeasures to Army ground combat vehicles. SSES will protect Army vehicles by providing advance warning of attack and activating countermeasures which will obscure our vehicles and jam, decoy or deflect enemy munitions. The first phase of the SSES program will field Laser Warning Receivers (LWR) to Bradley A3 vehicles. Initially, AN/AVR-2A Laser Warning Receivers, currently in production for Army aviation platforms, will be modified for ground vehicle use. In addition, a Commander's Decision Aid (CDA) will be developed that will integrate current and future sensors and countermeasures to provide manual, semiautomatic and automatic activation of countermeasures. The next phase of the SSES program will field Missile Warning Receivers to Bradley A3 vehicles. Additional phases of this program are contemplated which will provide additional countermeasures to the suite, and field the suite to other vehicles.

The FED program is an effort to develop common, multi-purpose displays for Army ground combat vehicles. This includes the capability for real time interpretation and application of command and control, target imagery and situation awareness information. The FED will also provide common, multi-purpose, high performance (low power, color, sunlight readable, high resolution) system displays. The application of the FED supports the Force XXI Battle Command - Brigade and Below (FBCB2) operational requirement for the display of common imagery and data in removable and remote operations. In doing so, this program focuses on the near to mid-term opportunity to improve the performance of system displays for combat and combat support vehicles, both tracked and wheeled. The high performance FED program takes advantage of advanced display technologies under development by the Defense Advanced Research Projects Agency (DARPA) by incorporating changes to meet the requirements of ground systems. System display performance specifications will optimize industry standard interfaces allowing incremental and inexpensive upgrades for future information display requirements.

As additional HTI projects are established in the SSES area, they will be added to and funded under project D718.

Acquisition Strategy: Follow on to existing contracts for RDTE with follow on Full and Open Competition for Production.

FY 1996 Accomplishments: The SSES effort was funded under PE 0604740A, Project D661, Tactical Surveillance System

FY 1997 Planned Program:

- 6491 Build and evaluate FED prototype and prepare a common, multi-purpose display performance specification (FED)
- 194 Program and Technical Support (FED)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs / PROJECT: D718

FY 1997 Planned Program: (continued)

•	2997	Develop A Kit and verify LWR specifications (SSES)
•	1000	Build CDA software (SSES)
•	684	Program Management/Technical Support (SSES)
•	285	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)
Total	11651	

FY 1998 Planned Program:

•	509	Complete vehicle Software Integration Lab test (SSES)
•	800	Begin vehicle test (SSES)
•	300	Continue Bradley integration (SSES)
•	300	Program and Technical Support (SSES)
•	100	Design High Perf FED for SSES for legacy systems (SSES)
Total	2009	

FY 1999 Planned Program:

•	1243	Complete vehicle tests (SSES)
•	569	Program and Technical Support (SSES)
•	200	Continue design support for FED for SSES in legacy systems (SSES)
Total	2012	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	0	0	0
Appropriated Value	0	11651		
Adjustments to Appropriated Value	0	0		
FY 1998 President's Budget Request	0	11651	2009	2012

Change Summary Explanation:

Funding: FY 97 Congressional increase (6700 for FED, 4951 for LWR)
FY 98 and FY 99 increases due to initiation of SSES program

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D718

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
GZ2400 Bradley Mod (SSES portion)					13100	13100	11500	10300	Con't	Con't
G80717 Bradley Sustainment (MDEP FPSC)						10029	3753	10334	Con't	Con't

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Develop A kit (SSES)							X									
Verify LWR Spec (SSES)								X								
Build CDA software (SSES)								X								
Complete SIL test (SSES)											X					
Field Test (SSES)													X			
MS III (SSES)																X
FED Performance Demonstration (FPD)						X										
Common Display Perf Spec (FPD)						X										

* Milestone Completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D718

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Integration to develop A kit (SSES)		1882	509	0
CDA Development and LWR Specifications Verification SSES		2115	1100	351
User's and Vehicle test and Logistics (SSES)		0	0	1092
Program and Technical Management (SSES)		684	300	469
FED Performance Demonstration/verification test (FPD)		6327	100	100
FED Common display Perf Spec (FPD)		358		
SBIR/STTR		285		
Total		11651	2009	2012

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Hughes (SSES)	Prod/FFP	Feb 97	2477	2477			1773	573	131		2477
UDLP LWR/CDA Spec Dev SSES	CPIF	Feb 97	4572	4572			2224	1036	1312		4572
MICRON (FPD)	Cost/Share	Jan 97	22800	22800			6327	100	100		6527
UDLP (FPD)	CPIF	Jan 97	1390	1390			140				140
Camber (FPD)	CPAF	Feb 97	225	225			45				45
GDLS (FPD)	CPIF	Feb 97	1525	1525			25				25
GDLS (SSES)	CPIF	Feb 97	50	50			50				50
TBD(Full/Open Competition	TBD	Jan 00	19056	19056						19056	19056
Support and Management Organizations											
PM GSI (SSES)	MIPR	Feb 97					434	200	369		1003
PM GSI (FPD)	MIPR	Jan 97					148				148
CECOM (SSES)	MIPR	Feb 97					200	50	50		300
TARDEC (SSES)	MIPR	Feb 98						50	50		100

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D718

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
SBIR/STTR							285				285
Test and Evaluation Organizations	None										
Government Furnished Property:	None										
Subtotal Product Development							10584	1709	1543	19056	32892
Subtotal Support and Management							1067	300	469		1836
Subtotal Test and Evaluation											
Total Project							11651	2009	2012	19056	34728

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203740A Maneuver Control System

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	48302	27888	25641	23932	18012	7202	0	0	8435	564835
DC49 Standard Theater Army Command and Control System (STACCS)	13458	0	0	0	0	0	0	0	0	133832
D2HT MCS Operational Test	4729	3772	0	0	0	0	0	0	0	8839
D484 Maneuver Control System	30115	24116	25641	23932	18012	7202	0	0	8435	422164

Mission Description and Budget Item Justification: This program element funds the evolutionary software development integration and testing of command and control systems. Project DC49, Standard Theater Army Command and Control System (STACCS) is the foundation for the Army Global Command and Control System (AGCCS), which is the Army component system that directly supports the implementation of the Joint Global Command and Control System (GCCS). This support is being accomplished through a selection of the Army's "best of breed" command and control functionality for inclusion in the Joint GCCS. The AGCCS-developed software systems will dramatically improve the Army's ability to analyze courses of action; develop and manage Army forces supporting joint war plans; and ensure that the Army portions of war plans are feasible. Using STACCS foundation applications and additional software functionality developed under the Army World Wide Military Command and Control System (WWMCCS) Information System (AWIS) and the United States Commander-in-Chief Europe (USCINCEUR) Command and Control System (UCCS), the AGCCS will provide a layered architecture and functional best of breed software applications to develop a totally integrated component of the GCCS. Project D2HT, MCS Operational Test, will support planned Initial Operational Test & Evaluation (IOT&E) of MCS. Project D484, Maneuver Control System (MCS), automates command and control (C2) functions previously performed manually. It provides secure, automated assistance to the Operations Staff (G3/S3) and other key staff to meet the information needs of commanders for quicker decisions and application of battlefield resources. MCS provides standardized message sets, acquires commander's critical information requirements, and displays status screens and battlefield graphics. These projects involve the development, enhancement, and integration of software functionality that currently exists within the Army's inventory or is currently under development and are therefore appropriately included in Budget Activity 7. Beginning in FY 1997 the Project DC49, STACCS became the AGCCS Project DC86 and moved to PE 0303150A, also in Budget Activity 7.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203740A Maneuver Control System

PROJECT: DC49

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DC49 Standard Theater Army Command and Control System (STACCS)	13458	0	0	0	0	0	0	0	0	133832

A. Mission Description and Justification: Project DC49 - STACCS: This project is the Army component system that directly supports the implementation of the Joint Global Command and Control System (GCCS). This support is being accomplished through the Army's Global Command and Control System (AGCCS) which is a selection of the Army's best of breed command and control functionality. The AGCCS-developed software systems will dramatically improve the Army's ability to analyze courses of action; develop and manage Army forces supporting joint war plans; and ensure that the Army portions of war plans are feasible. The Army has identified the Standard Theater Army Command and Control System (STACCS) as the foundation for the Army Global Command and Control System (AGCCS). Using STACCS foundation applications and additional software functionality developed under the Army WWMCCS Information System (AWIS) and the USCINCEUR Command and Control System (UCCS), the AGCCS will provide a layered architecture and functional best of breed software applications to develop a totally integrated component of the Global Command and Control System.

Acquisition Strategy: The AGCCS software integration and development effort is a 5 year RDTE incrementally funded completion effort. A hybrid (Cost-Plus-Award Fee and Firm-Fixed-Price) contract was awarded to Martin Marietta Management and Data Systems (MM/MDS) in December 1994. The contract consists of software development, software maintenance and relocation/de-installation of the test facility. The development strategy includes 10 Capability Packages (CPs). CPs #1 and #2 include conversion of existing products to GCCS and development of the Common Operating Environment (COE). Beginning with CP #3, all odd numbered CPs represent development of prime mission functionality. All even numbered CPs will be for fixes or upgrades to odd numbered CPs, if required. After delivery and testing of each new functionality (CPs 3,5,7,9) it will be determined if system upgrades (CPs 4,6,8,10) are needed.

A common hardware platform will be used within the Army to implement AGCCS/GCCS. This will include products from the Army's Common Hardware/Software (CHS II) contract and will include equipment and basic Commercial off the Shelf (COTS) software packages. The COTS hardware and software will provide machines with expanded processing, storage and communications capability as well as office-automation and management software.

FY 1996 Accomplishments:

- 1835 Performed Systems Engineering
- 7749 Continued Prime Mission Software Development - Capability package #5
- 612 Performed Data Engineering
- 3262 Conducted Systems Test and Evaluation - Capability Packages #2 and #3

Total 13458

FY 1997 Planned Program: Project restructured to PE 030150A, project DC86.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203740A Maneuver Control System

PROJECT: DC49

FY 1998 Planned Program: Project restructured to PE 030150A, project DC86.

FY 1999 Planned Program: Project restructured to PE 030150A, project DC86.

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	13805	0	0	0
Appropriated Value	13944			
Adjustments to Appropriated Value	-486			
FY 1998 Pres Bud Request	13458	0	0	0

C. Other Program Funding Summary

Procurement OPA-2	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
BA8250 Std Theater Army Cmd & Contr System	15254									28262

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
GCCS Block 1 Completed	X*															

*Milestone Complete - Milestones continued under PE 0303150A

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203740A Maneuver Control System

PROJECT: DC49

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Systems Engineering	1835			
Prime Mission - Software Development	7749			
Data Engineering	612			
System Test and Evaluation	3262			
Total	13458			

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
TRW-W	C/CPFF	Jul 87	102239	102239	102239						102239
TRW-E	C/CPAF	Mar 87			2461						2461
LMC	C/CPAF/FFP	Dec 94	TBD	TBD	14145	11674					25819
Support and Management Organizations: None											
Test and Evaluation Organizations											
MITRE	C/FFP	Oct 92	2329	2329	1529	800					2329

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property										
					984					984

Support and Management Property: None

Test and Evaluation Property: None

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203740A Maneuver Control System	PROJECT DC49

	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Subtotal Product Development	118845	12658					131503
Subtotal Support and Management							
Subtotal Test and Evaluation	1529	800					2329
Total Project	120374	13458					133832

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203740A Maneuver Control System

PROJECT: D2HT

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D2HT MCS Operational Test	4729	3772	0	0	0	0	0	0	0	8839

A. Mission Description and Justification: Project D2HT - MCS Operational Test: The project finances the direct costs of planning and conducting operational testing and evaluation of the Maneuver Control System (MCS) by the Operational Test and Evaluation Command (OPTEC). MCS is an Acquisition Category (ACAT) 1D system with Operational Testing and Evaluation to be conducted in FY 97 via an Initial Operational Test and Evaluation (IOT&E). Operational testing is conducted under conditions, as close as possible, to those encountered in actual combat with typical user troops trained to employ the system. OPTEC provides Army leadership with an independent test and evaluation of effectiveness and suitability of the system.

Acquisition Strategy: Not Applicable

FY 1996 Accomplishments:

•	2929	MCS V12 IOT&E preparation
•	1800	MCS V12 instrumentation
Total	4729	

FY 1997 Planned Program:

•	3298	Conduct MCS V12 Limited User's Test (LUT)
•	382	Evaluation of MCS V12
•	92	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)
Total	3772	

FY 1998 Planned Program: Project not funded in FY 1998

FY 1999 Planned Program: Project not funded in FY 1999

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	4841	3895	0	0
Appropriated Value	4888	3772		
Adjustments to Appropriated Value	-159			
FY 1998 Pres Bud Request	4729	3772	0	0

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203740A Maneuver Control System
	PROJECT D2HT

C. Other Program Funding Summary: Not Applicable

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MCS V12 IOT&E Preparation	X*															
MCS V12 LUT					X*											

*Milestone Complete

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203740A Maneuver Control System

PROJECT: D2HT

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Operational Test and Evaluation	4729	3680	0	0
SBIR/STTR		92		
Total	4729	3772		

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations: None											
Support and Management Organizations: None											
Test and Evaluation Organizations											
Misc.	Allot				338	0	0			0	338
TEXCOM	Allot				0	4554	3300			0	7854
OEC	Allot				0	175	380			0	555
SBIR/STTR							92				92

Government Furnished Property: None

Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation					338	4729	3772				8839
Total Project					338	4729	3772				8839

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0203740A Maneuver Control System / PROJECT: D484

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D484 Maneuver Control System	30115	24116	25641	23932	18012	7202	0	0	8435	422164

A. Mission Description and Justification: Project D484 - Maneuver Control System (MCS): The project satisfies an urgent need for efficient command and control 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 the cornerstone of the Army Battle Command System (ABCS) and provides critical coordination among Battlefield Functional Areas (BFAs) within each echelon. The primary component of controlling Force Level Information transactions is MCS's management of common picture information. This includes information across all Battlefield Operating Systems (BOSs) consisting of the Situation Map (SITMAP) using Defense Mapping Agency map 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 Common Operating Environment (COE) standard architecture with applications to automate C2 operations. MCS uses the Terrain Evaluation Module (TEM) for terrain analysis, planning and SITMAP graphical displays. The Unit Task Organization (UTO) Tool provides the commander and staff a means of organizing (graphically and textually) tactical Army units by echelon. Unit commanders and their staffs can quickly and efficiently prepare and disseminate combat orders with MCS's automated OPORD generating tool. MCS's report displays provide resource information roll-ups on all reporting battlefield units. In addition to serving as the common picture database for all ATCCS BFAs, MCS is the gateway for Situational Awareness information received from appliqué. MCS provides the Army "ground track" segment of the joint tactical common picture to the Army Global Command and Control System (AGCCS).

Acquisition Strategy: Since the initial MCS was introduced in Europe in 1981, this program has been and will continue to be, evolutionary software development, broken out into Blocks. The MCS capability continues to expand in pre-planned, time-phased steps toward the objective system. The final block of MCS software, Block IV, consists of development of Versions 12.1, 12.2 and Version 12.3, which will become the objective system. Versions 12.2 and 12.3 add applications and stand-alone functionality from V12.1. Therefore technical risk associated with each version is minimized. The use of a non-developmental item (NDI) tactical computer processor enables the MCS to capitalize on state of the art ruggedized, commercial equipment and reduce life cycle costs. Commencement of the transition to common hardware/software (CHS) began in FY 1989 with the initiation of the porting of software as well as the initiation of the integration of CHS into both the Standardized Integrated Command Post System (SICPS) and the existing Command and Control Unit vehicle.

FY 1996 Accomplishments:

- 1200 Began subsystem engineering, integration and test for the Maneuver functional areas
- 1531 Conducted Technical Test (TT)/Customer Test (CT)
- 20945 Continued MCS V12 development and integration effort
- 2239 Horizontal Battlefield Digitization

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0203740A Maneuver Control System / PROJECT: D484

FY 1996 Accomplishments: (continued)

•	500	Initial preparation for IOT&E
•	700	Block IV source selection activities
•	1000	Awarded Block IV software development contract
•	2000	Common ATCCS support
Total	30115	

FY 1997 Planned Program:

•	21429	Continue MCS V12 development and integration efforts
•	175	Support for LUT activities
•	1937	Horizontal Battlefield Digitization
•	575	Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR)
Total	24116	

FY 1998 Planned Program:

•	23714	Continue MCS V12 software development
•	1927	Horizontal Battlefield Digitization
Total	25641	

FY 1999 Planned Program:

•	21916	Continue MCS V12 software development
•	100	Preparation for Follow On Test & Evaluation of V12.1
•	1916	Horizontal Battlefield Digitization
Total	23932	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	30882	25187	22938	17261
Appropriated Value	31196	24116		
Adjustments to Appropriated Value	-1081	0		
FY 1998 Pres Bud Request	30115	24116	25641	23932

Change Summary Explanation: Funding: FY 98 (+2703) Increase to maintain Block IV software development schedule.
FY 99 (+6671) Increase to maintain Block IV software development schedule.
Schedule: 1QFY97 IOT&E replaced by Limited User's Test. IOT&E start date to be determined

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203740A Maneuver Control System

PROJECT: D484

C. Other Program Funding Summary

Other Procurement, Army	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
BA9320 Maneuver Control System	18571	19102	15699	18324	41357	54835	666	669	0	521223
MCS Spares - BS9710	150	0	0	0	0	0			18154	64304

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Program Baseline Approval	X*															
Test & Evaluation Master Plan Approval		X*														
MCS Technical Test/Customer Test		X*	X*													
Award BLK IV Contr/Begin V12.1 Dev				X*												
V12.01 Limited User's Test					X*											
Task Force XXI Participation						X										
Begin V12.2 Software Development											X					
Begin V12.3 Software Development													X			
Follow On Test & Eval of V12.1														X		

*Milestone Complete

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203740A Maneuver Control System

PROJECT: D484

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Major Contracts	22715	18929	20984	19022
Support Contracts	561	682	454	477
SBIR/STTR		575		
In-House Support	3633	3830	3993	4113
GFE/Other	3206	100	210	320
Total	30115	24116	25641	23932

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Block IV	C/CPIF	SEP 96		63100	0	1000	9791	17000	17100	18000	63100
TKC	C/CPIF/AF	VARIOUS		55048	27958	17586	7321	2000	0	0	55048
Other Contracts	C/Various	VARIOUS			156888	4129	1817	1984	1922	5468	172391
CECOM					7996	1735	1770	1823	1878	4042	19244
In-House					20843	1350	1491	1570	1605	3455	30314
Loral	CPIF/CPAF	NOV 87			30769					0	30769
Support and Management Organizations											
In-House					14847	548	569	600	630	1356	18550
Other Contracts	C/Various				15584	561	682	454	477	850	18608
Test and Evaluation Organizations											
OGA					1118	932	0	0	100	100	2250
Other Contracts					0	1042	100	210	220	378	1950
Miscellaneous											
SBIR/STTR							575				575

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203740A Maneuver Control System

PROJECT: D484

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property										
ATCCS Contr				7159					0	7159
Pgm Spt Env				936	1232	0	0	0	0	2168
Support and Management Property										
Test and Evaluation Property										
CHS-1 HW				613					0	613
Subtotal Product Development				252549	27032	22190	24377	22505	30965	380193
Subtotal Support and Management				30431	1109	1251	1054	1107	2206	37158
Subtotal Test and Evaluation				1731	1974	100	210	320	478	4813
Subtotal Miscellaneous						575				
Total Project				284711	30115	24116	25641	23932	33649	422164

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	4288	22386	2609	28791	9107	2873	4678	14954	Continuing	Continuing
D028 Guardrail Common Sensor	0	0	0	0	939	1865	4678	14954	Continuing	Continuing
D179 CH-47D Product Improvement	0	4602	0	0	0	0	0	0	0	4602
D430 Improved Cargo Helicopter	4288	17539	2609	28791	8168	1008	0	0	31400	93803
D504 UH-60 Door Gun	0	245	0	0	0	0	0	0	0	245

Mission Description and Budget Item Justification: This PE supports the CH-47 Product Improvement to upgrade T55-L-712 engines to T55-GA-714A configuration to increase power to meet lift requirements for mission needs. The Improved Cargo Helicopter (ICH) is a development program to extend useful life of the CH-47D cargo helicopter. This funding will assure heavy lift capability into the 21st century. The projects in this program element support development efforts for existing systems and are correctly placed in Budget Activity 7.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D179

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D179 CH-47D Product Improvement	0	4602	0	0	0	0	0	0	0	4602

A. **Mission Description and Budget Item Justification**: The engine upgrade program will convert the T55-L-712 engine to T55-GA-714A configuration, increasing power to allow the aircraft to carry its primary payloads under high altitude/temperatures. The CH-47D, as configured, does not meet its existing 1975 Required Operational Capability (ROC). The addition of numerous engineering changes to provide safety, the latest in operational technology, and improved communications has increased the empty weight of the aircraft. Upgrade of the T55-L-712 engine to T55-GA-714A configuration will provide the capability to meet the required operational capability.

Acquisition Strategy: Sole source contract for engineering changes and production contracts in FY 97.

FY 1996 Accomplishments: Project not funded in FY96.

FY 1997 Planned Program:

- 4490 Engineering Changes
- 112 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs

Total 4602

FY 1998 Planned Program: Project not funded in FY98.

FY 1999 Planned Program: Project not funded in FY99.

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	1778	0	0	0
Appropriated Value	1796	4602		
Adjustments to Appropriated Value	-1796			
FY 1998 Pres Bud Request	0	4602	0	0

Change Summary Explanation: FY 97 (+4602) Congressional increase to appropriation for CH-47 engine upgrades. FY96 (-1778) reprogrammed to higher priority programs.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D179

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
APA AA0252 CH-47 Cargo Helicopter Mods (MYP)*		43700	49400	97600	73600	188600	172900	172300	358600	1156700

* Represents that portion of the program dedicated to CH-47 engine upgrade.

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Engineering Change						X										

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D179

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Engineering Change		4490		
SBIR/STTR		112		
Total		4602		

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Allied Signal	SS/FP	Mar 97					4490				4490
Support and Management Organizations											
SBIR/STTR							112				112

Test and Evaluation Organizations: None

Government Furnished Property: Not Applicable

Subtotal Product Development	4490			4490
Subtotal Support and Management	112			112
Subtotal Test and Evaluation				
Total Project	4602			4602

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D430

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D430 Improved Cargo Helicopter	4288	17539	2609	28791	8168	1008	0	0	31400	93803

A. Mission Description and Justification: The Improved Cargo Helicopter (ICH) is a program to extend useful life of the CH-47D cargo helicopter. This funding will assure heavy lift capability into the 21st century. This program will award 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 will be the basis for establishing an overhaul, modernization, upgrade program to meet the readiness needs of the future for heavy lift capability.

Acquisition Strategy: Sole source development contract in Engineering Manufacturing Development (EMD) stage leading to production contract in FY 00.

FY 1996 Accomplishments:

•	583	Government in-house support for studies and program planning
•	377	Programmatic documentation
•	1386	Vibration analysis flight tests
•	1415	Support of vibration analysis tests
•	177	Electronic architecture study
•	210	Aeronautical Design Standard (ADS)-33 Study
•	90	Study on 54,000 lbs. parts life
•	50	Request for Proposal (RFP) Board
Total	4288	

FY 1997 Planned Program:

•	410	Technical assessment
•	2500	Flight Test II operational field trials
•	500	ADS-33 Study
•	1600	Request for Proposal (RFP) Board
•	3800	PM support/matrix support
•	8301	Engineering Manufacturing Development (EMD)
•	428	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs
Total	17539	

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D430

FY 1998 Planned Program:

•	2609	Engineering Manufacturing Development
Total	2609	

FY 1999 Planned Program:

•	21277	Engineering Manufacturing Development
•	5432	Government in-house support
•	1266	Government furnished equipment
•	816	Government testing
Total	28791	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	484	194	193	0
Appropriated Value	498	17539		
Adjustments to Appropriated Value	3790			
FY 1998 Pres Bud Request	4288	17539	2609	28791

Change Summary Explanation: Funding: FY 98 (+2416) & FY 99 (+28791) increases are the result of an Army decision to extend useful life of the CH-47D.
FY 96 (+3804) increase is primarily due to an internal reprogramming to put funds in correct PE (from PE 0603003A).
FY 97 (+17345) Congressional increase to appropriation.

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
APA, SSN AA0254, CH-47 ICH	0	0	0	0	29198	77143	136743	169039	Cont	Cont

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Programmatic Documentation		X*														
Vibration Analysis Support				X												
Engineering Manufacturing Development								X						X		

*Denotes completed effort

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D430

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Government in-house support for studies & program planning	583	3800		
Programmatic documentation	377			
In-House support of Engineering Manufacturing Development			2609	5432
Vibration analysis flight tests	1386	2500		
Government support of vibration analysis flight tests	1415			
Electronic architecture study	177			
ADS-33 Study	210	500		
Study on 54,000 lbs. parts life	90			
Request for Proposal (RFP) Board	50	1600		
Engineering Manufacturing Development/Tech Assessment		8301		21277
Government furnished equipment				1266
Government Testing				816
Technical assessment		410		
SBIR/STTR		428		
Total	4288	17539	2609	28791

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
CAMBER	SS/FP	Jan 96		1117	186	377	554				1117
WESTAR	SS/FP	Aug 96		90		90					90
Assurance Technology Corp.	SS/FP	Aug 96		177		177					177
Boeing Defense & Space Group	SS/FP	Sep 96		2386		1386	1000				2386

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D430

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Boeing Defense & Space Group	SS/FP	Sep 96		410			410				410
Boeing Defense & Space Group	SS/FP	Nov 97		61902			8301		21277	32324	61902
Support and Management Organizations											
Army Aviation & Troop Command				19440	409	898	5246	2609	4932	5346	19440
Army Training & Doctrine Command Aviation Center-Ft. Rucker		Aug 96		3460		1160	1600		300	400	3460
Army Communications Electronics Command		Nov 97		500					200	300	500
Army Training & Doctrine Command Analysis Center-Ft Lee		Aug 96		200		200					200
SBIR/STTR				428			428				428
Test and Evaluation Organizations											
Test & Evaluation Command		Nov 98		775					400	375	775
Operational Testing Command		Nov 98		797					416	381	797

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D430

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property										
								1266	1450	2716

Support and Management Property: None

Test and Evaluation Property: None

Subtotal Product Development	186	2030	10265		22543	33774	68798
Subtotal Support and Management	409	2258	7274	2609	5432	6046	24028
Subtotal Test and Evaluation					816	756	1572
Total Project	595	4288	17539	2609	28791	40576	94398

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D504

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D504 UH-60 Door Gun	0	245	0	0	0	0	0	0	0	245

A. Mission Description and Budget Item Justification: This project supports operational testing of the GAU/19.50 caliber weapon system on the Black Hawk helicopter to determine the appropriate defensive armament carried by the Army utility helicopters for self-protection and landing zone suppression during airborne assaults. This project is a new start in FY 1997.

Acquisition Strategy: Not applicable.

FY 1996 Accomplishments: Project not funded in FY96.

FY 1997 Planned Program:

•	239	Operational test of the GAU/19.50 caliber weapon system on a Black Hawk helicopter.
•	6	Small Business Innovative Research (SBIR) Program
Total	245	

FY 1998 Planned Program: Project not funded in FY98.

FY 1999 Planned Program: Project not funded in FY99.

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	0	0	0
Appropriated Value		245		
Adjustments to Appropriated Value				
FY 1998 Pres Budget Request	0	245	0	0

Change Summary Explanation: FY 97 (+245) Congressional increase to appropriation to support armament testing for the Black Hawk.

C. Other Program Funding Summary: Not applicable

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D504

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Operational Testing on Black Hawk Armament							X									

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D504

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Operational Testing on Black Hawk Armament		239		
SBIR		6		
Total		245		

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations: None											
Support and Management Organizations: None											
Test and Evaluation Organizations											
TRADOC							239				239
SBIR							6				6
Government Furnished Property: Not Applicable.											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation							245				245
Total Project							245				245

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D106

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D106 Aircraft Engine Component Improvement Program (CIP)	3703	3834	2940	2933	2994	3049	3252	3334	Continuing	Continuing

A. **Mission Description and Budget Item Justification:** Aircraft Engine Component Improvement Program (CIP) develops, tests, and qualifies improvements to aircraft components to correct service revealed deficiencies, improve safety, enhance readiness, and reduce Operating and Support (O&S) costs. In addition, CIP includes redesign, test, and requalification of engine components identified as part of the Army's flight safety parts service life surveillance program. The tasks in this project support development of upgrades to current production vehicles and are appropriately funded in Budget Activity 7.

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.

FY 1996 Accomplishments:

- 1551 **T700 Engine** - Completed update of life limits on the T700 engine components utilizing improved analytical and modeling techniques. Continued program to update the mission profiles used in life analysis by gathering field data. Completed spline lubrication program. Completed hydromechanical control contamination improvement program. Completed aircraft level Electromagnetic Interference (EMI) system level testing on the Blackhawk.
- 300 **GTCP36 Auxiliary Power Unit (APU)**: Completed analysis of worn Blackhawk sun gear. Completed depot level component repair analysis for the Apache. Completed design and hardware development of relocated Apache fuel shutoff solenoid. Evaluated possible improvements in Blackhawk APU to preclude ring gear disconnect problem. Performed testability analysis on Blackhawk APU to improve fault isolation. Performed engine tests on Apache planetary bearings.
- 837 **Liquid or Light-Ends Air (LOLA) Pump**: Started preliminary fuel pump design to design a liquid or light-ends (LOLA) engine fuel pump for UH-60 Blackhawk and Apache to prevent flameouts.
- 700 **CH47** Procured one CH-47 T55-GA-714A Engine Conversion Kit to upgrade a T55-L-712 engine to a T55-GA-714A to qualify the conversion.
- 140 Procured four mission data recorders for Blackhawk UH-60A to permit sampling of mission profiles that will enable T700-GE-700 flight safety parts lives to be updated.
- 175 In-house support.

Total 3703

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203752A Aircraft Engine Component Improvement Program PROJECT D106

FY 1997 Planned Program:

•	1400	**T700 Engine:** Engine Life Management stress analysis on T700-700 GGT wide bore design and T700-401C/701C GGT low stress rotor heat transfer and stress analysis. Field performance monitoring. Mission profiles of the T700 engine have not been updated since originally defined in model specification. This program will procure and install "EPAMS" data recorders on sample Blackhawk and Apache aircraft. Field data will then be used to generate revised Life Management stress analysis parameters. The recorder will first be installed on Blackhawk aircraft. Electrical Cable EMI shielding improvements will be designed for several engine wiring harnesses. Design and test an Improved "A" Sump Pressure System to preclude oil leaks. Design and qualification testing of a WGC HMU T2 Sensor Coating that will prevent related engine stalls. Redesign HI-TEMP CONNECTOR for the Speed and Torque sensor for maintainability problems. Identify errors in engine control software documentation for future control updates.
•	1000	**T55 Engine**: Develop bearing improvement program to reduce cost and improve reliability and fatigue life. Continue machined combustor liner program to improve durability and survivability and reduce O&S costs. Continue pinned first turbine blade program to prevent catastrophic engine failure from blades shifting forward. Design improved compressor impeller to improve efficiency and reduce cost.
•	300	**GTCP36 APU**: Develop multiple element thermocouple for Blackhawk to improve accuracy of EGT measurement. Design and test new Apache fuel line connections to eliminate leaking. Test and qualify the Longbow torque limiting control valve for use on the Apache. Review Apache overhaul/field parts usage to determine high cost drivers. Design a retention device for the Blackhawk aft output shaft bearing to preclude spinning and wear.
•	942	**LOLA Pump:** Design assurance testing, qualification testing, engine testing and flight testing.
•	100	In-house cost
•	92	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	3834	

FY 1998 Planned Program:

•	1605	**T700 Engine**: Engine Component Life Management fracture mechanics and stress analysis on T700-700 GGT wide bore. Life analysis (LCF) on T700-401C/701C GGT low stress rotor. Continue mission update program on the Apache. Write final report for Improved "A" Sump Pressure System. Finalize design and qualification test Electrical Cable Shielding Improvements. Complete design and bench test improved Hi temperature connectors. Complete software documentation review and prepare final report.
•	1000	**T55 Engine**: Continue bearing improvement program to reduce cost and improve reliability and fatigue life. Conclude machined combustion liner program to improve durability and survivability and reduce O&S costs. Conclude pinned first turbine blade program to prevent catastrophic engine failure from blades shifting forward. Continue development of improved compressor impeller to improve efficiency and reduce cost.
•	335	**GTCP36 APU** Perform 200 hour engine test to qualify CIP designed hardware. Complete testing of Longbow torque limiting control valve. Evaluate possible use of common part designs for Allied Signal APUs.
Total	2940	

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D106

FY 1999 Planned Program:

•	1607	**T700 Engine**: Continue gathering data different missions and update life limits based on better define mission profiles. Design an auto-ignition system for the AH-64 Apache engines that automatically re-lights an engine after flameout to increase safety and reliability.
•	1000	**T55 Engine**: Conclude bearing improvement program to reduce cost and improve reliability and fatigue life. Conclude improved compressor impeller program to improve efficiency and reduce cost. Develop fireproof fuel and oil lines to bring them up to current safety standards. Redesign turbine components to eliminate the need for rare and obsolete alloy. Begin Electromagnetic Interference/Pulse protection program for ignition system and Overspeed valve.
•	326	**GTCP36 APU**: Perform an analytical condition inspection of a high time fielded engine to determine possible failure modes. Develop an erosion resistant turbine wheel for the Blackhawk to increase on-wing life in a sandy/dusty environment.
Total	2933	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget Request	3999	2947	2936	2928
Appropriated Value	4112	3834		
Adjustments to Appropriated Value	-409			
FY 98 Pres Bud Request	3703	3834	2940	2933

Change Summary Explanation: Funding: FY97 Congressional increase (+887) for LOLA

C. Other Program Funding Summary: There are no other RDTE or other Appropriation efforts.

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
T700 Engine: Design and test improved oil sump pressure system.								X								
T700 Engine: Complete electrical cable EMI shielding design and qualify improvements.									X							
T700 Engine: Complete improved "A" sump design and qualification testing.												X				
LOLA Engine Fuel Pump Complete design and qualification testing.														X	X	
T55 Engine: Develop improved bearings																

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203752A Aircraft Engine Component Improvement Program PROJECT D106

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
to reduce O&S cost and improve bearing life.																
T55 Engine: Develop machined combustor liner to improve durability and reduce O&S cost.												X				
T55 Engine: Develop pinned retention feature for first stage turbine blades to improve flight safety.											X					
GTCP36 APC: Develop multiple element a Blackhawk thermocouple, design and test Apache fuel connectors, test Longbow clutch control valve, review Apache cost drivers, design Blackhawk pinned bearing.						X										
GTCP36 APU: Perform 200 hour engine test, complete Longbow control valve, and evaluate APU common parts.									X							
GTCP36 APU: Perform inspection of high time engine and develop erosion resistant turbine wheel for Blackhawk.													X			

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D106

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Product Development	3528	2892	2940	2933
Support and Management	175	850	0	0
Test and Evaluation	0	0	0	0
SBIR/STTR		92		
Total	3703	3834	2940	2933

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
General Electric	SS/CPFF	Dec 94			38418	1476	1594	1445	1452	Cont	Cont
Allied Signal	SS/CPFF	Dec 94			17872	700	998	1147	1140	Cont	Cont
Air Force	MIPR	Jun 96			12600	300	300	348	341	Cont	Cont
Chandler Evans	SS/CPFF	Jun 96				837				0	837
SBIR/STTR							92				92
Support and Management Organizations											
ATCOM	MIPR	Dec 94	N/A	N/A	10342	390	850			Cont	Cont
T53 Engine					352	0				0	352

Test and Evaluation Organizations: Not Applicable

Government Furnished Property: Not Applicable

Subtotal Product Development					68890	3313	2984	2940	2933		Cont
Subtotal Support and Management					10694	390	850				Cont
Subtotal Test and Evaluation											
Total Project					79584	3703	3834	2940	2933		Cont

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203758A Digitization

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	110583	137078	156960	149015	151349	152491	153442	152006	Continuing	Continuing
D374 Horizontal Battlefield Digitization	110583	88125	57333	49487	51928	53154	54198	52644	Continuing	Continuing
D376 Force XXI Initiatives	0	48953	99627	99528	99421	99337	99244	99362	Continuing	Continuing

Mission Description and Budget Item Justification: This program element encompasses efforts to leverage advanced technologies to provide battlefield commanders a significant increase in capabilities by rapidly evaluating enabling technologies for their potential acquisition. Digitization will provide a common picture of the battlefield to commanders, warfighters and supporters, tailored to their specific requirements, for planning and execution. It provides for the interoperability of platforms with and without an embedded digital capability with the Army Tactical Command and Control Systems and brigade and below command and control systems from tactical to the strategic/sustaining base level. The Army will evaluate approximately 96 systems to jump-start technology. The underlying mission is to put proven technology in the hands of the soldier sooner for the warfight while gaining significant time and dollar savings. This Program Element supports experimentation and modification of equipment in the Army inventory and therefore is correctly placed in Budget Activity 7.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203758A Digitization

PROJECT: D374

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D374 Horizontal Battlefield Digitization	110583	88125	57333	49487	51928	53154	54198	52644	Continuing	Continuing

A. Mission Description and Budget Item Justification: This project provides for the interoperability of combat, combat support, and combat service support platforms (i.e., tanks, fighting vehicles, aircraft, command/control and logistics/resupply) and battlefield automated systems [i.e. Maneuver Control System (MCS)/Phoenix, Force XXI Battle Command, Brigade and Below(FBCB2), Advanced Field Artillery Tactical Data System (AFATDS), Forward Area Air Defense Command, Control and Intelligence (FAADC2I), All Source Analysis System (ASAS), Combat Service Support Control System (CSSCS)] with common technology through new acquisitions, Pre-Planned Product Improvements (P3I), and system-component upgrades. The application of common technologies across multiple systems through an integrated and seamless battlefield architecture improves the capabilities of battlefield systems that fight together as units or integrated task forces, providing a significant and potentially decisive warfighting improvement to the force. Battlefield digitization allows the Army's primary weapons and battle command systems to see, acquire and engage threats while sharing the same information with equal clarity, using advanced technologies and digital communications. To prove out concepts and requirements, near-term efforts will focus on developing a seamless battlefield architecture and digitized appliqué systems (computer with graphics display, global positioning system, communications link, and command and control software) required to support live experimentation with a brigade-sized maneuver task force in FY 1997 and a division-level experiment in FY 1998.

Acquisition Strategy: Provide an integrated digital capability to systems supporting multiple battlefield operating systems, with initial emphasis on meeting the near-term requirements for the designated Experimental Force (EXFOR). Provide three variant appliqués to systems that do not have an embedded digital capability based on platform and combat environment requirements. Variants include commercial off-the-shelf, ruggedized and near-military specification systems. Final hardware and software requirements will be determined through a series of iterative experiments. A variety of contract types will be used due to the diversity of efforts. All appliqué contracts will be awarded through full and open competition. The appliqué contract will be managed through the Program Executive Officer for Command, Control and Communication Systems. Other communications and software programs necessary for the series of experiments will be managed by the specific hardware and software program managers.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203758A Digitization
	PROJECT D374

FY 1996 Accomplishments:

•	23594	Developed appliqués and conducted platform integration.
•	36305	Continued development of command and control software for brigade and below.
•	11999	Continued simulation, experimentation and evaluation of prototype hardware and software.
•	3480	Continued development of a data distribution system.
•	3391	Initiated development of protocols and standards, and systems engineering.
•	14790	Continued development of an upgrade to the M1A2 intervehicular information system (M1A2 System Enhancement Program).
•	1500	Obtained avionics equipment for the Experimental Force (EXFOR).
•	15524	Supported Task Force XXI Advanced Warfighting Experiment requirements
Total	110583	

FY 1997 Planned Program:

•	16578	Continue development of appliqués and their platform integration.
•	31470	Continue development of command and control software for brigade and below.
•	25944	Conduct simulation, experimentation and evaluation of prototype hardware and software.
•	4662	Complete development of data distribution system.
•	7339	Interoperability: Continue development of protocols and standards, M1A2/appliqué digital connectivity, and Battlefield Interoperability Program.
•	2132	Small Business Innovation Research/Small Business Technology transfer (SBIR/STTR) Programs
Total	88125	

FY 1998 Planned Program:

•	14503	Continue development, upgrades and modifications to Force XXI Battle Command Brigade & Below (FBCB2) Hardware and Installation kits.
•	14622	Continue development and upgrades to Brigade and Below Command and Control Software.
•	9603	Continue simulation, experimentation and evaluation of prototype hardware and software.
•	11569	System Engineering/Development/Integration
•	7036	Interoperability: M1A2/FBCB2 digital connectivity, and Battlefield Interoperability Program
Total	57333	

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203758A Digitization

PROJECT: D374

FY 1999 Planned Program:

•	13816	FBCB2 Hardware and Installation kit upgrades/modifications
•	13724	Brigade and Below Command and Control Software development/upgrades
•	6706	Simulation, experimentation and evaluation of prototype hardware and software.
•	8640	System Engineering/Development/Integration
•	6601	Prototype Tactical Multi-Unit Gateways
Total	49487	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
Previous President's Budget Request	99103	110180	26963	0
Appropriated Value	100867	88125		
Adjustments to Appropriated Value	+9716			
FY 1998 Pres Bud Request	110583	88125	57333	49487

Change Summary Explanation: Funding: FY 97 congressional reduction (-22055).
FY 98 (+30370) & FY 99 (+49487) support fielding of digitized division and continues development efforts.

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
OMA, PSP 11, PE 118207000			5000							
Other Procurement Army Activity 2, SSN W61900					44267	53398	56143	57516	Continuing	Continuing

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Warrior Focus AWE	X*															
Tactical Internet Integration Test			X*													
Version 1.0 FBCB2 Software Delivery		X*														
Hardware Deliveries Complete			X*													
Brigade Task Force XXI AWE			X*	X*	X	X										
NTC Rotation for Task Force XXI						X										
Integrated Product Team (IPT)Review							X									
Version 2.0 FBCB2 Software Delivery								X								

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203758A Digitization

PROJECT: D374

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Division XXI AWE									X							
Force Development Test & Evaluation										X	X					
Version 3.0 FBCB2 Software Delivery												X				
IOTE														X		
Integrated Product Team (IPT)Review															X	
Version 4.0 FBCB2 Software Delivery																X
Production Award (1QFY00)																

*Completed Milestone

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203758A Digitization	PROJECT D374

A. Project Cost Breakdown	FY 1996	FY 1997	FY 1998	FY 1999
Hardware Development	21080	18710	15285	13941
Software Development	36127	31180	13092	12060
Development, Experimentation, & Evaluation	45125	26720	18956	13486
Program Management and Engineering Support	8251	9383	10000	10000
SBIR		2132		
Total	110583	88125	57333	49487

B. Budget Acquisition History and Planning Information: Not Applicable

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203758A Digitization

PROJECT: D376

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D376 Force XXI Initiatives	0	48953	99627	99528	99421	99337	99244	99362	Continuing	Continuing

A. Mission Description and Budget Item Justification: The Congress has stated its understanding of the benefits to be derived by the Army from a streamlined acquisition process. Force XXI Initiatives is one of the Army's Acquisition Reform Initiatives. The Army intends to use Force XXI initiatives to evaluate candidate systems (materiel fielding items, prototype items, and concept/emerging technology items) to jump-start technology early. The underlying mission is to put proven technology in the hands of the soldier sooner while gaining significant time and dollar savings. The Warfighting Rapid Acquisition Program(WRAP) tests emerging technology identified from Army's Advanced Warfighting Experiments(AWE) as a candidate system (as has been done successfully in identifying the prototype Bradley Stinger Fighting Vehicle-Enhanced and the prototype Guided Parafoil Air Delivery Systems). Initiatives can originate from virtually anywhere but will share the characteristic of achieving a Milestone III Decision immediately or be able to achieve this Milestone after no more than two years of development. Technology advances so rapidly that the current acquisition process time frames can lead to procurement of obsolescing system capability.

Acquisition strategy: Provide the Army the capability to rapidly provide the soldier in the field the state-of-the-art items needed for the warfight. The merits of each candidate system will be reviewed and prioritized by the WRAP Army Systems Acquisition Review Council (ASARC). Each candidate will have a documented Battle Lab Experimentation Plan, an Operational Requirements Statement, an Urgency of Need Statement, experimentation results, an Acquisition Strategy, and budget estimate. WRAP ASARC decisions on candidate systems will be documented in an Acquisition Decision Memorandum signed by the Acquisition Executive of the Army and the Vice Chief of Staff of the Army. The Army expects to lead in the development, prototyping and fielding of successful candidates harmonized with other Services' Requirements.

FY 1996 Planned Program: Project not funded in FY96

FY 1997 Planned Program:

•	47757	Execute Force XXI Initiatives in accordance with mission and acquisition strategy outlined above for candidate systems.
•	1196	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs
Total	48953	

FY 1998 Planned Program:

•	99627	Execute Force XXI Initiatives in accordance with mission and acquisition strategy outlined above for candidate systems.
Total	99627	

FY 1999 Planned Program:

•	99528	Continue to evaluate candidate systems in accordance with mission and acquisition strategy outlined above.
Total	99528	

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203758A Digitization

PROJECT: D376

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
Previous President's Budget	0	0	0	0
Appropriated Value		48953		
Adjustments to Appropriated Value				
Current Budget Submit/President's Budget	0	48953	99627	99528

Change Summary Explanation: Funding: FY 97 Congressional appropriation initiative. Funding provided in accordance with Secretary of the Army and Chief of Staff, Army testimony to execute this Acquisition Reform Initiative to fund emerging technologies for Force XXI.

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
TBD										

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
TBD																

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203758A Digitization
	PROJECT D376

A. Project Cost Breakdown:

	FY 1996	FY 1997	FY 1998	FY 1999
TBD				
Total				

B. Budget Acquisition History and Planning Information:

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
TBD											
Support and Management Organizations											
TBD											
Test and Evaluation Organizations											
TBD											

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property TBD										

Support and Management Property TBD

Test and Evaluation Property TBD

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203758A Digitization

PROJECT: D376

	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Subtotal Product Development			TBD	TBD	TBD		
Subtotal Support and Management			TBD	TBD	TBD		
Subtotal Test and Evaluation			TBD	TBD	TBD		
Total Project			48953	99627	99528		

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	59199	64557	17412	11431	33759	32752	44351	47400	Continuing	Continuing
D036 PATRIOT Product Improvement Program	43137	46280	12388	9474	5777	4768	0	0	0	401886
D038 Avenger Product Improvement Program	1	0	0	0	0	0	3981	3982	0	37547
D303 Stinger Product Improvement Program	16061	18277	5024	1957	27982	27984	39406	39456	Continuing	Continuing
D633 THAAD P3I	0	0	0	0	0	0	964	3962	Continuing	Continuing

Mission Description and Budget Item Justification: The changing global threat and the new Army Warfighting Doctrine developed to respond to this changing threat all significantly impact the mission of Air Defense Artillery (ADA). This doctrine calls for U.S. forces to be able to win two nearly simultaneous major regional conflicts and to conduct combat operations characterized by rapid response and a high probability of success while minimizing the risk of significant American casualties. ADA must continually be upgraded and modernized in accordance with the ADA missions. The FY 98 budget funds critical improvements to PATRIOT and Stinger. These projects support development of upgrades to current equipment and are appropriately funded in Budget Activity 7.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D036

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D036 PATRIOT Product Improvement Program	43137	46280	12388	9474	5777	4768	0	0	0	401886

A. Mission Description and Justification **D036 - PATRIOT Product Improvement Program:** The PATRIOT system is being upgraded 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 between the services.

Acquisition Strategy: The design objective of the PATRIOT system was to provide a baseline system capable of being modified 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 time-frame. Configuration groupings are a convenience 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.

FY 1996 Accomplishments:

- 5226 P3I test program
- 3978 Communications upgrades
- 750 Responsive threat analysis
- 33183 Anti-Cruise Missile upgrade

Total 43137

FY 1997 Planned Program:

- 5326 P3I test program
- 5667 Communications upgrades
- 750 Responsive threat analysis
- 33437 Anti-Cruise Missile upgrade
- 1100 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs

Total 46280

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203801A Missile/Air Defense Product Improvement Program PROJECT D036

FY 1998 Planned Program:

•	5675	P3I test program
•	2960	Communication upgrade
•	750	Responsive threat
•	3003	Horizontal Battlefield Digitization
Total	12388	

FY 1999 Planned Program:

•	5718	P3I test program
•	750	Responsive threat
•	3006	Horizontal Battlefield Digitization
Total	9474	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	46477	12291	9406	6481
Appropriated Value	47823	46280		
Adjustments to Appropriated Value	-4686			
FY 1998 President's Budget Request	43137	46280	12388	9474

Change Summary Explanation: Funding: FY 1996: Undistributed Congressional reductions/rescissions (-2488); reprogramming to higher priority requirements (-2198).
FY 1998: Funding increase for Horizontal Battlefield Digitization (+2982).
FY 1999: Funding increase for Horizontal Battlefield Digitization (+2993).

C. Other Program Funding Summary

Missile Procurement, Army	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Complete	Total Cost
Budget Activity 2 - PATRIOT (C49100)	4924	0	349109	369885	459233	445367	433145	396760		12087483
Budget Activity 3 - PATRIOT Mod (C50700)	6767	23442	20825	15575	19589	24310	19894	16544	39645	565916

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Development Test & Evaluation		X														

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D036

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Contract Engineering Support	37376	37926	6963	4006
Program Management Support	1301	1436	1691	1291
Developmental Test and Evaluation	4460	5818	3734	4177
SBIR/STTR		1100		
Total	43137	46280	12388	9474

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Raytheon											
DAAH0182CA181					3722						3722
DAAH0187CA025					22455						22455
DAAH0189C0458					23228						23228
DAAH0192C0036					5000						5000
Small Contracts					1168						1168
General Electric											
DAAH0187CA006					4824						4824
Brunswick Corp.											
DAAH0189C0167					3100						3100
Martin Marietta											
DAAH0192C0301	SS/CPFF	15Jul92	5463	5463	3763	100					3863
Raytheon											
DAAH0191C0602	SS/CPIF	22Apr92	20702	20702	23077						23077
DAAH0192C0006	SS/CPAF	27Jan92			56460						56460
DAAH0195C0043	SS/CPAF	01Feb95			6005	4093	513	1000	1000	1690	14301
PAC 2 Anti-Cruise						33183	32637				65820

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D036

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
TPS							200				200
RL-CEU							4576	2960			7536
Horiz Btlfld Digit								3003	3006		6009
SBIR/STTR							1100				1100
Support and Management Organizations											
CAS											
DAAH0187CA008					2270						2270
DAAH0190C0487					6266						6266
DAAH0194C0105	C/CPAF	31Jan94			5344	791		791	791	422	8139
In-House Support					10817	510	1436	900	500	1163	15326
Test and Evaluation Organizations											
Missile Command	1095				2322	1098	1882	1000	700	1312	8314
White Sands											12921
Missile Range	1095/MIPR				2841	1370	2596	1534	1737	2843	
Other Govt Agen	MIPR				2023	1992	1340	1200	1740	3115	11410
RDEC and											95377
Other Govt Agent					95377						
Government Furnished Property: None.											
Subtotal Product Development					152802	37376	39026	6963	4006	1690	241863
Subtotal Support and Management					24697	1301	1436	1691	1291	1585	32001
Subtotal Test and Evaluation					102563	4460	5818	3734	4177	7270	128022
Total Project					280062	43137	46280	12388	9474	10545	401886

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D303

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D303 Stinger Product Improvement Program	16061	18277	5024	1957	27982	27984	39406	39456	Continuing	Continuing

A. Mission Description and Budget Item Justification: **D303-Stinger Product Improvement Program:** This project provides a product evolution of the STINGER-RMP to improve countermeasures capability via externally loaded software, which is downloaded from a reprogrammable module in the gripstock. This concept allows for timely upgrades to correct system deficiencies, rapid reaction to new threats or threat countermeasures, development of specialty software programs where full capability may not be desired, and accommodation of new missions. The Block I upgrade project, which adds a roll sensor and enhanced software, extends the missile service life, solves the recognized system performance deficiencies in countermeasures and other engagement conditions, and increases terminal accuracy. The Block II program is a development of an advanced infrared (IR) Focal Plane Array Seeker which improves the performance of the missile against an expanded target and in background clutter. The program develops the improved missile for adaptation to any or all of the STINGER firing platforms, extends the missile service life and establishes a government post deployment software support posture. The Block II Engineering, Manufacturing, Development (EMD) program provides for development to a performance specification, design qualification of guidance section conducted as part of the production qualification, and platform integration. A portion of funds in FY 1996 and FY 1997 will be used to develop MIL-STD 1760 launcher electronics to be fielded with the Apache Longbow Helicopter air-to-air requirements, based on Joint Service (U.S. Air Force and U.S. Army) doctrine. The air-to-air requirement satisfies three tasks: self protection, protect force, and augmentation of air defense forces. Funding in FY 1996 and FY 1997 in this project also supports an eight nation Memorandum of Understanding (MOU) signed by the Office of Secretary of Defense in 1994 for the conduct of a two-year competitive Feasibility Study on NATO Very Short Range Air Defense Systems (VSHORADS) and Short Range Air Defense Systems (SHORADS). The output of the Feasibility Study will form the basis for the development of a VSHORADS/SHORADS NATO Staff Requirement and information to support the development of a follow-on system to STINGER.

Acquisition Strategy: The Block I development program is a Sole Source (SS)/Cost Plus Incentive Fee (CPIF) contract awarded in 1992. The Block II development began FY 1993 as Technology Base Broad Agency announcement with a SS/Cost Plus Fixed Fee (CPFF) contract. Current SS/CPFF contract awarded 1996 for pre-EMD, EMD start FY 2000, MS IIIa FY 2005, and FUE FY 2007. A SS/CPIF contract for MIL-STD Launcher electronics development is planned for mid-FY 1997. The VSHORADS/SHORADS Competitive/Firm Fixed Price (FFP) contract was awarded to two international consortia. The United Kingdom was designated as the Pilot Nation, serving as Contracting Authority.

FY 1996 Accomplishments:

- 2007 Conducted testing of Block I Phase II Software
- 1019 Completed Block I Phase II Software Design; performed Block I Software Critical Design Review and release Engineering Change Proposal
- 493 Initiated Block I performance assessment
- 4238 Fabricated/tested second Block II Seeker Head

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203801A Missile/Air Defense Product Improvement Program	PROJECT D303

FY 1996 Accomplishments: (continued)

•	3088	Initiated Block II electronics state-of-the-art packaging (miniaturization) of electronics section
•	1434	Upgraded Block II Seeker to correct limitations discovered in initial development
•	1040	Initiated development of contractor Block II Simulation and defined Platform versus Block II interfaces
•	1127	Initiated development of Stinger Universal Electronics for MIL-STD 1760 launcher which supports digital electronic-based systems.
•	575	Conducted Bradley linebacker concept studies
•	200	VSHORADS/SHORADS international proposal evaluation/negotiations/contract awards
•	840	VSHORADS/SHORADS technology and subsystem development
Total	16061	

FY 1997 Planned Program:

•	702	Complete Block I performance assessment
•	2435	Initiate development of Unmanned Aerial Vehicle (UAV) specific software
•	531	UAV software performance analysis
•	3898	Produce prototype Block II electronics state of the art packaging (miniaturization) of electronics section
•	4811	Integration of Block II tactical-sized guidance assembly
•	2191	Perform valuation of Block II guidance assembly
•	2202	VSHORADS/SHORADS system variants development and evaluation of system variants
•	1061	Continue development of MIL-STD 1760 Launcher electronics
•	446	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs
Total	18277	

FY 1998 Planned Program:

•	1450	Finalize Block II packaging and fabricate one tactical size guidance section
•	1464	Design and package Block II control section
•	460	Initiate development of contractor hardware-in-the-loop flight simulations
•	1650	Complete VSHORADS/SHORADS Feasibility Study and Forward NATO Staff Requirement
Total	5024	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203801A Missile/Air Defense Product Improvement Program PROJECT D303

FY 1999 Planned Program:

- 735 Design/fabricate/evaluate three Block II launch tube and end cap units
- 840 Continue Contractor Hardware-in-the Loop Flight Simulations
- 382 Block II airframe dynamic analysis/performance prediction

Total 1957

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	13662	18668	2314	2849
Appropriated Value	14046	18277		
Adjustments to Appropriated Value	2015			
FY 1998 President's Budget Request	16061	18277	5024	1957

Change Summary Explanation: Funding: FY 1996: Funding reprogrammed for OSD International MOU program, Bradley concept studies, and launcher electronics design (+2743); project decrement for undistributed congressional reductions and rescissions (-728).
FY 1998: Funding reprogrammed to support Block II development effort (+2710).
FY 1999: Funding reprogrammed to higher priority requirements (-892).
Schedule: None
Technical: Block II EMD risk reduction initiatives FY 1998-99

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
Missile Procurement, Army										
Budget Activity 2 - Stinger (C18500)										1143340
Budget Activity 3 - Stinger Mods (C20000)	9804	29742	8710	14403	24086	34519	40108	31872	Cont'd	Cont'd
Budget Activity 3 - BSFV-E Mods (C21500)	1500	7118	3701	10			16866	26866	Cont'd	Cont'd

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Block I CDR Software ECP				X												
Block I Performance Assessment						X										
Complete Block I Flight Tests				X												
Initiate Future Software Development						X										

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D303

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Initiate Block II Guidance Section Integration Design							X									
Complete Block II Tactical Size Electronics								X								
Complete Block II Guidance Section Integration												X				
Complete Integration of Guidance Hardware with Contractor Simulation																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D303

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Project Management In-House	821	1199	414	75
RDEC Engineering Support	2334	3843	200	159
Major Development Contractor	11097	10448	2760	1723
Contracted Services	727	97		
Other Government Agencies	42	42		
UK MOU Contractor	643	1732	1207	
UK Management Office	106	176	124	
UK MOU U.S. Program Support	291	294	319	
SBIR/STTR		446		
Total	16061	18277	5024	1957

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Hughes Msl Sys											
DAAH0192C0213	SS-CPIF	Apr 92		20606	18224	2382					20606
Future S/W Upgrd	TBD	TBD					2105				2105
DAAH0193CR127	SS-CPIF	Apr 93	4629	4629	4629						4629
DAAH0196C0180	SS-CPFF	Mar 96				6750	7196				13946
BLOCK II 98-99	SS-CPIF	TBD						2760	1723		4483
Block II EMD	SS-CPIF	TBD								125805	125805
DAAH0195C0028	SS-CPFF	Sep 96				1965					1965
SUE Dev	SS-CPIF	Apr 97					841				841
Targets Mgt Ofc	MIPR	Apr 94			2100						2100
Targets Mgt Ofc	MIPR	Various								12013	12013
BSFV Aggregate	Various	Various			7025						7025

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D303

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Block I Aggregate	Various	Various			8152	50	52				8254
PMO/RDEC	Allot/1095	Various				3155	4902	614	234	54936	63841
Blk II Contracted Svcs (Aggregate)	Various	Various			181					8836	9017
SUE Aggregate	Various	Various				102	45				147
Other Govt Agen	MIPR	Various				42	42			3238	3322
SBIR/STTR							446				446
British Aerospace	C-FFP	Jul 96				322	866	604			1792
Thomson-CSF	C-FFP	Aug 96				321	866	603			1790
UK Ministry of Defense (Mgt Ofc)	MOU/1095	Dec 95				106	176	124			406
SBIR/STTR							446				446
Support and Management Organizations											
DLA90093D0011	SS-FFP	Aug 96				575					575
U.S. Prog Spt MOU VSHORAD/ SHORADS	1095	Dec 95				291	294	319			904
Test and Evaluation Organizations: None											
Government Furnished Property: Not applicable											
Subtotal Product Development					40311	15195	17983	4705	1957	204828	284979
Subtotal Support and Management						866	294	319			1479
Subtotal Test and Evaluation											
Total Project					40311	16061	18277	5024	1957	204828	286458

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	64920	9874	1255	17011	30533	51752	82152	72270	0	1166289
D045 HELLFIRE Product Improvement Program	0	3818	0	0	0	0	22970	18528	0	505055
D2MT ATACMS BLK IA Oper Tests	3397	378	0	0	0	0	0	0	0	3775
D304 Army TACMS BLK IA	22045	4376	0	0	0	0	0	0	0	88110
D336 TOW Product Improvement Program	29995	1302	1255	1242	0	0	0	0	0	348888
D689 ATACMS BLK 1B	0	0	0	0	10368	34718	49688	53742	0	148516
D701 Hydra 70 Program Improvement Program	9483	0	0	0	0	0	0	0	0	9483
D785 Longbow HELLFIRE PIP	0	0	0	15769	20165	17034	9494	0	0	62462

Mission Description and Budget Item Justification: Expanding regional power threats require an evolutionary improvement program to maintain the effectiveness of the HELLFIRE, Army TACMS, TOW and Hydra 70 Systems. The HELLFIRE PIP funding will be utilized to conduct component qualification tests (CQT) and system qualification tests (SQT) of the HELLFIRE II insensitive munitions (IM) rocket motor under various environments and for product improvements to the Laser HELLFIRE Missile Systems such as countermeasure improvements to respond to changing threats, air-to-air capability improvements, a multi-mode warhead (shaped charge/blast fragmentation), IFF capability, increased field of view and target acquisition range, and development of mission specific rocket motors such as a short range training motor and an extended range boost sustain rocket motor. The Longbow HELLFIRE PIP consists of the Longbow HELLFIRE Home-on-Jam (HOJ) and Counter-Active Protection System (CAPS) improvements. The Longbow HELLFIRE missile provides a fire-and-forget capability, greatly increasing weapon system effectiveness and aircraft survivability. The weapon system is employable by day or night, in adverse weather, and in countermeasures environment. The HOJ and CAPS objective is to maintain the Longbow missile's low vulnerability and susceptibility to existing and future battlefield jammer threats and "hard kill" Active Protection System (APS) threats. The Army TACMS Block IA development effort will integrate Global Positioning System (GPS) technology into the guidance system of the Army TACMS Block I missile to provide more accurate information for orientation of the missile in position and azimuth. The payload quantity of M74 anti-personnel/anti-materiel (APAM) bomblets will be reduced resulting in a range approximately twice that of the current Block I missile. The inherent GPS accuracies will be achievable independent of range, thereby enhancing system performance. These funds also supported participation by Block IA prototype missiles in the Joint Precision Strike Demonstration (JPSD). Further, these funds allow for future improvement program studies/demonstrations. The Army TACMS Block 1B (ATACMS Block 1B) development effort will modify the motor section

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203802A Other Missile Product Improvement Programs

and missile software, providing the system capability of achieving ranges approximately one and one-half times that of the Block 1A. The Block 1B will carry the same payload as Block 1A (approximately 310 M74 bomblets). The ATACMS Block 1B will maintain the current system effectiveness of the Block I and IA systems. Project D2MT provides for the operational testing of the Army TACMS Block IA Program. The TOW PIP provides advances in the day/night sight improvements, fire control and missile improvements. Improvements are required to maintain the infantry's capability to support the US Army mission of crisis response to regionally based threat and allows for TOW to continue to be integral to the strategic principle of forward presence. Included in this PIP are missile improvements to include a lethality effort against new/evolving threats and the Improved Target Acquisition System (ITAS). The ITAS is a technology insertion program using Second Generation Forward Looking Infrared (FLIR) technology to upgrade the current TOW Target Acquisition and Fire Control subsystems. These projects support development of upgrades to current production vehicles and are appropriately funded in this budget activity, 7.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D045

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D045 HELLFIRE Product Improvement Program	0	3818	0	0	0	0	22970	18528	0	505055

A. Mission Description and Budget Item Justification: Project D045- HELLFIRE Product Improvement Program: The Army intends to use funding to conduct component qualification tests (CQT) and systems qualification tests (SQT) of the HELLFIRE II insensitive munitions (IM) rocket motor under various environments. The new IM rocket motors will be much less susceptible to catastrophic failure from external stimuli such as bullet impact, fire, fragment impact and sympathetic detonation. CQTs and SQTs of the IM rocket motors are needed for the safety of those who transport and store the missiles.

Acquisition Strategy: It is planned to award the HELLFIRE II Insensitive Munitions rocket motor as a Letter Contract on a Cost Plus Fixed Fee (CPFF) basis.

FY 1996 Accomplishments: Project not funded in FY 96

FY 1997 Planned Program:

•	3325	IM rocket motor contract
•		-Conduct CQT
•		-Conduct SQT
•	400	In-house support
•	93	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) programs.
Total	3818	

FY 1998 Planned Program: Project not funded in FY 98

FY 1999 Planned Program: Project not funded in FY 99

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	0	15853	20247
Appropriated Value		3818		
Adjustments to Appropriated Value				
FY 1998 Pres Bud Request	0	3818	0	0

Change Summary Explanation: FY 98/99 funding moved to newly established Project D785 Longbow Hellfire PIP (FY 98 -15853/FY 99 -20247).

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D045

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	Compl	Cost
Missile Procurement, Army										
C70100 Laser HELLFIRE	50740	107968	14962	16928						2079718

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Initiate CQT								X								
Initiate SQT												X				

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D045

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Contractor Testing		3325		
In-house		400		
SBIR/STTR		93		
Total		3818		

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
HELLFIRE Systems Limited Liability	LC/CPFF	Mar 97	TBD	TBD			3325			39423	42748
SBIR/STTR							93				93
PY Sunk Cost					366000						366000
Support and Management Organizations											
In-House Spt							400			2075	2475
PY Sunk Cost					93739						93739
Test and Evaluation Organizations											

Government Furnished Property: None

Subtotal Product Development	366000		3418		39423	408841
Subtotal Support and Management	93739		400		2075	96214
Subtotal Test and Evaluation						
Total Project	459739		3818		41498	505055

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D045

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D2MT ATACMS BLK IA Oper Tests	3397	378	0	0	0	0	0	0	0	3775

A. Mission Description and Budget Item Justification: Project D2MT- ATACMS BLOCK 1A Operational Tests: This project finances the direct costs of planning and conducting operational testing and evaluation of the Army Tactical Missile System Block IA system by the Operational Test and Evaluation Command (OPTEC). The Army TACMS is an Acquisition Category (ACAT) I system with a dedicated Initial Operational Test and Evaluation (IOTE) in starting FY 96 in support of Milestone III full production decisions. Operational Testing is conducted under conditions similar to those encountered in actual combat with typical user troops trained to employ the system. OPTEC provides the Army leadership with independent test and evaluation of system effectiveness and suitability.

Acquisition Strategy: Not applicable.

FY 1996 Planned Accomplishments:

•	3397	Conduct Army TACMS Block IA operational testing.
Total	3397	

FY 1997 Planned Program:

•	368	Complete Army TACMS Block IA operational testing.
•	10	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	378	

FY 1998 Planned Program: Project not funded in FY 1998

FY 1999 Planned Program: Project not funded in FY 1999

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	3483	390	0	0
Appropriated Value	3582	378		
Adjustments to Appropriated Value	-185			
FY 1998 Pres Bud Request	3397	378	0	0

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203802A Other Missile Product Improvement Programs PROJECT D2MT

C. Other Program Funding Summary : There are no other related RDTE or other Appropriation efforts.

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Begin Army TACMS Block IA Operational Testing			X*													
Complete Army TACMS Block IA Operational Testing						X										

*Milestone completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D2MT

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Operational Testing	3397	368		
SBIR/STTR		10		
Total	3397	378		

B. Budget Acquisition History and Planning Information:

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property: None										
Support and Management Property: None										
Test and Evaluation Property										
Misc.					3397	368				3765
SBIR/STTR						10				10
Subtotal Product Development										
Subtotal Support and Management										
Subtotal Test and Evaluation					3397	378				3775
Total Project					3397	378				3775

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D304

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D304 Army TACMS BLK IA	22045	4376	0	0	0	0	0	0	0	88110

A. Mission Description and Budget Item Justification: Project D304 - ARMY TACMS BLOCK IA: The Army TACMS Block IA development effort will integrate Global Positioning System (GPS) technology into the guidance system of the Army TACMS Block I missile to provide more accurate information for orientation of the missile in position and azimuth. The payload quantity of M74 anti-personnel/anti-materiel (APAM) bomblets will be reduced resulting in a range approximately twice that of the current Block I missile. The inherent GPS accuracies will be achievable independent of range, thereby enhancing system performance. Funds also supported participation by Block IA prototype missiles in the Joint Precision Strike Demonstration (JPSD). The Block IA Engineering and Manufacturing Development (EMD) program incorporates the improved guidance capability. The improved missile will destroy high value targets and be especially suited for destroying enemy surface-to-surface missile system launchers. Further, these funds will allow for future improvement program studies/demonstrations pertaining to technology advancements, payload variants, propulsion, guidance and control, and fire control improvements.

Acquisition Strategy: The Army TACMS Block IA program develops an extended range version of the currently fielded Army TACMS Block I missile. This is achieved by reducing the bomblet payload and adding the Global Positioning System into the guidance to maintain system accuracy. A sole source thirty-six month EMD contract was awarded to Loral (now Lockheed Martin Vought). Low Rate Initial Production (LRIP) began in FY 1996.

FY 1996 Planned Accomplishments:

•	13487	Block IA EMD (third increment).
•	8116	Production Prove-Out Test (PPT), Pre-production Qualifications Test (PPQT) and support Operational Test (OT), continue vibration and road test
•	442	Studies, development, and validation of future improvement programs.
Total	22045	

FY 1997 Planned Program:

•	3048	Block IA EMD (fourth increment).
•	1126	Complete testing activities, data analysis and reporting.
•	100	Studies, development, and validation of future improvement programs.
•	102	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	4376	

FY 1998 Planned Program: Project not funded in FY 1998

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D304

FY 1999 Planned Program: Project not funded in FY 1999

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	22813	4469	0	0
Appropriated Value	23454	4376		
Adjustments to Appropriated Value	-1409			
FY 1998 Pres Bud Request	22045	4376	0	0

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Complete	Total Cost
Missile Procurement, Army										
C98501 ATACMS	69533	160815	97814	102960	100080	111620	13846			656668

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Begin PPT			X*													
Complete PPT			X*													
Block IA LRIP Decision			X*													
Begin PPQT			X*													
Complete PPQT					X*											
Begin Operational Testing				X*												
Complete Operational Testing				X*												
Complete Block IA EMD						X										
Block IA Milestone III Decision						X										

*Milestone completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D304

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Contractor Engineering Support	10100	2400		
Developmental Test & Evaluation	8116	1126		
Project Management Support	1824	153		
Project Management Personnel	2005	595		
SBIR/STTR		102		
Total	22045	4376		

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget t Complet	Total Program
Product Development Organizations											
Loral Vought Sys	SS/CPIF	Nov 93	8041	8041	8041						8041
Loral Vought Sys	SS/CPIF	Mar 94	52850	52850	40350	10100	2400				52850
SBIR/STTR							102				102
In-House Spt					2531	1382	53				3966
Support and Management Organizations											
Sys Eng & Tech											1425
Asst Contracts and Program Mgt					883	442	100				
In-House Spt					3619	2005	595				6219

Test and Evaluation Organizations: None

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D304

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property: None										
Support and Management Property: None										
Test and Evaluation Property										
White Sands Missile Range (WSMR)	MIPR			4490	5472	840				10802
Range Support	MIPR			131	1036	0				1167
Redstone Technical Test Center (RTTC)	MIPR			150	500	50				700
Army Research Laboratory (ARL)	MIPR			374	679	175				1228
Misc.	MIPR			1120	429	61				1610
Subtotal Product Development				50922	11482	2555			64959	
Subtotal Support and Management				4502	2447	695			7644	
Subtotal Test and Evaluation				6265	8116	1126				15507
Total Project				61689	22045	4376			72603	15507

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D336

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D336 TOW Product Improvement Program	29995	1302	1255	1242	0	0	0	0	0	348888

A. Mission Description and Budget Item Justification: Project D336 -TOW Product Improvement Program: Provides for continued development of improvements to the TOW missile system. Improvements are required to maintain the Infantry's capability to support the US Army mission of crisis response to regionally based threats and allow TOW to continue to be integral to the strategic principle of forward presence. Included in this PIP are missile improvements (seeker, lethality, aerodynamics, guidance, control, reduced missile time of flight), and Improved Target Acquisition System (ITAS). The ITAS will provide improved target detection and acquisition range, improved probability of hit and enhanced fire control capabilities that will upgrade the anti-armor capability of light forces using the TOW system, allowing the Army to own the night and providing compatibility with the TOW next generation missile. The ITAS design provides simple growth potential for digitization applications.

Acquisition Strategy: The ITAS is a technology insertion program utilizing Second Generation FLIR technology to upgrade the current TOW Target Acquisition and Fire Control subsystems. The ITAS EMD contract effort was competitively awarded to prime contractor Texas Instruments on a cost plus incentive fee/award fee (CPIF/AF) contract. The Low Rate Initial Production (LRIP) contract will be awarded sole source to the EMD contractor on a fixed price incentive fee (FPIF) basis. Full Rate Production (FRP) contracts will be awarded on a firm fixed price (FFP) basis and may be awarded through competition or sole source solicitation.

FY 1996 Planned Accomplishments:

•	14483	Continued ITAS EMD.
•	1855	Continued ITS.
•	960	Completed pilot line.
•	799	LRIP Approved.
•		- Delivered prototypes for PPQT
•	5927	Conducted PPQT.
•		- Delivered 3 prototypes for IOTE.
•	1912	Completed IOTE
•	4059	Continued missile enhancement efforts against the evolving threat.
Total	29995	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203802A Other Missile Product Improvement Programs PROJECT D336

FY 1997 Planned Program:

•	93	Review IOTE reports.
•	1186	Continue missile enhancement efforts against the evolving threat [to include Counter Active Protection System (CAPS)]
•		- Develop analytical/simulation model
•		- Design long stand-off warhead
•		- Design electrical active/passive measures
•		- Design/develop adaptive warheads for target variety
•	23	Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) programs.
Total	1302	

FY 1998 Planned Program:

•	1255	Continue missile enhancement efforts against the evolving threat [to include Counter Active Protection System (CAPS)]
•		-Update analytical/simulation model based on latest intelligence reports
•		- Design/test long stand-off warhead
•		- Demonstrate electrical active/passive measures
		- Test/iterate adaptive warheads for target variety
Total	1255	

FY 1999 Planned Program:

•	1242	Continue missile enhancement efforts against the evolving threat (to include Counter Active Protection System (CAPS))
•		Update analytical/simulation model based on latest intelligence reports
•		Test long stand-off warhead
•		Test electrical active/passive measures
		Demonstrate/iterate adaptive warheads for target variety
Total	1242	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	27686	1340	1242	1225
Appropriated Value	28463	1302		
Adjustments to Appropriated Value	+1532			
FY 1998 Pres Budget Request	29995	1302	1255	1242

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D336

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Complete	Total Cost
Missile Procurement, Army										
C61700 TOW Mods	40728	16	62755	63774	64437	63835	67682	59896	239600	1167688

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Initiate ITAS PPQT		X*														
LRIP Decision				X*												
IOT&E				X*												
ITAS Milestone III Review									X							

* Milestone Completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D336

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Primary Hardware Development	13236	744	731	721
Program Management Support	5608	298	306	312
Developmental Test and Evaluation	9296	237	218	209
Training Development	1855			
SBIR/STTR		23		
Total	29995	1302	1255	1242

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
PY Sunk Cost			59998	59998	145427						145427
Texas Instruments, McKinney, TX	C/CPIF/AF	Apr 93			49394	10604					59998
STRICOM, Orlando, FL	MIPR	Sep 93			7275	1855					9130
Misc.	TBD	TBD			442	2632	721	731	721		5247
SBIR/STTR							23				23
Support and Management Organizations											
PY Sunk Cost					46912						46912
PM CCAWS, RSA	PO				1649	1175	151	158	163		3296
MICOM, RSA, AL	PO				10359	3972	147	148	149		14775
Misc.	TBD				1242	461					1703
Test and Evaluation Organizations											
					42221						42221
TECOM,APG,MD	PO				9017	6956	260	218	209		16660
TEXCOM, Ft Bliss, TX	MIPR					1691					1691

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D336

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Misc.	TBD				1156	649					1805

Government Furnished Property: None.

Subtotal Product Development	202538	15091	744	731	721	219825
Subtotal Support and Management	60162	5608	298	306	312	66686
Subtotal Test and Evaluation	52394	9296	260	218	209	62377
Total Project	315094	29995	1302	1255	1242	348888

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D701

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D701 Hydra 70 Program Improvement Program	9483	0	0	0	0	0	0	0	0	9483

A. Mission Description and Budget Item Justification: The Hydra-70 product improvement program (PIP) will qualify a non-developmental item (NDI) 2.75-inch rocket motor with composite propellant to the Hydra-70 performance baseline on the Apache helicopter. The composite propellant is intended to result in improvements over the current insensitive munitions (IM) performance levels of the MK66 rocket motor and will open the market base for the 2.75-inch rocket.

Acquisition Strategy: The project office will manage the qualification effort in accordance with Congressional direction.

FY 1996 Planned Accomplishments:

•	1560	Engineering support
•	990	Phase I qualification
•	6933	Phase II qualification
Total	9483	

FY 1997 Planned Program: Project not funded in FY 97

FY 1998 Planned Program: Project not funded in FY 98

FY 1999 Planned Program: Project not funded in FY 99

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	9727	0	0	0
Appropriated Value	10000			
Adjustments to Appropriated Value	-517			
FY 1998 Pres Bud Request	9483	0	0	0

C. Other Program Funding Summary: Not applicable.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D701

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Phase I:																
Concept formulation & acqn strategy			X													
Industry survey			X													
Award rocket motor contract				X												
Rocket motor deliveries				X												
Shoot off						X										
Phase II: rocket motor deliveries							X									

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D701

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Project management support	1427			
Engineering support	1823			
Test support	3533			
Rocket motor procurement	2700			
Total	9483			

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
To be determined	TBD					2700					2700
Support and Management Organizations											
Industrial Operations Cmd						316					316
Naval Surface warfare Cntr						544					544
ARDEC: Picatinny						150					150
MICOM						1519					1519
TBD	TBD	TBD				721					721
Test and Evaluation Organizations											
IHD/NSWC						231					231
AVREDEC/PM APACHE						270					270
TECOM						993					993
MICOM						2039					2039

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D701

Government Furnished Property: Not applicable

	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Subtotal Product Development		2700					2700
Subtotal Support and Management		3250					3250
Subtotal Test and Evaluation		3533					3533
Total Project		9483					9483

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D785

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D785 Longbow HELLFIRE PIP	0	0	0	15769	20165	17034	9494	0	0	62462

A. Mission Description and Budget Item Justification: Project D785 - Longbow HELLFIRE Product Improvement Program: The Longbow HELLFIRE Product Improvement Program (PIP) provides for the development of Home-on-Jam (HOJ) and Counter Active Protection System (CAPS) initiatives in order to maintain the Longbow HELLFIRE missile's low susceptibility to existing and future battlefield jammer threats (self-protection jammers, escort jammers, and stand-off jammers) and evolving "hard kill" Active Protection Systems threats. The program will consist of defining threat systems and operational requirements; implementing and demonstrating the designs in simulations, warhead, tower hardware-in-the-loop and captive flight testing; and missile flight tests. This is a new project to support improvement efforts for Longbow Hellfire.

Acquisition Strategy: Development for the HOJ and CAPS initiatives will be done by Missile Command labs and contract development by the Longbow Limited Liability Company (sole-source). Solicitation is planned for issuance 10 months prior to contract award and will include each initiative, HOJ and CAPS, as a separate element. Each effort shall ultimately result in an Engineering Change Proposal (ECP) suitable for incorporation in the on-going Longbow production contract as well as providing the potential for retrofit to fielded systems.

FY 1996 Accomplishments: Project not funded in FY 96

FY 1997 Planned Program: Project not funded in FY 97

FY 1998 Planned Program: Project not funded in FY 98

FY 1999 Planned Program:

- 15769 Maintain missile low vulnerability and susceptibility to existing and future battlefield jammer threats and "hard-kill" threats
- Preliminary analysis and simulation for Home-on-Jam (HOJ) and Counter Active Protection System (CAPS)
- Design trade studies for HOJ and CAPS
- Preliminary design of HOJ and CAPS
- Initiate detail design of HOJ and CAPS

Total 15769

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D785

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
Previous President's Budget	0	0	0	0
Appropriated Value				
Adjustments to Appropriated Value				
Current Budget Submit/President's Budget	0	0	0	15769

Change Summary Explanation: Funding - FY97 Pres Bud contained $15853/FY98 and $20247/FY99 in D045 Hellfire PIP which supported Longbow Hellfire PIP. For FY98 Pres Bud, D785 Longbow Hellfire PIP was established, however, program has been delayed one year (+$15769/FY99) in order to fund higher priority programs.

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
Missile Procurement Army										
C70300 Longbow HELLFIRE	185214	249286	264725	328505	287265	298594	249904	210677	48962	2164327

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Concept formulation/acq strategy													X			
LLL contract award													X			
Preliminary analysis and simulation														X		
Complete preliminary design															X	
Initiate detailed design																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D785

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Preliminary Hardware Development				12321
Program Management Support				1982
HWIL/Laboratory/Static Testing				1466
Total				15769

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Longbow Limited Liability Company	SS/CPIF	Nov 97							12321	34496	46817
Support and Management Organizations											
Sys Eng & Tech	PO								1030	3403	4433
Program Mgt	PO								635	1772	2407
In-House Spt	PO								317	936	1253
Test and Evaluation Organizations											
Redstone Technical Test Center (RTTC)	MIPR								1189	3971	5160
Army Research Lab (ARL)	MIPR								277	2115	2392
Subtotal Product Development									12321	34496	46817
Subtotal Support and Management									1982	6111	8093
Subtotal Test and Evaluation									1466	6086	7552

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D107

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D107 Echelons Above Corps (EAC) Comm	12647	18229	8983	9941	4571	8131	8119	8127	122300	201048

A. Mission Description and Budget Item Justification: A requirement exists to automate Signal Corps unit's capability to manage multiple tactical communications systems in support of battlefield operations. The Integrated System Control (ISYSCON) facility will provide automated, integrated management of the tactical communications network, establish an interface with each technical control facility in the Army Tactical Command and Control System (ATCCS) architecture, and enable automation assisted configuration and management of a dynamic battlefield. ISYSCON is being developed in an evolutionary manner with incremental software releases. A change to the requirements document has added planning and management of satellite resources as a requirement. The ISYSCON has been selected as the baseline for network management system for joint task force use. The Battlefield Spectrum Management (BSM) software has been designated as part of the migration system for DOD use. The work efforts in FY 1996 - FY 1999 support the development of the first three software releases (P0, IOT&E & P2, P3), the fabrication of Low Rate Initial Production (LRIP) prototype, support for an IOT&E, and initiation of Nodal Management, Automatic Network Management and work efforts for follow-on software releases. This program element also supports any development required for PM, Joint Tactical Area Communications System (JTACS) Area Common User Systems (ACUS). This program is assigned to Budget Activity 7 since it includes those development projects, in support of a development acquisition program or upgrades, still in engineering and manufacturing development but which have received approval for production through DAB or other action, or production funds have been included in the DOD budget submission for the budget or subsequent fiscal year. The ISYSCON Program serves as a baseline foundation to support future network management initiatives tied to and part of the evolution to the Digitized Division and the WIN Architecture.

Acquisition Strategy: The acquisition strategy for the development phase was to competitively award an Engineering Manufacturing Development phase contract (awarded Sep 92). A Milestone III Decision for the Full Production Phase is scheduled for FY 98 following a successful IOT&E in 4QFY97.

FY 1996 Accomplishments:

- 1046 Initiated systems design for IOT&E software baseline
- 523 System integration test (P0)
- 2616 Completed detail design and conducted Developmental Progress Review (DPR)
- 3100 Task Force XXI
- 600 Completed BSM Version 4.0
- 3178 Began code, unit test, and system test of the IOT&E software baseline
- 584 Delivered draft training materiel
- 500 CDR for hardware prototypes
- 500 Developed and deliver draft tech pubs

Total 12647

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0208010A Joint Tactical Communications Program (TRI-TAC)
	PROJECT D107

FY 1997 Planned Program:

•	5200	Participation in the Army Warfighter Experiment (AWE) Exercise
•	1543	Conduct DPR for IOT&E baseline
•	2489	Complete systems design for IOT&E software baseline
•	1869	IOT&E training/testing support
•	2043	Initiate systems design for Phase 2 (P2) baseline
•	3368	Code, unit test, system test for P2 baseline
•	1272	Continue systems design for P2 baseline
•	445	Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR)
Total	18229	

FY 1998 Planned Program:

•	506	Conduct DPR for P2 baseline
•	2160	Conduct code, unit test, system test for P2 baseline
•	3173	Complete systems design for P2 baseline
•	1155	P2 software release
•	1989	Conduct Follow-On Test & Evaluation (FOT&E) for P2
Total	8983	

FY 1999 Planned Program:

•	2462	Continue systems design for P3 baseline
•	3187	Code, unit test, system test for P3 baseline
•	996	Conduct DPR for P3 baseline
•	1171	Complete systems design for P3
•	1000	P3 software release
•	1125	Support Limited User Test (LUT)
Total	9941	

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D107

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	12972	18693	9409	10420
Appropriated Value	13368	18229		
Adjustments to Appropriated Value	-721			
FY 1998 Pres Bud Request	12647	18229	8983	9941

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Comp	Total Cost
Other Procurement, Army-2, BX0007	12766	9821	10645	10539	4174	0	0	0		47945

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
P0 Software																
PDR																
CDR																
IOT&E Software																
DPR	*X			*X												
IOT&E								X								
P2 Software																
DPR						X		X								
FOT&E												X				
P3 Software																
DPR										X		X				
LUT															X	
P4 Software																
DPR														X		X

*Milestone Completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0208010A Joint Tactical Communications Program (TRI-TAC)
	PROJECT D107

A. Project Cost Breakdown	FY 1996	FY 1997	FY 1998	FY 1999
Software Development (Contractor)	10784	16221	7251	8124
Contractor Engineering Support	567	439	571	584
Government Engineering Support	1000	923	876	955
Program Management Support	296	201	285	278
SBIR/STTR		445		
Total	12647	18229	8983	9941

B. Budget Acquisition History and Planning Information: Not applicable.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208053A Joint Tactical Ground System (TIARA)

PROJECT: M635

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
M635 Joint Tactical Ground Station-P3I	0	2077	3195	0	0	0	9935	2491	0	17698

A. Mission Description and Budget Item Justification: This project supports development of critical improvements to the Joint Tactical Ground Station (JTAGS) program. JTAGS was designed as a quick response non-developmental item (NDI) acquisition to satisfy critical in-theater deficiencies in Tactical Ballistic Missile (TBM) warning and cueing. JTAGS is designated the in-theater element of the United States Space Command's (USSPACECOM) Theater Event System (TES). The objectives of the JTAGS critical improvements program are to keep pace with modernization of the Department of Defense (DoD) Defense Support Program (DSP) satellites into the evolving Space Based Infrared System (SBIRS), to retain timely dissemination of TBM launch data through sensor technology advances and to increase the accuracy and timeliness of TBM warning and cueing. This project supports development of upgrades to current production modifications and is appropriately funded in Budget Activity 7.

Acquisition Strategy: Critical JTAGS improvements under this project will be developed making maximum use of NDI elements. After selection and assembly, the modification design will be subjected to thorough integration and performance testing to assure suitability for procurement. Once approved for procurement, an upgrade package will be procured for each of the 5 tactical units. Application of the upgrades will be accomplished at each of the JTAGS operational sites.

FY 1996 Accomplishments: Program not funded in FY 1996

FY 1997 Planned Program:

•	294	Initiate modification to integrate the JTIDS commo net into JTAGS.
•	795	Initiate modification to fuse DSP sensor data with data from other battlefield sensors.
•	937	Initiate modification to calibrate sensor via static sources or beacons.
•	51	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs
Total	2077	

FY 1998 Planned Program:

•	782	Complete Fusion Development
•	852	Complete Beacon Development
•	1561	Complete JTIDS Development
Total	3195	

FY 1999 Planned Program: Program not funded in FY 1999

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208053A Joint Tactical Ground System (TIARA)

PROJECT: M635

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	2124	3192	0
Appropriated Value	0	2077		
Adjustments to Appropriated Value	0			
FY 1998 Pres Bud Request	0	2077	3195	0

C. Other Program Funding Summary

Other Procurement Army, OPA-2	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
BZ8410 Joint Tactical Ground Station	29950	0	0	0	0	0	0	7422	13800	51172
BZ8420 Joint Tactical Ground Station Mods	0	0	2913	2697	0	0	0	0	0	5610

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Initiate JTAGS Modification Program					X											
Initiate Sensor Fusion Development					X											
Initiate Beacon Development					X											
Initiate JTIDS Development						X										
Complete Sensor Fusion Development									X							
Complete Beacon Development										X						
Complete JTIDS Development											X					

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208053A Joint Tactical Ground System (TIARA)

PROJECT: M635

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Prime Contractor		1664	1777	
Contract Engineering Support		112	336	
Program Management Support		152	513	
Government Engineering Support		98	569	
Government Furnished Equipment		0	0	
SBIR/STTR		51		
Total		2077	3195	

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Aerojet (Prime)	C/CPFF				0	0	1664	1777	0	9052	12493
SBIR/STTR							51				51
Support and Management Organizations											
Project Mgmt					0	0	152	513	0	1241	1906
Contract Eng Spt	C/CPIF	Mar 95			0	0	112	336	0	1266	1714
Gov't Eng Spt					0	0	98	569	0	867	1534

Test and Evaluation Organizations: None

Government Furnished Property: To be defined

Subtotal Product Development	1715	1777		9052	12544
Subtotal Support and Management	362	1418		3374	5154
Subtotal Test and Evaluation					
Total Project	2077	3195		12426	17698

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140A Communications Security (COMSEC) Equipment

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	3455	3161	9647	3826	7547	7305	9209	9507	Continuing	Continuing
D491 Communications Security Equipment Technology (COMSEC)	2240	2574	6201	2564	6217	5980	7889	8188	Continuing	Continuing
D501 Army Key Management System (AKMS)	1215	587	3446	1262	1330	1325	1320	1319	Continuing	Continuing

Mission Description and Budget Item Justification: This program develops Information Systems Security (ISS) equipment and techniques required to combat threat Signal Intelligence capabilities and to insure our data network integrity. The Army's RDTE ISS program objective is to implement National Security Agency (NSA) developed security technology in Army information systems. The Communications Security Equipment Technology (COMSEC) is to insure total signals and data security of 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 on a single platform. AKMS is a part of the management/support infrastructure for the Warfighter Information Network (WIN) program. Additional modifications to the AKMS baseline shall be required to support the emerging WIN architecture. System security engineering, integration of available information security (INFOSEC) products, development (when required), and testing are services provided to ensure that C4I systems are protected against malicious or accidental attacks by our enemies or friends. Several joint service/NSA working groups exist in the area of key management to avoid duplication and to assure interoperability between all Services' systems to include standards and testing. For the emerging multilevel network security, the Defense Information Systems Agency (DISA) Multi-Level Security (MLS) working group coordinates the Services different technology efforts. The National Security Agency reviews each service RDT&E program to avoid duplication between and with their own. These projects support development of upgrades to current production vehicles and are appropriately funded in Budget Activity 7.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140A Communications Security (COMSEC) Equipment

PROJECT: D491

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D491 Communications Security Equipment Technology (COMSEC)	2240	2574	6201	2564	6217	5980	7889	8188	Continuing	Continuing

A. Mission Description and Budget Item Justification: **Project D491 - Communications Security Equipment Technology:** 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 to protect the information and to integrate these mechanisms into specified systems so secure operations are as transparent as possible to the users. This entails performing architecture studies and modeling, development models, system integration and testing, installation kits and certifications and accreditations of Automation Information Systems.

Acquisition Strategy: Initial Operational Testing and Evaluation (IOTE) for Tactical End-to-End Encryption Device (TEED) will be done during Task Force XXI in FY 97. The Production Milestone decision will be made after the Joint Warfighter Demonstration in Fall FY 97.

FY 1996 Accomplishments:

- 1200 Continued development of TEED Internet Security Manager, completed critical design review, initiated software coding to perform network management security services of Key Management, Audit, and Access Control
- 506 Continued development of re-programmable COMSEC/TRANSEC using Cypris Module or Digital Signal Processing (DSP) chips for embedment into speakeasy programmable digital radio.
- 534 Initiated engineering and manufacturing development (EMD) at Baton TEED - a security device for Internet Protocol (IP) as well as Asynchronous Transfer Mode (ATM) networks.

Total 2240

FY 1997 Planned Program:

- 2574 Delivery of TEED Internet Security Manager (TISM) for usage with TEED and Integrated System Controller (ISYCON); testing in Army/Joint and civilian test bed begins, testing of reprogrammable COMSEC/TRANSEC in tactical settings. Continues EMD TEED development. EMD TEED will protect Army computer network users from hackers, deception and other forms of electronic attack on the Internet. Begin "electronic operations" research to investigate techniques to counter electronic terrorism virus and masquerade against Army assets.

Total 2574

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303140A Communications Security (COMSEC) Equipment PROJECT D491

FY 1998 Planned Program:

•	2200	Support NSA TACLANE Program.
•	940	Evaluation of Commercial INFOSEC (COMSEC & COMPUSEC) equipments, support to Speakeasy Program, evaluation of New COMSEC Chips for embedding and development of new installation kits for TACLANE.
•	3061	Initiate development of common tools set for C2 Protect, and initiate efforts to determine System Vulnerabilities (Information Operations/Warfare)
•		
Total	6201	

FY 1999 Planned Program:

•	721	Perform in-house evaluations and integrations of INFOSEC equipments such as COMSEC foreign nation releasable chips, high speed encryptors, trusted computer platforms and secure applications.
•	200	Perform in-house study for Secure Gateway and provide support to TACLANE program.
•	376	Prepare procurement packages for FY00 award for the Secure Gateway, wireless LAN, Personal Communications Services COMSEC, NDI evaluation, and installation support/acquisition contracts.
•	1267	Continue common tool set and Vulnerability determination for C2 Protect (Information Operations/Warfare)
Total	2564	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	2350	2574	940	1297
Appropriated Value	2321	2515		
Adjustments to Appropriated Value	-81	59		
FY 1998 Pres Bud Request	2240	2574	6201	2564

Change Summary Explanation: Funding: FY1998/FY1999 increase to support emphasis on Information Operations/Warfare (FY 98 +5261/FY 99 +1267).

C. Other Program Funding Summary: None

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
TEED Prototype Model Testing																
TEED Prototype Model Delivery	X*															
Trusted Network Base contract award	X*															

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140A Communications Security (COMSEC) Equipment

PROJECT: D491

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Trusted Network Base system review	X*															
Trusted Network Base software coding				X*												
Trusted Network Base system integration							X									
Trusted Network Base delivery								X								
Re-Programmable COMSEC award	X*															
Re-Programmable COMSEC card design	X*															
Re-Programmable COMSEC card test	X*															
Integration into multiband, multimode digital radio						X										
AIRTERM installation kits designed																
AIRTERM installation kits testing																
INFOSEC COTS evaluations	X*				X			X	X		X		X			X
Secure Gateway Study													X			X
Acquisition Planning and Procurement Packages for SEGAT, Wireless LAN,NDI Evaluation, Installation Support and Material Acquisition Contracts													X			X
TACLANE Support					X			X	X		X		X			X
Common Tool Set									X		X		X			X

*Denotes completed effort

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140A Communications Security (COMSEC) Equipment

PROJECT: D491

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Ancillary Hardware and Software Development	1146	1389	2862	1168
System Engineering	0	0	1000	0
Government Engineering Support	984	1075	2170	1251
Travel	60	60	100	100
Miscellaneous	50	50	69	45
SBIR/STTR				
Total	2240	2574	6201	2564

B. Budget Acquisition History and Planning Information:

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
GTC, Tampa, FL	C-CPFF	AUG 91	8687	8687	113435	0	0	0	0	5500	118935
GTE, Waltham, MA	C-CPFF	AUG 93	3857	3857	3091	0	800	0	0	20000	23891
TBD	C-CPFF	JUN 95	2050	2050	966	863	0	1662	1168	cont'd	4659
Rome Labs	MIPR	FEB 95	1525	1525	600	587	0	0	0	0	1187
Alliant Tech Sys., Eatontown, NJ	C-CPFF	OCT 91	1100	1100	1183	0	0	0	0	cont'd	1183
CECOM, RDEC	PO	OCT 95	700	700	0	490	1274	2539	1396	cont'd	5699
NSA	MIPR	MAR 95	200	200	145	300	500	2000	0	0	2945
TEXCOM, Tinton Falls, NJ	SS-CPFF	FEB 91	900	900	1200	0	0	0	0	0	1200
Totals						0	0	0	0		

Support and Management Organization: None

Test and Evaluation Organization: None

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303140A Communications Security (COMSEC) Equipment PROJECT D491

Government Furnished Property: N/A

	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Subtotal Product Development	120620	2240	2574	6201	2564	25500	159699
Subtotal Support and Management							
Subtotal Test and Evaluation							
Total Project	120620	2240	2574	6201	2564	25500	159699

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140A Communications Security (COMSEC) Equipment

PROJECT: D501

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D501 Army Key Management System (AKMS)	1215	587	3446	1262	1330	1325	1320	1319	Continuing	Continuing

A. Mission Description and Budget Item Justification: Project D501 - Army Key Management System (AKMS): This program provides decentralized and automated key generation, distribution and management while enhancing joint interoperability. It eliminates paper encryption key and provides communications network planning with key management on a single platform.

Acquisition Strategy: AKMS Initial operational test and Evaluation (IOTE) is scheduled August through September FY97 with IOC in February FY98.

FY 1996 Accomplishments:

•	961	Workstation software developed
•	194	Provided contractor and programmatic support
•	60	Provided TEXCOM support for IOT&E
Total	1215	

FY 1997 Planned Program:

•	567	Complete software for the AKMS workstation
•	20	Provide contractor and programmatic support
Total	587	

FY 1998 Planned Program:

•	942	Provide contractor and programmatic support , and software development upgrades for Common Tier III and AKMS Workstation
•	2504	Develop computer based training for the AKMS Workstation
Total	3446	

FY 1999 Planned Program:

•	337	Provide contractor and programmatic support , and software development upgrades for Common Tier III and AKMS workstation
•	925	Provide product improvements for Commander in Chief regional controller effort, and future enhancements for new equipment such as ATM COMSEC devices
Total	1262	

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140A Communications Security (COMSEC) Equipment

PROJECT: D501

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	1273	587	13669	13599
Appropriated Value	1259	587		
Adjustments to Appropriated Value	-44			
FY 1998 Pres Bud Request	1215	587	3446	1262

Change Summary Explanation: Funding: RDT&E funds in FY98 (-9545) and FY99 (-10425) were realigned to the OPA line BA1201.

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Comp	Total Cost
OPA Z16800	13705	13556	0	0	0	0	0	0	cont'd	cont'd
OPA TA0600	10758	10678	9976	12038	14418	16366	18914	18325	cont'd	cont'd
OPA BS9716	550	828	551	359	894	887	1424	1744	cont'd	cont'd
OPA BA1201	0	0	4745	10425	1938	1737	2691	3531	cont'd	cont'd

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AKMS Decision Brief		X*														
AKMS Award Competitive Follow-on Contract			X*													
AKMS Computer Software Configuration Item Testing							X									
AKMS Initial Operational Test & Evaluation								X								
AKMS Milestone III									X							
AKMS Type Classification									X							
AKMS Material Release									X							
AKMS Begin Fielding with Upgraded Software										X						
AKMS Initial Operational Capability										X						
AKMS Material Release CT3 Upgrade													X			
AKMS Material Release Work Station Upgrade													X			

*Milestone completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303140A Communications Security (COMSEC) Equipment PROJECT D501

A. Project Cost Breakdown	FY 1996	FY 1997	FY 1998	FY 1999
Software Engineering (Contractor)	961	575	946	305
Government Engineering Support	220	10	2400	907
Program Management Support	12	2	100	50
Congressional Adjustments	22	0		
SBIR/STTR				
Total	1215	587	3446	1262

B. Budget Acquisition History and Planning Information: Not Applicable

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	52821	39421	57827	44288	38779	37760	35886	36149	Continuing	Continuing
D2PT SMART-T Operational Test	0	137	4715	26	0	0	0	0	0	4878
D2RT SCAMP Operational Test	260	0	0	0	0	0	0	0	0	260
D253 Defense Satellite Communications Systems-Defense Communications Systems (DSCS-DCS)(Phase II)	17838	16510	14890	11610	8546	7439	11748	12120	Continuing	Continuing
D384 SMART-T	20492	16413	17264	24641	13765	10087	7504	6520	214646	444164
D386 SCAMP Block I	9311	1007	2905	0	0	0	0	0	0	100576
D455 MILSTAR EDM Terminal	783	859	0	0	0	0	0	0	0	299922
D456 Tactical Satellite Communications System	4137	4495	4235	4110	4684	4893	4889	4895	Continuing	Continuing
D559 Automated Communications Management System (ACMS)	0	0	13818	3901	6778	9550	0	0	16328	34047
D561 Military Individual Communicator (MIC)	0	0	0	0	2006	2002	1004	1001	Continuing	Continuing
D562 Multiband Integrated Satellite Terminal (MIST)	0	0	0	0	3000	3789	3782	4651	Continuing	Continuing
D566 Transit MDR (TRAM)	0	0	0	0	0	0	6959	6962	Continuing	Continuing

Mission Description and Budget Item Justification: Military Satellite Communications (MILSATCOM) systems are joint program/project efforts with each Service, Joint Chiefs of Staff (JCS), National Command Authority, Commanders-In-Chief (CINCs), National Security Agency and Office of the Secretary of Defense assigned specific responsibilities as specified in JCS Memorandum of Policy (MOP) 37. The worldwide MILSATCOM systems are the following: Ultra High Frequency (UHF) Fleet Satellite/Air Force Satellite (FLTSAT/AFSAT) system; the Super High Frequency (SHF) Defense Satellite Communications System (DSCS); the Extremely High

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

Frequency (EHF) MILSTAR system; the UHF Follow-On Satellite system; and all MIL-STD-1582C compatible payloads. MOP 37 designates Army as the Executive Agent for MILSATCOM Ground Subsystems. As Executive Agent for MILSATCOM Ground Subsystems, 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 to satisfy JCS Command, Control, Communications, and Intelligence (C3I) supporting the President; JCS; CINCs; Military Departments; Department of State; and other Departments and Agencies of the government. The projects in this Program Element support development acquisition programs or upgrades, still in engineering and manufacturing development (DoDD 5000.1), but which have received approval for production through DAB or other action, or production funds have been included in the DoD budget submission for the budget or subsequent fiscal year, and are, therefore, placed in Budget Activity 7.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D2PT

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D2PT SMART-T Operational Test	0	137	4715	26	0	0	0	0	0	4878

A. **Mission Description and Budget Item Justification: Project D2PT - SMART-T Operational Test.** Project D2PT finances the direct costs of planning and conducting operational testing and evaluation of the Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T) by the Operational Test and Evaluation Command (OPTEC). SMART-T is an Acquisition Category (ACAT) IC system with an Initial Operational Test and Evaluation (IOTE) in FY 98. Operational testing is conducted under conditions as close as possible to those encountered in actual combat with typical user troops trained to employ the system. OPTEC provides Army leadership with an independent test and evaluation of effectiveness and suitability of the system. Project D2PT is restructured from within PE 0303142A, Satellite Communications Ground Environment, and is not a new start. Starting in FY 96 and beyond, funding for operational testing of ACAT I systems is specifically programmed within the PE specific to each system.

Acquisition Strategy: Not Applicable

FY 1996 Accomplishments: Project not funded in FY 96

FY 1997 Planned Program:

•	134	Planning and preparation for IOT&E
•	3	Small Business Innovative Research (SBIR)
Total	137	

FY 1998 Planned Program:

•	4715	Conducts IOT&E
Total	4715	

FY 1999 Planned Program:

•	26	Completes OPTEC independent evaluation of IOT&E required to support SMART-T Milestone III Decision Review
Total	26	

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D2PT

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	142	4708	106
Appropriated Value	0	137		
Adjustments to Appropriated Value	0			
FY 1998 Pres Bud Request	0	137	4715	26

Change Summary Explanation: Funding: FY 99: (-80) Reduction due to streamlining

C. Other Program Funding Summary: Not Applicable

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Initiate IOT&E planning and preparation						X										
Conduct IOT&E											X					
Independent evaluation to support MS III Decision Review													X			

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D2PT

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Operational Test and Evaluation		134	4715	26
SBIR		3		
Total		137	4715	26

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations: Not Applicable											
Support and Management Organizations: Not Applicable											
Test and Evaluation Organizations											
OPTEC		Jan 97					134	4715	26	0	4875
SBIR							3				3
Government Furnished Property: None											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation							137	4715	26		4878
Total Project							137	4715	26		4878

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D2RT

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D2RT SCAMP Operational Test	260	0	0	0	0	0	0	0	0	260

A. Mission Description and Budget Item Justification: Project D2RT - SCAMP Operational Test: Project D2RT finances the direct costs of planning and conducting testing and evaluation of the Single Channel Anti-Jam Manportable (SCAMP) terminal by the Operational Test and Evaluation Command (OPTEC). SCAMP Block I has been redesignated an Acquisition Category (ACAT) III system requiring Customer Test to evaluate early operational suitability of contractor prototype hardware prior to award of the FY 97 option. OPTEC provides Army leadership with an independent test and evaluation effectiveness and suitability of the system.

Acquisition Strategy: Not Applicable

FY 1996 Accomplishments:

•	260	Evaluated Pre-Award Equipment Demonstrations and Customer Test
Total	260	

FY 1997 Planned Program: Project not funded in FY 97

FY 1998 Planned Program: Project not funded in FY 98

FY 1999 Planned Program: Project not funded in FY 99

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	267	0	0	0
Appropriated Value	269	0	0	0
Adjustments to Appropriated Value	-9	0	0	0
FY 1998 Pres Bud Request	260			

C. Other Program Funding Summary: Not Applicable

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D2RT

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Evaluate Pre-Award Equipment Demonstrations	X*															
Conduct Customer Test				X*												

*Denotes Milestone Completion

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D2RT

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Evaluate Pre-Award Equipment Demonstrations and Conduct Customer Test	260	0	0	0
Total	260	0	0	0

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations: Not Applicable											
Support and Management Organizations: Not Applicable											
Test and Evaluation Organizations											
OPTEC		1996				260					260

Government Furnished Property: None

Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation						260					260
Total Project						260					260

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D253

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D253 Defense Satellite Communications Systems-Defense Communications Systems (DSCS-DCS)(Phase II)	17838	16510	14890	11610	8546	7439	11748	12120	Continuing	Continuing

A. Mission Description and Budget Item Justification: Project D253 - DSCS-DCS Phase II: This project provides funds required to develop strategic and tactical Ground Subsystem equipment to support JCS validated Command, Control, Communications and Intelligence (C3I) for the worldwide Super High Frequency (SHF) Defense Satellite Communications System (DSCS) program. Continuing upgrades for the DSCS are vital to support the emerging power projection and rapid deployment role of the Armed Forces. DSCS provides warfighters multiple channels of tactical connectivity as well as interface with strategic networks and national decision makers.

Acquisition Strategy: The Universal Modem System (UMS), Replacement Satellite Configuration Control Element (RSCCE), and Replacement BATSON (RBATSON), programs will be followed by Competitive Firm Fixed Price Procurement Programs that contain a basic production year followed by several option years of production. The DSCS Integrated Management System (DIMS) and Common Network Planning Software (CNPS) programs are software development programs that are not planned to have follow-on production.

FY 1996 Accomplishments:

•	7761	Completed Universal Modem (UM) development and continue Medium Data Rate (MDR) Technical Insertion UM Program
•	2050	Continued Defense Satellite Communications System (DSCS) Integrated Management Systems (DIMS) Interface Software (Phase I)
•	4203	Continued Non-Developmental Item (NDI) Adaptation Phase of Replacement Satellite Configuration Control Element (RSCCE)
•	703	Developed the Specification and Acquisition Requirements Package for RBATSON
•	393	Completed DSCS Training Device development.
•	2328	Continued support and upgrades to the Integrated Research Facility (IRF) and Systems Engineering Technical Support (SETA) efforts
•	400	Task Force XXI
Total	17838	

FY 1997 Planned Program:

•	2871	Complete MDR Technical Insertion UM Program
•	2513	Continue DIMS Interface Software (Phase II)
•	1769	Complete the NDI Adaptation Phase for the RSCCE
•	4587	Initiate development of the Replacement BATSON

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)
	PROJECT D253

FY 1997 Planned Program: (continued)

•	1945	Initiate development of the Integrated Baseband Workstation (IBWS)
•	415	Develop the specification and acquisition requirements package for the Common Network Planning Software (CNPS)
•	2020	Continue IRF and SETA efforts
•	390	Small Business Innovation Research / Small Business Technology Transfer (SBIR/STTR)
Total	16510	

FY 1998 Planned Program:

•	1200	Continue DIMS Interface Software (Phase III)
•	5215	Continue the RBATSON program
•	1900	Complete the IBWS program
•	3811	Initiate the Common Network Planning Software (CNPS) program
•	2764	Continue IRF and SETA efforts
Total	14890	

FY 1999 Planned Program:

•	1000	Complete the RBATSON program
•	2000	Complete the DIMS Interface Software program
•	5940	Continue the CNPS program
•	2670	Continue IRF and SETA efforts
Total	11610	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	18290	17063	15226	11946
Appropriated Value	18474	16510		
Adjustments to Appropriated Value	-636			
FY 1998 Pres Bud Request	17838	16510	14890	11610

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl Cont.	Total Cost Cont.
OPA 2 - SSN: BB8500	74311	97406	87643	101727	70826	71375	59901	58396		

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D253

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
DSCS Trainer H/W & S/W Integration Test	X*															
UM Tech/International Test		X*														
RSCCE Testing including Init Oper Test						X										
Award R-BATSON Contract					X*											
DIMS Interface SW Testing (Phase I)						X										
IBWS System Specification Completion						X										
DIMS Interface SW Testing (Phase II)										X						
CNPS Contract Award										X						
RBATSON Testing														X		
DIMS Interface SW Testing (Phase III)														X		

* Denotes milestone completion

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D253

A. Project Cost Breakdown	FY 1996	FY 1997	FY 1998	FY 1999
Development (Prototype, Sys Engr, Test & Evaluation)	12223	10674	10500	7800
Integrated Research Facility	700	825	800	770
Contractor Engineering Support	1032	1050	621	570
Government Engineering Support	2255	1939	1505	1200
Program Management Support	1628	1632	1464	1270
SBIR/STTR	0	390	0	0
Total	17838	16510	14890	11610

B. Budget Acquisition History and Planning Information: Not Applicable

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D384

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D384 SMART-T	20492	16413	17264	24641	13765	10087	7504	6520	214646	444164

A. Mission Description and Budget Item Justification: Project D384 - SMART-T. The Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T) will provide a range extension capability for the Army's Mobile Subscriber Equipment (MSE) to support the Force Projection Army. Specifically, it will provide a satellite interface to permit uninterrupted communications as our advancing forces move beyond the line-of-sight capability of MSE. This equipment will communicate at both low and medium data rates (LDR/MDR) over the MILSTAR satellite constellation. It will also be compatible with the UHF Follow-On (UFO); the Navy Fleetsatcom EHF satellite package; and MIL-STD-1582B/C compatible payloads. It will provide the security, mobility, and anti-jam capability required to defeat the threat and satisfy the critical need as stated above. The SMART-T will also have Low Probability of Interception and Low Probability of Detection (LPI/LPD) to avoid being targeted for destruction, jamming or intercept. The prime mover will be a High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) configured with all the electronics and the self-erectable antenna.

Acquisition Strategy: The SMART-T program employed a competitive development strategy. The development phase included two contractors performing under Cost-Plus-Incentive-Fee (CPIF) contracts. The contracts were awarded on 9 Nov 92 to Raytheon Company (Marlborough, MA) and Rockwell International (Richardson, TX). Twelve Engineering Development Model (EDM) terminals (6 from each contractor) were developed under the two contracts. The streamlining features of this phase included a reliability growth plan to achieve the required reliability by Follow-On Test and Evaluation (FOT&E). Both Low Rate Initial Production (LRIP) and Full Rate Production (FRP) were competitively awarded to Raytheon Company on 7 Feb 96 under a single contract based upon the development contract effort and LRIP/FSP proposals. The Project Management Office elected to defer discrete development initiatives until after down select for greater cost efficiency. A SMART-T Milestone III Decision will be conducted prior to exercising the first FRP Option in FY 99. The total Army terminal requirement is 209, of which 43 will be procured during LRIP (base year plus one option) to ensure sufficient quantities are available for the launch of the first MDR satellite in FY 99. The full scale production (FSP) quantities (157 Army terminals) will be awarded as fixed price options to the LRIP/FSP contract following Milestone III approval. Additional quantities (i.e., 178) will be procured for the Air Force, Marine Corps, JCSE, Navy, and other DoD Special Users.

FY 1996 Accomplishments:

•	13574	Completed Contractor Technical Test and obtain Low Rate Initial Production (LRIP) Decision
•	6198	Began development effort for Joint Interoperability Standard, Automated Communications Management System, Network Control, and Demand Assigned Multiple Access
•	720	Began development of interactive training courseware
Total	20492	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)
	PROJECT D384

FY 1997 Planned Program:

•	10684	Continue development of Network Control, Demand Assigned Multiple Access, Payload Specification Changes and C4I Technical Architecture
•	3385	Continue development of interactive training courseware
•	1949	Conduct Terminal Test with Lincoln Labs MDR Simulator
•	395	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)
Total	16413	

FY 1998 Planned Program:

•	11764	Continue development of Network Control, Demand Assigned Multiple Access, Payload Specification and C4I Technical Architecture
•	3900	Complete development of interactive training courseware
•	1600	Initiate Polar modification development work
Total	17264	

FY 1999 Planned Program:

•	17841	Continue development of Network Control, C4I Technical Architecture and Demand Assigned Multiple Access
•	4500	Continue Payload Specification Change development work resulting from test with on-orbit MDR Payload satellite
•	2300	Complete Polar modification development work
Total	24641	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	21226	17217	23764	95
Appropriated Value	21440	16413		
Adjustments to Appropriated Value	-948			
FY 1998 Pres Bud Request	20492	16413	17264	24641

Change Summary Explanation:

Funding: FY 98: (-6500) reprogrammed to establish for Automated Communications Management Systems (ACMS) program line (D559)
FY 99: (+24546) reprogrammed from OPA to fund DAMA, Polar modification, Payload Specification changes and C4I Technical Architecture

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D384

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
Other Procurement Army 2 - SSN: BC 4002	51429	34670	22762	61019	65957	44791	16268	11160	Cont	Cont
Other Procurement Army 4 - SSN: BS 9720	0	0	1042	1454	0	2919	2656	2053	Cont	Cont

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Complete Contract Technical Test	X*															
Obtain LRIP Decision		X*														
Award FFP LRIP/FRP Contract		X*														
Receive 12 EDM Terminals		X*														
Begin Joint Interoperability Standards Development effort		X*														
Conduct SIM 2 Test							X									
Complete Interactive Training Courseware												X				
Complete DAMA Development														X		
Begin Polar Mod										X						

*Denotes Milestone Completion

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D384

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Contractor	13286	9508	12157	18557
Government Systems Engineering & Project Mgmt	7206	6510	5107	6084
SBIR/STTR		395		
Total	20492	16413	17264	24641

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Dual Development Contracts	C-CPIF	09 Nov 92	11713	11713	108786	8387	0	0	0	0	117173
Other Contracts	MIPR/PWD	Various	63797	63797	349	4899	9620	12157	18557	14891	60473
Govt Support	N/A	Various	23625	23625	5482	3260	2526	2137	2084	8685	24174
Support and Management Organizations											
Other Contracts	MIPR/PWD	Various	15475	15475	10260	630	361	685	700	8685	21321
Core Support	N/A	Various	6227	6227	3094	678	317	300	300	17370	22059
Lab Activities	MIPR/PWD	Various	10057	10057	2428	838	652	1300	1800	43425	50443
Lincoln Labs	MIPR	Various	3049	3049	20160	1800	2542	685	1200	121590	147977
SBIR/STTR	N/A	N/A					395				395

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property										
CDH Chips/Chip Carriers	MIPR	Jul 93		149						149

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D384

	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Subtotal Product Development	114766	16546	12146	14294	20641	23576	201969
Subtotal Support and Management	35942	3946	4267	2970	4000	191070	242195
Subtotal Test and Evaluation							
Total Project	150708	20492	16413	17264	24641	214646	444164

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D386

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D386 SCAMP Block I	9311	1007	2905	0	0	0	0	0	0	100576

A. Mission Description and Budget Item Justification: Project D386 - SCAMP. The SCAMP BLK I Terminal will provide four simultaneous channel full duplex data, half duplex voice communications at 2400 bits per second (bps) each in a 37 pound manportable configuration. These satellite terminals are to be employed by units that require range extension for command and control communications. Block I will provide priority tactical ground users with the capability to transmit and receive intelligence, command, and control traffic from a base station. It will transmit in the Extremely High Frequency (EHF) band and receive in the Super High Frequency (SHF) band. It will provide Low Data Rate (LDR) secure voice at 2400 bps and secure data at 75-2400 bps, as well as interface with Common Hardware/Software devices such as the Lightweight Computer Units and the Hand-Held Terminal Unit. The SCAMP BLK I will be fully interoperable within the Army C4I Technical Architecture. The terminal will have embedded COMSEC and TRANSEC with set-up and tear-down in less than 10 minutes. In addition to operation on MILSTAR satellites, the SCAMP BLK I will operate on all satellites which utilize the MIL-STD-1582C/D LDR waveform. It will be required to operate in environmental conditions that include smoke, aerosol, rain, fog, snow, haze and dust, and must operate in the transmit, receive or stand-by mode throughout an entire mission (typically 30 days). SCAMP BLK I is the first EHF manportable terminal and provides direct support to the tactical warfighter mobile forces with greater anti-jam protection, lower probability of intercept, and lower probability of detection.

Acquisition Strategy: The Block I development phase initially included two competing contractors performing under Cost-Plus-Incentive-Fee (CPIF) which were competitively awarded in Sep 92. Based upon unexpected cost growth of both contractors and the lack of government affordability to retain two, an early determination was made to Terminate for Convenience the Lockheed Corporation contract on 16 Sep 93. A Market Survey was conducted in Jun 94 in which 5 vendors participated. On 26 Oct 94, the AAE restructured the SCAMP Block I program and the Martin Marietta Corporation contract was Terminated for Convenience. A Milestone III Decision for a competitive full scale production buy (quantity of 312 multi-service terminals) was approved on 15 Nov 94. An Advanced Planning Briefing to industry was held at Fort Monmouth, New Jersey, on 29 Nov 94. On 7 Apr 95, the SCAMP Block I was redesignated an ACAT III program. Team Fort Monmouth awarded the SCAMP Block I Firm Fixed Price Production Contract to Rockwell International, Richardson, Texas, on 23 Feb 96. Engineering Feasibility Efforts (EFE) to develop the objective terminal in the range of 12-15 pounds was approved in the Acquisition Decision Memorandum to begin in FY 96 through FY 99. These efforts provide confidence in technical approach and lead to Milestone II/III Engineering/Manufacturing Development (EMD) Phase for the objective system. The SCAMP Block II effort previously funded in this PE is restructured to PE 0603856A, Project D389 beginning in FY 97.

FY 1996 Accomplishments:

•	3825	Completed Pre/Post Award Evaluation/Demonstrations/Reviews/Customer Test/MILSTAR Spec change
•	5486	Began Engineering Feasibility Efforts (EFE) (i.e., lightweight composite structures, paging prototype system, enhanced vocoder, etc.)
Total	9311	

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D386

FY 1997 Planned Program:

•	748	Conduct System level tests
•	237	Initiate/complete UHF Follow-On (UFO), Fleetsat EHF Package (FEP) Control Planning Tools
•	22	Small Business Innovation Research/Small Business Technology Transfers (SBIR/STTR)
Total	1007	

FY 1998 Planned Program:

•	2905	Initiate/Complete Polar Modification development
Total	2905	

FY 1999 Planned Program: Programs not funded

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	9549	1029	6056	0
Appropriated Value	9645	1007		
Adjustments to Appropriated Value	-334			
FY 1998 Pres Bud Request	9311	1007	2905	0

Change Summary Explanation: FY98: (-3151) Zero reprogrammed to support Automated Communications Management System (ACMS) D559.

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
Other Procurement Army 2 - SSN: BC 4003	20057	14425	4305	4813	1763	1655	494	241	Cont	Cont
Other Procurement Army 3 - SSN: BS 9718			2571	2853					Cont	Cont

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Begin Engineering Feasibility Efforts (EFE)	X*															
Complete Pre-Award Equipment Demonstrations	X*															
Conduct Pre-Award Review		X*														

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D386

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Award FFP FRP Contract		X*														
Conduct Customer Test				X*												
Award Rebuy						X*										
Conduct Follow-On Test and Evaluation (FOT&E)								X								
Begin Fielding and Support								X								
Conduct System Level Tests								X								
Initiate/Complete UHF Follow-On (UFO)/ Fleetsat EHF Package (FEP) Planning Tools								X								
Initiate/Complete Polar Modifications												X				

*Denotes Milestone Completion

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D386

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Contractor	4067	609	2806	0
Government Systems Engineering and Project Management	5244	376	99	0
SBIR/STTR		22		
Total	9311	1007	2905	

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations**											
Martin Marietta	CPIF	Sep 92	38998	38998	38998	0	0	0	0	0	38998
Lockheed	CPIF	Sep 92	9650	9650	9650	0	0	0	0	0	9650
Other Contracts	PWD	Various	N/A	19232	11750	4067	609	2806	0	0	19232
Govt Support	MIPR/PWD	Various	N/A	7902	6628	1199	0	75	0	0	7902
Support and Management Organizations:											
Other Contracts	MIPR/PWD	Various	N/A	8177	6673	1128	376	0	0	0	8177
Core Support	N/A	Various	N/A	3830	2916	890	0	24	0	0	3830
Lincoln Labs	MIPR	Various	N/A	12352	10385	1967	0	0	0	0	12352
Lab Activities	MIPR/PWD	Various	N/A	353	353	0	0	0	0	0	353
SBIR/STTR							22				22
Test and Evaluation Organizations:											
EMP Test (Kirkland AFB)	MIPR	Sep 96			0	60		0	0	0	60

** Lockheed Terminated for Convenience 9/93
** Martin Marietta Terminated for Convenience 10/94

Government Furnished Property: Not Applicable

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE) PROJECT D386

	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Subtotal Product Development	67026	5266	609	2881			75782
Subtotal Support and Management	20327	4045	398	24			24794
Subtotal Test and Evaluation							
Total Project	87353	9311	1007	2905			100576

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D455

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D455 MILSTAR EDM Terminal	783	859	0	0	0	0	0	0	0	299922

A. Mission Description and Budget Item Justification: Project D455 - MILSTAR EDM Terminal (MET). These EHF MILSTAR Engineering Development Model (EDM) terminals will be utilized as test assets to support satellite payload tests. They will also reduce risk in the Secure Mobile Anti-Jam Reliable Tactical Terminal /(SMART-T) and Single Channel Anti-Jam Manportable (SCAMP) terminal development process. The terminals are capable of providing mobile, survivable, anti-jam, low probability-of-intercept communications from an S-250 shelter mounted on a Common Utility Cargo Vehicle (CUCV) truck towing a trailer with generator.

Acquisition Strategy: A single Full Scale Engineering Development (FSED) contract was awarded in Mar 85 to develop and produce 15 FSED terminals. Magnavox Electronic Systems Company received the award. A sole source production contract was to be executed in Nov 92; however, due to the changed world situation, no production buy was required. The MET will be used for SCAMP and SMART-T contractor risk reduction tests and satellite payload tests.

FY 1996 Accomplishments:

•	783	Continued Government and Contractor support of testing with SCAMP and SMART-T to reduce risk
Total	783	

FY 1997 Planned Program:

•	859	Continue Government and Contractor support of testing with SCAMP and SMART-T to reduce risk
Total	859	

FY 1998 Planned Program: Program Not Funded

FY 1999 Planned Program: Program Not Funded

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	789	878	0	0
Appropriated Value	793	859		
Adjustments to Appropriated Value	-10			
FY 1998 Pres Bud Request	783	859		

C. Other Program Funding Summary: Not Applicable

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D455

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SMART-T Low Data Rate (LDR) Verification	X*					X										
Evaluation Demo with SCAMP	X*															
Follow-On Test and Evaluation (FOT&E) with SCAMP								X								

*Denotes milestone completion

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D455

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Government Systems Engineering and Project Management	783	859		
Total	783	859		

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Magnavox (D501)	FFP	Dec 85	112544	112544	112544						112544
Magnavox (E716)	CPIF	Sep 90	11363	11363	11363						11363
Raytheon (D500)	T&M	Mar 90	933	933	933						933
Magnavox (B754)	T&M	Apr 92	1126	1126	1126						1126
Govt Support					31153	421	299				31873
Lab Activities					4256						4256
Lincoln Labs					18949						18949
Support and Management Organizations											
Other Contracts					16192	202	456				16850
SS/MSP JMPO					4373						4373
Crosslink											
Statistical					3396						3396
MITRE					1613						1613
Core Support					67397	160	104				67661
Test and Evaluation Organizations											
Test Support					24966						24966

Government Furnished Property: Not applicable

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D455

	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Subtotal Product Development	180324	421	299				181044
Subtotal Support and Management	92971	362	560				93893
Subtotal Test and Evaluation	24966						24966
Total Project	298261	783	859				299903

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D456

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D456 Tactical Satellite Communications System	4137	4495	4235	4110	4684	4893	4889	4895	Continuing	Continuing

A. Mission Description and Budget Item Justification: Project D456 - Tactical Satellite Communications (TACSATCOM). The Ground Mobile Forces Satellite Communications (GMFSC) for TACSATCOM system provides funds for the development of tactical satellite communications terminals and control systems for the Department of Defense. Developments under this program provide rapid, reliable, effective communications to support tactical Command, Control, Communications and Intelligence (C3I) requirements for tactical commanders and Commanders-in-Chief (CINC).

Acquisition Strategy: Multiple engineering and development efforts associated with acquisition of satellite communications terminals and control systems. Development efforts for Demand Assigned Multiple Access (DAMA) waveform improvement and addition of GPS and Havequick capabilities will be accomplished via government engineering efforts and implemented via Engineering Change Proposal (ECP) on the current Enhanced Manpack UHF Terminal Spitfire, Fixed-Price Production Contract. SATCOM-on-the-Move analysis, acquisition and test efforts are also accomplished under this program.

FY 1996 Accomplishments:

- 871 Completed P3I on PSC-5 Spitfire for OTAR Analysis and voice recognition
- 780 Continued Spitfire 5 KHz DAMA Waveform Improvement
- 805 Initiate and complete specification development for Super High Frequency (SHF) Tri-Band Advanced Range Extension Terminal (STAR-T)
- 1181 Initiated development of SATCOM-on-the-Move Initiatives
- 500 Task Force XXI

Total 4137

FY 1997 Planned Program:

- 1562 Continue Spitfire 5KHz DAMA Waveform Improvement
- 1264 Complete government and contractor support of STAR-T
- 864 Continue developments and conduct field tests for SATCOM-on-the-Move initiatives (formerly SCATS)
- 701 Battlefield Digitization integration efforts
- 104 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) programs

Total 4495

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)
	PROJECT D456

FY 1998 Planned Program:

- 450 Continue Spitfire DAMA Waveform Improvement
- 1500 Incorporate GPS and Havequick capabilities in Spitfire terminals
- 1785 Continue various SATCOM on the Move analysis, acquisition, and test efforts
- 500 Battlefield Digitization integration efforts

Total 4235

FY 1999 Planned Program:

- 574 Complete Spitfire DAMA Waveform Improvement
- 650 Complete GPS and Havequick Spitfire efforts
- 2386 Continue various SATCOM on the Move analysis, acquisition, and test efforts.
- 500 Continue Battlefield Digitization architecture efforts

Total 4110

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	4244	4348	4313	4180
Appropriated Value	4287	4495		
Adjustments to Appropriated Value	-150			
FY 1998 Pres Bud Request	4137	4495	4235	4110

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
Other Procurement Army 2; SSN: K77200	16952	18609	7264	1840	0	0	0	0	Cont	Cont
Other Procurement Army 2, SSN: BB8417	9535	5437	2021	2035	349	349	349	351	Cont	Cont
Other Procurement Army 2, SSN BA9350		9123	14328	31206	34295	70894	83065	51445	Cont	Cont

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Complete EMUT OTAR Effort	X*															
Complete Specification development for STAR-T		X*														
SATCOM-on-the-Move Award/Field Test			X*				X									

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D456

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Complete EMUT Voice Recognition				X*												
Conduct 5KHz Waveform demonstration								X								
Complete 5KHz Waveform Improvement														X		
Initiate GPS/Havequick integration										X						
Complete GPS/Havequick testing															X	

* Denotes milestone completion

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D456

A. Project Cost Breakdown	FY 1996	FY 1997	FY 1998	FY 1999
Development Support Equipment Acquisition	2242	2295	2190	2273
Contractor Engineering Support	400	554	685	640
Government Engineering Support	916	794	760	585
Program Management Support	579	748	600	612
SBIR/STTR		104		
Total	4137	4495	4235	4110

B. Budget Acquisition History and Planning Information: Not Applicable

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D559

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D559 Automated Communications Management System (ACMS)	0	0	13818	3901	6778	9550	0	0	16328	34047

A. Mission Description and Budget Item Justification: Project D559 - ACMS: The Air Force funded the ACMS since FY93. All Services (USAF, Army, and Navy) are funding for their unique software and hardware requirements. ACMS is critical to the dynamic and efficient operation of battlefield command and control networks using Air Force developed MILSTAR satellites and Army developed MILSTAR terminals. ACMS enables Army users to take advantage of advanced features of the MILSTAR system, to include directly tasking the satellite constellation, repointing payload antennas, and rapidly changing network configurations. ACMS is not a new start. The Army initiated participation in FY96 under project D384. Funding was realigned from OPA budget lines and established RDTE Project D559. The ACMS must be integrated into ISYSCON to make it available to the tactical user and to coordinate MILSTAR range extension of MILSTAR networks.

Acquisition Strategy: ACMS is not a new start. Development efforts were initiated in FY96 under D384 and D386. Development funds were zero summed to establish this new line in FY98. ACMS is a Joint Service MILSTAR community initiative which is an integral part of the MILSATCOM Architecture. The overall development effort is being managed by the Joint Program Office. Input and interaction with the terminal offices is required to ensure a comprehensive system solution is achieved. Development work will begin in FY97 and will continue through FY01, as ACMS is phased in and tested incrementally.

FY 1996 Accomplishments: Efforts funded in project D384 PE 0303142A

FY 1997 Planned Program: Efforts funded in project D384 PE 0303142A

FY 1998 Planned Program:

•	12748	Begins integration, test and fielding of incremental builds
•	650	Participates in MILSTAR Intersegment Test (MST6000)
•	420	Participates in Joint Technical Reviews, Management Reviews, Technical Interchange Meetings, and Technical Demonstrations
Total	13818	

FY 1999 Planned Program:

•	2881	Continues integration, test and fielding of incremental builds
•	600	Participates in MILSTAR Intersegment Test (MST8000)
•	420	Participates in Joint Technical Reviews, Management Reviews, Technical Interchange Meetings, and Technical Demonstrations
Total	3901	

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D559

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	0	0	0
Appropriated Value	0			
Adjustments to Appropriated Value	0			
FY 1998 Pres Bud Request	0	0	13818	3901

Change Summary Explanation:

Funding: FY 1998: (+13818) Realigned from BC4002/BC4003 to establish new line for ACMS development

FY 1999: (+3901) Realigned from BC4002/BC4003 to continue ACMS development

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
Other Procurement Army 2 - SSN: BC4130	0	0	0	0	0	0	3840	0	Cont	Cont

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Participate in MST6000									X							
Participate in MST8000															X	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D559

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Product Development	0	0	9662	2732
Support and Management			4156	1169
Total			13818	3901

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Other Contracts	TBD	TBD	N/A	23823	0	0	0	9662	2732	11429	23823
Govt Support	MIPR/PWD	TBD			0	0	0	1662	467	1959	4088
Support and Management Organizations											
Other Contracts	MIPR/PWD				0	0	0	1109	312	1306	2727
Core Support	N/A				0	0	0	1385	390	1634	3409
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development								11324	3199	13388	27911
Subtotal Support and Management								2494	702	2940	6136
Subtotal Test and Evaluation											
Total Project								13818	3901	16328	34047

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303150A Army Global Command and Control System (AGCCS)

PROJECT: DC86

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DC86 Army Global Command and Control System	0	19389	15045	14793	9526	4715	4937	2461	12176	83042

A. Mission Description and Budget Item Justification: Project DC86 - AGCCS: This project is the Army component system that directly supports the implementation of the Joint Global Command and Control System (GCCS). This support is being accomplished through the Army's Global Command and Control System (AGCCS) which is a selection of the Army's best of breed command and control functionality. The AGCCS-developed software systems will dramatically improve the Army's ability to analyze courses of action; develop and manage Army forces supporting joint war plans; and ensure that the Army portions of war plans are feasible. The Army has identified the Standard Theater Army Command and Control System (STACCS) as the foundation for the Army Global Command and Control System (AGCCS). Using STACCS foundation applications and additional software functionality developed under the Army World Wide Military Command and Control System (WWMCCS) Information System (AWIS) and the AGCCS will provide a layered architecture and functional best-of-breed software applications to develop a totally integrated component of the GCCS. This project involves the development, enhancement and integration of software functionality that currently exists within the Army's inventory or is currently under development and is therefore appropriately included in Budget Activity 7. This is not a new start. Prior to FY 97, funding for this program was provided under Program Element 0203740A, Project DC49, Standard Theater Army Command and Control System.

Acquisition Strategy: The AGCCS software integration and development effort is a 5 year incrementally funded completion effort. 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. Based on the priority of achieving WWMMCS shutoff and replacing the system with the GCCS/AGCCS, the remaining software integration and development effort that was originally scheduled as Capability Packages 1 through 10 deliveries was restructured. PM STCCS established an Integrated Process Team (IPT) to review the status of the remaining software integration and development functional deliveries. The results of the IPT were instituted providing the users of AGCCS, five mission support software deliveries identified as Capability Package 1 (CP1), and Deliveries 1 through 4. CP1, which was delivered in 2QFY96 and designated IOC in 4QFY96, provided the replacement for the AWIS strategic mission support applications/software and the Army's GCCS interface to selected HQDA, and FORSCOM sites. Deliveries 1 through 4, which will be delivered throughout the remainder of the LMC contract, will provide the integration of selected STACCS, TACCIMS, and CSSCS mission support applications/software into the CP1 baseline. Deliveries 1 through 4 are scheduled to be delivered to eleven Army sites located throughout the world. A common hardware platform will be used within the Army to implement AGCCS/GCCS. This will include products from the Army's Common Hardware/Software-2 (CHS-2) contract which consists of Commercial Off The Shelf (COTS) software packages. The COTS hardware and software will provide machines with expanded processing, storage and communications capability as well as office-automation and management software.

FY 1996 Accomplishments: Project not funded in FY 96

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303150A Army Global Command and Control System (AGCCS)
	PROJECT DC86

FY 1997 Planned Program:

•	1636	Perform Systems Engineering
•	11651	Continue Prime Mission Software Development
•	644	Perform Data Engineering
•	2984	Conduct Systems Test and Evaluation
•	2000	Perform Program Support and Management Efforts
•	474	Small Business Innovation Research/Small Business Technical Transfer (SBIR/STTR)
Total	19389	

FY 1998 Planned Program:

•	708	Perform Systems Engineering
•	11587	Continue Prime Mission Software Development
•	400	Perform Data Engineering
•	750	Conduct Systems Test and Evaluation
•	1600	Perform Program Support and Management Efforts
Total	15045	

FY 1999 Planned Program:

•	2516	Perform Systems Engineering
•	10177	Continue Prime Mission Software Development IDIQ
•	250	Perform Data Engineering
•	550	Conduct Systems Test and Evaluation
•	1300	Perform Program Support and Management Efforts
Total	14793	

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	19804	15088	14808
Appropriated Value		19389		
Adjustments to Appropriated Value				
FY 1998 Pres Bud Request	0	19389	15045	14793

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303150A Army Global Command and Control System (AGCCS)

PROJECT: DC86

C. Other Program Funding Summary

Procurement OPA-2	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
BA8250 Army Global Cmd & Cont Sys (AGCCS)	20437	17315	23772	13638	9025	6699	6728	82200	179814

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AGCCS Delivery 1 Complete							X									
AGCCS Delivery 2 Start						X										
AGCCS Delivery 3 Start									X							
AGCCS Delivery 4 Start												X				
AGCCS Delivery 2 Complete										X						
AGCCS Delivery 3 Complete													X			
AGCCS Delivery 4 Complete																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303150A Army Global Command and Control System (AGCCS)

PROJECT: DC86

A. Project Cost Breakdown	FY 1996	FY 1997	FY 1998	FY 1999
Systems Engineering		1636	708	2516
Prime Mission - Software Development		11651	11587	10177
Data Engineering		644	400	250
System Test and Evaluation		2984	750	550
Support and Management		2000	1600	1300
SBIR/STTR		474		
Total		19389	15045	14793

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
LMC	HYBRID	DEC 94	TBD	TBD	0	0	12359	8,063	7,997	2,500	30919
COE Support	MIPR				0	0	300	500	250	2000	3050
TBD	TBD	TBD	TBD	TBD	0	0	0			6960	6960
Support and Management Organizations											
PM STCCS					0	0	4786	5032	5646	15355	30819
Test and Evaluation Organizations											
CECOM - IV&V	MIPR				0	0	770	750	550	2500	4570
EPG-Test Spt	MIPR						400	400	350	1900	3050
SBIR/STTR							474				474

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303150A Army Global Command and Control System (AGCCS)

PROJECT: DC86

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property										
LMC - GFE	MIPR			0	0	300	300		2600	3200
Support and Management Property: None										
Test and Evaluation Property: None										
Subtotal Product Development						12959	8863	8247	14060	44129
Subtotal Support and Management						4786	5032	5646	15355	30819
Subtotal Test and Evaluation						1644	1150	900	4400	8094
Total Project						19389	15045	14793	33815	83042

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305114A Joint Precision Approach Landing System (JPALS)

PROJECT: D711

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D711 Joint Precision Approach Landing System (JPALS)	0	0	750	0	0	0	0	0	0	750

A. Mission Description and Budget Item Justification: The Joint Precision Approach Landing System (JPALS) is a precision approach and landing system providing joint operational capability for U.S. forces assigned to conventional and special operation missions operating from fixed base, ship, tactical and austere environments. The effort will develop methodology to incorporate JPALS into aircraft while considering aircraft environment, electrical power, system space, weight, antenna placement and electromagnetic compatibility without nullifying low observable capability requirements. The project in this Program Element supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and is, therefore, correctly placed in Budget Activity 7.

Acquisition Strategy: The acquisition strategy is support the joint research and development project leading to production of a joint system.

FY 1996 Accomplishments: Project not funded in FY 96

FY 1997 Planned Program: Project not funded in FY 97

FY 1998 Planned Program:

•	750	Support JPALS research and development efforts.
Total	750	

FY 1999 Planned Program: Project not funded in FY 99

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	0	0	0
Appropriated Value	0	0		
Adjustments to Appropriated Value				
FY 1998 Pres Bud Request	0	0	750	0

Change Summary Explanation: Funding - FY98 (+750) to establish a new program for Joint Precision Approach & Landing System.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305114A Joint Precision Approach Landing System (JPALS)
	PROJECT D711

C. **Other Program Funding Summary:** Not applicable

D. **Schedule Profile**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Support JPALS efforts									X							

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305114A Joint Precision Approach Landing System (JPALS)

PROJECT: D711

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Engineering Development			750	
Total			750	

B. Budget Acquisition History and Planning Information:

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations : None											
Support and Management Organizations											
Gov't Agencies	MIPR		750	750				750			750
Test and Evaluation Organizations: None											

Government Furnished Property: None

Subtotal Product Development		
Subtotal Support and Management	750	750
Subtotal Test and Evaluation		
Total Project	750	750

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305128A Security and Intelligence Activities

PROJECT: H12

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
H12 Intelligence Support to Force XXI	0	477	500	955	946	937	953	969	0	5737

A. Mission Description and Budget Item Justification: This program element provides funds the Proof of Concepts to define fundamental capabilities and limitations of Intelligence XXI technologies which supports Force XXI. This requires a comprehensive understanding of the following seven critical technologies when integrated into live, virtual or constructive environments. These critical technology areas include: displays (public, cockpit and heads-up), computer hardware capable of high speed analytical and graphical processing, computer software for distributed tactical or simulation environments (including tools such as Knowledge Based Reasoning and Artificial Intelligence), networks which link tactical and high speed wide area capabilities [utilizing Asynchronous Transfer Mode (ATM), Syncrous Optical Net (SONET) , and multi-level security capabilities] throughout all echelons, sensors for real-time information of the battlefield throughout the electromagnetic spectrum, the Dynamic Visualization Databases for live or synthetic environment (including terrain, features, texture, images, weather, environment, entities and units as a minimum) , and the Automatic Target Recognition (ATR) and Assisted Target Recognition (AITR) for timeline reductions. This project supports development of new operational concepts efforts in the intelligence arena and therefore is appropriately funded in Budget Activity 7.

Acquisition Strategy: Utilize existing INSCOM, Joint Precision Strike Demonstration and Advanced Research Project Agency contracts to obtain hardware and software integration support. Major integrated Proofs of Concepts, with the 525th Military Intelligence Brigade as the user, will occur on a quarterly basis. Major milestones in FY97 are XVIII ABC exercises (November 1996, May 1997 and September 1997) and Troop Force XXI AWE (Feb 1997).

FY 1996 Planned Program: Project not funded in FY 1996

FY 1997 Planned Program:

•	465	Continue Proofs of Concepts with quarterly integration tests
•	12	Small Business Innovation Research/Small Business Technology Transfer Program (SBIR/STTR)
Total	477	

FY 1998 Planned Program:

•	500	Expand Proof of Concepts vertically to divisions with quarterly integration tests
Total	500	

FY 1999 Planned Program:

•	955	Transition technology horizontally to corps/divisions continuing Proofs of Concept test with quarterly integration tests
Total	955	

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305128A Security and Intelligence Activities

PROJECT: H12

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	487	485	939
Appropriated Value		477		
Adjustments to Appropriated Value	0		0	0
FY 1998 President's Budget Request	0	477	500	955

Change Summary Explanation: Project decremented (-10) for undistributed congressional reductions.

C. Other Program Funding Summary: Not Applicable

D. Schedule Profile: Proofs of Concept/Integration of prototypes for distributed control and visualization of intelligence information over commercial ATM and tactical networks will be initiated. This capability will enable two dimensional and three dimensional visualization of intelligence data for collaborative situational awareness.

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proofs of Concepts					X*	X	X	X	X	X	X	X	X	X	X	X

* Denotes completed effort.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305128A Security and Intelligence Activities

PROJECT: H12

A. Project Cost Breakdown	FY 1996	FY 1997	FY 1998	FY 1999
Primary Hardware Development		90	93	352
Software Development		185	195	390
Developmental/Operational Test		140	147	147
Integrated Logistics Support		50	65	66
SBIR/STTR		12		
Total		477	500	955

B. Budget Acquisition History and Planning Information: Not Applicable

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	68851	62804	26678	21845	24041	29424	30077	21673	Continuing	Continuing
D027 Improved Launcher Mechanical System	20269	26350	14607	0	0	0	0	0	0	64195
D050 Improved Fire Control System	34865	25773	0	0	0	0	0	0	0	140330
D054 Extended Range Rocket	13717	10681	0	0	0	0	0	0	0	85080
D093 Army Technical Architecture	0	0	863	2617	2235	1823	8943	6962	Continuing	Continuing
D783 Smart Tactical Rocket	0	0	0	0	0	0	10134	14711	Continuing	Continuing
D784 Guided Multiple Launch Rocket System	0	0	11208	19228	21806	27601	11000	0	0	90843

Mission Description and Budget Item Justification: Expanding Regional Power Threats require an evolutionary improvement program to maintain the effects of the Multiple Launch Rocket System (MLRS). This Product Improvement Program (PIP) provides for the Engineering and Manufacturing Development of an Extended Range Rocket (ER-MLRS), Improved Fire Control System (IFCS), Improved Launcher Mechanical System (ILMS), Guided MLRS Rocket (GMLRS), enhanced Army Technical Architecture (ATA), and MLRS Smart Tactical Rocket (MSTAR) . The ER-MLRS project will enhance the capability of the existing MLRS by providing improvements in range, accuracy, effectiveness, and maneuver force safety (self-destruct fuze). The IFCS corrects present and future supportability problems resulting from electronic component obsolescence in the existing design. This effort will result in reduced operation and support costs due to addition of built-in test equipment and will provide growth capabilities for existing and future MLRS Family of Munitions (MFOM) weapon systems. The ILMS, by decreasing the stow to aim point timeline, will increase responsiveness, improve survivability, and enhance effectiveness in countering surface-to-surface missile fire. The GMLRS will greatly enhance the capability of the ER-MLRS by providing greater range and significantly enhanced accuracy. The improvement in accuracy will reduce the number of rockets required to defeat targets, reduce the number of launchers required per mission, thus dramatically reducing the logistics burden. The ATA will integrate M270A1 launcher with dual protocol capability and implement Force XXI Situational Awareness and ATA display standards to M270A1 launchers & trainers. The MSTAR will be a guided MLRS rocket carrying smart submunitions that will detect, classify, and engage stationary or moving armored and other high valued targets. These projects support development of upgrades to current production vehicles and are appropriately funded in Budget Activity 7.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D027

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D027 Improved Launcher Mechanical System	20269	26350	14607	0	0	0	0	0	0	64195

A. Mission Description and Budget Item Justification **Project D027 - Improved Launcher Mechanical System (ILMS):** This project provides for the Engineering and Manufacturing Development (EMD) of the ILMS. The ILMS will decrease the stow-to-aim point timeline, enhance effectiveness in engaging and supporting the force, and increase MLRS platform survivability. The ILMS will replace selected components of the MLRS M270 launcher mechanical drive system. The time required for movement of the Launcher Loader Module from the stowed position to first rocket away will be reduced from 93 seconds to 16 seconds. Reload operations for twelve rockets will be reduced from 260 seconds to 160 seconds. These improvements will allow faster engagement of short dwell time targets and increase crew survivability on the firing point and reload area. Reduced operation and support costs are expected with the design. When combined with the Improved Fire Control System, the launcher will be designated as M270A1.

Acquisition Strategy: This is an ACAT III program with a 38-month EMD phase ending in FY 98 and fielding beginning in FY 00. A sole source contract for EMD was awarded to Lockheed Martin Vought Systems (LMVS) in August 1995.

FY 1996 Accomplishments:

•	17469	Hardware and software design
•	500	GFE Retrofit Kits
•	2300	Minor tasks including in-house
Total	20269	

FY 1997 Planned Program:

•	22110	Software development qualification, hardware delivery, qualification testing
•	125	System Integration
•	1003	GFE launcher modifications
•	2467	Minor tasks including in-house
•	645	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs
Total	26350	

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D027

FY 1998 Planned Program:

- 9434 System integration
- 2517 System testing
- 2656 Minor tasks including in-house

Total 14607

FY 1999 Planned Program: Project not funded in FY 99

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	19253	27038	14617	
Appropriated Value	19794	26422		
Adjustments to Appropriated Value	+475			
FY 1998 Pres Bud Request	20269	26350	14607	

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY2002	FY2003	To Complete	Total Cost
Missile Procurement, Army										
Budget Act 2:										
MLRS Rocket (C65401)	0	0	0	0	0	0			0	3590032
MLRS Launcher (C65900)	81093	103703	102649	92457	158319	208684	216856	230731	CONT	CONT
ER-MLRS (C65402)	44607	41404	2863	18955	19893	19824	54018	62604	CONT	CONT
Budget Act 3:										
MLRS Mods (C67500)	27475	6410	2188	2239	2287	2566	2631	2451	CONT	CONT
Budget Act 4:										
MLRS Initial Spares (CA0257)	5077	0	998	7098	8582	16520	23150	27307	CONT	CONT
MLRS Mod Spares (CA0265)	2051	1829	991	635	500	885	914	945	CONT	CONT

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Req Rev/System Des Rev		X*														
Preliminary Design Rev (PDR)			X*													
Critical Design Rev (CDR)					X*											

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D027

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Engineering Dev Test (EDT)						X										
System Tests											X					
Operational Tests												X				
MSIII A												X				
Contract Complete												X				

*Milestone Complete

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D027

A. Project Cost Breakdown	FY 1996	FY 1997	FY 1998	FY 1999
Contractor Engineering Support	17969	23185	9434	
Program Management Support	1843	2107	2656	
Developmental Test Support	457	485	2517	
SBIR/STTR	0	645	0	
Total	20269	26422	14607	

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
LMVS	CPIF	AUG 95			2500	17469	21465	9434			50868
SBIR/STTR							645				645
Support and Management Organizations											
MLRS Project Off					263	1065	1633	1297			4258
RDEC-MICOM					134	778	1119	1359			3390
Test and Evaluation Organizations											
Range Support							100	807			907
Other Test Act						377	335	802			1514
Oper Test						80	50	908			1038

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0603778A Multiple Launch Rocket System Product Improvement Program
	PROJECT D027

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property										
LMVS	CPIF	Aug 95			500	1003				1503
Support and Management Property: None										
Test and Evaluation Property: None										
Subtotal Product Development				2500	17969	23113	9434			53016
Subtotal Support and Management				397	1843	2752	2656			7648
Subtotal Test and Evaluation					457	485	2517			3459
Total Project				2897	20269	26350	14607			64123

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D050

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D050 Improved Fire Control System	34865	25773	0	0	0	0	0	0	0	140330

A. Mission Description and Budget Item Justification Project D050 - Improved Fire Control System (IFCS): The current MLRS Fire Control System provides position data, communication interface through which fire missions are received, processes data, controls the launcher, inputs mission critical data to the weapons and fires the weapon. This project provides for the Engineering and Manufacturing Development (EMD) of an IFCS which will correct present and future supportability problems resulting from electronic component obsolescence in the existing design. This effort will result in reduced operation and support costs due to addition of built-in test equipment (BITE) to the circuit card and cable level and will provide growth capabilities for existing and future MLRS Family of Munitions (MFOM) weapon systems.

Acquisition Strategy: IFCS is an ACAT III program with a 60-month EMD phase ending in FY 97 and fielding beginning in FY 00. A sole source contract was awarded to Lockheed Martin Vought Systems (LMVS) in September 1992. Sole source was determined necessary due to the integration of the IFCS into the existing MLRS design, and due to the mechanical, electrical, and software interface with all rockets, missiles, and munitions utilizing the MLRS launcher. It is essential that the source be responsible for systems and perform the interface/design efforts for integrating the IFCS into the MFOM. The MLRS, as an internationally co-developed and co-produced system, must have computer software with common application to be utilized by the sponsor countries.

FY 1996 Accomplishments:

•	30088	Engineering development test of hardware, system integration test & subsystem level qualification test
•	545	Redstone Technical Test Center (RTTC) environmental qualification testing
•	1600	FCP trainer development
•	2632	Minor tasks including in-house
Total	34865	

FY 1997 Planned Program:

•	21625	System integration tests, flight tests, extended system integration tests
•	1000	EMD contract award fee
•	450	White Sands Missile Range (WSMR) test and software
•	2068	Minor tasks including in-house
•	630	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs
Total	25773	

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D050

FY 1998 Planned Program: Project not funded in FY 98

FY 1999 Planned Program: Project not funded in FY 99

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	33506	26324	0	0
Appropriated Value	34448	25773		
Adjustments to Appropriated Value	+417			
FY 1998 Pres Bud Request	34865	25773	0	0

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY2002	FY2003	To Complete	Total Cost
Missile Procurement, Army										
Budget Act 2:										
MLRS Rocket (C65401)	0	0	0	0	0	0			0	3590032
MLRS Launcher (C65900)	81093	103703	102649	92457	158319	208684	216856	230731	CONT	CONT
ER-MLRS (C65402)	44607	41404	2863	18955	19893	19824	54018	62604	CONT	CONT
Budget Act 3:										
MLRS Mods (C67500)	27475	6410	2188	2239	2287	2566	2631	2451	CONT	CONT
Budget Act 4:										
MLRS Initial Spares (CA0257)	5077	0	998	7098	8582	16520	23150	27307	CONT	CONT
MLRS Mod Spares (CA0265)	2051	1829	991	635	500	885	914	945	CONT	CONT

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Qualification Test					X*											
Sys Integration Test								X								
Test Firings						X										
MS III A								X								
Contract Complete								X								

* Milestone Complete.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D050

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Contractor Engineering Support	30088	22625		
Program Management Support	4087	1988		
Developmental Test Support	690	530		
SBIR/STTR		630		
Total	34865	25773		

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
LMVS	CPIF	SEP 92			67705	30088	21995				119788
SBIR/STTR							630				630
Support and Management Organizations											
Support Contract											
MLRS Project Off					4357	1921	1555				7833
RDEC-MICOM					5147	2166	1063				8376
Test and Evaluation Organizations											
Develop Test Spt					687	690	530				1907

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	FY 1996	FY 1997	FY1998	FY1999	Budget to Complete	Total Program
Product Development Property										
GFE	CPIF	SEP 92		1796						1796

Support and Management Property: None

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D050

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	FY 1996	FY 1997	FY1998	FY1999	Budget to Complete	Total Program
Test and Evaluation Property: None										
Subtotal Product Development				69501	30088	22625				122214
Subtotal Support and Management				9504	4087	2618				16209
Subtotal Test and Evaluation				687	690	530				1907
Total Project				79692	34865	25773				140330

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D054

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D054 Extended Range Rocket	13717	10681	0	0	0	0	0	0	0	85080

A. Mission Description and Budget Item Justification: Project D054 - Extended Range -MLRS (ER-MLRS): This project provides for the Engineering and Manufacturing Development (EMD) of an ER-MLRS. The ER-MLRS will enhance the capability of the existing MLRS by providing improvements in range, accuracy, effectiveness, and maneuver force safety.

Acquisition Strategy: The ER-MLRS acquisition strategy is a streamlined product improvement program which permits entering Low Rate Initial Production (LRIP) and subsequent Full-Scale Production after completion of a 54-month EMD program. The primary objective of the EMD phase is to develop and qualify a successor rocket to the MLRS basic M26 with extended range capability and with minimum impact on existing basic MLRS companion hardware and software. This effort will also incorporate the results of other development efforts for a new submunition with a self-destruct fuze to reduce the hazards to friendly maneuver dud rate; and a wind measurement device (WMD) and no-load detent system to sustain accuracy at increased ranges. The acquisition alternative most advantageous to the Government was for a sole source EMD contract to the system prime contractor, Lockheed Martin Vought Systems (LMVS), containing a requirement to increase subcontract competition for subsystems and components.

FY 1996 Accomplishments:

•	5333	WMD integration and preproduction qualification test
•	2085	Complete ballistic algorithm flight test
•	2068	Fuze development
•	2200	Software Design Integration EMD
•	2031	Minor tasks including in-house and Milestone Decision Review IIIA preparation
Total	13717	

FY 1997 Planned Program:

•	2100	WMD integration
•	2934	Software integration and test
•	977	Fuze development
•	2148	Software IV & V testing and audits
•	2267	Minor tasks including in-house and Milestone Decision Review III preparation
•	255	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs
Total	10681	

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D054

FY 1998 Planned Program: Project not funded in FY 98

FY 1999 Planned Program: Project not funded in FY 99

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997President's Budget	17844	10909		
Appropriated Value	18344	10681		
Adjustments to Appropriated Value	-4627			
FY 1998 Pres Bud Request	13717	10681		

Change Summary Explanation: FY 96 funding reprogrammed within program element for IFCS and ILMS.

C. Other Program Funding Summary

Missile Procurement, Army	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY2002	FY2003	To Complete	Total Cost
Budget Act 2:										
MLRS Rocket (C65401)	0	0	0	0	0	0			0	3590032
MLRS Launcher (C65900)	81093	103703	102649	92457	158319	208684	216856	230731	CONT	CONT
ER-MLRS (C65402)	44607	41404	2863	18955	19893	19824	54018	62604	CONT	CONT
Budget Act 3:										
MLRS Mods (C67500)	27475	6410	2188	2239	2287	2566	2631	2451	CONT	CONT
Budget Act 4:										
MLRS Initial Spares (CA0257)	5077	0	998	7098	8582	16520	23150	27307	CONT	CONT
MLRS Mod Spares (CA0265)	2051	1829	991	635	500	885	914	945	CONT	CONT

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
PPQT	X*															
MSIII A			X*													
IFCS Rocket Mgr FQT						X										
PPQT III (SDF Qual)							X									
Contract Complete								X								

*Milestone Complete.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D054

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Contractor Engineering Support	9601	6011		
Program Management Support	2031	2267		
Developmental Test Support	2085	2148		
SBIR/STTR		255		
Total	13717	10681		

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
LMVS	CPIF	DEC 92			24434	2200	2734				29368
LMVS	CPIF	SEP 92			21903	5333	2045				29281
KDI	CPIF	JUN 93			4129	2068	977				7174
SBIR/STTR							255				255
Support and Management Organizations											
MLRS Project Off					2632	975	1135				4742
RDEC-MICOM					4735	1056	1387				7178
Test and Evaluation Organizations											
Develop Test Spt					2849	2085	2148				7082
Subtotal Product Development					50466	9601	6011				66078
Subtotal Support and Management					7367	2031	2522				11920
Subtotal Test and Evaluation					2849	2085	2148				7082
Total Project					60682	13717	10681				85080

Government Furnished Property Not Applicable.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D093

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D093 Army Technical Architecture	0	0	863	2617	2235	1823	8943	6962	Continuing	Continuing

A. Mission Description and Budget Item Justification: **Project D093 - MLRS Army Technical Architecture (ATA)**: MLRS ATA will consist of three phases. Phase 1 (FY 98-00) will integrate the Force XXI/ATA mandated 188-220A protocol and convert existing MLRS fire support messages to Variable Message Format (VMF) for M270A1 launchers. ATA Phase 2 (FY 01-06) hardware and software development effort will implement Force XXI situational awareness and ATA soldier-computer interface mandates for M270A1 launchers. Phase 2 increased Force XXI capabilities include addition of a digitized map, addition to the standard MLRS mission message set and implementation of X Windows/Motif standard software display.
Phase 3 starting in FY06 will provide a new launcher fire control system (FCS) to mitigate technology obsolescence, meet projected needs of new weapons, and achieve maximum compliance of the ATA mandates.

Acquisition Strategy: The ATA standards will be implemented in three phases for the M270A1 launcher to perform the Force XXI capabilities. In Phases I and II, the M270A1 FCS will implement software reuse and hardware GFE/COTS to the maximum extent possible within hardware capabilities and M270A1 operational requirements. In Phase III, the M270A1 FCS hardware and software will be redesigned and replaced with a new FCS.

FY 1996 Accomplishments: Project not funded in FY 96

FY 1997 Planned Program: Project not funded in FY 97

FY 1998 Planned Program:

•	600	Develop New Communication Interface
•	263	Minor Tasks Including In-House
Total	863	

FY 1999 Planned Program:

•	1200	Develop VMF and Dual Protocol Logic Software
•	500	Development Testing
•	917	Minor Tasks Including In-House
Total	2617	

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D093

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	0	0	0
Appropriated Value				
Adjustments to Appropriated Value				
FY 1998 Pres Bud Request	0	0	863	2617

Change Summary Explanation: FY 98/99 funding adjustments (+863/+2617) to establish the MLRS ATA program.

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY2002	FY2003	To Complete	Total Cost
Missile Procurement, Army										
BUDGET ACT 2:										
MLRS RKT (C65401)	0	0	0	0	0	0			0	3590032
MLRS LAUNCHER (C65900)	81093	103703	102649	92457	158319	208684	216856	230731	CONT	CONT
ER-MLRS (C65402)	44607	41404	2863	18955	19893	19824	54018	62604	CONT	CONT
BUDGET ACT 3:										
MLRS MODS (C67500)	27475	6410	2188	2239	2287	2566	2631	2451	CONT	CONT
BUDGET ACT 4:										
MLRS INITIAL SPARES (CA0257)	5077	0	998	7098	8582	16520	23150	27307	CONT	CONT
MLRS MOD SPARES (CA0265)	2051	1829	991	635	500	885	914	945	CONT	CONT

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ATA COM INTERFACE										X						
ATA CONTRACT AWARD														X		
ATA PDR																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D093

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Contractor Engineering Support				1200
Program Management Support			863	917
Developmental Test Support				500
Total			863	2617

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
TBD	CPIF	MAR 99			0	0	0	0	1200	Cont	1200
Support and Management Organizations											
Support Contract					0	0	0	600	200	Cont	800
MLRS Project Off					0	0	0	263	409	Cont	672
RDEC-MICOM									308	Cont	308
Test and Evaluation Organizations											
Develop Test Spt					0	0	0	0	500	Cont	500
Subtotal Product Development									1200		1200
Subtotal Support and Management								863	917		1780
Subtotal Test and Evaluation									500		500
Total Project								863	2617		3480

Government Furnished Property: Not Applicable

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D784

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D784 Guided Multiple Launch Rocket System	0	0	11208	19228	21806	27601	11000	0	0	90843

A. Mission Description and Budget Item Justification **Project D784 - Guided Multiple Launch Rocket System (GMLRS):** This project provides for the Engineering and Manufacturing Development (EMD) of a GMLRS that will greatly enhance the capability of the existing MLRS by providing greater range and significantly enhanced accuracy. Since fewer rockets are required to defeat a target, logistics burden will also be reduced. The GMLRS will result in reduced mission times and increased survivability of the system.

Acquisition Strategy: The GMLRS acquisition strategy is a streamlined product improvement program which permits entering Low Rate Initial Production (LRIP) and subsequent Full-Scale Production, after completion of a 48-month EMD program. The primary objective of the EMD phase is to develop a rocket with greater range and significantly enhanced accuracy with a minimum impact on existing MLRS companion hardware and software. This effort will incorporate the results of other development efforts for a modified submunition and an extended range rocket motor for increased range. The acquisition alternative most advantageous to the government is a sole source EMD contract to the system prime contractor, Lockheed Martin Vought Systems (LMVS).

FY 1996 Accomplishments: Project not funded in FY 96

FY 1997 Planned Program: Project not funded in FY 97

FY 1998 Planned Program:

•	8008	Simulation Development, Define and Design Code Software
•	1200	Wind Tunnel Testing
•	2000	Minor Tasks Including In-House
Total	11208	

FY 1999 Planned Program:

•	15128	Assembly of Components, Component Lab Testing and Static Tests
•	800	WSMR Test Studies
•	400	Independent Analysis
•	2900	Minor Tasks Including In-House
Total	19228	

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D784

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	0	0	0
Appropriated Value				
Adjustments to Appropriated Value				
FY 1998 Pres Bud Request	0	0	11208	19228

Change Summary Explanation: Funding - FY 98/99 funding adjustments to provide for Engineering and Manufacturing Development (EMD) of the GMLRS (FY 98 +11208/FY 99 +19228)

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY2002	FY2003	To Complete	Total Cost
Missile Procurement, Army										
Budget Act 2:										
MLRS Rocket (C65401)	0	0	0	0	0	0			0	3590032
MLRS Launcher (C65900)	81093	103703	102649	92457	158319	208684	216856	230731	CONT	CONT
ER-MLRS (C65402)	44607	41404	2863	18955	19893	19824	54018	62604	CONT	CONT
Budget Act 3:										
MLRS Mods (C67500)	27475	6410	2188	2239	2287	2566	2631	2451	CONT	CONT
Budget Act 4:										
MLRS Initial Spares (CA0257)	5077	0	998	7098	8582	16520	23150	27307	CONT	CONT
MLRS mod spares (CA0265)	2051	1829	991	635	500	885	914	945	CONT	CONT

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Contract Award										X						
Simulation Development										X						
Wind Tunnel Test											X					
Preliminary Design Rev												X				
S/W CDR															X	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D784

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Contractor Engineering Support			8008	15128
Program Management Support			2000	3300
Developmental Test Support			1200	800
Total			11208	19228

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
TBD	CPIF	Mar 98						8008	15128	44900	68036
Support and Management Organizations											
MLRS Project Off								1100	1800	5800	8700
RDEC-MICOM								900	1500	5300	7700
Test and Evaluation Organizations											
Develop Test Spt								1200	800	4407	6407
Subtotal Product Development								8008	15128	44900	68036
Subtotal Support and Management								2000	3300	11100	16400
Subtotal Test and Evaluation								1200	800	4407	6407
Total Project								11208	19228	60407	90843

Government Furnished Property: Not Applicable

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708045A Army Industrial Preparedness Manufacturing Technology

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	23699	47819	44326	50086	52273	54456	56291	58392	Continuing	Continuing
DE25 Manufacturing Science and Technology	23699	47819	11029	15211	15937	16559	16949	17389	Continuing	Continuing
DE26 Weapon Systems Modernization Software Maintenance	0	0	33297	34875	36336	37897	39342	41003	Continuing	Continuing

A. **Mission Description and Budget Item Justification:** This program element comprises two projects: Manufacturing Science and Technology (ManTech) and Weapon Systems Modernization Software Maintenance. The goals of the Army ManTech program include: to develop advanced manufacturing processes, equipment and systems, to enhance quality and reduce cost of Army materiel, and to transfer improved manufacturing technologies to the industrial base. The ManTech program is especially important in the current environment because the significant decline in weapon system production investments has had a severe negative impact on the ability to advance manufacturing technology, since advances previously were primarily addressed within individual production programs. Technology areas supported by this initiative, including electronics manufacturing, metals fabrication and processing, composites processing, manufacturing systems and advanced industrial practices offer the potential for high payoff across the spectrum of Army weapon systems. In addition, many of the manufacturing technologies addressed may have significant impact on national manufacturing issues and the U.S. industrial base. The Army ManTech Strategic Plan definitizes projected requirements, objectives and technical approaches. The Weapon Systems Modernization Software Maintenance project provides funding for modernization programs in which post-production embedded weapon system software must be upgraded and/or enhanced, as well as life cycle software engineering in the areas of tactical and satellite communications, intelligence and electronic warfare (IEW), avionics command and control (C2), fire support (FS), training and simulation, maneuver control (MC), and tactical fusion (TF). The work performed in project DE26 was formerly funded in the Operations and Maintenance, Army appropriation. The mission, and associated funding, are transferred to the RDT&E, Army appropriation, beginning in FY 1998, to represent more appropriately actual software maintenance costs associated with weapons systems.

This program element is assigned to Budget Activity 7 since it includes projects that support the development of processes in technological feasibility assessment, weapon systems in development or production, and modifications/upgrades to or sustainment of fielded systems.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708045A Army Industrial Preparedness Manufacturing Technology

PROJECT: DE25

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DE25 Manufacturing Science and Technology	23699	47819	11029	15211	15937	16559	16949	17389	Continuing	Continuing

A. Mission Description and Justification: The goals of the ManTech program include: to develop advanced manufacturing processes, equipment and systems, to enhance quality and reduce cost of Army materiel, and to transfer improved manufacturing technologies to the industrial base. Technology areas supported by this initiative, including electronics manufacturing, metals fabrication and processing, composites processing, manufacturing systems and advanced industrial practices, offer the potential for high payoff across the spectrum of Army weapon systems and to have significant impact on national manufacturing issues and the U.S. industrial base. The Army ManTech Strategic Plan definitizes projected requirements, objectives and technical approaches for seven specific thrust areas. These are: Air Vehicles, Ground Vehicles, Munitions, Missiles, Electronics, Advanced Topics, and Process Development. The Army ManTech program funds a variety of individual tasks, each of which addresses a pervasive manufacturing issue associated with weapon systems. A variety of acquisition strategies including firm fixed price contracts, Cooperative Research and Development Agreements, cost sharing arrangements, and utilization of DoD Manufacturing Centers of Excellence are used to complete tasks.

Acquisition Strategy: The Army ManTech program funds a variety of individual tasks, each of which solves a pervasive manufacturing issue associated with weapon systems. The ManTech program uses a variety of acquisition strategies including firm fixed price contracts, Cooperative Research and Development Agreements, cost sharing arrangements, and utilization of DoD Manufacturing Centers of Excellence to complete tasks.

FY 1996 Accomplishments:

- 6090 Air Vehicles
  - Completed investment casting process demonstration for beryllium aluminum used in air vehicles, wrote technical report for the investment casting process development, and initiated process development work for recycling of beryllium aluminum.
  - Completed integrated composites manufacturing integrated product and process development (IPPD), performed risk reduction work, established processes, and constructed tooling to co-cure baseplates for demonstration on the Longbow Apache Fire Control Radar System.
  - Performed risk reduction work, incorporated changes to the resin transfer molding tool, and built the first demonstration article for Comanche by using prepreg material for improved airframe manufacturing technology.
  - Initiated manufacturing techniques for a fiber optic harness segment system used in advanced helicopters such as Comanche.
  - Completed manufacturing adhesives bonding study using environmentally friendly surface pretreatments for various fiber matrix composites.
  - Accomplished consolidation of the heat treatment facility with the machining center for the Instrumented Factory for Gears (INFAC).
  - Continued development of the improved grinding process for spiral bevel gears.
  - Completed 30% state-of-the-art review for net shape forging of precision gears.
  - Continued the feasibility study and conceptual design for an automated gear deburring system.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708045A Army Industrial Preparedness Manufacturing Technology PROJECT DE25

FY 1996 Accomplishments: (continued)

- Conducted face to face interviews with the three out of the six gear producers selected to determine applicability of common requirements and quality systems for precision gears.

• 550 Ground Vehicles

- Completed successful demonstrations of weld processes on titanium ballistic targets and established a ballistic test plan.
- Conducted automated fiber placement and production scale-up study for the Composite Armored Vehicle (CAV) associated with producing 300 vehicles/year to include a redesigned silicon carbide metal matrix Bradley shoe, designed and fabricated a full-scale representative road wheel test section using a space frame design, and performed tooling trials to fabricate a 16'x4'x0.5" structural thermoplastic part using a double-diaphragm molding process.

7440 Missiles

- Demonstrated the feasibility of using epitaxial lift-off technology to manufacture ultra-violet/infra-red (UV/IR) stacked missile seeker arrays and developed processes for making two-layer optically-integrated image processors
- Developed flexible manufacturing cells and processes for millimeter wave (MMW) transceiver pilot line.
- Developed and demonstrated new manufacturing processes for applying electromagnetic interference coatings on missile seeker domes and completed final report.
- Demonstrated new manufacturing processes for making Staring Class Focal Plane Array Dewar Assemblies and completed final report.
- Developed techniques for detecting crossover patterns in the winding of missile optical fiber bobbins and implemented the automated winder on the Enhanced Fiber Optic Guided Missile Engineering and Manufacturing Development line to baseline future development requirements.
- Developed initial set of integrated process and product development tools and implemented the initial test beds at four Missile Command project offices.
- Completed Phase I and initiated Phase II in the development of a thermal test chuck used for simultaneously testing and stress screening high power electronic wafers over the -55C to +125C temperature range.
- Initiated development of flexible manufacturing processes to establish a domestic production capability for a family of polyacrylonitrile (PAN) based, ultra high-modulus, high-strength carbon fibers for light weight, high performance, and stealthy structural applications including missile airframe and kinetic kill vehicles, aircraft airframes, and military spacecraft and satellite structures.

• 3031 Electronics

- Completed high and mid-to-high performance focal plane array (FPA) standard advanced Dewar assembly (SADA) process development and tooling design for high throughput array hybridization, wafer level anti-reflective coat and polish, wafer screen cryoprobing, ultrasonic tape automated bonding (TAB) and implemented all processes into the Low Rate Initial Production of Thermal Weapon Sights units.
- Completed effort on testing large area uncooled FPAs and integration of the detector tester/
- Developed a dynamic pyroelectric test that emulates system operation for the non-destructive detector array production testing.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708045A Army Industrial Preparedness Manufacturing Technology PROJECT DE25

FY 1996 Accomplishments: (continued)

- Planned to complete contractual efforts upon release of funding to adapt high volume production techniques to utilize lithium-ion and other battery technologies in military-unique form/fit applications for advanced non-metallic rechargeable batteries.

• 3300 Munitions
- Initiated live demonstration of continuous processing system.
- Completed hydroxylamine nitrate (HAN) process technology demonstration.
- Initiated triethanolammonium nitrate (TEAN) process optimization.
- Developed and tested alternative methods of computer simulation analysis procedures for munitions Load Assemble Pack (LAP) process to enhance productivity.
- Initiated efforts in the development of processes for the Objective Individual Combat Weapon (OICW).
- Continued to modify optical grinding equipment and specifically improve Opticam magnetorheological finishing (MRF) machine prototype based on process studies and pilot production runs.
- Performed validation pilot production runs on modified Opticam MRF.
- Expanded MRF process data base to high hardness and electro-optic materials.
- Assembled and tested subassemblies for Opticam AM prototype machine.
- Assembled and acceptance tested Opticam AM prototype for fabrication of aspheric lenses in optical glass.
- Incorporated non-contact metrology into deterministic microgrinding process on Opticam SX or Opticam PM machines.
- Evaluated closed-loop control based on in-process metrology.
- Conducted industrial demos to promote and transition Opticam technology to US optics industry.

• 2503 Advanced Topics
- Awarded contract to install blade inspection system for non-contact measurement of propulsion system components and conducted demonstration test.
- Awarded contract to conduct field tests of parts produced in laser forming titanium structures without mold.
- Initiated testing; initiated simulation on injection molding of composite components for CAV.
- Demonstrated virtual environment.
- Delivered and installed remanufacturing ultrasonic cleaning system for AH64 Apache servovalve assemblies.
- Completed supercritical carbon dioxide optical parts/assemblies cleaning system.
- Evaluated several M1 tank engine parts coated with High Velocity Oxygen Fuel (HVOF) spray.
- Initiated process optimization trials for Smartweave In-Situ Sensors; awarded contract to develop hardware, software and initial prototype to inspect additional flaw classes for Nondestructive Visualization Using 3D/X-ray Laminography.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708045A Army Industrial Preparedness Manufacturing Technology PROJECT DE25

FY 1996 Accomplishments: (continued)

- Awarded contract and achieved significant progress in development and evaluation of alternate Micro-Electro-Mechanical Systems designs of a vibratory rate microgyroscope for low cost solutions to position sensing problems.

• 785 Process Development
- Completed process scale-up to 150-liter fermentation of genetically engineered microbial anti-toxin antibody used in chemical detection system.
- Completed scale-up of fermentation process of thermophilic microbe to 150-liter scale used as a heat-stable enzyme for detection systems.
- Selected reverse-osmosis as a viable and economical food-drying process, successfully infused nutrients into foods under laboratory conditions for economic production of semi-dry rations, and placed product samples into accelerated storage testing.
- Awarded contract to purchase ultraviolet technology for stitchless-seams and to refine prototype ceramic plates.
- Completed integrated product and process development of Next Generation Body Armor.
- Completed prototype sorption and permeation test apparatus and implemented at the Defense Personnel Supply Center, the Soldier System Command and DuPont.

Total 23699

FY 1997 Planned Program:

• 6975 Air Vehicles
- Complete Comanche fiber-placed rotor blade spar mandrel design, and fabricate mandrel and spar.
- Develop and demonstrate process for using beryllium aluminum recycled material in production of precision casting; complete government/industry briefing, and complete final technical report.
- Complete demonstration in pilot production environment, define benefits based on established metrics, complete validation of computer model.
- Demonstrate automated deburring process, and continue development of improved grinding and net shape forming for the INFAC - develop implementation plan for transition of demonstrated changes, conduct government/industry end-of-project briefings and complete final technical report.
- Develop rotary wing aircraft sustainment initiative at Corpus Christi Army Depot to include applied development to material state based management, engine focused factory, heat blanket prototype, flexible static blade balancing, preventive and predictive expert system for design optimization, and a pilot system for surface stress relief of aircraft parts.

• 2550 Ground Vehicles
- Continue material characterization and development of manufacturing processes for welding titanium into turret structures.
- Develop fabrication and assembly process models to detail sequence of activities in manufacturing composite hull/armor components for the CAV.
- Develop austempering/ausforming manufacturing processes for ductile iron and produce vehicle track components for metallurgical analysis and process confirmation.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708045A Army Industrial Preparedness Manufacturing Technology PROJECT DE25

FY 1997 Planned Program: (continued)

- 11100 Missiles
  - Demonstrate manufacturing techniques for a 3-5 layer image processor in the Army Combined Arms Weapon System Auto Target Recognition System and a 128 x 128 UV/IR stacked array for potential use in Stinger Block II.
  - Continue to develop IPPD manufacturing methods for MMW transceivers by integrating and implementing newly developed or improved manufacturing processes and techniques into new or existing work cells to form a pilot production line.
  - Develop affordable manufacturing capability for traveling wave tubes.
  - Establish dual domestic source for PAN fibers.
- 1450 Electronics
  - Conduct accelerated life testing to validate Computer Aided Life Cycle Engineering (CALCE) model for physics of failure of electronic equipment.
  - Build and test high and mid-to- high FPA coolers for demonstration and validation of developed processes.
  - Complete procedure development for improved high throughput non-destructive evaluation test procedures that reduce cost for Javelin/Horizontal Technology Integration detector arrays.
- 21875 Munitions
  - Complete live demo of continuous processing system.
  - Initiate high explosives improved process demonstration; complete modeling and issue final report detailing productivity improvements of Computer Simulation Analysis for Munitions LAP Process.
  - Conduct in-process testing and apply process control methods to produce high yield, high quality final fuze assemblies for OICW System.
  - Adapt MRF or other suitable process for deterministic finishing of aspheric and non-axisymmetric optical components.
  - Develop design modifications for reflective/refractive optics fabrication; incorporate in-process metrology into Opticam machines; adapt software to support all Computer Numerically Controlled (CNC) machinery development and changes.
  - Develop Total Integrated Munitions Enterprise (TIME) to address manufacturing requirements and shortfalls in munitions technologies to include munitions propellants and explosives, precision munitions, munitions composites technology, munitions fuze and electronics, munitions thermal battery, and munitions loading, assembling and packing.
- 2410 Advanced Topics
  - Optimize process and conduct final prove-out of HVOF Thermal Spray System, integrate state-of-the-art open architecture controllers and new welding technology into robotic welding and incorporate into existing Flexible Computer Integrated Manufacturing facilities.
  - Develop procedures for laboratory characterization for depot level composites repair, create a flexible manufacturing environment for the repair and testing of static balancing of main rotor blades for helicopters as part of the remanufacturing and reclamation initiative; demonstrate process for more sophisticated shapes and structures for laser forming of titanium structures without molds, and transition to industry suppliers.
  - Complete testing of embedded Smartweave grid, conduct ballistic impact damage testing/validation, and develop expert system.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708045A Army Industrial Preparedness Manufacturing Technology PROJECT DE25

FY 1997 Planned Program: (continued)

•	290	Process Development - Initiate development of production processes for decontamination enzymes. - Conduct operational testing on production techniques for dry and semi-dry rations.
•	1169	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
Total	47819	

FY 1998 Planned Program:

•	1925	Air Vehicles - Continue development of improved heat treatment processing for the INFAC, conduct final demonstration of prediction and control of heat treated distortion of gears, demonstrate net shape manufacturing of gear blanks and initiate effort to demonstrate digital optical-based inspection system for gears. - Conduct final demonstration of integrated composite manufacturing that combines alternative business practices/policies and process technologies defined during initial assessment and evaluation; continue development and demonstration of improved airframe manufacturing technology using composite manufacturing processes for helicopter dynamic rotor components; demonstrate real time adaptive control of automated gas tungsten arc welding through a joint project with the Navy ManTech program reducing welding time for Comanche and V-22 programs.
•	350	Ground Vehicles - Continue development of manufacturing methods for titanium turrets to reduce the weight of combat vehicles. - Establish production methods and improve producibility and affordability of the composite armored vehicle.
•	3077	Missiles - Develop and implement Computer-Aided Design/Computer-Aided Engineering MMW design tools for at least one Army missile system. - Complete development of two-color stacked focal plane array for Stinger Block II upgrade and integrate low cost optical fiber link into Tactical Unmanned Aerial Vehicle (UAV) ground control station. - Complete development of advanced IPPD design aides and simulation systems for missiles. - Continue cost reduction process improvements to traveling wave tube manufacturing.
•	1650	Electronics - Finalize validation testing and implementation of developed processes from the 1 Watt SADA linear drive cooler into the 0.15 Watt Cooler production line; test material composition and structure models for validity and alter based on experimental results of computer integrated manufacturing of optical and electro-optical components. - Baseline industry manufacturing processes, and generate design of experiments for process selection and development in the areas of uncooled FPA/Cooler Assembly, FPA fabrication, electronics, display assembly, packaging, and testing; and complete analysis and implementation of physics-of-failure validation on electronics equipment with demonstration on the ARC-210 radio used on Comanche, Apache and Blackhawk systems.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708045A Army Industrial Preparedness Manufacturing Technology PROJECT DE25

FY 1998 Planned Program: (continued)

- 1875 Munitions
  - Initiate continuous processing technology development for pyrotechnic materials, optimize process parameters for manufacture of fine particle explosives and coated energetics, and complete process development efforts for Modular Artillery Charge System (MACS).
  - Continue manufacturing development of the OICW System; prototype and prove out a second generation CNC machine for MRF of optics and precise correction of non-symmetric errors.
  - Apply deterministic optics fabrication techniques to specific military optics manufacturing problems; prototype and prove out a second generation machine for fabrication of optical prisms; develop optimechatronic assembly techniques.
- 800 Advanced Topics
  - Continue material characterization and data testing for depot-level advanced composites repair and remanufacturing; continue flexible manufacturing environment for the repair and balancing of main rotor blades for helicopters.
  - Initiate process development for alternator control modules at Red River Army Depot and begin characterization for remanufacturing of helicopter windshields.
- 1352 Process Development
  - Develop manufacturing processes for the production of decontamination enzymes as a replacement for currently used chemicals.
  - Develop production techniques for portable sorption fabric testers for chemical protective clothing production and sustainment.
  - Complete development and accelerated life testing for dry/semi-dry rations for soldiers and issue final report.

Total 11029

FY 1999 Planned Program:

- 2650 Air Vehicles
  - Continue development at the INFAC of improved heat treatment processing and optimal machining processes for high performance gear materials, and initiate an effort to control residual stresses in ground spiral bevel gears.
  - Complete demonstration of improved airframe manufacturing processes for helicopter dynamic rotor components.
  - Develop an integrated manufacturing system for fiber optic harnesses used in Comanche and future rotary wing vehicles.
  - Integrate gas tungsten arc welding process in contractor facility for demonstration on gas turbine components.
- 600 Ground Vehicles
  - Continue development of manufacturing methods for titanium turrets for combat vehicles.
- 4158 Missiles
  - Demonstrate flexible design environment for MMW transceivers for the Hellfire Longbow missile system.
  - Begin manufacturing process development and testing of microjet aerodynamic control actuators for a miniature missile seeker application; fully implement IPPD tools on at least three Army weapon systems.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708045A Army Industrial Preparedness Manufacturing Technology PROJECT DE25

FY 1999 Planned Program: (continued)

- Benchmark existing traveling wave tube production processes and begin new/enhanced process.

• 1950 Electronics
- Finalize model validation, database, and tooling design and hold industry demonstration and complete final report for technology transfer of manufacturing properties of electro-optical materials.
- Begin process development to reduce/eliminate yield limiters, reduce cycle times, improve performance, transition to larger uncooled focal plane arrays (320x240 to 640x480), reduce power consumption, and reduce cost by 10-20%.

• 3000 Munitions
- Optimize continuous processing technologies for the manufacture of pyrotechnics, complete process technology development for fine particle explosives and coated energetics, and initiate efforts for improved manufacture of primers and initiators.
- Complete manufacturing development for the OICW System; apply asphere and conformal optics manufacturing capability to specific DoD manufacturing problems.
- Scale up automated optical fabrication techniques applicable to mid-volume production to high volume production.

• 1200 Advanced Topics
- Continue process development for helicopter windshield remanufacturing; complete rotor blade static balancing and depot level advanced composites repair; continue development of laser forming for rapid prototyping of titanium structures to near-net shape.

• 1653 Process Development
- Complete second decontamination enzyme optimization, prepare process specification, prepare final report, and conduct project demonstration; design and construct automated portable permeation test apparatus using purchased state-of-the-art test equipment for use in manufacturing and sustaining chemical protective overgarments.

Total 15211

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708045A Army Industrial Preparedness Manufacturing Technology PROJECT DE25

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY1997 President's Budget	27927	16842	17152	17253
Appropriated Value	28776	47819		
Adjustments to Appropriated Value	-5077			
FY 1998 Pres Bud Request	23699	47819	11029	15211

Change Summary Explanation:

Funding: FY 1996 - Funds reprogrammed (-5077) to higher priority requirements.

FY 1997 - Congressional funding increase (+30977) for Total Integrated Munitions Enterprise projects, PAN Fiber source development, and gear processing at the Instrumented Factory for Gears.

FY 1998 - Funding reprogrammed (-6123) for higher priority requirements.

FY 1999 - Funding reprogrammed (-2042) for higher priority requirements.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708045A Army Industrial Preparedness Manufacturing Technology

PROJECT: DE26

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DE26 Weapon Systems Modernization Software Maintenance	0	0	33297	34875	36336	37897	39342	41003	Continuing	Continuing

A. Mission Description and Justification: The Weapon Systems Modernization Software Maintenance project provides funding for modernization efforts in which post-production embedded weapon system software must be upgraded and/or enhanced. This project provides life cycle software engineering support for weapon systems in the areas of tactical and satellite communications, intelligence and electronic warfare (IEW), avionics command and control (C2), fire support (FS), training and simulation, maneuver control (MC), and tactical fusion (TF). Additionally, the project provides the capability to enhance or improve system software interoperability, integration and testing for command, control, communications, computer, and intelligence (C4I) functions in a continuous life cycle evaluation/certification process. Software enhancements funded under this project will expand the performance envelope of the selected weapon systems as well as ensure system interoperability. The project will be managed by the Army Materiel Command (AMC). The work performed in this project was formerly funded in the Operations and Maintenance, Army appropriation. The mission, and associated funding, are transferred to the RDT&E, Army appropriation, beginning in FY 1998, to represent more appropriately actual software maintenance costs associated with weapon systems. During FY1997, AMC will identify specific weapon systems requiring software upgrades/enhancements. Systems will receive software upgrades or enhancements according to a schedule determined by priority and available funding. Prioritization will be determined through a series of program reviews which will assess operational capabilities of current systems and relate them to readiness criteria and available funding. This strategy provides broad support for affordable continuous sustainment and modernization of weapon systems, providing the warfighter with the most effective, timely information available to win the battlefield information war.

FY 1996 Accomplishments: Project not funded in FY 96.

FY 1997 Planned Program: Project not funded in FY 97

FY 1998 Planned Program:

- 33297 - Modernize, and/or develop new software interfaces between information gathering hardware systems, which supply weapon system status and configuration data, and the terminal user for selected systems; provide upgrades to the depot responsible for the selected systems; install and demonstrate new capabilities as required.
  - Incorporate into selected existing weapon systems software enhancements which will provide the ability to manage data exchange between planning, monitoring and controlling subsystems, and which will provide a common integrated Man-Machine Interface (MMI) spanning these subsystems to achieve desired level of interoperability.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708045A Army Industrial Preparedness Manufacturing Technology PROJECT DE26

FY 1998 Planned Program: (continued)

- Incorporate into selected existing weapon systems software enhancements which will provide the ability to communicate network information in a secure environment and increase the capability of existing secure communications links.
- Modify system software in selected existing weapon systems to improve the reliability and speed of embedded routines to meet the requirements imposed by hardware system upgrades and improved communications capabilities required for achieving the desired enhanced level of operational capability.

Total 33297

FY 1999 Planned Program:

• 34875
- Continue to modernize, and/or develop new software interfaces between information gathering hardware systems, which supply weapon system status and configuration data, and the terminal user for selected systems; provide upgrades to the depot responsible for the selected systems; install and demonstrate new capabilities as required.
- Continue to incorporate into selected existing weapon systems software enhancements which will provide the ability to manage data exchange between planning, monitoring and controlling subsystems, and which will provide a common integrated Man-Machine Interface (MMI) spanning these subsystems to achieve desired level of interoperability.
- Continue to incorporate into selected existing weapon systems software enhancements which will provide the ability to communicate network information in a secure environment and increase the capability of existing secure communications links.
- Continue to modify system software in selected existing weapon systems to improve the reliability and speed of embedded routines to meet the requirements imposed by hardware system upgrades and improved communications capabilities required for achieving the desired level of operational capability.

Total 34875

B. Project Change Summary	FY 1996	FY 1997	FY 1998	FY 1999
FY1997 President's Budget	0	0	0	0
Appropriated Value				
Adjustments to Appropriated Value				
FY1998 Pres Bud Request	0	0	33297	34875

Change Summary Explanation: Funding: Beginning in FY 1998, funds are transferred from the Operations and Maintenance, Army appropriation to the RDTE, Army appropriation more appropriately to represent costs associated with weapon systems software maintenance.

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 1001018A NATO Joint STARS

PROJECT: C35

COST (*In Thousands*)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
C35 NATO Joint STARS	9500	0	13500	15105	0	0	0	0	0	38105

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 NATO forces. Initial efforts to evaluate various potential solution sets for the NATO Alliance Ground Surveillance System (NAGS) commenced in May 1995. A NAGS Project Office was established at SHAPE Technical Center (STC) and will continue to operate until the final NAGS configuration is selected. Under this PE/Project, the Army will conduct and support interoperability experimentation and demonstrations between the Joint Surveillance Target Radar System (Joint STARS) Ground Station and various Allied weapon systems. This is not a new start, but a continuation of the effort previously funded in FY 95 under PE 0604770A. This effort is in support of upgrades for NATO International Activities and appropriately placed in Budget Activity 7.

Acquisition Strategy: The NATO nations and military commanders have identified a requirement for a NAGS. Senior U.S. leadership has strongly supported and directed full U.S. participation in ongoing evaluations of the various ground surveillance systems within the member nations military forces. The Joint STARS system has been proposed by the U.S. as the best solution for providing NATO with the required capability. The NAGS selection is scheduled for FY 97. This PE permits the US Army to aggressively participate in military demonstrations and interoperability evaluations. The funds provide dedicated hardware and technical support to integrate Joint STARS data into a suite of NATO component systems and then demonstrate the capability. All hardware has been procured. Technical support continues until the NAGS decision is announced.

FY 1996 Accomplishments:

- 8100 System interoperability design/development
- 1020 Tests and demonstrations
- 380 Supported Allied/NATO exercises

Total 9500

FY 1997 Planned Program: Project not funded in FY 97

FY 1998 Planned Program:

- 6000 Develop NATO C3I interfaces
- 4000 Integrate NATO sensor platform interfaces
- 3500 Complete ground station European power and shelter modifications

Total 13500

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

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 1001018A NATO Joint STARS

PROJECT: C35

FY 1999 Planned Program:

•	12949	Incorporate radar upgrade modifications
•	1900	Conduct technical/operational tests and demonstrations
•	256	Support Allied/NATO exercises
Total	15105	

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	0	0	0	0
Appropriated Value	9500			
Adjustments to Appropriated Value	0			
FY 1998 Pres Bud Request	9500	0	13500	15105

Change Summary Explanation:

Funding: Congressional increase to support program under PE 0604770A. Funds were reprogrammed to PE 1001018A (new PE) as directed by OSD.

C. Other Program Funding Summary

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
BA1080 Joint STARS (TIARA)	82376	85321	118873	89180	91196	102224	36146	18039	Cont	Cont
BS9724 Joint STARS Spares	3524	8762	6313	6445	6531	6620	7380	4725	Cont	Cont
BA1082 NATO-AGS			26153	32575						

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Established Embryonic Program Office																
Award NATO Support Contract																
NAGS Prototype Procurement	X*															
Integration into STC		X*														
Initial Multinational Demonstration				X*												
Initiate NATO Minimum Upgrades										X						
Initiate Radar Upgrades														X		

*Completed milestone

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1997

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 1001018A NATO Joint STARS

PROJECT: C35

A. Project Cost Breakdown

	FY 1996	FY 1997	FY 1998	FY 1999
Interoperability Software Development	5551		7830	8758
Hardware/Prototype Development	3799		5400	6040
Program Management	150		270	307
Total	9500		13500	15105

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Motorola (96-C-S204)	C/FP	Dec 95	3649	3649		3649				0	3649
Motorola (95-C-S205)	SS/CPFF	Aug 95	5701	5701		5701				0	5701
TBD				28028				13230	14798	0	28028
Support and Management Organizations											
Project Mgmt						150		270	307	0	727
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development						9350		13230	14798		37378
Subtotal Support and Management						150		270	307		727
Subtotal Test and Evaluation											
Total Project						9500		13500	15105		38105

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES MAILING LIST

PRINT	ADDRESS
1	USD (Policy), Pentagon, Room 4B926, Washington, DC 20301-2100
1	DOD Compt, MS, DMI, Pentagon, Room 1B728, Washington, DC 20310-1100
1	OSD, ATTN: DOT&E, Pentagon, Room 3E318, Washington, DC 20310
11	ASD(C3I), Pentagon, Room 3E209, Washington, DC 20310
1	ASD(ISA), Pentagon, Room 4B938, Washington, DC 20310
1	ASD(LA), Pentagon, Room 3D918, Washington, DC 20310
1	USD(P&R), Room 3C980, Washington, DC 20310-4000
1	ASD(PA&E)/GPP/LFD, Pentagon, Room 2B256, Washington, DC 20310
1	ASD (PA&E), Pentagon, Room 2E313, Washington, DC 20310
2	ASD(PA), Pentagon, Room 2D278, Washington, DC 20310
2	JCS(J-8), Pentagon, Room 1E963, Washington, DC 20310
1	HQDA, (SAUS-OR), Pentagon, Room 2E600, Washington, DC 20310
*	HQDA (SAILE), Pentagon, Room 2E614, Washington, DC 20310
*	HQDA (SARD-DEP), Pentagon, Room 2E673, Washington, DC 20310
*	HQDA (SAFM-CAZ-A), 5611 Columbia Pike, Falls Church, VA 22041-5050
*	HQDA (SFIS-API), Hoffman 1, Room 1012, Alexandria, VA 22331-0302
*	HQDA (DACS-DPD), Pentagon, Room 3C738, Washington, DC 20310
*	HQDA (DACS-DPA), Pentagon, Room 1C460, Washington, DC 20310
*	HQDA (SAIS-PPG), Pentagon, Room 1D679, Washington, DC 20310
*	HQDA (DACS-DPA), Pentagon, Room 3C747, Washington, DC 20310
*	HQDA (DACS-DMC), Pentagon, Room 3D631, Washington, DC 20310
1	HQDA (DACS-TE), Pentagon, Room 3C571, Washington, DC 20310

***Distributed electronically**

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES MAILING LIST

PRINT	ADDRESS
*	HQDA (DAIM-ZR), Pentagon, Room 2B683, Washington, DC 20310
*	HQDA (DAMI-ZXM), Pentagon, Room 2D474, Washington, DC 20310
1	HQDA (DAMI-PBB), Pentagon, Room 2E477, Washington, DC 20310
*	HQDA (DAPE-ZXO), Pentagon, Room 2D735, Washington, DC 20310
*	HQDA (DALO-RMP), Pentagon, Room 1E565, Washington, DC 20310
*	HQDA (DALO-ZA), Pentagon, Room 3E560, Washington, DC 20310
*	HQDA (DAMO-ZR), Pentagon, Room 3D526, Washington, DC 20310
*	HQDA (DAMO-FDR), Pentagon, Room 2D570, Washington, DC 20310
*	HQDA (DAAR-CO), Pentagon, Room 1D432, Washington, DC 20310
*	HQDA (NGB-ZA), Pentagon, Room 2E394, Washington, DC 20310
*	HQDA (DASG-ZA), 5111 Leesburg Pike , Room 638, Falls Church, VA 22041-3258
*	HQDA (DASG-RMZ), 5111 Leesburg Pike, Room 554, Falls Church, VA 22041-3258
*	HQDA (DASG-RDZ), Pentagon, Room 3E368, Washington, DC 20310-2300
*	HQDA (DAIM-ED), Pentagon, Room 1E682, Washington, DC 20310
*	HQDA (DAIM) Pentagon, Room 1E665, Washington, DC 20310
*	HQDA (SAPA), Pentagon, Room 2E641, Washington, DC 20310
*	HQDA (CSSD-RM-W), P.O. Box 15280, Arlington, VA 22215-0150
*	HQDA (SAAG-PRP), Room 1309, 3101 Park Center Drive, Alexandria, VA 22302-1596
*	HQDA (DAMH-ZB), Pulaski Bldg, Room 4229, 20 Massachusetts Avenue, Washington, DC 20314
*	US Army Cost And Economic Analysis Center, ATTN: SFFM-CA-PI, 5611 Columbia Pike, Falls Church, VA 22041-5050
1	BMDO/RM, Pentagon, Room 1E1037, Washington, DC 20310
*	HQDA, (JDRS-PBD), Pentagon, Room 1E610, Washington, DC 20310

***Distributed electronically**

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES MAILING LIST

PRINT	ADDRESS
*	HQ, PACOM, R&D Requirements (J531), BOX 15, USPACOM Staff, Camp H.M. Smith, HI, 96861
*	Commander, US Army Intelligence and Security Command, ATTN: IARM-PB, Fort Belvoir, VA 22060-5370
*	Commander, US Army Nuclear and Chemical Agency, ATTN: MONA-OPS, Bldg 2073, Backlick Road, Springfield, VA 22150
*	Commander, US Army Medical R&D Command, ATTN: SGRD-RMC, Fort Detrick, Frederick, MD 21701-5012
*	Commander, US Army Medical R&D Command, ATTN: SGRD-PR, Fort Detrick, Frederick, MD 21701-5012
*	Commander, US Army Training and Doctrine Command, ATTN: ATCD-E, Fort Monroe, VA 23651-5000
*	CMDT, Army Field Artillery School, ATTN: ATSF-CSI-P, ATSF-CBL, Ft. Sill, OK 73503-5600
*	CDR, Army Aviation Ctr & Ft. Rucker, ATTN: ATZS-CDI, Ft. Rucker, AL 36362-5000
*	CDR, Army Intelligence Ctr and FT. Huachucha, ATTN: ATZS-CDI-I, ATZS-CDT, Ft. Huachucha, AZ 85613-7000
*	CMDT, U.S. Army Signal Ctr, ATTN: ATZH-CDM, ATZH-BLT, Ft. Gordan, GA 30905-5000
*	Force Design Directorate, ATTN: ATCD-F, 415 Sherman Ave., Ft. Leavenworth, KS 66027-5000
*	CDR, USACHCS, ATTN: ATSC-CD, Ft. Monmouth, NJ 07703-5612
*	CDR, U.S. Army Medical Center & School, ATTN: HSMC-FCM, Ft. Sam Houston, TX 78234
*	CMDT, U.S. Army Air Defense Artillery School, ATTN; ATSA-CDM, Ft. Bliss , TX 79916
*	CMDT, U.S. Army Infantry School, ATTN: ATSH-IWC, ATSH-MLS, Ft. Benning, GA 31905-5400
*	CMDT, U.S. Army Armor School, ATTN: ATZK-CD-ML, ATZK-MW, Ft. Knox, KY 40121-5200
*	CMDT, U.S. Army Engineer School, ATTN: ATSE-CD-M, Ft. Leonard Wood, MO 65473-5000
*	CMDT, U.S. Army Chemical School, ATTN: ATZN-CM-CS, Ft. McClellan, AL 36205-5020
*	CMDT, U.S. Army Military Police School, ATTN: ATZN-MP-CM, Ft. McClellan, AL 36205-5020
*	Commander, US Army Research Institute for the Behavioral and Social Sciences, ATTN: PERI-MB, 5001 Eisenhower Avenue, Alexandria, VA 22333-5600
*	Commander, US Army Operational Test and Evaluation Command, ATTN: CSTE-RMZ, Park Center IV, 4501 Ford Avenue, Alexandria, VA 22302-1458

***Distributed electronically**

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES MAILING LIST

PRINT	ADDRESS
*	Commander, US Army Materiel Command, ATTN: AMCRD-AB, 5001 Eisenhower Avenue, Alexandria, VA 22333-0001
*	Commander, US Army Materiel Command, ATTN: AMCAE-P, 5001 Eisenhower Avenue, Alexandria, VA 22333
*	Commander, US Army Materiel Command, ATTN: AMCAQ-B-TILO, 5001 Eisenhower Avenue, Alexandria, VA 22333
*	Commander, US Army Communications-Electronics Command, ATTN: AMSEL-CG, Ft. Monmouth, NJ 07703-5000
*	Commander, US Army Communication-Electronics Command, ATTN: AMSEL-ACSB-BT, Ft. Monmouth, NJ 07703-5008
*	Commander, US Army Missile Command, ATTN: AMSMI-AS (Library), Bldg 5250, RMC-147, Redstone Arsenal, AL 35898-5000
*	Commander, US Army Test and Evaluation Command, ATTN: AMSTE-RM, Aberdeen Proving Ground, MD 21005-5055
*	Commander, US Army CECOM, Technical Industrial Liaison Office, ATTN: AMSEL-AC-SP-BL (Sandra Vermont), Ft. Monmouth, NJ 07703-5008
*	Commander, US Army Tank-Automotive Command, ATTN: AMSTA-CG, Warren, MI 48397-5000
*	Commander, US Army Laboratory Command, ATTN: AMSLC-CG, Adelphi, MD 20783-1145
*	Commander, US Army Armament Research, Development and Engineering Center, ATTN: SMCAR-CO, Dover, NJ 07806-5000
*	Commander, Environmental Center, ATTN: SFIM-AEC-RM, Edgewood Area, Aberdeen Proving Ground, MD 21010-5055
*	Commander, US Army Materiel Systems Analysis Activity, ATTN: AMXSY-PB, Aberdeen Proving Ground, MD 21005-5071
*	Commander, US Army Chemical, Biological and Defense Command, ATTN: AMSCB-RR, Aberdeen Proving Ground, MD 21010-5423
*	Commander, US Army Chemical, Biological and Defense Command, ATTN: SCBRD-ASA, Aberdeen Proving Ground, MD 21010-5423
*	Commander, US Army Chemical, Biological and Defense Command, ATTN: AMSCB-EO, Aberdeen Proving Ground, MD 21010-5423
*	Commander, US Army Aviation and Troop Command, ATTN: AMSAT-D-C, 4300 Goodfellow Blvd, St. Louis, MO 63120-1798
*	Program Manager, Instrumentation, Targets and Threat Simulators, ATTN: AMCPM-ITTS, 12350 Research Parkway, Orlando, FL 32826
*	Program Manager, Tank Main Armament Systems, ATTN: AMCPM-TMD PMD, Picatinny Arsenal NJ 07806-5000
*	Program Executive Officer, Missile Defense, ATTN: SFAE-MD-DP-P, Building 5250, Redstone Arsenal, Alabama 35898-5750
*	Program Executive Officer, Field Artillery Systems, ATTN: SFAE-FAS, Building 171, Picatinny Arsenal, Picatinny, NJ 07806-5000

***Distributed electronically**

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES MAILING LIST

PRINT	ADDRESS
*	Program Executive Officer, Armored Systems Modernization, ATTN: SFAE-HFM-P, Warren, MI 48397-5000
*	Program Executive Officer, Aviation, ATTN: SFAE-AV, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798
*	Program Executive Officer, Tactical Wheeled Vehicles, ATTN: SFAE-TWV, Warren, MI 48397-5000
*	Program Executive Officer, Command and Control Systems, ATTN: SFAE-CC-PMO, Ft. Monmouth, NJ 07703-5000
*	Program Executive Officer, Communication Systems, ATTN: SFAE-COM, Ft. Monmouth, NJ 07703-5000
*	Program Executive Officer, Tactical Missiles, ATTN: SFAE-MSL, Redstone Arsenal, AL 35898-8000
*	Program Executive Officer, Intelligence and Electronic Warfare, ATTN: SFAE-IEW-BM, Ft. Monmouth, NJ 07703
*	Commander, US Army Space and Strategic Defense Command, ATTN: CSSD-RM-BP, P.O. Box 1500, Huntsville, AL 35807-3801
*	Commander, US Army Corps of Engineers, ATTN: CERD-L, Washington, DC 20314
*	Commander, US Army Force Integration Support Agency, ATTN: MOFI-TRED-O, Building 2588, Fort Belvoir, VA 22060-5587
*	Commander, 902d MI Group, ATTN: IAGPA-OPOP, Ft. Meade, MD 20755-5910
*	Commander, HQ US Army Missile & Space Intelligence Center, ATTN: AIAMS-YCC, Redstone Arsenal, AL 35898-5000
*	Commander, US Army Countermeasures/Counter Counter Measures Center, ATTN: AMX-CM-RF, 2800 Powder Mill Rd, Adelpi, MD 20
*	Commander, US Army Belvoir Research, Development & Engineering Center, ATTN: STRBE-Z, Ft. Belvoir, VA 22060-5606
*	Commander, US Army Research Office, ATTN: SLCRO-AO (Security Officer), P.O. Box 12211, Research Triangle Park, NC 27709
3	Executive Office of the President, Office of Management and Budget, National Security Division, NEOB, Room 10001, Washington, DC 20503
1	Inspector General, ATTN: A&IM/FMD, 400 Army-Navy Drive Arlington, VA 22202-2884
14	US General Accounting Office, ATTN: NSIAD, Room 4103, 441 G Street, NW, Washington, DC 20548
*	HQ USAF/FMBMC, Pentagon, Room 5C129, Washington, DC 20330-5012
*	HQ US Marine Corps, Deputy Chief of Staff for RD&S, Code (MC-RDP-30), Washington, DC 20380
*	Commandant, US Army War College, ATTN: Library, Carlisle Barracks, PA 17013-5050

***Distributed electronically**

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES MAILING LIST

PRINT	ADDRESS
1	Defense Advanced Research Projects Agency, ATTN: Comptroller, 3701 North Fairfax Drive, Arlington, VA 22203-1714
*	Institute for Defense Analyses, 1801 North Beauregard Street, Alexandria, VA 22311
*	Headquarters, National Aeronautical and Space Administration, Code ID, ATTN: Deputy DOD Affairs, Washington, DC 20546
1	Library of Congress, Rm. LM-208 (202), ATTN: Bruce Krafte, James Madison Library Bldg., 1st Street & Independence Avenue, SE, Washington, DC 20540
1	ACDA/NWC/DPA, Room 5741, 320 21st Street, NW, Washington, DC 20451
2	Pentagon Library, ATTN: Army Studies, Room 1A518, Washington, DC 20310
*	Director, Defense Finance and Accounting Service-Indianapolis Center, ATTN: DFAS-I-PA, Indianapolis, IN 46249
1	Defense Technical Information Center (DTIC), ATTN: Ms. Mawby, Ft. Belvoir Headquarters Complex (FBHC), Suite 0944 8725 John J. Kingman Road, , Ft. Belvoir, VA 22060-6220
1	Defense Technical Information Center (DTIC), ATTN: OCC, Ft. Belvoir Headquarters Complex (FBHC), Suite 0928, 8725 John J. Kingman Road, Ft. Belvoir, VA 22060-6220
11	National Technical Information Service (NTIS), ATTN: Military Publications, 5285 Port Royal Road, Springfield, VA 22161
	HAND DELIVERY
1	DOD(C)(P&S), Room 3A862
3	DOD(C)(INV), Room 4B916
1	DOD(C)(MILCON), Room 3D841
2	DOD(C)(CFO), Room 1B728
27	USD(A) Mailroom, Room 3D139
13	SAFM-BUL, Room 3A652

***Distributed electronically**

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES MAILING LIST

PRINT	ADDRESS
	HAND DELIVERY (continued)
*	SAFM-BUC-F, Room 3B663
*	SAFM-BUC-I, Room 3A674
*	SAFM-RB, Room 3A720
34	SALL, Room 2C638
16	SAFM-BUI-A, Room 3D400
1	SAFM-BUI-W, Room 3C476
1	SAFM-BUI-O, Room 3D454
161	Total Print

Any changes to this distribution list should be provided to HQDA (SAFM-BUI-A), Washington, DC 20310, DSN, 223-2687..

***Distributed electronically**