UNCLASSIFIED

Supporting Data FY 1997 Budget Estimate
Submitted to Congress - March 1996

DESCRIPTIVE SUMMARIES OF THE



DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

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

19960514 029

UNCLASSIFIED

DTIC QUALITY INSPECTED 1

DESCRIPTIVE SUMMARIES FOR PROGRAM ELEMENTS OF THE RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY FY 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 1997 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 1995, 1996, 1997 time period.

2. Relationship of the FY 1997 Budget Submission to the FY 1996 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
0601104A/BH50, BH53, BH55	Communications Research	0601102A/AH48
0602618A/AH80, 0603004A/DL94	Electric Gun Technology	0602618A/AH75
0602786A/AH20	Countermine Technology	0602712A/AH24
0603001A/DXXA, 0603710A/DK70, 0603772A/D101, 0604713A/D667	Force XXI Soldier	0603001A/DJ50
0603019A/DB94	Tractor Dump	0203735A/DC64
0603734A/DT08, 0602784A/A855 & AT42, and 0602782A/A779	Rapid Battlefield Visualization	0603734A/AT12
0603645A/D409 & DB88	Artillery Systems Dem/Val	0603854A/D505

A. Program Element Restructures (Continued)

OLD PE/PROJECT	NEW PROJECT TITLE	NEW PE/PROJECT
0603771A/DE20	Industrial Preparedness Man Tech	0708045A/DE25
0604645A/D2KT	AFAS Operational Test	0604854A/D2KT
0604645A/D417 & D418	CRUSADER - ED*	0604854A/D503
0604715A/DC91	Interactive Simulaton	0604760A/DC77
0604759A/DC55	Synthetic Theater of War	0604760A/DC73
0203740A/DC49	Gobal Command and Control System	0303150A/DC86
0303142A/D386	SCAMP Block II	0603856A/D389
0604759A/DC55	Developmental Simulation Technology	0604760A/DC74
0604817A/D482	All Services Cbt Ident Eval Team (ASCIET)	0604817A/D901
0605801A/MM43	Soldier Systems Command	0605801A/MM58
0605898A/MM03	Command Headquarters - MRDC	0605801A/M881
0303142A/D384	SMART-T Operational Test	0303142A/D2PT

Applicable portions of PE 0605896A, Base Operations - RDT&E, "J" Operation of Utilities and "M" Other Engineering, were restructured to a new PE 0605879A, Real Property Services (RPS).

* CRUSADER was previously known as Advanced Field Artillery System(AFAS) and Future Armored Resupply Vehicle (FARV).

B. FY 1997 Developmental Transitions.

FROM PE/PROJECT	PROJECT TITLE	TO PE/PROJECT
0602303A/A213	Counter Active Protection	0603313A/D550
0603774A/D131	Long Range Advanced Scout Surv Sys (LRAS3)	0604710A/DL74

C. Establishment of New FY 1997 Program Elements/Projects. There are no major system new starts. Minor new initiatives for FY 1997 are shown below with asterisks. The remaining programs listed are outyear initiatives beyond FY 1997 or were previously funded from other Defense appropriations. The Tractor programs are initiatives moved from other programs.

TITLE	PE/PROJECT
Tractor Zinc	0602786A/AC60
Tractor Quake	0602786A/AC61
Tractor Union	0603005A/DC62
2.75" Anti-Air Techology Demonstration*	0603313A/D549
Tractor Quake	0603710A/DC63
Intelligent Support to Force XXI*	0305123A/DH12
Tactical Unmanned Ground Vehicle (TUG-V)	0604641A/DE47
Integrated Broadcast System*	0604739A/D702
Non-Lethal Programs*	0604802A/D712
Firefinder Preplanned Product Improvement (P3I)*	0604823A/DL85
ATCAS	0605854A/D509
Pyrotechnic Reliability and Safety*	0605805A/D296
Joint Aerostat Program Office	0102419A/DE55
Joint Tactical Ground Station (JTAGS)*	0208053A/M635
Bradley A3 IOTE*	0203735A/D2TT
Abrams IOTE*	0203735A/D2UT

D. FY 1997 programs for which funding was shown in the FY 1996 President's Budget Submit (February 1995), but which are no longer funded.

PE/PROJECT	TITLE	BRIEF EXPLANATION
0203735A/D392	AGS Improvements	Program terminated.
0603001A/DC44	Tactical Logistics	Funds transferred to Soldier Survivabiltiy.
0603005A/A340	Producibility Technology	Lower priority effort became unfunded.
0604645A/D413	Armored Gun System (AGS)	Program terminated.
0605803A/M731	GIDEP/AGED	Project completed in FY 1996.
0605805A/D293	Field Artillery Ammunition (NATO)	Funds transferred to higher priority programs.

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
0203744A/DB75
0203806A
0203808A
0301359A
0602104A
0602122A
0602788A
0603122A
0603005A/DC82
0603009A
0603012A
0603013A
0603017A
0603018A
0603019A
0603020A
0603238A/D182/D189
0603322A
0603639A
0603647A
0603710A/DC63
0603851A
0604649A/DG15

TABLE OF CONTENTS

BUDGET ACTIVITY
PROGRAM ELEMENT

	PE	PROGRAM ELEMENT TITLE	PAGE
#1 - BASIC RESEARCH			
1	0601101A	In-House Laboratory Independent Research	1
2	0601102A	Defense Research Sciences	12
3	0601104A	University and Industry Research Centers	86
#2 - EXPLORATORY DEVELOPMENT			
4	0602105A	Materials Technology	106
5	0602120A	Sensors and Electronic Survivability	111
6	0602211A	Aviation Technology	121
7	0602270A	Electronic Warfare (EW) Technology	129
8	0602303A	Missile Technology	136
9	0602308A	Modeling and Simulation Technology	140
10	0602601A	Combat Vehicle and Automotive Technology	146
11	0602618A	Ballistics Technology	160
12	0602622A	Chemical, Smoke and Equipment Defeating Technology	168
13	0602623A	Joint Service Small Arms Program	173
14	0602624A	Weapons and Munitions Technology	175
15	0602705A	Electronics and Electronic Devices	186
16	0602709A	Night Vision Technology	192
17	0602712A	Countermine Systems Exploratory Development	195
18	0602716A	Human Factors Engineering Technology	198
19	0602720A	Environmental Quality Technology	204

TABLE OF CONTENTS

BUDGET ACTIVITY / PROGRAM ELEMENT	PE	PROGRAM ELEMENT TITLE	PAGE
#2 - EXPLORATORY DEVELOPMENT - Continued			
20	0602782A	Command, Control, Communications Technology	223
21	0602783A	Computer and Software Technology	229
22	0602784A	Military Engineering Technology	234
23	0602785A	Manpower/Personnel/Training Technology	248
24	0602786A	Logistics Technology	253
25	0602787A	Medical Technology	268
26	0602789A	Army Artificial Intelligence Technology	288
#3 - ADVANCED DEVELOPMENT			
27	0603001A	Logistics Advanced Technology	290
28	0603002A	Medical Advanced Technology	310
29	0603003A	Aviation Advanced Technology	332
30	0603004A	Weapons and Munitions Advanced Technology	348
31	0603005A	Combat Vehicle and Automotive Advanced Technology	357
32	0603006A	Command, Control and Communication Advanced Technology	369
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	420

TABLE OF CONTENTS

BUDGET ACTIVITY
PROGRAM ELEMENT

	PE	PROGRAM ELEMENT TITLE	PAGE
#3 - ADVANCED DEVELOPMENT - Continued			
39	0603607A	Joint Service Small Arms Program	425
40	0603654A	Line-of-Sight Technology Demonstration	428
41	0603710A	Night Vision Advanced Technology	430
42	0603734A	Military Engineering Advanced Technology	437
43	0603759A	Chemical/Biological Defense and Smoke Advanced Technology Development	444
44	0603771A	Army Industrial Preparedness Manufacturing Technology	445
45	0603772A	Advanced Tactical Computer Science and Sensor Technology	449
#4 - DEMONSTRATION AND VALIDATION			
46	0603308A	Army Missile Defense Systems Integration	457
47	0603619A	Landmine Warfare and Barrier - Advanced Development	460
48	0603627A	Smoke, Obscurant and Target Defeating System - Advanced Development	465
49	0603640A	Artillery Propellant Development	469
50	0603645A	Armored Systems Modernization - Advanced Development	474
51	0603649A	Engineering Modification Equipment - Advanced Development	492
52	0603653A	Advanced Tank Armament System	497
53	0603713A	Army Data Distribution System	502
54	0603730A	Tactical Surveillance System - Advanced Development (TIARA)	511
55	0603745A	Tactical Electronic Support Systems - Advanced Development (TIARA)	515
56	0603747A	Soldier Support and Survivability	519
57	0603760A	Distributive Interactive Simulations - Advanced Development	537

TABLE OF CONTENTS

BUDGET ACTIVITY / PROGRAM ELEMENT	PE	PROGRAM ELEMENT TITLE	PAGE
#4 - DEMONSTRATION AND VALIDATION - Continued			
58	0603766A	Tactical Exploitation of National Capabilities (TENCAP) - Demonstration/Validation (TIARA)	540
59	0603774A	Night Vision Systems - Advanced Development	545
60	0603790A	NATO Research and Development	549
61	0603801A	Aviation - Advanced Development	555
62	0603802A	Weapons and Munitions - Advanced Development	569
63	0603804A	Logistics and Engineering Equipment - Advanced Development	576
64	0603805A	Combat Service Support Control System Evaluation and Analysis	611
65	0603807A	Medical Systems - Advanced Development	623
66	0603854A	Artillery Systems Demonstration and Validation	640
67	0603856A	SCAMP BLK II (Space)	645
#5 - ENGINEERING AND MANUFACTURING DEVELOPMENT			
68	0604201A	Aircraft Avionics	648
69	0604220A	Armed, Deployable OH-58D	654
70	0604223A	Comanche	657
71	0604270A	Electronic Warfare (EW) Development	667
72	0604315A	Tri-Service Standoff Attack Missile (TSSAM)	690
73	0604321A	All Source Analysis System (TIARA)	692
74	0604325A	Follow-On To TOW	701
75	0604604A	Medium Tactical Vehicles	704
76	0604609A	Smoke, Obscurant and Target Defeating System - Engineering Development	709

TABLE OF CONTENTS

BUDGET ACTIVITY
PROGRAM ELEMENT

	PE	PROGRAM ELEMENT TITLE	PAGE
#5 - ENGINEERING AND MANUFACTURING DEVELOPMENT - Continued			
77	0604611A	Javelin	713
78	0604619A	Landmine Warfare	717
79	0604622A	Family of Heavy Tactical Vehicles	721
80	0604633A	Air Traffic Control	728
81	0604640A	Advanced Command and Control Vehicle	733
82	0604641A	Tactical Unmanned Ground Vehicle	738
83	0604642A	Light Tactical Wheeled Vehicle	741
84	0604645A	Armored Systems Modernization (ASM) - Engineering Development	746
85	0604649A	Engineer Mobility Equipment Development	758
86	0604710A	Night Vision Systems - Engineering Development	768
87	0604713A	Combat Feeding, Clothing, and Equipment	783
88	0604715A	Non-System Training Devices - Engineering Development	806
89	0604716A	Terrain Information - Engineering Development (TIARA)	824
90	0604739A	Integrated Broadcast Service - Modules	829
91	0604740A	Tactical Surveillance System - Engineering Development	832
92	0604741A	Air Defense Command, Control, Intelligence - Engineering Development	840
93	0604746A	Automatic Test Equipment Development	852
94	0604760A	Distributive Interactive Simulations - Engineering Development	864
95	0604766A	Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)	877
96	0604768A	Brilliant Anti-Armor (BAT) Submunition	886
97	0604770A	Joint Surveillance/Target Attack Radar System	900
98	0604778A	Positioning Systems Development (Space)	910

TABLE OF CONTENTS

BUDGET ACTIVITY / PROGRAM ELEMENT	PE	PROGRAM ELEMENT TITLE	PAGE
#5 - ENGINEERING AND MANUFACTURING DEVELOPMENT - Continued			
99	0604780A	Combined Arms Tactical Trainer (CATT)	917
100	0604801A	Aviation - Engineering Development	922
101	0604802A	Weapons and Munitions - Engineering Development	927
102	0604804A	Logistics & Engineer Equipment - Engineering Development	951
103	0604805A	Command, Control, Communications Systems - Engineering Development	992
104	0604807A	Medical Materiel/Medical Biological Defense Equipment - Engineering Development	1010
105	0604808A	Landmine Warfare/Barrier - Engineering Development	1026
106	0604814A	Sense and Destroy Armor Munition - Engineering Development	1035
107	0604816A	Longbow	1044
108	0604817A	Combat Identification - Engineering & Manufacturing Development	1062
109	0604818A	Army Tactical Command and Control Hardware & Software	1071
110	0604820A	Radar Development	1079
111	0604823A	Firefinder	1086
#6 - MANAGEMENT SUPPORT			
112	0604256A	Threat Simulator Development	1089
113	0604258A	Target Systems Development	1092
114	0604759A	Major Test and Evaluation Investment	1097
115	0605103A	Rand Arroyo Center	1107
116	0605301A	Army Kwajalein Atoll	1111
117	0605601A	Army Test Ranges and Facilities	1117

TABLE OF CONTENTS

BUDGET ACTIVITY
PROGRAM ELEMENT

	PE	PROGRAM ELEMENT TITLE	PAGE
#6 - MANAGEMENT SUPPORT - Continued			
118	0605602A	Army Test Technology and Sustaining Instrumentation	1135
119	0605604A	Survivability/Lethality Analysis	1144
120	0605605A	DOD High Energy Laser System Test Facility (HELSTF)	1171
121	0605606A	Aircraft Certification	1173
122	0605702A	Meteorological Support to Research, Development, Testing & Evaluation Activities	1175
123	0605706A	Materiel Systems Analysis	1181
124	0605709A	Exploitation of Foreign Items	1186
125	0605712A	Support of Operational Testing	1191
126	0605801A	Programwide Activities	1205
127	0605802A	International Cooperative Research and Development	1212
128	0605803A	Technical Information Activities	1214
129	0605805A	Munitions Standardization Effectiveness and Safety	1231
130	0605853A	Environmental Conservation	1242
131	0605854A	Pollution Prevention	1248
132	0605856A	Environmental Compliance - Research, Development, Testing & Evaluation	1255
133	0605876A	Minor Construction - Research, Development, Testing & Evaluation	1263
134	0605878A	Maintenance and Repair - Research, Development, Testing & Evaluation	1270
135	0605879A	Operation of Utilities & Other Engineering	1277
136	0605896A	Base Operations - Research, Development, Testing & Evaluation	1281
137	0605898A	Management Headquarters (Research and Development)	1288

TABLE OF CONTENTS

BUDGET ACTIVITY
PROGRAM ELEMENT

	PE	PROGRAM ELEMENT TITLE	PAGE
#7 - OPERATIONAL SYSTEM DEVELOPMENT			
138	0102419A	Aerostat Joint Program Office	1293
139	0203726A	Advanced Field Artillery Tactical Data System	1296
140	0203735A	Combat Vehicle Improvement Programs	1305
141	0203740A	Maneuver Control System	1333
142	0203744A	Aircraft Modifications/Product Improvement Program	1347
143	0203752A	Aircraft Engine Component Improvement Program	1359
144	0203758A	Digitization	1364
145	0203801A	Missile/Air Defense Product Improvement Program	1368
146	0203802A	Other Missile Product Improvement Programs	1382
147	0208010A	Joint Tactical Communications Program (TRI-TAC)	1403
148	0208053A	Joint Tactical Ground System (TIARA)	1407
149	0303140A	Communications Security (COMSEC) Equipment	1410
150	0303142A	Satellite Communications (SATCOM) Ground Environment (SPACE)	1420
151	0303150A	Army Global Command and Control System (AGCCS)	1449
152	0305128A	Security and Intelligence Activities	1453
153	0603778A	Multiple Launch Rocket System Product Improvement Program	1456
154	0708045A	Army Industrial Preparedness Manufacturing Technology	1471

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Advanced Command and Control Vehicle	0604640A	733
Advanced Field Artillery Tactical Data System	0203726A	1296
Advanced Tactical Computer Science and Sensor Technology	0603772A	449
Advanced Tank Armament System	0603653A	497
Aerostat Joint Program Office	0102419A	1293
Air Defense Command, Control, Intelligence - Engineering Development	0604741A	840
Air Defense/Precision Strike Technology	0603238A	388
Air Traffic Control	0604633A	728
Aircraft Avionics	0604201A	648
Aircraft Certification	0605606A	1173
Aircraft Engine Component Improvement Program	0203752A	1359
Aircraft Modifications/Product Improvement Program	0203744A	1347
All Source Analysis System (TIARA)	0604321A	692
Armed, Deployable OH-58D	0604220A	654
Armored Systems Modernization (ASM) - Engineering Development	0604645A	746
Armored Systems Modernization - Advanced Development	0603645A	474
Army Artificial Intelligence Technology	0602789A	288
Army Data Distribution System	0603713A	502
Army Global Command and Control System (AGCCS)	0303150A	1449
Army Industrial Preparedness Manufacturing Technology	0708045A	1471
Army Industrial Preparedness Manufacturing Technology	0603771A	445
Army Kwajalein Atoll	0605301A	1111
Army Missile Defense Systems Integration	0603308A	457
Army Tactical Command and Control Hardware & Software	0604818A	1071
Army Test Ranges and Facilities	0605601A	1117

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Army Test Technology and Sustaining Instrumentation	0605602A	1135
Artillery Propellant Development	0603640A	469
Artillery Systems Demonstration and Validation	0603854A	640
Automatic Test Equipment Development	0604746A	852
Aviation - Advanced Development	0603801A	555
Aviation - Engineering Development	0604801A	922
Aviation Advanced Technology	0603003A	332
Aviation Technology	0602211A	121
Ballistics Technology	0602618A	160
Base Operations - Research, Development, Testing & Evaluation	0605896A	1281
Brilliant Anti-Armor (BAT) Submunition	0604768A	886
Chemical, Smoke and Equipment Defeating Technology	0602622A	168
Chemical/Biological Defense and Smoke Advanced Technology Development	0603759A	444
Comanche	0604223A	657
Combat Feeding, Clothing, and Equipment	0604713A	783
Combat Identification - Engineering & Manufacturing Development	0604817A	1062
Combat Service Support Control System Evaluation and Analysis	0603805A	611
Combat Vehicle and Automotive Advanced Technology	0603005A	357
Combat Vehicle and Automotive Technology	0602601A	146
Combat Vehicle Improvement Programs	0203735A	1305
Combined Arms Tactical Trainer (CATT)	0604780A	917
Command, Control and Communication Advanced Technology	0603006A	369
Command, Control, Communications Systems - Engineering Development	0604805A	992
Command, Control, Communications Technology	0602782A	223
Communications Security (COMSEC) Equipment	0303140A	1410

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Computer and Software Technology	0602783A	229
Countermine Systems Exploratory Development	0602712A	195
Defense Research Sciences	0601102A	12
Digitization	0203758A	1364
Distributive Interactive Simulations - Advanced Development	0603760A	537
Distributive Interactive Simulations - Engineering Development	0604760A	864
DOD High Energy Laser System Test Facility (HELSTF)	0605605A	1171
Electronic Warfare (EW) Technology	0603270A	394
Electronic Warfare (EW) Technology	0602270A	129
Electronic Warfare (EW) Development	0604270A	667
Electronics and Electronic Devices	0602705A	186
Engineer Mobility Equipment Development	0604649A	758
Engineering Modification Equipment - Advanced Development	0603649A	492
Environmental Compliance - Research, Development, Testing & Evaluation	0605856A	1255
Environmental Conservation	0605853A	1242
Environmental Quality Technology	0602720A	204
Exploitation of Foreign Items	0605709A	1186
Family of Heavy Tactical Vehicles	0604622A	721
Firefinder	0604823A	1086
Follow-On To TOW	0604325A	701
Human Factors Engineering Technology	0602716A	198
In-House Laboratory Independent Research	0601101A	1
Integrated Broadcast Service - Modules	0604739A	829
International Cooperative Research and Development	0605802A	1212
Javelin	0604611A	713

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Joint Service Small Arms Program	0603607A	425
Joint Service Small Arms Program	0602623A	173
Joint Surveillance/Target Attack Radar System	0604770A	900
Joint Tactical Communications Program (TRI-TAC)	0208010A	1403
Joint Tactical Ground System (TIARA)	0208053A	1407
Landmine Warfare	0604619A	717
Landmine Warfare and Barrier - Advanced Development	0603619A	460
Landmine Warfare and Barrier Advanced Technology	0603606A	420
Landmine Warfare/Barrier - Engineering Development	0604808A	1026
Light Tactical Wheeled Vehicle	0604642A	741
Line-of-Sight Technology Demonstration	0603654A	428
Logistics & Engineer Equipment - Engineering Development	0604804A	951
Logistics Advanced Technology	0603001A	290
Logistics and Engineering Equipment - Advanced Development	0603804A	576
Logistics Technology	0602786A	253
Longbow	0604816A	1044
Maintenance and Repair - Research, Development, Testing & Evaluation	0605878A	1270
Major Test and Evaluation Investment	0604759A	1097
Management Headquarters (Research and Development)	0605898A	1288
Maneuver Control System	0203740A	1333
Manpower, Personnel and Training Advanced Technology	0603007A	381
Manpower/Personnel/Training Technology	0602785A	248
Materials Technology	0602105A	106
Materiel Systems Analysis	0605706A	1181
Medical Advanced Technology	0603002A	310

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Medical Materiel/Medical Biological Defense Equipment - Engineering Development	0604807A	1010
Medical Systems - Advanced Development	0603807A	623
Medical Technology	0602787A	268
Medium Tactical Vehicles	0604604A	704
Meteorological Support to Research, Development, Testing & Evaluation Activities	0605702A	1175
Military Engineering Advanced Technology	0603734A	437
Military Engineering Technology	0602784A	234
Military Human Immunodeficiency Virus (HIV) Research	0603105A	386
Minor Construction - Research, Development, Testing & Evaluation	0605876A	1263
Missile and Rocket Advanced Technology	0603313A	399
Missile Technology	0602303A	136
Missile/Air Defense Product Improvement Program	0203801A	1368
Modeling and Simulation Technology	0602308A	140
Multiple Launch Rocket System Product Improvement Program	0603778A	1456
Munitions Standardization Effectiveness and Safety	0605805A	1231
NATO Research and Development	0603790A	549
Night Vision Advanced Technology	0603710A	430
Night Vision Systems - Advanced Development	0603774A	545
Night Vision Systems - Engineering Development	0604710A	768
Night Vision Technology	0602709A	192
Non-System Training Devices - Engineering Development	0604715A	806
Operation of Utilities & Other Engineering	0605879A	1277
Other Missile Product Improvement Programs	0203802A	1382
Pollution Prevention	0605854A	1248
Positioning Systems Development (Space)	0604778A	910

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Programwide Activities	0605801A	1205
Radar Development	0604820A	1079
Rand Arroyo Center	0605103A	1107
Satellite Communications (SATCOM) Ground Environment (SPACE)	0303142A	1420
SCAMP BLK II (Space)	0603856A	645
Security and Intelligence Activities	0305128A	1453
Sense and Destroy Armor Munition - Engineering Development	0604814A	1035
Sensors and Electronic Survivability	0602120A	111
Smoke, Obscurant and Target Defeating System - Advanced Development	0603627A	465
Smoke, Obscurant and Target Defeating System - Engineering Development	0604609A	709
Soldier Support and Survivability	0603747A	519
Support of Operational Testing	0605712A	1191
Survivability/Lethality Analysis	0605604A	1144
Tactical Electronic Support Systems - Advanced Development (TIARA)	0603745A	515
Tactical Exploitation of National Capabilities (TENCAP) - Demonstration/Validation (TIARA)	0603766A	540
Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)	0604766A	877
Tactical Surveillance System - Advanced Development (TIARA)	0603730A	511
Tactical Surveillance System - Engineering Development	0604740A	832
Tactical Unmanned Ground Vehicle	0604641A	738
Target Systems Development	0604258A	1092
Technical Information Activities	0605803A	1214
Terrain Information - Engineering Development (TIARA)	0604716A	824
Threat Simulator Development	0604256A	1089
Tri-Service Standoff Attack Missile (TSSAM)	0604315A	690
University and Industry Research Centers	0601104A	86

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Weapons and Munitions - Advanced Development	0603802A	569
Weapons and Munitions - Engineering Development	0604802A	927
Weapons and Munitions Advanced Technology	0603004A	348
Weapons and Munitions Technology	0602624A	175

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0604256A Threat Simulator Development

PROJECT: D976

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D976 Army Threat Simulator Program	19437	14005	11627	14040	13976	16345	16625		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 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 1995 Accomplishments:

•	4197	Air Defense Systems - Continued development of XM15A/S system
•	663	Air Defense Systems - Completed hardware development of second limited XM43A/S anti-aircraft artillery (AAA) gun system
•	1946	Advanced/Electronic Combat System - Initiated/completed a software simulation development of a low energy laser XMDEWS
•	1669	Advanced/Electronic Combat System - Initiated development of XM330ES ground based jammer
•	805	Aviation Systems - Completed development of XMHKS helicopter jammer
•	700	Battle Management Network - Completed development, validation, and fielding of XMTAS Command, Control, and Communications (C3) System
•	1200	Battle Management Network - Initiated development of regimental elements of XMC3S
•	4109	Mission Support - Personnel costs and overhead
•	1523	Mission Support - Operations and planning
•	2625	Mission Support - Program Technical Support (Engineering, accreditation, configuration management, and logistic support)
Total	19437	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0604256A Threat Simulator Development
	PROJECT D976

FY 1996 Planned Program:

•	2620	Air Defense Systems - Continue development of XM15A/S system
•	1000	Advanced/Electronic Combat Systems - Conduct proof-of-principal testing of eye safe lasers to simulate threat laser weapon XMDEWS
•	1364	Advanced/Electronic Combat Systems - Continue development of XM330ES
•	200	Aviation Systems - Initiate/complete concept plan for Global Positioning System (GPS) Advanced Airborne jammer
•	2480	Battle Management Network - Continue development of regimental elements of XMC3S
•	3216	Mission Support - Personnel Costs and Overhead
•	646	Mission Support - Operations and Planning
•	2120	Mission Support - Program technical support (engineering, accreditation, configuration management, and logistic support)
•	259	Small Business Innovative Research/Science and Technology Transfer (SBIR/STTR)
•	100	Revised Economic Assumption not available for execution.
Total	14005	

FY 1997 Planned Program:

•	3000	Air Defense Systems - Continue development of XM15A/S system
•	500	Advanced/Electronic Combat Systems - Complete development of the XM330ES
•	500	Advanced/Electronic Combat Systems - Initiate hardware simulator development of a low energy laser XMDEWS
•	1514	Battle Management Network - Complete development of regimental elements of XMC3S
•	3200	Mission Support - Personnel costs and Overhead
•	646	Mission Support - Operations and Planning
•	2267	Mission Support - Program Technical support (engineering, accreditation, configuration management, and logistic support)
Total	11627	

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); Non-Line-of-Site (NLOS); 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.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0604256A Threat Simulator Development PROJECT D976

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	19866	14397	12870
Appropriated Amount (FY 1995)	19449		
Adjustments to FY 1995	-12		
Appropriated Amount (FY 1996)		14146	
Adjustments to FY 1996		-141	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-1243
Current President's Budget Submit	19437	14005	11627

Program Change Explanation: Funding: FY 97 reflects funds moved to higher priority program (-1000) and Revised Economic Assumption (-243)

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0604258A Target Systems Development

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	13679	13900	10129	11692	15346	15078	16466		Continuing	Continuing
D238 Aerial Targets	8353	8478	6706	6626	6533	6637	7287		Continuing	Continuing
D459 Ground Targets	5326	5422	3423	5066	8813	8441	9179		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. 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 March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0604258A Target Systems Development
	PROJECT D238

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D238 Aerial Targets	8353	8478	6706	6626	6533	6637	7287		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 customer. The U.S. 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 1995 Accomplishments:

•	3300	Continued development of HOKUM-X Rotary Wing Target.
•	3200	Continued development and testing of Universal Drone Control System (UDCS) for UH-1 and AH-1 airframes
•	403	Continued development, enhancement, maintenance, and storage for all Research Development Test & Evaluation (RDT&E) aerial targets, towed targets and ancillary devices.
•	300	Continued participation in Air Force led joint development of Full Scale Fixed Wing Target (QF-4); participated in the Tri-service vector scoring development program; and continued to participate in and provide funding for Reliance.
•	350	Continued development of Target, Tracking, and Control System (TTCS) mapping via video monitors to replace current plotting boards.
•	800	Continued enhancements to the MQM-107.
Total	8353	

FY 1996 Planned Program:

•	3564	Continue development of HOKUM-X Rotary Wing Target.
•	517	Continue development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets and ancillary devices.
•	709	Complete participation in Air Force led joint development of Full Scale Fixed Wing Target (QF-4); participate in the Tri-service vector scoring development program; and continue to participate in and provide funding for Reliance.
•	800	Continue enhancement of the Target Tracking and Control System (TTCS).
•	1100	Complete UDCS Program.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0604258A Target Systems Development
	PROJECT D238

FY 1996 Planned Program: (continued)

•	1059	Continue enhancement of the MQM-107 Target System.
•	483	Perform conceptual studies for future rotary wing and fixed wing targets.
•	186	Small Business Innovative research/Science and Technology Transfer (SBIR/STTR)
•	60	Revised Economic Assumption not available for execution.
Total	8478	

FY 1997 Planned Program:

•	3575	Continue development of HOKUM-X Rotary Wing Target.
•	1150	Continue enhancement of the MQM-107 Target System.
•	1531	Continue development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets and ancillary devices.
•	450	Continue enhancement of the Target Tracking and Control System (TTCS)
Total	6706	

AERIAL TARGETS Test Programs Supported: Forward Area Air Defense (FAAD) Missile (Stinger), Patriot, Corps Surface to Air Missile (SAM), 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

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	8489	8717	6881
Appropriated Amount (FY 1995)	8354		
Adjustments to FY 1995	-1		
Appropriated Amount (FY 1996)		8564	
Adjustments to FY 1996		-86	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-175
Current President's Budget Submit	8353	8478	6706

Program Change Explanation: Funding: FY97 reflects funds adjusted for Revised Economic Assumption (-175)

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0604258A Target Systems Development

PROJECT: D459

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D459 Ground Targets	5326	5422	3423	5066	8813	8441	9179		Continuing	Continuing

A. Mission Description and Justification: **Project D459 - Ground Targets:** This program funds Army efforts to support test and evaluation of advanced weapon systems by developing surrogate and acquiring actual foreign vehicle targets, 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 assets; 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 1995 Accomplishments:

- 1551 Managed and oversaw Primary Operating Centers operation, storage, maintenance, configuration management and repair of Ground Targets Assets.
- 250 Acquired new foreign materiel assets, remote controls, and managed all ground target foreign asset surrogates.
- 693 Acquired spare parts to support the Ground Targets fleet.
- 150 Continued validation, accreditation, and certification of ground targets.
- 1382 Continued development of BMP3-S armored infantry vehicle.
- 150 Continued to develop safety plans to meet Department of Defense (DoD) acquisition requirements and federal safety standards.
- 430 Developed ground target subsystem signature enhancements, such as, Infrared (IR), Millimeter Wave (MMW), Radio Frequency (RF), etc.
- 420 Performed feasibility studies on utilization of Distributed Interactive Simulation (DIS) virtual computer models.
- 300 Initiated concept exploration of a new ground target surrogate.

Total 5326

FY 1996 Planned Program:

- 1981 Manage and oversee Primary Operating Centers operation, storage, maintenance, configuration management and repair of Ground Target Assets including acquisition of new material and spare parts.
- 243 Continue validation, accreditation, certification, and configuration controls/studies of ground targets and develop safety and environmental plans.
- 1074 Continue development and prototype of BMP3-S surrogate armored infantry vehicle.
- 1027 Initiate development of virtual ground targets to support test and evaluation. These computer models are compatible with the Distributed Interactive Simulation (DIS).
- 941 Initiate development of a new ground target surrogate (T80U-S).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0604258A Target Systems Development / PROJECT: D459

FY 1996 Planned Program: (continued)

•	118	Small Business Innovative Research/Science and Technology Transfer (SBIR/STTR)
•	38	Revised Economic Assumption not available for execution.
Total	5422	

FY 1997 Planned Program:

•	1631	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.
•	90	Continue validation, accreditation, and certification and configuration controls/studies of ground targets and develop safety and environmental plans.
•	454	Continue development of virtual ground targets to support test and evaluation. These computer models are compatible with the Distributed Interactive Simulation (DIS).
•	924	Continue development and prototype of a new ground target surrogate (T80U-S).
•	324	Complete the prototype of BMP3-S armored infantry vehicle.
Total	3423	

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

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	5440	5575	4512
Appropriated Amount (FY 1995)	5326		
Adjustments to FY 1995	0		
Appropriated Amount (FY 1996)		5477	
Adjustments to FY 1996		-55	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-1089
Current President's Budget Submit	5326	5422	3423

Program Change Explanation: Funding: FY 97 reflects funds moved to higher priority program (-1000) and Revised Economic Assumption (-89)

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	48797	65049	41725	40586	33434	35449	37845		Continuing	Continuing
DC55 Distributed Dev Simulation Tech*	2758	2698	0	0	0	0	0		Continuing	Continuing
D983 Major Test & Evaluation - USAKA	2037	2421	2423	2412	2401	2514	2618		Continuing	Continuing
D984 Major Technical Test Instrumentation	24041	36897	32197	34685	28495	28173	29388		Continuing	Continuing
D986 Major User Test Instrumentation	19961	23033	7105	3489	2538	4762	5839		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 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. Program also funds development and acquisition of major field instrumentation for U. S. Army Operational Test and Evaluation Command (OPTEC) test organizations. "Major instrumentation is defined as exceeding $2 million per year or $10 million acquisition cost in Research, Development, Test and Evaluation (RDT&E) funding". 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: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: DC55

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
DC55 Distributed Dev Simulation Tech*	2758	2698	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 1995 Accomplishments:

•	2758	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
Total	2758	

FY 1996 Planned Program:

•	2619	Continue 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
•	60	Small Business Innovative Research/Science and Technology Transfer (SBIR/STTR)
•	19	Revised Economic Assumption not available for execution.
Total	2698	

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

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0604759A Major Test and Evaluation Investment PROJECT DC55

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	2820	2773	2726
Appropriated Amount (FY 1995)	2761		
Adjustments to FY 1995	-3		
Appropriated Amount (FY 1996)		2725	
Adjustments to FY 1996		-27	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-2726
Current President's Budget Submit	2758	2698	0

Change Summary Explanation: Realignment of FY97 funding to Program Element 0604760A, project DC74

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: D983

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D983 Major Test & Evaluation - USAKA	2037	2421	2423	2412	2401	2514	2618		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. Major Test and Evaluation (T&E) items are defined as costing $2 million in a single year or items costing $10 million for total acquisition. 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 1995 Accomplishments:

•	2037	Technical Control Facility (TCF) Replacement: The TCF replacement is required due to the age and lack of maintainability of the current equipment . The replacement provides the opportunity to relocate the facility and consolidate the mission voice circuits, data circuits and fiber optic terminal equipment in the same building for 24 hour monitoring
Total	2037	

FY 1996 Planned Program:

•	2350	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
•	54	Small Business Innovative Research/Science and Technology Transfer (SBIR/STTR)
•	17	Revised Economic Assumption not available for execution.
Total	2421	

FY 1997 Planned Program:

•	1934	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
•	489	Complete Global Positioning System Translator Processory System GTP installation and integration.
Total	2423	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0604759A Major Test and Evaluation Investment PROJECT D983

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget	2081	2488	2489
Appropriated Amount (FY 1995)	2037		
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		2445	
Adjustments to FY 1996		-24	
Adjustment to Budget Year (FY 1997) since FY 1996 President's Budget			-66
Current President's Budget Submit	2037	2421	2423

Program Change Explanation: Funding: FY 97 reflects funds adjusted for Revised Economic Assumption (-66)

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: D984

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D984 Major Technical Test Instrumentation	24041	36897	32197	34685	28495	28173	29388		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. This project funds major instrumentation that exceeds $2 million per year or $10 million acquisition cost in RDT&E funding. Funding increases in FY 1996 are due to realignment of major instrumentation funding from PE 0605602A, D453, and three new instrumentation development efforts: Hardened Subminiature Telemetry Sensor System which is a new technology development for testing smart munitions and weapons; Frequency Surveillance System (FSS) which will augment manpower reduction, replace, upgrade, and remote control daily radio frequency surveillance operations, and allow the monitoring of new frequency spectrums used by our modernized weapon systems; and Dynamic Infrared Scene Projector (DIRSP) which will be used in testing new Infrared munitions and missiles by hardware in the loop simulation and virtual testing.

FY 1995 Accomplishments:

•	426	Initiate the instrumentation of the Trench Warfare II (TW) link, high speed networking, and ethernet hub for Fiber Optic Network (FON) at Aberdeen Test Center, MD.
•	6500	Continued acquisition of laser illuminator, instrumentation installation at the Perryman Test Area (PTA) and the Munson Test Area (MTA); initiated development of fiber optics at C-field, completed Barricade B1 range instrumentation and continued development of vehicle on-board data acquisition and sensors for Land Combat Instrumentation (LCI)
•	6924	Conducted Source Selection Evaluation and awarded prime contract for the WSMR Test Support Network (TSN). Initiated work on the Eastern Fiber Optic Backbone. WSMR-TSN is a total range data transmission system which greatly improves test products while decreasing dramatically operational cost
•	7448	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
•	2743	Provided in-house support (engineering analysis, concept formulation, salaries, travel, etc.) to on going projects and continued analysis of future instrumentation requirements
Total	24041	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0604759A Major Test and Evaluation Investment
	PROJECT D984

FY 1996 Planned Program:

•	3362	Continue the instrumentation of the TW II Link, high speed networking, and ethernet hub. Initiate securing the FON for classified data transmission.
•	3950	Complete instrumentation of MTA, acquisition of laser illuminator, development of fiber optics at C-field, Barricades B2 and B3 range instrumentation and continue development of vehicle on-board data acquisition , continue installation of PTA instrumentation and sensors for LCI.
•	13475	Complete Phase I of the Eastern Fiber Optic Backbone (3 segments) and complete installation of Network Management System. WSMR-TSN is a 3 phase 8 year developmental project with Initial Operating Capability (IOC) in FY 1997 and Full Operating Capability (FOC) in FY 2003.
•	500	Initiate Frequency Surveillance System (FSS) modernization project, automating five sites capable of monitoring frequencies from 2 Mhz to 100 Ghz at WSMR.
•	7337	Continue WSMR execution of the Army's portion of the GPS full rate production contract, acquiring and fielding hardware and software at all Army test organizations.
•	210	Continue from FY 1995 (PE 0605602A, D453) 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 Grounds (EPG).
•	1900	Initiate 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 Grounds (YPG) and other Army locations. HSTSS is a five year Army project with FOC in FY 2001. Office of the Secretary of Defense (OSD) funded FY 93-95 as a Test Technology Development Program under the Centralized T&E Investment Program (CTEIP).
•	2000	Initiate a Dynamic Infrared Scene Projector (DIRSP) project to 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). DIRSP is a four year project with Initial Operational Capability (IOC) in FY 1999
•	1937	Provide in-house support, concept formulation (New Initiatives) and engineering analysis to future instrumentation requirements.
•	1166	Provide program management support
•	801	Small Business Innovative Research/Science and Technology Transfer (SBIR/STTR)
•	259	Revised Economic Assumption not available for execution.
Total	36897	

FY 1997 Planned Program:

•	1408	Complete the instrumentation of the TW II Link, high speed networking, and ethernet hub. Continue securing the FON for classified data transmission at ATC.
•	4000	Complete installation of PTA instrumentation, acquisition of second laser illuminator, complete Barricade C/Hi Velocity range instrumentation, and complete development of vehicle on-board data acquisition and sensors for LCI at ATC.
•	11621	Complete Phase I of WSMR TSN contract support and exercise option on Phase II to install Feeder cable on Eastern Backbone.
•	2360	Award contract for FSS modernization project at WSMR.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0604759A Major Test and Evaluation Investment / PROJECT: D984

FY 1997 Planned Program: (continued)

•	2427	Conclude the Army's portion of the GPS production contract for all Army test organizations.
•	207	Conclude capability for system level ATCCS EPLRS, and SINCGARS technical test at EPG.
•	2067	Award the engineering development contract for HSTSS at YPG.
•	4700	Continue implementation of the DIRSP project at RTTC.
•	2302	Provide in-house support, concept formulation and engineering analysis to future instrumentation requirements.
•	1105	Provide program management support
Total	32197	

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	24558	37933	33830
Appropriated Amount (FY 1995)	24042		
Adjustments to FY 1995	-1		
Appropriated Amount (FY 1996)		37270	
Adjustments to FY 1996		373	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-1633
Current President's Budget Submit	24041	36897	32197

Program Change Explanation: Funding: FY 97 reflects funds moved to higher priority program (-800) and Revised Economic Assumption (-833)

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: D986

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D986 Major User Test Instrumentation	19961	23033	7105	3489	2538	4762	5839		Continuing	Continuing

A. <u>Mission Description and Budget Item Justification:</u> **Project D986 - Major User Test Instrumentation:** This project finances the development of major field instrumentation for Operational Testing (OT) and Force Development Testing and Experimentation (FDTE). The Mobile Automated Instrumentation Suite (MAIS) will provide users the capability to measure the performance of hardware and personnel under realistic tactical conditions for large scale operations (up to 1830 players). The MAIS will instrument combat systems in the operational forces to provide Real Time Casualty Assessment (RTCA) and Time, Space, and Positioning Information (TSPI) data. MAIS will provide protocol data unit (PDU) transformation to link with Distributed Interactive Simulation (DIS). This data will provide objective assessment for new materiel acquisition, force structuring, doctrine and tactics modification, and, through the Advanced Research Projects Agency (ARPA) PDU format, part of the DIS, provide data to validate the future DoD warfighting models and simulations. The MAIS, a non-major system acquisition, achieved Milestone I/II in FY 90. Current program (one control center and 131 player units) reaches Initial Operational Capability (IOC) in FY 1997. One additional control center and 469 player units are programmed in Other Procurement, Army appropriation. The Mobile Integrated Non-Intrusive Command, Control and Communications Instrumentation (MINI-C3I) is the lead instrumentation for the Army's digitization effort. 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.

FY 1995 Accomplishments:

Mobile Automated Instrumentation Suite (MAIS):

- 7319 Conducted hardware/software integration and subsystem level test; conducted initial player unit/command control and communication (C3) center integration and test.
- 5500 Conducted simulations/analysis to verify Time Division Multiple Access (TDMA) network; met network data latency requirements; completed formal operational verification tests to validate that the Encryption card and Player Units met National Security Agency (NSA) security requirements.
- 3600 Conducted Engineering Validation Tests (EVT) to demonstrate system functionality of C3 center Player Units, and data communications network; completed player unit brassboard integration and tests.
- 200 Released player unit drawings to commence assembly of initial system player units.
- 3342 Completed C3 Center assembly and quality assurance inspections; initiated procurement for software development support facility and logistics shelters, shelter racks and equipment.

Total 19961

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0604759A Major Test and Evaluation Investment
	PROJECT D986

FY 1996 Planned Program:

•	9573	Assemble player units
•	900	Complete logistics shelter assembly and install equipment
•	5726	Complete system integration and test
•	1600	Conduct player unit qualification test
•	4572	Conduct system developmental test
•	500	Small Business Innovative Research/Science and Technology Transfer (SBIR/STTR)
•	162	Revised Economic Assumption not available for execution.
Total	23033	

FY 1997 Planned Program:

		Mobile Automated Instrumentation Suite (MAIS):
•	3403	Support system operational test
•	1502	Initiate product refurbishment
		MINI C3I
•	2000	Design a miniature Field Data Collector (FDC) to support Army Force XXI design decisions and operational test and experiments.
•	200	Instrument two additional mobile command and control vehicles with necessary instrumentation and hardware to collect digital, video and audio data to support the Command Post Exercise portion of Division XXI constructive experiment.
Total	7105	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	20394	23680	5077
Appropriated Amount (FY 1995)	19966		
Adjustments to FY 1995	-5		
Appropriated Amount (FY 1996)		23266	
Adjustments to FY 1996		-233	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			+2028
Current President's Budget Submit	19961	23033	7105

Change Summary Explanation: Funding: FY 1997 increase support MINI-C3I acquisition (+2200) and Revised Economic Assumption (-172).

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605103A Rand Arroyo Center

PROJECT: D732

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D732 Arroyo Center Support	15505	18356	21763	22138	22503	22923	23232		Continuing	Continuing

A. **Mission Description and Budget Item Justification:** This is a level-of-effort program based on a stable level of 104 Member of Technical Staff (MTS) per year. To maintain this level of effort, the Army has been forced to supplement programmed funds with OMA funds -- not only in FY 1995 but also in FY 1994. For FY 1996, the Army will have to use supplemental funding once again to keep the stable level of effort at 104MTS. 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 Federally Funded Research and Development Center (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 are located at the corporate headquarters in Santa Monica, California; the remainder are 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 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 work 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.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605103A Rand Arroyo Center
	PROJECT D732

FY 1995 Accomplishments:

•	2020	Research addressing the nature of power in the future included examining the prospective relationship between emerging regional "great powers" and the West; exploring ways in which current U.S. Army strengths might be used to shape regional peacetime environments to prevent future conflicts; identifying East Asian nations most likely to make substantial advances in their qualitative military capability during the next ten years and drawing the resulting implications for the Army; and, by focusing on the role of nuclear weapons in Indian and Pakistani grand strategies, indicating what kinds of weapons may be developed, what kinds of nuclear deterrence doctrines and employment strategies may be utilized, what kinds of circumstances could result in nuclear use, and what these findings imply for U.S. strategic and military policy.
•	4236	Research addressing what Army forces should be and how they should operate included analyzing how broader range missions—spanning the spectrum from major regional contingencies to operations other than war—might be met by alternative Active-Reserve Component structures; evaluating the ongoing Bold Shift reserve training program and assisting in related efforts to develop new structures to support future Reserve Component training; examining the available mix of analytic tools and developing a framework for understanding how they fit into the Force XXI design process; assessing how the Army develops doctrine and force structure for its RSOI requirements in force-projection operations; and determining how to maximize interagency coordination and cooperation in the conduct of operations other than war outside the continental United States.
•	1512	Research addressing new systems and technologies the Army should acquire included assisting the Army in devising a technology development investment strategy that is consistent with the new demands and constraints it now faces; examining system technologies that can significantly enhance the force-projection capabilities of early-entry forces against current and future threats; developing approaches to experimental design for the most common analytic uses of Distributed Interactive Simulation (DIS); and clarifying the link between organizational incentives and the implementation of ongoing efforts to streamline the Army procurement process and to encourage innovation and risk-taking on the part of acquisition managers.
•	2153	Research addressing how the Army should be manned included exploring areas related to future recruiting success; analyzing methods to attract high-quality personnel into the Active Component while encouraging them to join the Reserve Component after their active term; assessing historical and current data on ROTC participants and estimating potential effects of program changes on the characteristics of future ROTC cohorts; and determining th extent and sources of current personnel turbulence and recommending policies to minimize the resulting readiness impediments.
•	5584	Research addressing how the Army should accomplish support functions included investigating strategies to reduce FORSCOM operating costs without risk to the installation's core mission; examining potential new structures for the total Army school system; providing Army decision makers with a logical framework for defining and defending policies about the contents, structure, and management of the sustainment support base; proposing a new concept for Army logistics—Velocity Management—aimed at dramatically improving the flow of materials through the logistics system; determining ways to make the Army logistics information more reliable and timely; redesigning in-theater distribution to improve the distribution pipeline's performance; and assisting the Army in identifying cost-effective methods for setting peacetime-operating and war-reserve stockage levels to achieve specified weapon system availability goals.
Total	15505	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605103A Rand Arroyo Center
	PROJECT D732

FY 1996 Planned Program:

- 1055 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.
- 1200 Research addressing strategy, military planning, and regional security, including, to develop 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.
- 3590 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.
- 5474 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.
- 1344 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.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE
	March 1996

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
6 - Management Support	0605103A Rand Arroyo Center	D732

FY 1996 Planned Program: (continued)

•	5155	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.
•	410	Small Business Innovative Research/Science and Technology Transfer (SBIR/STTR)
•	128	Revised Economic Assumption not available for execution.
Total	18356	

FY 1997 Planned Program:

•	1364	Research on the geopolitical environment and its effect on the Army.
•	1534	Research on strategy, military planning, and regional security.
•	4357	Research on restructuring initiatives designed to make the Army more efficient.
•	6580	Research on force composition, size, and operational concepts.
•	1705	Research on alternative technology applications and technical strategies.
•	6223	Research on logistics, sustainment, and redesign initiatives.
Total	21763	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 96)	15838	21872	22355
Appropriated Amount (FY 1995)	15838		
Adjustments to FY 1995	-333		
Appropriated Amount (FY 1996)		18542	
Adjustments to FY 1996		-186	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-592
Current President's Budget Submit	15505	18356	21763

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605301A Army Kwajalein Atoll

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	157420	144439	136864	125739	120830	118886	118107		Continuing	Continuing
D614 US Army Kwajalein Atoll	153115	144439	136864	125739	120830	118886	118107		Continuing	Continuing
MAC2 Host Nation Compliance	4305	0	0	0	0	0	0		0	4305

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 metric video 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. In accordance with OSD guidance, Host Nation Compliance resources (Project MAC2) have been realigned to the newly established/restructured RDTE,A Environmental Compliance program elements. 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.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605301A Army Kwajalein Atoll

PROJECT: D614

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D614 US Army Kwajalein Atoll	153115	144439	136864	125739	120830	118886	118107		Continuing	Continuing

A. Mission Description and Justification: **Project D614 - US Army Kwajalein Atoll**: 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 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), Midcourse Space Experiment (MSX), and Theater Missile Defense (TMD) requirements; 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.

FY 1995 Accomplishments:

- 10282 Management support (salaries, training, travel, Space and Strategic Defense Command (SSDC) matrix support, etc.
- 11266 Accomplished maintenance and repair projects (Repair roofs, unaccompanied personnel housing).
- 11200 Procured petroleum, oil and lubricants (POL).
- 8964 Procured other mission operating supplies.
- 7538 Provided air and sea transportation (cargo to and from continental United States).
- 3827 Continued improvement and modernization of non-major and sustaining range instrumentation and facilities.
- 43860 Continued to support Army, BMDO, NASA, and Air Force developmental and operational missile testing. Completed integration of range technical support contract efforts.
- 54969 Provided logistical support to self contained islands of USAKA.
- 383 Continued physical security support and upgrades to existing USAKA facilities.
- 826 Procured Commercial Equipment and Non-Tactical Vehicles.

Total 153115

FY 1996 Planned Program:

- 7847 Management support (salaries, training, travel, SSDC matrix support, etc.).
- 9937 Accomplish maintenance and repair projects (runway repairs, unaccompanied personnel housing).
- 10822 Procure POL.
- 11762 Procure other mission operating supplies.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605301A Army Kwajalein Atoll
	PROJECT D614

FY 1996 Planned Program: (continued)

•	6537	Provide air and sea transportation (cargo to and from continental United States).
•	3049	Continue improvement and modernization of non-major and sustaining range instrumentation and facilities.
•	47038	Continue to support Army, BMDO, NASA, and Air Force developmental and operational missile testing. Continue integration of range technical support contract effort. Develop Alternate Launch Site to support Tactical Missile Defense (TMD).
•	42789	Provide logistical support to self contained islands of USAKA.
•	541	Continue physical security support and upgrades to existing USAKA facilities.
•	3100	SBIR/STTR.
•	1017	Revised Economic Assumption not available for execution.
Total	144439	

FY 1997 Planned Program:

•	8486	Management support (salaries, training, travel, SSDC matrix support, etc.).
•	6843	Accomplish maintenance and repair projects (runway repairs. unaccompanied personnel housing).
•	10402	Procure POL.
•	14918	Procure other mission operating supplies.
•	6844	Provide air and sea transportation (cargo to and from continental United States).
•	274	Continue improvement and modernization of non-major and sustaining range instrumentation and facilities.
•	44207	Continue to support Army, BMDO, NASA, and Air Force developmental and operational missile testing. Continue integration of range technical support contract effort.
•	44343	Provide logistical support to self contained islands of USAKA.
•	547	Continue physical security support and upgrades to existing USAKA facilities.
Total	136864	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	157140	149769	143798
Appropriated Amount (FY 1995)	153971		
Adjustment to FY 1995	-856		
Appropriated Amount (FY 1996)		145897	
Adjustment to FY 1996		-1458	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-6934
Current President's Budget Submit	153115	144439	136864

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996	
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605301A Army Kwajalein Atoll	PROJECT D614

Change Summary Explanation:

Funding: FY 1995: Below threshold reprogramming

FY 1996: A portion of this program has been reduced for an amount which reflects revised economic assumptions and/or may be offered for rescission.

FY 1997: (-3425) Realigned to Space Applications Technology Program; (-3509).

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605301A Army Kwajalein Atoll

PROJECT: MAC2

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
MAC2 Host Nation Compliance	4305	0	0	0	0	0	0		0	4305

A. Mission Description and Budget Item Justification: Project MAC2 - Host Nation Compliance - USAKA: Resources for this program are used to fund legally mandated environmental compliance activities including host nation and U.S. environmental laws and regulations. Resources for this program to provide continued funding of environmental compliance issues and disposal of hazardous waste at USAKA have been realigned to PE's 0605853A, 0605854A, and 0605856A for FY 96 through FY 01.

FY 1995 Accomplishments:

•	753	Continued support of Logistic Support Contractor Environmental Compliance Oversight Program.
•	162	Continued shipment of hazardous wastes to off-island disposal.
•	88	Continued testing of materials to determine hazardous characteristics as required by regulation.
•	92	Continued identification, removal, and off-island disposal of asbestos containing materials.
•	238	Operated solid waste incinerators procured under the Productivity Capital Investment Program.
•	719	Continued identification, removal, and off-island disposal of PCB dielectric fluids and equipment.
•	60	Performed periodic testing of wastewater discharge to establish compliance with Clean Water Act requirements.
•	100	Continued potable water testing to ensure protection of public health and Safe Drinking Water Act compliance.
•	60	Continued training of USAKA environmental staff to maintain current knowledge of compliance regulations.
•	1325	Characterize and cleaned up fuel and oil contamination.
•	50	Maintained hazardous materials dispensing and staging area to comply with regulations.
•	75	Continued ozone depleting chemical reduction program.
•	188	Established a program to replace HALON fire suppression systems.
•	75	Continued inventory of existing air emissions and baseline air quality modeling to support air analysis impact.
•	20	Continued compliance monitoring of underground storage tanks.
•	30	Continued to support Republic of Marshall Islands Environmental Protection Agency travel in support of USAKA environmental standards finalization and implementation.
•	270	Completed design for and construction of compliant pesticide control and management facilities.
Total	4305	

FY 1996 Planned Program: Funds realigned to PE's 0605853A, 0605854A, and 0605856A effective FY 96.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605301A Army Kwajalein Atoll
	PROJECT MAC2

FY 1997 Planned Program: Funds realigned to PE's 0605853A, 0605854A, and 0605856A effective FY 96.

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	5034	0	0
Appropriated Amount (FY 1995)	4928		
Adjustment to FY 1995	-623		
Appropriated Amount (FY 1996)			
Adjustment to FY 1996			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	4305	0	0

Program Change Explanation: Funding: FY 1995: Below Threshold Reprogramming

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	153336	143347	133012	122793	125317	118490	120873		Continuing	Continuing
DE90 Yuma Proving Ground	24578	22185	17418	15560	17305	15174	15911		Continuing	Continuing
DE91 Aberdeen Test Center	37152	36378	35172	34161	34790	33041	33276		Continuing	Continuing
DE92 Dugway Proving Ground	12112	13302	0	0	0	0	0		Continuing	Continuing
DE93 White Sands Missile Range	60471	51766	61233	57883	57878	54306	55126		Continuing	Continuing
D618 Aviation Technical Test Center	13078	14033	12826	9074	8659	9460	9848		Continuing	Continuing
D630 TECOM Test Design and Evaluation	3892	4623	4785	4937	5094	5249	5409		Continuing	Continuing
D632 Redstone Technical Test Center	2053	1060	1578	1178	1591	1260	1303		Continuing	Continuing

Mission Description and Budget Item Justification: Sustains a technical test capability for testing 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; White Sands Missile Range, NM. This PE also sustains a technical test capability at: Aviation Technical Test Center, Fort Rucker AL; and Redstone Technical Test Center, Redstone Arsenal, AL; and a capability to perform test design and assessment functions. Technical test capabilities at each test range have been uniquely established, are in place to support test and evaluation (T&E) requirements of funded weapons programs, and are required to assure technical performance, adherence to safety requirements, reliability, logistics supportability, and quality of materiel in development and in production. 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. 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, and chemical/biological testing. This initiative is currently supported by the service 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. This PE also includes personnel costs to downsize the workforce commensurate with the T&E workload reductions. Effective with FY 1997, Project DE92 will be transferred to DoD PE 0605384, Chemical and Biological Defense Program. Test range support 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: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: DE90

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
DE90 Yuma Proving Ground	24578	22185	17418	15560	17305	15174	15911		Continuing	Continuing

A. <u>Mission Description and Budget Item Justification</u>: **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. The Army plan to consolidate the portion of aviation testing currently managed by Aviation Technical Test Center (ATTC), Ft. Rucker, Alabama and Edwards AFB, California to YPG was revised by the Secretary of the Army to have the consolidation take place at Fort Rucker, AL but with aerial weapons testing to remain at YPG. A portion of the funding has therefore been realigned from project DE90 to project D618.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605601A Army Test Ranges and Facilities / PROJECT: DE90

FY 1995 Accomplishments:

•	24578	458 tests were conducted. The largest 20 system level programs were: Tires/Wheels for Tactical Trucks & Trailers, Air Force C-17 Transport - Army Interface, M230 Chain Gun, M489 105mm Projectile, CRUSADER Field Artillery System, USMC Light Armored Vehicle, XT166 Tank Track, Advanced Precision Airborne Delivery System, M1A2 ABRAMS Tank Desert Testing, LONGBOW APACHE, M929, 120mm mortar smoke cartridge, T154 Tank Track, TOW 2A & 2B Missile, Extended Cold Weather Clothing System, German SP2000 Howitzer, M1A1 ABRAMS Tank Desert Testing, M284 Cannon Assembly, BRADLEY Fighting Vehicle System Desert Storm Improvements, Battlefield Combat ID System, Wide Area Mine (WAM). Effective with FY 95, the transfer of the Jefferson Proving Ground ammunition acceptance testing mission to Yuma Proving Ground was completed, and YPG also assumed management for all natural environment testing (desert, cold weather, and tropics). 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. Modernization projects accomplished were: renovation of Castle Dome Heliport; Gun Position 15 Improvements; Range Communications Upgrade; Construction 10 Ton crane for instrumentation repair; procurement of M242 Fire Control Equipment; Terrain Elevation Mapping & Validation System; Procurement of high capacity workstations; vibration test facility improvements.
Total	24578	

FY 1996 Planned Program:

•	22014	Some of the largest system level programs to be tested are: Survivable Tire Test, CRUSADER Field Artillery System, USMC Light Armored Vehicle, C17 Aircraft - Army Interface, VOLCANO Mine 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.
•	171	Revised Economic Assumption not available for execution.
Total	22185	

FY 1997 Planned Program:

•	17418	Key test programs will be: COMANCHE; 2nd Generation FLIR; Ground Combat Identification; Air Drop Equipment Advanced Developments; Aircraft Survivability Equipment; CRUSADER Field Artillery System (AFAS); 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	17418	

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: DE90

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	20655	22801	36145
Appropriated Amount (FY 1995)	20604		
Adjustments to FY 1995	+3974		
Appropriated Amount (FY 1996)		22402	
Adjustments to FY 1996		-217	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-18727
Current President's Budget Submit	24578	22185	17418

Change Summary Explanation:

Funding: FY 95 aligns guidance with workload and prioritized TECOM test facility modernization projects. FY97 aligns guidance with workload ($5,901) and with Secretary of Army decision to maintain aviation testing capability at Fort Rucker, Alabama ($12,826).

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: DE91

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
DE91 Aberdeen Test Center	37152	36378	35172	34161	34790	33041	33276		Continuing	Continuing

A. Mission Description and Budget Item Justification **Project DE91 Aberdeen Test Center:** Aberdeen Test Center (ATC), formerly know 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 radar tracking site facility, a unique robotic 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.

FY 1995 Accomplishments:

- 37152 614 tests were conducted. The largest 20 systems level programs were Armored Gun System, Family of Medium Tactical Vehicles (FMTV), Navy Ship Structures Program, M1A1 ABRAMS Tank, M1A1 ABRAMS Tank, M1A2 ABRAMS Tank, Halon Substitutes for Automatic Fire Extinguishers, M829A2, 122mm cartridge, M44A2 Extended Service Life Program, BRADLEY Fighting Vehicle System, M1022 Mobilizer Dolly Set, High Mobility Multipurpose Wheeled Vehicle (HMMWV), High Mobility Trailer, Driver's Night Vision Enhancer, M830A1 HEAT-MP-T Cartridge, MAPS/GPS Hybrid Position Location System, M256, 120mm Cannons, USMC Advanced Amphibious Assault Vehicle, Lightweight Tactical Generators, Improved Ribbon Bridge, M900E1, 105mm, APFSDS-T Cartridge.
  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. Modernization projects included: Test Site Sediment and Erosion Control; Industrial X-Ray Building Improvements; Main Firing Barricade Upgrades; Virtual Test Environments; Multiple On-Board Location & Status Integration Systems.

Total 37152

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605601A Army Test Ranges and Facilities
	PROJECT DE91

FY 1996 Planned Program:

•	35123	Some of the largest systems level programs to be tested are: Navy Ship Structures Program, M1A2 ABRAMS Tank, Armored Gun System Closeout Testing, 120mm Mortar System, BRADLEY Fighting Vehicle System 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.
•	975	Personnel downsizing costs.
•	280	Revised Economic Assumption not available for Execution.
Total	36378	

FY 1997 Planned Program:

•	34547	Some of the systems programmed for testing are: Advanced Tank Armaments; SEAWOLF Hull Structure Shock Tests; M1A1 Block Improvement Program; Ground Combat Identification; M1A2 ABRAMS Tank; Halon Substitutes for Automatic Fire Extinguishers. 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.
•	625	Personnel downsizing costs.
Total	35172	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	40649	37388	38284
Appropriated Amount (FY 1995)	40649		
Adjustments to FY 1995	-3497		
Appropriated Amount (FY 1996)		36734	
Adjustments to FY 1996		-356	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-3112
Current President's Budget Submit	37152	36378	35172

Change Summary Explanation:
Funding: FY 95 aligns guidance with workload and prioritized TECOM investment projects. FY97 aligns guidance with workload.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: DE92

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
DE92 Dugway Proving Ground	12112	13302	0	0	0	0	0		Continuing	Continuing

A. <u>Mission Description and Budget Item Justification</u>: **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. Includes personnel costs to downsize the workforce commensurate with the T&E workload reductions. Effective with FY 1997, this project will be transferred to DoD in accordance with PL 103-160.

FY 1995 Accomplishments:

- 12112 200 tests were conducted. The largest 20 systems level programs were:
  Joint Chemical/Biological Point of Contact, Advanced Chemical/Biological Battledress Overgarment, Munitions Management Device, M21 Remote Sensing Chemical Agent Alarm, Self-Contained Toxic Environmental Protective Overgarment, Chemical Warfare Convention Treaty Support, Biological Integrated Detection System, M58 Mechanized Smoke Generating System, M81 Screening Grenade, Chemically and Biologically Protected Shelter, XM94 Long Range Biological Standoff Detection System, Lightweight Standoff Chemical Agent Detector, M929, 120mm Smoke Cartridge, M734E1 Fuze, M93 NBC Recon Vehicle, M819, 81mm Red Phosphorous Cartridge, Characterization of Visual, IR, and MM Smoke Clouds, M721, 60mm Illumination Cartridge, Standardized Integrated Command Post System , Improved Chemical Agent Point Detector.
  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 12112

FY 1996 Planned Program:

- 12664 Some of the largest system level programs to be tested are:
  Joint Chemical Biological Point of Contact, Chemical Warfare Treaty Support, XM22 Automatic Chemical Agent Alarm, Advanced Chemical/ Biological Battledress Overgarment, M56 Smoke Generating System.
  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.
- 526 Personnel downsizing costs
- 10 SBIR/STTR
- 102 Revised Economic Assumption not available for execution.

Total 13302

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605601A Army Test Ranges and Facilities
	PROJECT DE92

FY 1997 Planned Program: Effective with FY97 this project is transferred to DoD PE 0605384 in accordance Public Law 103-160.

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	11597	13671	11159
Appropriated Amount (FY 1995)	11597		
Adjustment to FY 1995	+515		
Appropriated Amount (FY 1996)		13432	
Adjustment to FY 1996		-130	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-11159
Current President's Budget Submit	12112	13302	0

Change Summary Explanation: Project transferred to DoD effective FY 1997.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: DE93

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
DE93 White Sands Missile Range	60471	51766	61233	57883	57878	54306	55126		Continuing	Continuing

A. <u>Mission Description and Budget Item Justification</u>: **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. This project also provides for development of the Combat Synthetic Test and Training Assessment Range which recently demonstrated the dual use of WSMR's assets and capabilities between test and training ranges in accordance with the Chairman of the Joint Chiefs of Staff Roles and Missions Report. 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 (DE94) was consolidated under WSMR. Electronic Proving Ground (EPG), Fort Huachuca, AZ, 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, and electronic countermeasures vulnerability test facility, an unmanned aerial vehicle test facility, antenna test facility, Electro-Magnetic Interference (EMI)/Electro-Magnetic Compatibility (EMC)/TEMPEST test facility, environmental test facility, a systems test facility, a systems interoperability and computer software testing facility, an electronic realistic battlefield environmental facility, communication test 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.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605601A Army Test Ranges and Facilities / PROJECT: DE93

FY 1995 Accomplishments:

- 60471 407 tests were conducted. The largest 20 systems level programs were:
  PATRIOT Advanced Configuration, USAF Avionics Development Program, Multiple Launch Rocket System, Theater High Altitude Area Defense (THAAD), Theater Missile Defense (TMD), Army Tactical Missile System, Enhanced Position Location Reporting System (EPLRS), Joint Tactical Unmanned Aerial Vehicle, Intelligence and Electronic Warfare Tactical Proficiency Trainer, HAWK Missile System, Global Positioning System (GPS) Receivers, USAF Advanced Medium Range Air to Air Missile (AMRAAM), Navy Research Rockets, Line-of Sight Anti-Tank (LOSAT) Missile, Navy STANDARD Missile, Brilliant Anti-Armor Terminally Guided Munition (BAT), Army Tactical Command & Control System (ATCCS), Single Channel Ground/Air Radio System (SINCGARS), Ground Based Sensor , Joint Tactical Ground Station.
  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. Modernization projects included: Communications & Electronic Scenario Generation Software; Ballistic Missile Command and Control System improvements; Improved Data Reduction System; Encrypted Secure Database Network; Upgrade for Distributed Node Network Hub; Distributed Node Network Switch; Upgrade to Radar Imaging Technology; QF4 Target Drone Control System; Safety Berms; Explosives Building Upgrades.

Total 60471

FY 1996 Planned Program:

- 51367 Some of the largest system level programs to be tested are:
  PATRIOT Missile System, Theater High Altitude Area Defense (THAAD), Theater Missile Defense (TMD), Army Tactical Command & Control System (ATCCS), Multiple Launch Rocket System
  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.
- 399 Revised Economic Assumption not available for execution.

Total 51766

FY 1997 Planned Program:

- 61233 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; Navy STANDARD Missile; Navy Research Rockets; Air Force AMRAAM; Command and Control Vehicle
  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 61233

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605601A Army Test Ranges and Facilities
	PROJECT DE93

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	65052	53203	54828
Appropriated Amount (FY 1995)	64758		
Adjustment to FY 1995	-4287		
Appropriated Amount (FY 1996)		52273	
Adjustment to FY 1996		-507	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			+6405
Current President's Budget Submit	60471	51766	61233

Change Summary Explanation: Funding: FY 95 aligns guidance with workload and prioritized TECOM test facility modernization projects.
FY 96 adjustment reflects revised economic asumptions.
FY97 aligns funding with workload.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: D618

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D618 Aviation Technical Test Center	13078	14033	12826	9074	8659	9460	9848		Continuing	Continuing

A. **Mission Description and Budget Item Justification: Project D618 Aviation Technical Test Center:** Aviation Technical Test Center (ATTC), Fort Rucker, AL with a test directorate at Edwards AFB, CA 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. Lead-the-Fleet testing is conducted to develop reliability/maintainability data on new aircraft systems/subsystems in order to identify problems through testing before these problems are encountered in deployed systems. Provides foreign materiel exploitation testing for the Army and other services. 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. Includes personnel costs to downsize the workforce commensurate with the T&E workload reductions. The Army plan to consolidate the portion of aviation testing currently managed by Aviation Technical Test Center (ATTC), Ft. Rucker, Alabama and Edwards AFB, California to YPG was revised by the Secretary of the Army to have the consolidation take place at Fort Rucker, AL but with aerial weapons testing to remain at YPG. This consolidation will take place by 1st Quarter FY 1997 and is accounted for in the FY 1997 estimate. A portion of the funding has therefore been realigned from project DE90 to project D618.

FY 1995 Accomplishments:

•	12478	121 tests were conducted. The largest 20 systems level programs were: UH-1H Helicopter, Special Operations Aircraft, Lead-the-Fleet, OH-48D KIOWA Warrior, Rotary Wing Aerial Targets, OH-58A Helicopter, Aircraft for GRIZZLY HUNTER, UH-60 BLACK HAWK Helicopter, AN/ARC-201 SINCGARS Radio, AH-64 APACHE, COMANCHE, LONGBOW APACHE, XM94 Long Range - Biological Standoff Detection System, CH-47D Cargo Helicopter, Air to Ground Engagement System, Brilliant Anti-Armor Terminally Guided Munition (BAT), Aircrew Microclimatic Conditioning System, VOLCANO Mine System, XM48/XM49 Chemical Biological Protective Mask, Support to US Navy Test Pilot School..
•	600	AEESA
Total	13078	

FY 1996 Planned Program:

•	10016	Some of the largest system level programs to be tested are: UH-1H Helicopter, OH-58D KIOWA Warrior, COMANCHE, Lead-the-Fleet, Special Operations Aircraft. 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.
•	3200	Personnel and other one time costs associated with downsizing and consolidation.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605601A Army Test Ranges and Facilities
	PROJECT D618

FY 1996 Planned Program: (continued)

•	553	AEESA
•	160	SBIR/STTR
•	104	Revised Economic Assumption not available for execution.
Total	14033	

FY 1997 Planned Program:

•	12326	Some of the key systems programmed for testing are: COMANCHE Subsystems; Aircraft Survivability Equipment; 2nd Generation FLIR; CH-47D Product Improvements; 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..
•	500	AEESA
Total	12826	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	12273	14424	0
Appropriated Amount (FY 1995)	12257		
Adjustment to FY 1995	+821		
Appropriated Amount (FY 1996)		14172	
Adjustment to FY 1996		-139	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			+12826
Current President's Budget Submit	13078	14033	12826

Change Summary Explanation:

Funding: FY 95 aligns guidance with workload. FY 1997 funding reestablishes guidance to reflect Secretary of Army decision to maintain aviation testing capability at ATTC, Ft. Rucker, AL.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: D630

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D630 TECOM Test Design and Evaluation	3892	4623	4785	4937	5094	5249	5409		Continuing	Continuing

A. **Mission Description and Budget Item Justification** **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 protections equipment. Beginning in FY 1996, funding reflects realignment of Test Management and Safety Verification as a part of TECOM's Reshape Program.

FY 1995 Accomplishments:

- 3892 – Continue test design and assessment program, addressing new developments, production, material changes. Program items included:
  - Radar Jammer System
  - Fire Support Combined Arms Tactical Trainer
  - Enhanced TRACKWOLF
  - Improved Ribbon Bridge/FFB 7000
  - Advanced Wind and Dust Goggles
  - Long Range Stand-Off Biological Detector
  - Driver's Vision Enhancer
  - Lightweight Video Reconnaissance System
  - Vehicle Intercom System
  - IEW Common Sensor
  - Advanced Aerial RADIAC System
  - XM81 Millimeter Wave Screening Grenade
  - High Mobility Trailer
  - Extended Cold Weather Clothing System, 2nd Generation
  - Bunker Defeat Munition
  - Suite of Integrated IR Countermeasures
  - Personnel Locator System

Total 3892

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605601A Army Test Ranges and Facilities
	PROJECT D630

FY 1996 Planned Program:

•	4536	Continue test design and assessment program, addressing new developments, production, and material changes. Programmed items include:

- Air Traffic Navigation and Communication System
- Army Key Management System
- Combat Service Support Training System
- Electro-Optic Helmet Sight System
- Remote Activation Munitions 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
- AN/MLQ-34 TACJAM-A
- Close Combat Decoy Cueing - Multispectral
- Driver's Vision Enhancement
- Night Image Thermal Equipment
- Modular Decontamination System
- Heavy Assault Bridge System
- Vapor Protective Flame Resistant Undergarment (JSLIST)
- C-17 Transport, Army Interface
- Biological Point Detector
- Automatic Chemical Agent Alarm

•	53	SBIR/STTR
•	34	Revised Economic Assumption not available for execution.
Total	4623	

FY 1997 Planned Program:

•	4785	Continue test design and assessment program, addressing new developments, production, and material changes. Programmed items include:

- Aviation Combined Arms Tactical Trainer
- Intelligence Electronic Warfare Tactical Proficiency Trainer
- Tactical Standoff Biological Detector
- Deployable Universal Combat Earthmover
- Air Warrior
- Integrated System Command & Control
- Mobile Automated Instrumentation Suite
- Joint Service Lightweight Integrated Suit Technology (JSLIST)
- Containerized Kitchen
- THAAD Ground Based Radar 1.1 MW Generator

Total	4785

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: D630

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	3254	4753	4926
Appropriated Amount (FY 1995)	3247		
Adjustment to FY 1995	+645		
Appropriated Amount (FY 1996)		4669	
Adjustment to FY 1996		-46	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-141
Current President's Budget Submit	3892	4623	4785

Change Summary Explanation:

Funding: FY 95 increase was provided to develop Test Capability Master Plans and establish infrastructure investment program needs as part of the DoD RELIANCE initiative, support the Test and Evaluation Reliance and Investment Board, and to provide for VERA/VSIP costs.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: D632

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D632 Redstone Technical Test Center	2053	1060	1578	1178	1591	1260	1303		Continuing	Continuing

A. <u>Mission Description and Budget Item Justification</u>: **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 laboratory component/subsystem test facilities, b) ranges for flight testing small missiles and evaluating warhead effects, c) rocket motor static test stands, and d) laboratories 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.

FY 1995 Accomplishments:

•	2053	166 tests were conducted. The largest 15 systems level programs were: TOW Improved Target Acquisition System, Advanced Guided Missile System, Missile Repair Parts, Multiple Launch Rocket System (MLRS) Interoperability Test Facility, JAVELIN, Unmanned Aerial Vehicle Sensor Systems, USAF MAVERICK Missile, TOW Basic Missile, LONGBOW, STINGER Missile, Brilliant Anti-Armor Terminally Guided Munition (BAT), TOW BRADLEY Improved Acquisition System, DRAGON Missile, Warhead Technology, MLRS Extended Range Rocket, Follow-on Production of the TOW/BRADLEY system; Development Test of the Line-of-Sight Anti-Tank Missile 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. Modernization projects accomplished include: Virtual Range Development; MLRS Family of Munitions Test Suite; Weapons System Hardware Integration with Distributed Inactive Scenarios.
Total	2053	

FY 1996 Planned Program:

•	1052	Some of the largest system level programs to be tested are: JAVELIN, Missile Repair Parts, TOW Improved Target Acquisition System, Air to Ground Missile System, Multiple Launch Rocket System (MLRS) Interoperability Test Facility.
•	8	Revised Economic Assumption not available for execution.
Total	1060	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605601A Army Test Ranges and Facilities / PROJECT: D632

FY 1997 Planned Program:

•	1578	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; 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	1578	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	1049	1090	1122
Appropriated Amount (FY 1995)	1027		
Adjustment to FY 1995	+1026		
Appropriated Amount (FY 1996)		1071	
Adjustment to FY 1996		-11	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			+456
Current President's Budget Submit	2053	1060	1578

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	30558	26846	22413	23621	24624	25861	26960	0	Continuing	Continuing
D453 Technical Test Instrumentation	3772	0	0	0	0	0	0	0	0	3772
D628 Test Technology & Sustaining Instrumentation	26786	26846	22413	23621	24624	25861	26960	0	Continuing	Continuing

Mission Description and Budget Item Justification: Funds development, acquisition and sustainment of technical test instrumentation for the Army at the Major Range and Test Facility Bases (MRTFB) which include: Yuma Proving Ground (YPG), AZ; Aberdeen Test Center (ATC), Aberdeen Proving Ground (APG), MD; Dugway Proving Ground (DPG), UT; and, White Sands Missile Range (WSMR), NM; Redstone Technical Test Center (RTTC), AL; and Aviation Technical Test Center (ATTC), AL. Funds support testing of advanced, high technology systems and weapons developments to improve effectiveness, efficiency and offset expected personnel downsizing. Included are development of virtual testing capabilities providing innovative testing alternatives supporting early weapons design and reducing physical destructive test-fix-test cycles; sustainment of the MRTFB instrumentation assets through upgrade and replacement of obsolete test instrumentation and equipment that has generally reached or exceeded it's economic life; and efforts to identify advanced test technology long-range requirements and their integration into Department of Defense (DoD) efforts; test methodology improvements, standardization, and international test procedures and methods; and development of prototype instrumentation not available on-the-shelf. FY 1997 funds the minimum level required to assure adequate test data for acquisition milestone decisions and reduce maintenance costs required to forestall equipment failures, testing delays and provide adequate technology consistent with downsizing. 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 March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605602A Army Test Technology and Sustaining Instrumentation PROJECT D453

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D453 Technical Test Instrumentation	3772	0	0	0	0	0	0	0	0	3772

A. Mission Description and Justification: **Project D453 - Technical Test Instrumentation:** This investment account develops and acquires major test technology to perform developmental testing of weapon systems at US Army Test and Evaluation Command (TECOM) activities (four of which are elements of the DoD MRTFB). Major instrumentation is defined as that instrumentation with one or more of the following attributes: satisfies Army requirements, used by multiple commands, high risk, produces a new developmental testing capability or requires intensive management during acquisition. Resources are realigned effective FY 1996 to PE 0604759A, Project D984 - Major Test and Evaluation Investments.

FY 1995 Accomplishments:

- 2880 Continued the installation of Perryman Test Area (PTA) instrumentation, Munson Test Area (MTA) instrumentation and acquisition of laser illuminator; initiated development of fiber optics at C-field; completed Barricade B1 range instrumentation and continued development of vehicle on-board data acquisition and sensors for Land Combat Instrumentation (LCI) at ATC. (The LCI is a consolidation of Combat Vehicle Measurement System, Direct Fire Productivity Improvement, Combat Vehicle Performance and Advanced Armor Instrumentation. These projects are combined for project management efficiency.) This instrumentation supports milestone decisions on many emerging weapons like M1A2 Abrams tank and Crusader.
- 500 Supported the system level Army Tactical Command and Control Systems (ATCCS) technical test at WSMR C4I Directorate. Initiated support for Warrior Focus Army Warfighter Experiment (AWE).
- 218 Continued execution of the Army's portion of the Global Positioning System (GPS) full-rate production contract at the GPS Range Application Joint Project Office (RAJPO) Eglin AFB, acquiring and fielding hardware and software at all Army test organizations. GPS will provide common interoperable hardware and software for precision tracking of air and ground vehicle in the conduct of DoD testing
- 174 Continued the instrumentation of the Trench Warfare II link, high speed networking and ethernet hub for the Fiber Optic Network (FON) project. This project links the LCI project to the information highway

Total 3772

FY 1996 Planned Program: All resources realigned to project D984, PE 0604759A.

FY 1997 Planned Program: All resources realigned to project D984, PE 0604759A.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605602A Army Test Technology and Sustaining Instrumentation PROJECT D453

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	3784	0	0
Appropriated Amount (FY 1995)	3772		
Adjustments to FY 1995			
Appropriated Amount (FY 1996)			
Adjustments to FY 1996			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	3772	0	0

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: D628

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D628 Test Technology & Sustaining Instrumentation	26786	26846	22413	23621	24624	25861	26960	0	Continuing	Continuing

A. Mission Description and 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. Within this element, a major initiative is directed towards efficiency and covers downsizing offsets, systems integrated test simulators and models and virtual test capabilities. Sustaining instrumentation maintains existing technical testing capabilities at Army 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.

FY 1995 Accomplishments:

- 827 Maintained existing capability by replacement and limited upgrade of worn out, obsolete or unserviceable equipment/instrumentation such as the replacement of Bubbler Samplers at DPG with Solid Sorbant II Analyzer to decrease sampling time by a factor of 10, Technical Committee support and Methodology studies at Army technical test ranges.
- 500 Initiated a 2-year effort to procure and integrate instrumentation to allow testing of P/Y code of the Army Global Positioning System (GPS) at WSMR.
- 200 Completed the acquisition of communications boards for high-speed digital signal processing at WSMR.
- 400 Initiated the development and acquisition of the Standoff and Tactical Jammer capability to control jamming instrumentation for C4I testing at WSMR.
- 650 Integrated EPLRS Test Control Center into the Army Tactical Command and Control System (ATCCS) at WSMR.
- 270 Refurbished nine Climatic Facility Chambers and brought them into EPA compliance at YPG.
- 470 Acquired 1 reference and 6 participant receivers to enhance GPS accuracy of real-time data and processing capabilities at YPG.
- 692 Initiate a 3-year program to acquire Flight Test Cockpit Indicators for use with Common Airborne Instrumentation System (CAIS) modules used to support all Army aircraft testing and other airborne test equipment at ATTC.
- 370 Replaced obsolete medium speed aircraft instrumentation recorders at ATTC with new recorders to handle pulse code modulated data in excess of 3 megabytes per second.
- 180 Acquired Telemetry Front-End Data Processing Equipment at ATTC. This equipment is required to reduce data recorded and/or telemetered from on-board aircraft.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605602A Army Test Technology and Sustaining Instrumentation
	PROJECT D628

FY 1995 Accomplishments: (continued)

- 300 Acquired Common Airborne Instrumentation System (CAIS) at ATTC which replaced old, obsolete aircraft instrumentation and provides the capability to collect data directly from the aircraft systems. CAIS was congressionally directed to avoid duplicate non-standard aircraft instrumentation systems.
- 450 Acquired instrumentation capable of detecting and measuring the specific radioactive isotopes to ensure personnel safety and compliance with EPA Regulation 520/1-89-001 through 003 at the WSMR Fast Burst Reactor. Also, continue the replacement of obsolete equipment used in detecting, measuring and analysis of radioactive contamination.
- 1761 The 3d year of an 8-year effort to modernize and mobilize the backbone radar (AN/FPS-16) tracking capability at WSMR.
- 350 Procured instrumentation to characterize the atmosphere for testing optics and electromagnetic interference testing at RTTC.
- 650 Acquired instrumentation used to collect, digitize and transfer missile test data throughout the test ranges at RTTC.
- 800 Implemented the 2d year buy of Subsystem Test and Simulation Facility at RTTC which provides high fidelity integrated systems test simulation to test small missile weapon systems.
- 936 Replaced chemical/biological laboratory analysis instrumentation to sustain the Nuclear, Biological, Chemical (NBC) Defense mission at DPG.
- 972 Developed and acquired rugged combat vehicle survivability instrumentation such as fiber optic sensors, transient temperature measurement devices, hardened ballistic shock sensors and ammunition compartment vulnerability for Composite Armored Vehicle, Bradley, M1A2 upgrades, Automotive Test Rig and Component Advanced Technology Demonstrator (CAT-D) workload from 1995-2000 at ATC.
- 1400 Maintained instrumentation and developed methodologies for meteorological support for Army RDT&E.
- 372 Improved capabilities to measure dust, atmospheric transmissivity and laser scoring to improve the performance of the tracking system while reducing the maintenance and operating costs at YPG.
- 730 Developed test methodology and requirements/specifications for instrumentation to test combat vehicles with advanced embedded computing/electronics systems (Vehicle Electronics [VETRONICS] such as the M1A2 and other armored systems such as the Automatic Target Recognition (ATR), Crusader and Component Advanced Technology Demonstrator at ATC.
- 1177 Implemented high-speed, multi-media data handling equipment at ATC (interfacing to the Fiber Optic Network), rugged high-speed video imaging, automating test management and data flow processes to accommodate pending reductions in the workforce.
- 430 Developed and acquired software/hardware in support of the TECOM Virtual Proving Ground, developed validated data bases to support vehicle signature and tire performance models and stimulating equipment at ATC.
- 515 Developed software for control of the QF-4 drone at WSMR.
- 175 Developed software of research techniques to improve the accuracy of radar data to provide miss distance data on high-altitude missiles and aircraft tested at WSMR.
- 398 Continued to develop 30 test operations procedures (TOPs) and 25 international test operations procedures (ITOPs) to ensure quality and consistency of test results throughout Army and for international cooperative applications.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605602A Army Test Technology and Sustaining Instrumentation PROJECT D628

FY 1995 Accomplishments: (continued)

•	3819	Provided management and support costs to include salaries and benefits for Directorate of Corporate Information and Technology personnel, support contracts, patents, exhibits and printing.
•	350	Acquired a cable retrieval winch for use at the Aerial Cable Test Facility at WSMR.
•	100	Developed and fielded a system to use satellite timing distributed by the GPS as a lower-cost replacement for the extensive and expensive range timing distribution system currently used at WSMR.
•	1130	Continued to modify the WSMR Command Destruct system for remote control capability IAW personnel downsizing and safety assurance initiatives.
•	350	Procured a 24km communications link between buildings B2105 and B3659 at YPG.
•	110	Replaced the pumps for RTTC electro-hydraulic driven vibration equipment.
•	400	Replaced two worn-out instrumentation vans at YPG Cold Regions Test Activity.
•	385	Initiated development and integration of TECOM Virtual Proving Ground (VPG) at TECOM test centers.
•	3651	Developed the following Virtual Proving Ground capabilities:

ATC: Procured a high-performance computer capability (Virtual Reality Engine) to support development and execution of VPG initiatives.

DPG: Developed a computational fluid dynamics model test chamber to assist in testing chemical protective clothing.

RTTC: Purchased a vehicle/platform motion simulator to provide a synthetic environment for laboratory testing of electro-optical fire control sub-system.

HQ: Developed the capability to interface NBCRS vehicle models with digital terrain, and interface other weapons system models to VPG, developed recommended Army procedure to include VPG in test and evaluation programs, and TECOM VPG master plan.

WSMR: Developed a VPG capability to evaluate the performance and interoperability of C3 battle management systems in support of air defense. Began a 7-year effort to replace and consolidate data processing and graphic display equipment in the Range Control Center. Expanded the data base used to validate radiation dose scaling for simulating a nuclear environment. Procured a Defense Simulation Internet Node to interface with other defense models, simulations, computers and databases.

•	250	Funded support for Force XXI Advanced Warfighting Experiments.
•	266	Funded support for Joint Projects Office (JPO) for Test and Evaluation.
Total	26786	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605602A Army Test Technology and Sustaining Instrumentation PROJECT D628

FY 1996 Planned Program:

- 1570 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 (such as bulky, obsolete airborne data recorders used for helicopter testing at ATTC). Develop prototype instrumentation (such as the development of the Bridge Crossing Simulator at ATC which will be used to test for failures without risk to testers) and perform advanced concept studies for development of new technologies. Continue to develop test operations procedures (TOPs) and international test operations procedures (ITOP) to ensure quality and consistency of test results throughout Army and for international cooperative applications, develop prototype instrumentation and perform advanced concept studies for development of new technologies (ITOPS save an estimated $800K annually through test cost reduction).
- 6627 Continue support of TECOM VPG:
  - ATC: Develop data bases and detailed models and systems interfaces.
  - DPG: Develop software simulation of chemical biological/aerosol testing.
  - RTTC: Acquire 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-sound missiles. Development of the virtual range (launch conditions engagement scenarios, target dynamics, real-time flight or vehicle dynamics and operational environments.
  - HQ: Continue VPG design and integration.
- 792 Develop and acquire 10 more Flight Test Cockpit Indicators and acquire ADPE hardware and software needed at ATTC to support aircraft testing.
- 2902 Continue to acquire high-speed, multi-media data handling equipment, develop 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.
- 1073 Continue to replace chemical/biological laboratory analysis instrumentation to sustain the Nuclear, Biological, Chemical (NBC) Defense mission at DPG.
- 5022 Complete the acquisition of the capability to test advanced Command, Control, Communication and Intelligence Systems of future weapon systems at WSMR C4I Directorate. Continue to acquire instrumentation to ensure personnel safety and compliance with EPA Regulations, sustain optical and radar tracking systems, and replace the 6 old and obsolete Telemetry Tracking and Acquisition Systems (TTAS) with new state-of-the art systems which will provide increased data rate and reduce the number of personnel required to operate the instrumentation at WSMR.
- 1780 Complete acquisition of Subsystem Test and Simulation Facility which provides high fidelity models and simulation to test small missile weapon systems. Develop a vibro-acoustic flight simulation to produce dynamically accurate missile flights necessary to reduce the number of costly missile test fights. Complete the fabrication of the Thermal Ablative Test Stand used to characterize materials in advanced missile systems at RTTC.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605602A Army Test Technology and Sustaining Instrumentation PROJECT D628

FY 1996 Planned Program: (continued)

•	902	Acquire Tank Accuracy Real Time Processing instrumentation, continue the refurbishment of Climatic Chambers to bring them into EPA compliance at YPG. Procure a Millimeter Wavelength Transmissometer, Telephoto Lenses and other cold weather instrumentation at YPG Cold Regions Test Activity.
•	5416	Provides management and support costs to include salaries and benefits for Directorate of Corporate Information and Technology personnel, support contracts, patents, exhibits and printing. Continue funding support to Joint Projects Office (JPO) for Test and Evaluation.
•	572	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)
•	190	Revised Economic Assumption not available for execution
Total	26846	

FY 1997 Planned Program:

•	1372	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 (ITOPS save an estimated $800K annually through test cost reduction).
•	7293	Continue test center support of TECOM Virtual Proving Ground.
•	448	Continue replacement of Flight Test Cockpit Indicators and acquire Telemetry Front-End Data Processing Equipment for programs such as Comanche and Special Ops aircraft at ATTC.
•	1250	Continue to acquire rugged high-speed video imaging and processing equipment. Continue to develop and acquire nuclear gamma pulse stimulating equipment and rugged combat vehicle survivability instrumentation such as fiber optic sensors, transient temperature measurement devices, hardened ballistic shock sensors and ammunition compartment vulnerability sensors for Composite Armored Vehicle, Bradley, M1A2 upgrades, Automotive Test Rig and Component Advanced Technology Demonstrator (CAT-D) at ATC.
•	1000	Purchase 2 gas chromatography workstations to control and collect NBC data from 6 gas chromatographs. Third phase of a 5-phase project to sustain the Nuclear, Biological, Chemical (NBC) Defense mission at DPG.
•	3135	Complete the design and acquisition of software and hardware to support the Standoff and Tactical Jammer capability for C4I testing at WSMR. Complete integration of QF-4 drone formation control system, complete acquisition of environmental monitors for nuclear effects testing, complete the upgrade to data analysis equipment and system-under-test equipment. Acquire and sustain range timing instrumentation such as GPS timing clock, IRIG time generator, and timing amplifiers at WSMR to meet the trajectory and velocity timing requirements for programs such as Patriot and THAAD.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605602A Army Test Technology and Sustaining Instrumentation PROJECT D628

FY 1997 Planned Program: (continued)

- 1938 Upgrade the Kineto Tracking Mounts at YPG by procuring 2 KTM trailers to improve system reliability. Continue to refurbish YPG Climatic Chambers to meet test requirements and upgrade of facilities to be in compliance with EPA regulations. Continue to upgrade YPG data acquisition, processing and display capabilities for air-to-ground and ground-to-ground armaments testing. Continue procurement of a Visual Wavelength Transmissometer and Low Light Level Cameras at YPG Cold Regions Test Activity.
- 5977 Provides management and support costs to include salaries and benefits for Directorate of Corporate Information and Technology personnel, support contracts, patents, exhibits and printing. Continue funding support to the Joint Projects Office (JPO) for Test and Evaluation.

Total 22413

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	27761	27600	23980
Appropriated Amount (FY 1995)	27232		
Adjustments to FY 1995	-446		
Appropriated Amount (FY 1996)		27117	
Adjustments to FY 1996		-271	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-1567
Current President's Budget Submit	26786	26846	22413

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	37065	33595	31343	32266	33734	33059	35527		Continuing	Continuing
DC10 Aviation System Survivability/Lethality/ Vulnerability	4631	0	0	0	0	0	0		0	0
D089 Aircraft Certification	2922	0	0	0	0	0	0		0	0
D181 Antiradiation Missile Counter - Countermeasures	1037	0	0	0	0	0	0		0	0
D190 Integrated Analysis	6765	0	0	0	0	0	0		0	0
D234 Close Combat/Fire Support Survivability Analysis	6850	0	0	0	0	0	0		0	0
D235 Missile Counter - Countermeasure Technology	659	0	0	0	0	0	0		0	0
D267 Air Defense/Missile Defense System Vulnerability	7910	0	0	0	0	0	0		0	0
D626 C4I Survivability	6291	0	0	0	0	0	0		0	0
D670 Emerging Technology Systems	0	5418	4879	5278	5243	5022	5590		Continuing	Continuing
D671 Air Defense/Missile Defense Systems	0	6359	5818	6224	6570	6452	6850		Continuing	Continuing
D672 Aviation Systems	0	4346	3739	3673	3777	3821	3873		Continuing	Continuing
D675 C4I/IEW Systems	0	4999	5027	4947	4827	4688	5150		Continuing	Continuing
D677 Ground Combat Systems	0	5846	5337	5732	6349	6229	6706		Continuing	Continuing
D678 Munitions Systems	0	5819	5729	5614	6193	6062	6563		Continuing	Continuing
D679 Soldier Systems	0	808	814	798	775	785	795		Continuing	Continuing

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605604A Survivability/Lethality Analysis

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 (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.

NOTE: This PE is restructured effective FY 1996 to provide management visibility for survivability/lethality projects and retain funds in a single PE.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: DC10

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
DC10 Aviation System Survivability/Lethality/ Vulnerability	4631	0	0	0	0	0	0		0	0

A. **Mission Description and Budget Item Justification:** **Project DC10 - Aviation Systems Survivability/Lethality/Vulnerability (SLV):** Project investigates the SLV of Army aviation systems to the full spectrum of battlefield threats to include conventional ballistic, electronic warfare (EW), directed energy, and chemical, biological, and nuclear. 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. Through FY 1995, provides assessment of acoustic technology which might be developed to exploit potential susceptibilities of helicopters. Beginning in FY 96, work performed in this project is restructured to Project D672.

FY 1995 Accomplishments:

•	2386	Through laboratory simulations, computer modeling, and field experiments, conducted, EWVA and ballistic vulnerability investigations and analysis, and provided EW support for SLV of Army aviation systems such as Comanche, Apache Longbow, Chinook helicopters, and UAV.
•	626	Expanded the survivability/lethality integrated analysis program to address improvements/modifications to all Army aviation systems across all battlefield threats.
•	416	Supported development and execution of live fire test and evaluation for Army aviation systems including Comanche and Special Operations (MH-60K and MH-47E) helicopters.
•	1203	Assessed acoustic technology for use as low cost long range battlefield sensors for exploiting vulnerabilities of helicopters.
Total	4631	

FY 1996 Planned Program: Project restructured to Project D672 within this PE.

FY 1997 Planned Program: Project restructured to Project D672 within this PE.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605604A Survivability/Lethality Analysis
	PROJECT DC10

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	4666	0	0
Appropriated Amount (FY 1995)	4631		
Adjustments to FY 1995			
Appropriated Amount (FY 1996)			
Adjustments to FY 1996			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	4631	0	0

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D089

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D089 Aircraft Certification	2922	0	0	0	0	0	0		0	0

A. <u>Mission Description and Budget Item Justification:</u> **Project D089 - Aircraft Certification:** Project 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. The ADS is a continuous evolving process incorporating revisions for each change to the standard design of an aircraft system. Manages airworthiness approval of new vendor qualification/testing on field aircraft and material changes, for all assigned Army aircraft systems. Provides airworthiness engineering support to the Aviation Program Executive Office and Aviation and Troop Command Program/Project/Product Manager requirements for major development/modification and any future systems/subsystems. Manages the test and evaluation process to support the airworthiness qualification of development and fielded aircraft systems. **(This project transfers to PE 0605606A Aircraft Certification in FY 96.)**

FY 1995 Accomplishments:

•	759	Managed/executed technical and airworthiness qualification mission for PEO Aviation force modernization aircraft systems.
•	152	Managed/executed the Army Aeronautical Design Standards Program.
•	90	Updated airworthiness standards.
•	607	Continued to ensure safety-of-flight investigations/assessments for PEO Aviation force modernization aircraft systems.
•	911	Provided continuing engineering support for emerging technology upgrades to PEO Aviation force modernization aircraft systems.
•	403	Continued to provide test management capability for PEO Aviation program/project/product managers.
Total	2922	

FY 1996 Planned Program: Project funded under PE 0605606A Aircraft Certification in FY 96.

FY 1997 Planned Program: Project funded under PE 0605606A Aircraft Certification in FY 96.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D089

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	2994	0	0
Appropriated Amount (FY 1995)	2931		
Adjustments to FY 1995	-9		
Appropriated Amount (FY 1996)			
Adjustments to FY 1996			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	2922	0	0

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D181

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D181 Antiradiation Missile Counter - Countermeasures	1037	0	0	0	0	0	0		0	0

A. **Mission Description and Budget Item Justification:** **Project D181 - Antiradiation Missile Counter-Countermeasures (ARM-CCM):** The ARM-CCM project objectives are to understand the capabilities of threat ARMs and how they work. The project provides simulation and hardware tools for both proposed and fielded ARM countermeasures as well as techniques and methodologies which support ARM-CCM investigations.

FY 1995 Accomplishments:

•	152	Conducted/coordinated EWVA of ARM threats to U.S. and Allied systems in support of the Army ARM Counter-Warfare Program.
•	295	Provided simulation support to ARM-CCM projects.
•	292	Provided survivability analysis of proposed and fielded ARM countermeasures.
•	298	Developed hardware, tools, techniques, and methodologies to support ARM-CMM.
Total	1037	

FY 1996 Planned Program: Beginning in FY 1996 work and funds restructured to Projects D670, D671, D672, D675, and D678 within this PE.

FY 1997 Planned Program: Beginning in FY 1996 work and funds restructured to Projects D670, D671, D672, D675, and D678 within this PE.

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	1063	0	0
Appropriated Amount (FY 1995)	1041		
Adjustments to FY 1995	-4		
Appropriated Amount (FY 1996)			
Adjustments to FY 1996			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	1037	0	0

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D190

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D190 Integrated Analysis	6765	0	0	0	0	0	0		0	0

A. Mission Description and Budget Item Justification: Project D190 - Integrated Analysis: This project provides supporting technology and data for the Army's integrated survivability analysis program to conduct survivability (SLV) analysis on Army systems and funds the investigation of the lethality/vulnerability of smart munitions 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 effect, and nuclear and chemical/biological contamination effects. This project supports development of the Army initiative to reduce systems' susceptibility to out-of-band radio frequency (RF) countermeasure effects. This project also includes the Army Electronic Warfare (EW) signature measurement program and the assessment of laser countermeasure (CM) effects on Army optical/electro-optical (O/EO) systems. This project also supports investigations of new technologies/methodologies required for SLV analyses.

FY 1995 Accomplishments:

•	1970	Managed the U.S. Army survivability/lethality integrated analysis programs (Air Defense, Aviation Systems, C4I/IEW, Ground Systems, Munitions, and Integrated Soldier System) for 38 systems under development or in improvement cycles and participated in the ARL FOCUS programs, Battle Labs and ATD initiatives, and special projects for ARL, AMC, and HQDA.
•	3210	Through laboratory simulations, computer modeling, and field experiments, conducted, electronic warfare and ballistic survivability/lethality analysis process for U.S. Army smart munitions including Javelin, Hellfire Longbow, and WAM.
•	1585	Investigated the effects of new/advanced threat technology on systems in the integrated analysis area.
Total	6765	

FY 1996 Planned Program: Beginning in FY 1996 work and funding restructured to Projects D670, D671, D672, D675, D677, D678, and D679 within this PE.

FY 1997 Planned Program: Beginning in FY 1996 work and funding restructured to Projects D670, D671, D672, D675, D677, D678, and D679 within this PE.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D190

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	6802	0	0
Appropriated Amount (FY 1995)	6783		
Adjustments to FY 1995	-18		
Appropriated Amount (FY 1996)			
Adjustments to FY 1996			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	6765	0	0

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D234

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D234 Close Combat/Fire Support Survivability Analysis	6850	0	0	0	0	0	0		0	0

A. **Mission Description and Budget Item Justification:** **Project D234 - Close Combat/Fire Support Survivability/Lethality:** Project investigates the survivability and vulnerability of Army ground combat systems to the full spectrum of battlefield threats; and the lethality of Army fire support munitions (smart and conventional). Analysis will support weapon requirements, test and evaluation master plans, cost/operational effectiveness analysis, and major decision milestones.

FY 1995 Accomplishments:

- 3273 Through laboratory simulations, computer modeling, and field experiments, conducted, EWVA and ballistic survivability/lethality investigations/analysis of U.S. Army ground systems such as AFAS/FARV, AGS, Breacher, Bradley, M1 Abrams, and M109 Howitzer systems.
- 1510 Conducted EWVA investigations on SADARM, STAFF, M829A2, BAT, LOSAT, TOW ITAS, and ATACMS (APAM) munitions.
- 2067 Provided signature measurements and computer modeling and simulation for integrated survivability/lethality analyses of U.S. Army ground systems and smart munitions.

Total 6850

FY 1996 Planned Program: Beginning in FY 1996 work and funding restructured to Projects D677 and D678 within this PE.

FY 1997 Planned Program: Beginning in FY 1996 work and funding restructured to Projects D677 and D678 within this PE.

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	6938	0	0
Appropriated Amount (FY 1995)	6869		
Adjustments to FY 1995	-19		
Appropriated Amount (FY 1996)			
Adjustments to FY 1996			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	6850	0	0

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D235

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D235 Missile Counter - Countermeasure Technology	659	0	0	0	0	0	0		0	0

A. **Mission Description and Budget Item Justification: Project D235 - Missile Counter-Countermeasure Technology:** Supports Program Management Offices by development of CM/CCM hardening techniques that missile systems use against laser, Radio Frequency (RF), and directed energy threats. Supports modeling to investigate vulnerabilities of systems to air defense systems. Supports investigations of missile signatures and exploitability. Investigates technology to harden optical windows against lasers, RF, and directed energy threats. Also funds salaries, travel, equipment, and general management/administrative support.

FY 1995 Accomplishments:

•	175	Continued to improve/upgrade hardening techniques, investigate, and develop new technology advanced CCM application.
•	307	Continued to conduct test and analysis to determine the susceptibility characteristics of selected weapon systems to specific environments and to specify the appropriate CCM techniques and validate the CCM effectiveness.
•	177	Verified and validated the one-on-one simulation with measured data to determine the region of validity.
Total	659	

FY 1996 Planned Program: Project not funded.

FY 1997 Planned Program: Project not funded.

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	672	0	0
Appropriated Amount (FY 1995)	660		
Adjustments to FY 1995	-1		
Appropriated Amount (FY 1996)			
Adjustments to FY 1996			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	659	0	0

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D267

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D267 Air Defense/Missile Defense System Vulnerability	7910	0	0	0	0	0	0		0	0

A. Mission Description and Budget Item Justification: **Project D267 - Air Defense/Missile Defense System Vulnerability:** 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. Beginning in FY 1996 the work and funds are restructured to Projects D670 and D671 within this PE.

FY 1995 Accomplishments:

•	2956	Conducted EWVA of U.S. Army air defense systems including PATRIOT, Stinger-RMP, Avenger, Corp SAM, HAWK, GBS, and MRSR.
•	1559	Conducted EWVA of U.S. Army missile defense systems including THAAD, ERINT, and GBR.
•	808	Conducted ballistic susceptibility/vulnerability/lethality analyses of U.S. Army air defense/missile defense systems.
•	2030	Provided EWVA and ballistic modeling and simulation support for survivability/vulnerability/lethality analysis of U.S. Army air defense/missile defense systems.
•	557	Developed necessary SLV analyses, methodologies, capabilities and techniques to ensure soldier survivability.
Total	7910	

FY 1996 Planned Program: Beginning in FY 1996 work and funds restructured to Projects D670 and D671 within this PE.

FY 1997 Planned Program: Beginning in FY 1996 work and funds restructured to Projects D670 and D671 within this PE.

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	8024	0	0
Appropriated Amount (FY 1995)	7933		
Adjustments to FY 1995	-23		
Appropriated Amount (FY 1996)			
Adjustments to FY 1996			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	7910	0	0

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D626

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D626 C4I Survivability	6291	0	0	0	0	0	0		0	0

A. **Mission Description and Budget Item Justification: Project D626 - C4I Survivability:** Supports survivability analysis of Army communications and electronic equipment against the full spectrum of friendly and enemy threats. Provides field threat environment support for 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. In FY 1996, work and funding in this project is restructured to Projects D670 and D675 within this PE.

FY 1995 Accomplishments:

- 2298 Conducted integrated survivability/lethality analysis for the Army Battlefield Command System (ABCS) and all of its functional area systems and their improvements.
- 2201 Performed EWVA and ballistics SLA on Army communications systems and their improvements.
- 1792 Through laboratory simulations, computer modeling, and field experiments, performed EWVA and ballistics SLA on Army IEW systems such as BCIS, JSTARS, and enhanced Firefinder.

Total 6291

FY 1996 Planned Program: Beginning in FY 1996 work and funding restructured to Projects D670 and D675 within this PE.

FY 1997 Planned Program: Beginning in FY 1996 work and funding restructured to Projects D670 and D675 within this PE.

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	6364	0	0
Appropriated Amount (FY 1995)	6305		
Adjustments to FY 1995	-14		
Appropriated Amount (FY 1996)			
Adjustments to FY 1996			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	6291	0	0

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D670

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D670 Emerging Technology Systems	0	5418	4879	5278	5243	5022	5590		Continuing	Continuing

A. Mission Description and Budget Item Justification: **Project D670 - Emerging Technology Systems:** This project performs integrated SLA for a category of systems which includes Horizontal Technology Integration systems, Advanced Technology Demonstration initiatives, and Anti-Radiation Missile (ARM) Counter-ARM systems. 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 Active Protection Systems (APS), and Missile Countermeasure Devices (MCD). This project also provides oversight of the Army's Electromagnetic Environmental Effects (E3) Program.

FY 1995 Accomplishments: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996.

FY 1996 Planned Program:

•	2696	Conduct EW performance analyses, to include infrared (IR), radio frequency (RF), and electro-optical spectrums to support integrated survivability and lethality analyses. Develop necessary test beds to conduct laboratory and field investigations, and prepare interim survivability analysis reports. This work supports 2ND GEN FLIR, BCIS, GPS, APS, EPLRS, and E3.
•	1420	Conduct analyses to determine ballistic effects. Develop system description models, perform damage simulations, and collect experimental data to support integrated survivability and lethality analyses. Develop necessary test beds to conduct experiments, and prepare interim survivability analysis reports. This work supports 2ND FLIR, BCIS, GPS, APS, and EPLRS.
•	1144	Conduct analyses to address nuclear hardening and survivability, chemical and biological warfare contamination and decontamination, and dirty battlefield conditions. Develop necessary test beds to conduct laboratory and field investigations, and prepare interim survivability analysis reports. This work supports 2ND GEN FLIR, BCIS, GPS, APS, EPLRS, and E3.
•	120	Funds will be reprogrammed for SBIR/STTR Programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992.
•	38	Revised Economic Assumption not available for Execution
Total	5418	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis — PROJECT: D670

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.
•	1485	Conduct ballistic effects investigations, develop system description models, perform damage simulations, and collect experimental data to support integrated survivability and lethality analysis reports.
•	997	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	4879	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	5570	5512
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		5473	
Adjustments to FY 1996		-55	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-633
Current President's Budget Submit	0	5418	4879

Change Summary Explanation:

Funding: FY 96 - Revised Economic Assumptions (-55).

Funding: FY 97 - Reflects funds moved to higher priority program (-500).

Funding: FY 97 - Revised Economic Assumptions (-133).

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D671

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D671 Air Defense/Missile Defense Systems	0	6359	5818	6224	6570	6452	6850		Continuing	Continuing

A. <u>Mission Description and Budget Item 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. ARM Counter-Arm efforts assess threat technologies against Theater Missile Defense (TMD), PATRIOT, JSTARS, Corp SAM/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 1995 Accomplishments: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996.

FY 1996 Planned Program:

•	3852	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, Corp SAM/Medium Extended Air Defense System (MEADS), Stinger-RMP, Avenger, GBS, TMD-GBR, THAAD, and BSFV-E.
•	917	Conduct the ballistic survivability/lethality analysis for U.S. Army air defense and missile defense systems.
•	1150	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army air defense and missile defense systems.
•	253	Provide integrated survivability/lethality analyses to support scheduled air defense/missile defense program decision milestones in FY 96.
•	142	Funds will be reprogrammed for SBIR/STTR Programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992.
•	45	Revised Economic Assumption not available for Execution
Total	6359	

FY 1997 Planned Program:

•	3370	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, Corp SAM/Medium Extended Air Defense System (MEADS), Stinger-RMP, Avenger, GBS, TMD-GBR, BSFV-E, and THAAD.
•	1208	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army air defense and missile defense systems.
•	966	Conduct the ballistic survivability/lethality analysis for U.S. Army air defense and missile defense systems.
•	274	Provide integrated survivability/lethality analyses to support scheduled air defense/missile defense program decision milestones in FY97.
Total	5818	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605604A Survivability/Lethality Analysis PROJECT D671

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	6537	6476
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		6423	
Adjustment to FY 1996		-64	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-658
Current Budget Submit	0	6359	5818

Change Summary Explanation:

Funding: FY 96 - Revised Economic Assumptions (-64).

Funding: FY 97 - Reflects movement of funds to higher priority program (-500).

Funding: FY 97 - Revised Economic Assumptions (-158).

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D672

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D672 Aviation Systems	0	4346	3739	3673	3777	3821	3873		Continuing	Continuing

A. **Mission Description and Budget Item Justification: Project D672 - Aviation Systems:** Project investigates the 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. In FY 1996, provides for assessment of acoustic technology which might be developed to exploit potential susceptibilities of helicopters.

FY 1995 Accomplishments: : Work in this area performed in other projects in this PE. Restructured to this project in FY 1996.

FY 1996 Planned Program:

•	2406	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 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.
•	1021	Conduct the ballistic survivability/lethality analysis for U.S. Army aviation systems.
•	601	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army aviation systems.
•	190	Provide integrated survivability/lethality analyses to support scheduled aviation systems program decision milestones in FY 96.
•	97	Funds will be reprogrammed for SBIR/STTR Programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992.
•	31	Revised Economic Assumption not available for Execution
Total	4346	

FY 1997 Planned Program:

•	2126	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.
•	774	Conduct the ballistic survivability/lethality analysis for U.S. Army aviation systems.
•	634	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 FY97.
Total	3739	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis — PROJECT: D672

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	4467	3840
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		4389	
Adjustment to FY 1996		-43	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-101
Current President's Budget Submit	0	4346	3739

Change Summary Explanation:

Funding: FY 96 - Revised Economic Assumptions (-43).

Funding: FY 97 - Revised Economic Assumptions (-101).

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D675

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D675 C4I/IEW Systems	0	4999	5027	4947	4827	4688	5150		Continuing	Continuing

A. Mission Description and Budget Item Justification: **Project D675 - C4/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 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 1995 Accomplishments: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996.

FY 1996 Planned Program:

•	2073	Conduct 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	Conduct integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for U.S. Army communications systems such as Mobile Subscriber Equipment, SINCGARS, Global Positioning System, Single Channel Anti-jam Man Portable radio, Secure Mobile Anti-jam Reliable Tactical Terminal, and Enhance Manpack UHF-Terminal.
•	996	Conduct integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for U.S. Army intelligence and electronic warfare (IEW) systems such as the Battlefield Combat Identification System, enhanced Firefinder radar, and Joint Surveillance Target Attack Radar System/Ground Station Module.
•	194	Provide integrated survivability/lethality analyses to support scheduled C4I/IEW systems program decision milestones in FY 96.
•	112	Funds will be reprogrammed for SBIR/STTR Programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992.
•	35	Revised Economic Assumption not available for Execution
Total	4999	

FY 1997 Planned Program:

•	2073	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, and Combat Service Support Control System.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605604A Survivability/Lethality Analysis
	PROJECT D675

FY 1997 Planned Program: (continued)

•	1684	Conduct integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for U.S. Army communications systems such as SINCGARS, Global Positioning System, Mobile Subscriber Equipment, Single Channel Anti-jam Man Portable radio, Secure Mobile Anti-jam Reliable Tactical Terminal, and Enhance Manpack UHF Terminal.
•	1058	Conduct integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for U.S. Army intelligence and electronic warfare (IEW) systems such as the Battlefield Combat Identification System, Joint Surveillance Target Attack Radar System/Ground Station Module, and enhanced Firefinder radar.
•	212	Provide integrated survivability/lethality analyses to support scheduled C4I/IEW systems program decision milestones in FY97.
Total	5027	

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	5140	5164
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		5050	
Adjustment to FY 1996		-51	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-137
Current President's Budget Submit	0	4999	5027

Change Summary Explanation:

Funding: FY 96 - Revised Economic Assumptions (-51).

Funding: FY 97 - Revised Economic Assumptions (-137).

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D677

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D677 Ground Combat Systems	0	5846	5337	5732	6349	6229	6706		Continuing	Continuing

A. <u>Mission Description and Budget Item Justification:</u> **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 1995 Accomplishments: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996.

FY 1996 Planned Program:

•	1758	Conduct the electronic warfare vulnerability assessment for U.S. Army ground combat systems. This effort supports such systems as Bradley A3, Command and Control Vehicle (C2V), Crusader (AFAS/FARV), ABRAMS M1A2, Breacher, and Heavy Assault Bridge.
•	2367	Conduct the ballistic survivability/lethality analysis for U.S. Army ground combat systems.
•	1327	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army ground combat systems.
•	223	Provide integrated survivability/lethality analyses to support scheduled ground combat systems program decision milestones in FY 96.
•	130	Funds will be reprogrammed for SBIR/STTR Programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992.
•	41	Revised Economic Assumption not available for Execution
Total	5846	

FY 1997 Planned Program:

•	1398	Conduct the electronic warfare vulnerability assessment for U.S. Army ground combat systems such as Crusader (AFAS/FARV), Bradley A3, Command and Control Vehicle, ABRAMS M1A2, Breacher, Heavy Assault Bridge and the Family of Medium Tactical Vehicles (FMTV).
•	2296	Conduct the ballistic survivability/lethality analysis for U.S. Army ground combat systems.
•	1401	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army ground combat systems.
•	242	Provide integrated survivability/lethality analyses to support scheduled ground combat systems program decision milestones in FY97.
Total	5337	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D677

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	6010	5982
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		5905	
Adjustments to FY 1996		-59	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-645
Current President's Budget Submit	0	5846	5337

Change Summary Explanation:

Funding: FY 96 - Revised Economic Assumption (-59).

Funding: FY 97 - Reflect movement of funds to higher priority program (-500).

Funding: FY 97 - Revised Economic Assumption (-145).

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D678

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D678 Munitions Systems	0	5819	5729	5614	6193	6062	6563		Continuing	Continuing

A. **Mission Description and Budget Item 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 1995 Accomplishments: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996.

FY 1996 Planned Program:

•	4033	Conduct the electronic warfare vulnerability assessment for U.S. Army munitions systems such as the Hellfire Longbow Missile, BAT/BAT P3I, Wide Area Mine, STAFF, and Javelin.
•	686	Conduct the ballistic survivability/lethality analysis for U.S. Army munitions systems.
•	741	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army munitions systems.
•	188	Provide integrated survivability/lethality analyses to support scheduled munitions systems program decision milestones in FY 96.
•	130	Funds will be reprogrammed for SBIR/STTR Programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992.
•	41	Revised Economic Assumption not available for Execution
Total	5819	

FY 1997 Planned Program:

•	4026	Conduct the electronic warfare vulnerability assessment for U.S. Army munitions systems such as BAT/BAT P3I, Hellfire Longbow Missile, STAFF, Wide Area Mine, Javelin, EFOG-M, FOT TOW and MSTAR.
•	725	Conduct the ballistic survivability/lethality analysis for U.S. Army munitions systems.
•	778	Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army munitions systems.
•	200	Provide integrated survivability/lethality analyses to support scheduled munitions systems program decision milestones in FY97.
Total	5729	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605604A Survivability/Lethality Analysis PROJECT D678

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	5982	5885
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		5877	
Adjustment to FY 1996		-58	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-156
Current President's Budget Submit	0	5819	5729

Change Summary Explanation:

Funding: FY 96 - Revised Economic Assumption (-58).

Funding: FY 97 - Revised Economic Assumption (-156).

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605604A Survivability/Lethality Analysis

PROJECT: D679

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D679 Soldier Systems	0	808	814	798	775	785	795		Continuing	Continuing

A. Mission Description and Budget Item Justification: Project D679 - Soldier Systems: This project provides the 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 detectibility reduction; attack prevention if detected; damage prevention; medical injury reduction; the reduction of mental and physical fatigue as they relate to 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 identify any problems in design characteristics which should be corrected to assure or enhance operational effectiveness.

FY 1995 Accomplishments: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996.

FY 1996 Planned Program:

•	555	Conduct integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for the U.S. Army Land Warrior System including the Protective Clothing and Individual Equipment, Chem/Bio Mask, Integrated Headgear, Computer and Commo System, and Weapon System.
•	114	Coordinate preparation and direct execution of MANPRINT Soldier Survivability Assessments and Reports.
•	115	Provide integrated survivability/lethality analyses to support scheduled soldier systems program decision milestones in FY 96.
•	18	Funds will be reprogrammed for SBIR/STTR Programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992.
•	6	Revised Economic Assumption not available for Execution
Total	808	

FY 1997 Planned Program:

•	576	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.
•	119	Coordinate preparation and direct execution of MANPRINT Soldier Survivability Assessments and Reports.
•	119	Provide integrated survivability/lethality analyses to support scheduled soldier systems program decision milestones in FY97.
Total	814	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605604A Survivability/Lethality Analysis PROJECT D679

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	829	836
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		815	
Adjustment to FY 1996		-7	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-22
Current Budget Submit	0	808	814

Change Summary Explanation:

Funding: FY 96 - Revised Economic Assumptions (-7).

Funding: FY 97 - Revised Economic Assumptions (-22).

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: DE97

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
DE97 DoD High Energy Laser Systems Test Facility (HELSTF)	23961	34043	2967	0	0	0	0		0	0

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 at any power level against any type of target, from scaled laboratory up through full scale flying target tests. The Mid-Infrared Advanced Chemical Laser (MIRACL) will be terminated. The Army will begin downsizing the residual infrastructure, retaining only that portion required to support laser system testing. The remaining mission will transition to the institutional Program Element 0605601, Army Test Ranges/Facilities. Test ranges support operations are required for general research and development; therefore, this PE is appropriate for inclusion in Budget Activity 6.

FY 1995 Accomplishments:

•	3961	Performed required site operations and maintenance activities.
•	17500	Provided Support to HEL testing to include follow on to Navy/United Kingdom Point Defense Demonstration, the Air Force Airborne Laser Program plus other smaller experiments.
•	2500	Supported Nautilus Program.
Total	23961	

FY 1996 Planned Program:

•	23630	Perform required site operations and maintenance activities.
•	4728	Joint US/Israeli Nautilus Program
•	4728	Joint US/Israeli Tactical High Energy Laser (THEL) Program.
•	717	SBIR/STTR.
•	240	Revised Economic Assumption not available for execution.
Total	34043	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605605A DOD High Energy Laser System Test Facility (HELSTF)
	PROJECT DE97

FY 1997 Planned Program:

•	2967	Provide funding to perform required site operations and maintenance activities to maintain laser system testing infrastructure.
Total	2967	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	24474	3000	0
Appropriated Amount (FY 1995)	23961		
Adjustment to FY 1995			
Appropriated Amount (FY 1996)		34388	
Adjustment to FY 1996		-345	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			+2967
Current President's Budget Submit	23961	34043	2967

Change Summary Explanation:
Funding: FY 1996: A portion of this program has been reduced for an amount which reflects revised economic assumptions.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605606A Aircraft Certification

PROJECT: D092

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D092 Aircraft Certification	0	2894	2905	2901	2898	2929	2976		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 certification. Since these activities are not allocable to specific R&D missions, this project is appropriately funded in Budget Activity 6.

FY 1995 Accomplishments: See PE 0605604A, Project D089. Project restructured to PE 0605606A in FY 1996.

FY 1996 Planned Program:

•	748	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
•	865	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
•	65	Small Business Innovative Research (SBIR)/Small Business Technology Transfer (STTR)
•	20	Revised Economic Assumption not available for execution
Total	2894	

FY 1997 Planned Program:

•	690	Manage/execute technical and airworthiness qualification mission for PEO Aviation force modernization aircraft systems
•	540	Continue to ensure safety-of-flight investigations/assessments to include PEO Aviation force modernization aircraft systems
•	149	Manage/execute the Army Aeronautical Design Standards Program
•	1136	Provide continuing engineering support for emerging technology upgrades to PEO Aviation force modernization aircraft systems
•	390	Continue to provide test management capability for PEO Aviation program/project/product managers
Total	2905	

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605606A Aircraft Certification

PROJECT: D092

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	2976	2984
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		2924	
Adjustments to FY 1996		-30	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-79
Current President's Budget Submit	0	2894	2905

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	12242	6480	6484	6420	6640	6623	6788		Continuing	Continuing
D127 Meteorological Support to ARL Activities	4433	0	0	0	0	0	0		0	4433
D128 Meteorological Support to TECOM Activities	7809	6480	6484	6420	6640	6623	6788		Continuing	Continuing

Mission Description and Budget Item Justification: Provides atmospheric analysis sampling, consultation forecasting, advisory and warning products and test reports to satisfy Army/DoD RDTE support requirements. Provides technical support to Army Program Executive Officers (PEO's), Project Mangers (PM's) and Army test ranges. Develops methodologies and acquires instrumentation/systems that allow meteorological teams to support 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.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: D127

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D127 Meteorological Support to ARL Activities	4433	0	0	0	0	0	0		0	4433

A. <u>Mission Description and Budget Item Justification:</u> **Project D127 - Meteorological Support to Army Research Laboratory Activities (ARL):** Provides atmospheric information critical in tests of high priority Army weapon and materiel to quantify the efforts of the atmosphere on test articles and to assist in the analysis of required modifications to weapon and materiel. Provides automated surface and upper air meteorological data acquisition systems to support Army RDT&E activities. Effective FY 96, this effort is funded in PE 0605604A, Survivability/Lethality Analysis.

FY 1995 Accomplishments:

•	406	Assessed and validated acoustic propagation model for determining atmospheric effects on long-range acoustic propagation.
•	1094	Completed operational smoke cloud tomography technique, enhance data collection and analysis techniques and provided field test support.
•	586	Characterized diurnal evolution of planetary boundary layer with application to acoustic and electromagnetic propagation and aerosol transport.
•	406	Developed interoperability of battlefield weather intelligence software with Army Tactical Command and Control System, Louisiana Maneuvers and TRADOC Battle Labs.
•	904	Related measurements of atmospheric diffusion coefficients above the Planetary Boundary Layer to laboratory quality upper atmospheric soundings, for missile intercept studies.
•	496	Completed validation and model acceptance for time-variable transport and diffusion model.
•	406	Assessed technique to exploit spectral and spatial contrast divergence for long-range target acquisition.
•	135	Developed a portable high-resolution spectroscopic system for characterization of chemical agents, obscurants and rocket plumes.
Total	4433	

FY 1996 Planned Program: Project restructured to PE 0605604A, Survivability/Lethality Analysis.

FY 1997 Planned Program: Project restructured to PE 0605604A, Survivability/Lethality Analysis.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605702A Meteorological Support to Research, Development, Testing & Evaluation Activities PROJECT D127

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	4489	0	0
Appropriated Amount (FY 1995)	4449		
Adjustments to FY 1995	-16		
Appropriated Amount (FY 1996)			
Adjustments to FY 1996			
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	4433	0	0

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: D128

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D128 Meteorological Support to TECOM Activities	7809	6480	6484	6420	6640	6623	6788		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 RTD&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.

FY 1995 Accomplishments:

- 5494 Provided specialized weather forecasts, severe weather warnings/advisories, staff meteorological services, and atmospheric measurements in support of all Army/DoD tests and projects at 12 Army test sites/ranges as per para A above, and as safari to off range test sites.
- 1785 Modernized operational equipment to meet customer requirements for meteorological support.
  - Upgraded Surface Automated Meteorological Systems (SAMS) to once a second sampling data rate to meet the higher data rates and specialized measurements requirements of the new "smart" weapons.
  - Fielded Mobile Operational Meteorological Support (MOMSS) to support tests off range or at primitive sites.
  - Tested operational Global Positioning System (GPS) upper air system that provides a ten-fold increase in spatial and temporal accuracy's from previous upper air measurement systems..
  - Installed 11 GPS based upper air systems at Major Range Test Facility Bases (MRTFB).
- 480 Provided program management for meteorological support to RDTE and technical review/assistance to ranges and meteorological teams.
  - Evaluated the Joint DoD/National Weather Service Program "Next Generation Doppler Weather Radar" (NEXRAD) remote display system at WSMR, for possible use at several ranges.
  - Evaluated the prototype Automated Weather System, of the National Weather Service (NWS). Plan to acquire operational version of this NWS service as replacement for current, contracted, weather data services in the outyears.
- 50 Upgraded the ADPE of the Meteorological Interactive Data Display System (MIDDS) to support WSMR's Meteorological Team with near-real-time satellite imagery.

Total 7809

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605702A Meteorological Support to Research, Development, Testing & Evaluation Activities
	PROJECT D128

FY 1996 Planned Program:

•	4535	Provide 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. (Site at Jefferson Proving Ground closed due to BRAC action.)
•	1140	Modernize operational equipment to meet customer requirements for meteorological support. - Phase III (last) upgrade of SAMS to increase data transmission rates, and data reduction and analysis. -Electro-optical Instrumentation. - Sustainment of mobile systems. - Validate atmospheric profilers.
•	755	Provide program management for meteorological support to RDTE and technical review/assistance to ranges and meteorological teams. - Weather forecast support systems/data. - Install 3 National Weather Service "Next Generation Doppler Weather Radar" (NEXRAD) principal user processors at Redstone, WSMR. and Aberdeen Proving Ground.
•	50	Revised Economic Assumption not available for execution
Total	6480	

FY 1997 Planned Program:

•	4704	Provide weather forecasts, severe weather warnings/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.
•	1180	Modernize operational equipment to meet customer requirements for meteorological support. - Electro-optical 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. - Staff/technical assistance - MRTFB "4D" Weather System
Total	6484	

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: D128

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	7890	6660	6486
Appropriated Amount (FY 1995)	7840		
Adjustments to FY 1995	-31		
Appropriated Amount (FY 1996)		6544	
Adjustments to FY 1996		-64	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-2
Current President's Budget Submit	7809	6480	6484

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605706A Materiel Systems Analysis

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	18769	17382	14428	14284	14453	14026	14409		Continuing	Continuing
D026 Test Design and Evaluation	5881	5254	4258	4168	4359	4443	4560		Continuing	Continuing
M541 Materiel Systems Analysis	12888	12128	10170	10116	10094	9583	9849		Continuing	Continuing

Mission Description and Budget Item Justification: The U.S. Army Materiel Systems Analysis Activity (AMSAA), as the Army's center for systems analysis and independent evaluation of major systems, provides the technical capability for the conduct of materiel systems analysis. AMSAA evaluates the performance and combat effectiveness of existing, developmental and conceptual systems to support Department of the Army and other major Army commands in the conduct of cost and operational effectiveness analyses, force structure studies, risk analyses, trade-off and casualty assessment criteria. AMSAA is the HQDA designated lead agency for performance assessments (which include performance analyses, risk assessments and Reliability, Availability, and Maintainability assessments) in support of milestone acquisition decisions. AMSAA supports the Army in the development of methodologies, models, simulations, and data bases for use in Army studies and analyses. AMSAA is the Army's technical evaluator of concept/technology demonstrations, developmental systems, and production tests for all major Defense Acquisition Board, Director Operational Test and Evaluation, and Department of the Army oversight systems, including special access programs. AMSAA provides technical independent evaluations for major milestone decisions, materiel changes, and materiel releases in support of the Army Acquisition Executive (AAE). AMSAA designs technical, developmental, and production tests to address factors pertinent to the decision process such as: technical maturity, technical risk, technical performance, producibility, logistics, etc. AMSAA has a lead role in the planning and execution of the Army live fire tests through its test design, analysis and evaluation responsibilities. As such, AMSAA responds to analyses required by the AAE, Program Executive Officer/Project Manager (PEO/PM), and other decision makers of the Army and the Department of Defense. These projects fund efforts in support of operations 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: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605706A Materiel Systems Analysis

PROJECT: D026

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D026 Test Design and Evaluation	5881	5254	4258	4168	4359	4443	4560		Continuing	Continuing

A. **Mission Description and Budget Item Justification:** Project D026 provides for technology/concept demonstration, developmental, production and product improvement test design and evaluation for Army technical testing in support of major programs. Test design and evaluation is performed independently of the PEO/PM, materiel development command and the testing agencies to complement operational test and evaluation results for the Army acquisition decision process and concept/technology assessments. Regular system assessments are provided to the AAE between major milestones to highlight emerging issues which can be resolved to minimize program impacts at milestone reviews. 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 1995 Accomplishment:

- 3802 Provided test design and evaluation support for 76 systems in development, undergoing major materiel change, or recently fielded. Reduction in systems from prior year can be attributed to selected lower priority/effort ACAT III and IV systems which represent very small cost savings. System evaluations supported 17 program milestone decision reviews during FY 1995. Examples of evaluations in support of AAE decision include: 155-mm Sense and Destroy Armor Munitions; Forward Air Defense Command, Control and Intelligence Ground Based Sensor; Hellfire-Millimeter Wave; Joint Surveillance Target Acquisition System Light Ground Station Module; Joint Tactical Information Distribution System; Joint Unmanned Aerial Vehicle - Short Range; Secure, Mobile, Anti-Jam Reliable Tactical-Terminal; Single Channel, Anti-Jam Manportable; and Wide Area Mine. Evaluated the results of seven live fire tests.
- 2079 Developed test design and evaluation plans for developmental tests to be conducted FY 1996 - FY 2000. This effort included test design and evaluation planning for systems to undergo live fire testing in FY 96-97.

Total 5881

FY 1996 Planned Program:

- 3396 Provide test design and evaluation support for systems that are either in development, undergoing major materiel change programs or have been recently fielded. System evaluations will support program milestone decision reviews during FY 96. 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 Develop test design and evaluation plans for developmental tests to be conducted in FY97 through FY 01. This effort includes test design and evaluation planning for systems projected to undergo live fire testing in FY97-98. 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.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605706A Materiel Systems Analysis
	PROJECT D026

FY 1996 Planned Program: (continued)

•	20	Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)
•	40	Revised Economic Assumption not available for execution
Total	5254	

FY 1997 Planned Program:

•	2790	Provide test design and evaluation for systems/concepts/technologies that are either in demonstration/development phases or undergoing major materiel change/technology insertion. System evaluations will support program milestone decision reviews during FY97. 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.
•	1468	Develop test design and evaluation plans for developmental tests to be conducted in FY98 through FY 02. This effort includes test design and evaluation planning for systems projected to undergo live fire testing in FY98-99. 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 and technology transition programs.
•		Reduced funding will focus test design and evaluation mission on ACAT I and II development and priority concept/technology programs. Functional realignments integrating developmental and operational test and evaluation processes will create efficiencies to manage priority programs within budget.
Total	4258	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	6027	5399	4260
Appropriated Amount (FY 1995)	5906		
Adjustments to FY 1995	-25		
Appropriated Amount (FY 1996)		5305	4260
Adjustment to FY 1996		-51	
Adjustment to Budget Year (FY 1997) since FY 1996 President's Budget			-2
Current President's Budget Submit	5881	5254	4258

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605706A Materiel Systems Analysis

PROJECT: M541

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M541 Materiel Systems Analysis	12888	12128	10170	10116	10094	9583	9849		Continuing	Continuing

A. **Mission Description and Budget Item Justification:** Project M541 funds the Army Materiel Systems Analysis Activity (AMSAA) primary mission of independent systems analysis and effectiveness evaluations for major materiel systems. AMSAA evaluates the performance and combat effectiveness of existing developmental and conceptual systems in support of Headquarters, Department of the Army (HQDA), Army Materiel Command (AMC), Program Executive Officers (PEOs), Project Managers (PMs), and research and development (R&D) centers to provide a basis for developing acquisition strategies, concept definitions, operational requirement documents and request for proposals. AMSAA is the HQDA designated lead agency for performance assessments in support of milestone acquisition decisions. This project includes the efforts to develop analytical methodologies to characterize the performance of new technologies associated with weapons, smart munitions, sensors, and command control systems. At the direction of the Deputy Under Secretary of the Army for Operations Research, AMSAA certifies the performance data provided for major Army studies to provide confidence in study results and assure a sound basis for acquisition decisions. This project funds the salaries of civilian employees assigned to the materiel system analysis mission.

FY 1995 Accomplishments:

- 608 Develop and certify system performance data for U.S. and foreign systems to support Army Cost and Operational Effectiveness Analysis (COEAs), force structure studies and theater level studies. Examples of COEAs to be supported include: Joint Unmanned Aerial Vehicle - Short Range, Battlefield Combat Identification System Theater High Altitude Area Defense and ground Based Radar for Theater Missile Defense.
- 10675 Provide analysis of performance and combat effectiveness of materiel systems and technology base programs in support of HQDA, AMC, PEOs/PMs and R&D Centers. Included are technical risk, trade-off and requirements analyses. Initial projections identified a potential requirement to provide analytical support for 144 systems/programs and 16 Distributed Interactive Simulator projects.
- 1605 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 war games.

Total 12888

FY 1996 Planned Program:

- 566 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.
- 9938 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 Advanced Technology Demonstrations, Distributed Interactive Simulation projects and Advanced Warfighting Experiments supporting Force XXI.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605706A Materiel Systems Analysis
	PROJECT M541

FY 1996 Planned Program: (continued)

•	1494	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. Will perform a validation and accreditation of algorithms portraying physical representation of systems in Distributed Interactive Simulations to support the TRADOC Battle Labs and Study Centers.
•	37	SBIR/STTR
•	93	Revised Economic Assumption not available for execution
Total	12128	

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.
•	8432	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 Advanced Technology Demonstrations, Distributed Interactive Simulation projects, and Advanced Warfighting Experiments 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 ATDs/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.
Total	10170	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	12944	12465	10174
Appropriated Amount (FY 1995)	12944		
Adjustment to FY 1995	-56		
Appropriated Amount (FY 1996)		12247	10174
Adjustment to FY 1996		-52	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-4
Current President's Budget Submit	12888	12128	10170

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605709A Exploitation of Foreign Items

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	12391	8627	7347	7757	7638	11644	10863		Continuing	Continuing
D650 Exploitation of Foreign Items	3778	3398	3304	3328	3289	3320	2609		Continuing	Continuing
DC28 Acquisition/Exploitation of Threat Items	8613	5229	4043	4429	4349	8324	8254		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: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605709A Exploitation of Foreign Items

PROJECT: D650

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D650 Exploitation of Foreign Items	3778	3398	3304	3328	3289	3320	2609		Continuing	Continuing

A. **Mission Description and Budget Item 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 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 1995 Accomplishments:

- 1100 Continue on-going project evaluations and exploitations identified prior to FY 95.
- 1750 New start FY 95 acquisitions of 30 projects.
- 928 New start FY 95 evaluations and exploitations of foreign materiel and/or technologies

Total 3778

FY 1996 Planned Program:

- 1300 Continue on-going project evaluations and exploitations identified prior to FY 96.
- 1203 Plan new start FY 96 acquisitions of 25 projects.
- 812 Plan new start FY 96 evaluations and exploitations of foreign materiel and/or technologies
- 73 SBIR/STTR
- 10 Revised Economic Assumption not available for execution.

Total 3398

FY 1997 Planned Program:

- 1300 Continue on-going project evaluations and exploitations identified prior to FY97.
- 1200 Plan new start FY97 acquisitions of 23 projects.
- 804 Plan new start FY97 evaluations and exploitations of foreign materiel and/or technologies

Total 3304

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605709A Exploitation of Foreign Items

PROJECT: D650

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	3856	3493	3390
Appropriated Amount (FY 1995)	3856		
Adjustments to FY 1995	-78		
Appropriated Amount (FY 1996)		3432	
Adjustments to FY 1996		-34	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-86
Current President's Budget Submit	3778	3398	3304

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605709A Exploitation of Foreign Items

PROJECT: DC28

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
DC28 Acquisition/Exploitation of Threat Items	8613	5229	4043	4429	4349	8324	8254		Continuing	Continuing

A. **Mission Description and Budget Item 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. Acquisition s 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 1995 Accomplishments:

•	2800	Acquire threat systems identified and prioritized in the FY 95 Army Foreign Materiel Program (FMP) Five Year Plan.
•	3856	Initiate, continue, or complete exploitation projects on ground systems of Army Interest identified in the FY 95 Army FMP Exploitation Plan.
•	1957	Initiate, continue, or complete exploitation projects on missile systems of Army Interest identified in the FY 95 Army FMP Exploitation Plan.
Total	8613	

FY 1996 Planned Program:

•	1000	Acquire threat systems identified and prioritized in the FY 96 Army Foreign Materiel Program (FMP) Five Year Plan.
•	2722	Initiate, continue, or complete exploitation projects on ground systems of Army Interest identified in the FY 96 Army FMP Exploitation Plan.
•	1376	Initiate, continue, or complete exploitation projects on missile systems of Army Interest identified in the FY 96 Army FMP Exploitation Plan.
•	117	SBIR/STTR
•	14	Revised Economic Assumption not available for execution.
Total	5229	

FY 1997 Planned Program:

•	800	Acquire threat systems identified and prioritized in the FY97 Army Foreign Materiel Program (FMP) Five Year Plan.
•	2192	Initiate, continue, or complete exploitation projects on ground systems of Army Interest identified in the FY97 Army FMP Exploitation Plan.
•	1051	Initiate, continue, or complete exploitation projects on missile systems of Army Interest identified in the FY97 Army FMP Exploitation Plan.
Total	4043	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605709A Exploitation of Foreign Items — PROJECT: DC28

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	8011	5376	4151
Appropriated Amount (FY 1995)	8011		
Adjustments to FY 1995	+602		
Appropriated Amount (FY 1996)		5282	
Adjustments to FY 1996		-53	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-108
Current President's Budget Submit	8613	5229	4043

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605712A Support of Operational Testing

COST (*In Thousands*)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
	Total Program Element (PE) Cost	30543	45180	50906	59395	49834	47617	48767		Continuing	Continuing
DV02	Test Directorates	15251	14851	14944	15318	15861	15022	15333		Continuing	Continuing
D001	OPTEC IOTE	6231	16937	21021	22078	18224	15783	16602		Continuing	Continuing
D985	Concepts Evaluation of Material	5862	7390	10545	16776	10551	10522	10436		Continuing	Continuing
D987	OPTEC instrumentation Sustainment & Development	3199	6002	4396	5223	5198	6290	6396		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). The FY 97 increase is essential for testing high priority weapon systems and support to battle lab minor Advanced Warfighter Experiments (AWEs). Project DV02 provides for the recurring costs of operating the test activities of the U.S. Army Operational Test and Evaluation Command (OPTEC). Project D001 provides for the direct operational test costs incurred by OPTEC. Starting in FY 1995, funding for Acquisition Category (ACAT I) major weapons systems is programmed within the PE funding development for each system. Project D985 enables US 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 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: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605712A Support of Operational Testing

PROJECT: DV02

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
DV02 Test Directorates	15251	14851	14944	15318	15861	15022	15333		Continuing	Continuing

A. **Mission Description and Budget Item Justification:** Project DV02 - Test Directorates: This project finances the 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. The following test directorates are located at Fort Hood, TX: Aviation; Close Combat; Engineer/Combat Support; Command, Control, and Communications. The primary mission of these test directorates is to conduct operational testing of developmental materiel and force development test and experimentation (FDTE). Between FY 1990 and FY 1995, Test and Evaluation manpower has been reduced 57%. Further reductions are phased consistent with test scheduling and facility availability. Ultimately, OPTEC test directorates will ramp down from 256 civilian spaces in FY 1995 to 208 spaces by the end of FY 1998.

FY 1995 Accomplishments:

- 3931 Operational Costs for Fort Hood, TX Test Directorate
- 2400 Operational Costs for Fort Sill, OK Test Directorate
- 2836 Operational Costs for Fort Huachuca, AZ Test Directorate
- 3085 Operational Costs for Fort Bragg, NC Test Directorate
- 2999 Operational Costs for Fort Bliss, TX Test Directorate

Total 15251

FY 1996 Planned Program:

- 3075 Operational Costs for Fort Hood, TX Test Directorate
- 2442 Operational Costs for Fort Sill, OK Test Directorate
- 2969 Operational Costs for Fort Huachuca, AZ Test Directorate
- 3083 Operational Costs for Fort Bragg, NC Test Directorate
- 3093 Operational Costs for Fort Bliss, TX Test Directorate
- 76 SBIR/STTR
- 113 Revised Economic Assumption not Available for Execution

Total 14851

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605712A Support of Operational Testing
	PROJECT DV02

FY 1997 Planned Program:

- 4146 Operational Costs for Fort Hood, TX Test Directorates
- 2331 Operational Costs for Fort Sill, OK Test Directorate
- 2997 Operational Costs for Fort Huachuca, AZ Test Directorate
- 2569 Operational Costs for Fort Bragg, NC Test Directorate
- 2901 Operational Costs for Fort Bliss, TX Test Directorate

Total 14944

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	15281	15263	15024
Appropriated Amount (FY 1995)	15251		
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		14996	
Adjustments to FY 1996		-145	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-80
Current President's Budget Submit	15251	14851	14944

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605712A Support of Operational Testing

PROJECT: D001

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D001 OPTEC IOTE	6231	16937	21021	22078	18224	15783	16602		Continuing	Continuing

A. <u>Mission Description and Budget Item Justification:</u> **Project D001 - OPTEC IOTE:** This project finances the direct costs of planning and conducting operational testing on major and nonmajor materiel systems (ACAT II-IV), including Multi-Service systems. 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 nonmajor materiel systems. Operational Test and Evaluation was institutionally funded in this project in FY 1994 and prior years for all Acquisition Categories (ACAT). Effective FY 1995, test funding for ACAT I systems is programmed with the PE funding development of each system. 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.

FY 1995 Accomplishments:

- 5 Laser Counter Measures System
- 876 C-17 MIOTE
- 10 Strategic Sealift Program (A)
- 2 Strategic Sealift Program (B)
- 14 Longbow Apache IOTE
- 70 AFATDS/ATCCS IV
- 849 AGS EUTE
- 945 SSP-S PI
- 575 Breacher
- 902 JTAGS
- 974 AGS IOTE
- 6 LAFARE IOTE
- 8 ASAS Block II
- 5 UMARK
- 74 E. TRACKWOLF
- 308 ST HMMWV
- 253 IEWCS
- 195 C2V
- 50 GBCS - LIGHT

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: March 1996
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605712A Support of Operational Testing / PROJECT: D001

FY 1995 Accomplishments: (continued)

•	50	ECV
•	60	RWS
Total	6231	

FY 1996 Planned Program:

•	175	Complete On-going Operational Testing and Evaluation
•	486	AGSIOTE (Sunk Costs)
•	1549	GBCS - LIGHT (IOTE)
•	882	Grizzly
•	15	ASV
•	4786	SSP
•	257	ISYSCON
•	92	SEP 96-1
•	47	CSSTSS (Sunk Costs)
•	447	JSLISTS
•	100	IRV
•	98	JSLIST - EAUIB
•	402	HF NOE COMM
•	581	ASTAMIDS/UAV - JT
•	276	SCAMP PHASE I
•	696	UM IOTE
•	25	MILES 2000
•	470	CCTT - QS
•	401	GRIZZLY (A)
•	39	HAB
•	100	AAFARS
•	594	HE - WAM
•	300	MAIS
•	66	HG
•	195	IRV
•	174	AIRTERM/KY - 100
•	142	SICP LSS
•	218	AKMS

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605712A Support of Operational Testing
	PROJECT D001

FY 1996 Planned Program: (continued)

•	340	RSCCE
•	384	ALCS IV
•	460	CCTT
•	51	SEPS
•	162	MICAD
•	1348	EPLRS
•	82	SSP (A)
•	378	SBIR/STTR
•	119	Revised Economic Assumption not available for execution.
Total	16937	

FY 1997 Planned Program:

•	1010	ASTAMIDS/JT - UAV
•	90	SCAMP Block II
•	65	TWS
•	382	CBPS
•	281	AKMS
•	937	FATDS PKG II
•	988	GRIZZLY
•	993	HAB
•	640	ASV
•	1728	AQF IOTE
•	3510	EPLRS
•	285	ATNAVICS
•	153	GRCS SYS II
•	435	ISYSCON
•	95	BFIST (XM7) LUT I
•	197	LADS
•	42	MLRS - IFCS
•	602	RSCCE
•	2640	ALCS IV
•	734	MILES 2000
•	5019	CCTT

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605712A Support of Operational Testing
	PROJECT D001

FY 1997 Planned Program: (continued)

- 195 BFIST (M7) LUT II

Total 21021

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	7385	17413	21593
Appropriated Amount (FY 1995)	6487		
Adjustments to FY 1995	-256		
Appropriated Amount (FY 1996)		17108	
Adjustments to FY 1996		-171	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-572
Current President's Budget Submit	6231	16937	21021

Change Summary Explanation

Funding: FY 95: 256 decrease attributable to below threshold reprogramming.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605712A Support of Operational Testing

PROJECT: D985

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D985 Concepts Evaluation of Material	5862	7390	10545	16776	10551	10522	10436		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 and new materiel initiatives. Program provides direct support to Battle Lab minor Army Warfighting Experiments (AWEs). 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 that have the potential to support the Army's Force XXI design needs. Advanced Warfighting Experiments (AWEs): As the Army moves toward Force XXI, the critical task of designing the force around information requires major investment in information-age capabilities. AWEs use constructive, virtual, and live simulations to examine warfighting concepts across doctrine, training, leader development, organizational design, material, 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 1995 Accomplishments:

- 309 Proto Graphic Course of Action Dev Tool
- 201 Mission Plan and Rehearsal
- 180 Integrated Meteorological System
- 125 Communications in Corps Battle Simulation
- 77 Super High Frequency Tri-Band
- 48 C2 Payload Package for High Altitude Endurance
- 263 Joint Warfare Interoperability Demo
- 224 Automated Property Management & Inventory
- 224 Sensor Communications Int Maintenance System
- 12 Hydraulic Excavator/Rock Drill Attach
- 20 Tactical Automated Teller
- 40 Small Diesel Engine Driven Generators
- 180 Future Distribution Platform
- 35 Heavy Repair Vehicle
- 100 Contingency Force Recovery Vehicle
- 248 Cobra Evaluation

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: March 1996
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605712A Support of Operational Testing / PROJECT: D985

FY 1995 Accomplishments: (continued)

•	199	FAAD Enhancements
•	429	JANUS Digitization Test Bed
•	400	Simulation Integration into Proto Class
•	52	Range Determination for Night Vision
•	75	Non-Lethal Defense Munitions Technology
•	146	Night Fighting Training Facility
•	149	Thermal Signature Training System
•	89	Backlight Technologies
•	50	Nightfire Phase II
•	92	Dismounted Combat ID - Phase I
•	92	Dismounted Combat ID - Phase II
•	84	Light Brigade and below TOC Configuration
•	75	Own the Night
•	46	Tele Operative Engineer Vehicle
•	187	Abrams Fire Control Update
•	249	Surrogate Dynamic Terrain for CATT
•	10	Multi Mine Clearing Line Charge Trailer
•	12	Battlefield Combat Identification System
•	110	Helmet Mounted Display
•	150	Laser Gun Mine Clearing
•	400	Enroute Communications
•	480	ACT II Evaluation
Total	5862	

FY 1996 Planned Program:

•	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
•	150	Pointman Sensor Enhancement
•	50	Precision Delivery for Remote Warfare
•	195	Synthetic Theater of War
•	125	Dismounted Combat Identification

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
6 - Management Support	0605712A Support of Operational Testing	D985

FY 1996 Planned Program: (continued)

- 195 Scout Laser Communications
- 74 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
- 98 Rapidly Installed Breakwater System
- 240 PLS-E Force XXI Tactical Wheeled Vehicle (TWV) Combat Multiplier
- 380 Information Operations Situational Awareness
- 100 Composite Structure for Robot Engineer
- 94 Dismounted Situational Awareness
- 50 Analytical Applications for Early Entry
- 42 Tactical Airspace Integration System (TAIS)
- 96 Field of View vs. Magnification
- 255 Force Protection
- 96 Passive Sensor Fusion
- 75 Interest Manager/Reflector for Intelligence, Artillery and Air Defense Artillery Systems
- 19 3rd Generation AN/VSS-2 Driver's Sight for M1A2
- 150 Pointman Mine Detection
- 98 Non-Lethal Technologies
- 210 Lasar Radar Targeting Systems (LATARS)
- 91 Fly Ferret
- 15 Global 24 hour Overhead Surveillance
- 225 MOS Consolidation
- 120 Dynamic Intelligence Preparation of the Battlefield (IPB)
- 549 Signature Reduction Coatings
- 55 Precision Delivery by Deployable Wing
- 98 Early Entry Sustainment Sim/Interfacet
- 325 Voice Recognition Prototype
- 395 Classroom 21 Leadership Development
- 310 Prototype Flat Panel Display
- 10 Deuce Ripper Tooth

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605712A Support of Operational Testing
	PROJECT: D985

FY 1996 Planned Program: (continued)

•	189	Asynchronous Transfer Mode (ATM)
•	87	Central Tire Inflation System
•	15	New Battery Technology
•	12	Low Cost Anit-Armo Submunition 6-Degree of Freedom (LOCAAS 6-DOF)
•	96	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 Anty Projectile
•	22	Information Distribution System (IDS) 2000 Operational Capability
•	28	Enhanced Radar TPQ-37
•	164	SBIR/STTR
•	52	Revised Economic Assumption not Available for Execution
Total	7390	

FY 1997 Planned Program:

•	8690	Test and Experimentation Initiatives continue based on the results of the FY 1996 Concept Experimentation Program
•		AWEs for division/corp level experiments will start up in FY97 and continue in FY98 and out.
•	1855	Division/Corps XXI Start-up
Total	10545	

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	5964	7646	8977
Appropriated Amount (FY 1995)	5938		
Adjustments to FY 1995	-76		
Appropriated Amount (FY 1996)		7465	
Adjustments to FY 1996		-75	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			+1568
Current President's Budget Submit	5862	7390	10545

Change Summary Explanation: Funding: FY 95: 76 decrease resulted from below threshold reprogramming.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605712A Support of Operational Testing

PROJECT: D987

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D987 OPTEC instrumentation Sustainment & Development	3199	6002	4396	5223	5198	6290	6396		Continuing	Continuing

A. <u>Mission Description and Budget Item Justification:</u> **Project D987 - OPTEC Instrumentation Sustainment & Development**: To remain abreast of new weapons and communications systems, OPTEC requires advanced technology insertion into instrumentation prior to the system tests. This project provides a cost effective data collection, telemetry, and processing capability to conduct credible and robust operational tests as required by the DoD and Congress. It modernizes OPTEC's instrumentation capability and develops non-major instrumentation that is non-intrusive, more reliable, and provides near real-time access of data for test control and analysis by integrating combat simulators into operational tests and by inserting technology advances into OPTEC instrumentation. It replaces obsolete and worn out instrumentation. It supports Real-Time Casualty Assessment (RTCA) providing realistic simulated attrition of forces. Continues the development of non-intrusive data collection and telemetry systems initiated in FY 1995. This is essential to ensure command and control; and system performance measures of effectiveness (MOEs) can be evaluated with objective and responsive attributes as opposed to subjective estimates. It provides an instrumented capability to capture data at remote, mobile, tactical field locations, and electronically transmit the data to receiving, control, and evaluation stations at the respective test directorates. These directorates are located at Fort Bliss, Fort Huachuca, Fort Hunter Liggett , Fort Hood and Fort Sill. This funding also completes development of OPTEC's interim RTCA capability that supports the Battlefield Combat Identification System (BCIS), Armored Gun System (AGS), Bradley Fighting Vehicle System (BFVS) and other force-on-force tests.

FY 1995 Accomplishments: Acquire or modify instrumentation to conduct ACAT I, ACAT II-IV, and Multi-Service tests funded in Project D001:

- 103 - Air Defense Artillery (ADA) Data Link Interface
- 274 - Automated Intelligence/Electronic Warfare Test System (AI/EWTS) Upgrades
- 53 - Buffered Airdrop Altitude Transducer
- 189 - Command Audio/Visual Upgrade
- 36 - Commercial Radio Upgrade
- 62 - Digital Camera System
- 25 - Digital Imaging Cameras
- 92 - Hi-Frequency EW Upgrades
- 245 - Operational Test Display System
- 102 - Video Instrumentation
- 472 - Video Telemetry and Recording System
- 65 - Telemetry Discriminator
- 44 - High Speed Data Recording System

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605712A Support of Operational Testing
	PROJECT D987

FY 1995 Accomplishment: (continued)

•		Acquire equipment and software to provide interim RTCA capability to support the LONGBOW APACHE IOTE and other tests requiring RTCA:
•	1219	- Mobile TEC (MTEC) Real Time Casualty Assessment (RTCA) Capability
•	111	- Pairing Through Obscuration - CO2 Real Time Casualty Assessment (RTCA)
•	107	- Mobile Integrated Non Intrusive (MINI) - C3I
Total	3199	

FY 1996 Planned Program: Acquire/ modify instrumentation to support ACAT I, ACAT II-IV, and Multi-Service tests funded in Project D001 and acquire equipment/software to provide interim RTCA capability to support tests requiring RTCA.

•	509	- Fiberoptics Range Network
•	504	- Improved Field Data Collector
•	120	- High-Speed Video Systems
•	572	- High Performance Aircraft Tracking & Recording System
•	250	- Mobile Command Post
•	400	- Multimedia Data Transfer System
•	500	- Video Telemetry and Recording System
•	190	- Automated and Intelligence/Electronic Warfare Test System (AI/EWTS) External Modulation Sources
•	66	- Geodetic Surveyor 4000SE
•	1809	- Mobile TEC (MTEC) Real Time Casualty Assessment (RTCA) Capability
•	610	- MAIS/FDC Interface
•	296	- MAIS Operational Test
•	134	- SBIR/STTR
•	42	- Revised Economic Assumption not available for execution
Total	6002	

FY 1997 Planned Program:

•	250	- Mobile TEC (MTEC) RTCA Capability
•	500	- Video Telemetry and Recording System
•	400	- Multimedia Data Transfer System
•	125	- High-Speed Video Systems
•	84	- OTCC Control System
•	500	- Fiberoptic Range Network
•	140	- GPS Data Processing

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: March 1996
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605712A Support of Operational Testing / PROJECT: D987

FY 1997 Planned Program: (continued)

•	230	- Operational Test Perspective View and Visualization
•	1417	- K-Band Test Obscuration Pairing System
•	300	- Video Capture/Processing System
•	40	- Instrumented Personnel Parachutes
•	80	- Geodetic Surveyor 4000SSE
•	330	- AI/EWTS First Generation Upgrade
Total	4396	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	3007	6169	4516
Appropriated Amount (FY 1995)	2944		
Adjustments to FY 1995	+255		
Appropriated Amount (FY 1996)		6062	
Adjustments to FY 1996		-60	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-120
Current President's Budget Submit	3199	6002	4396

Change Summary Explanation:

Funding: FY 1995: 255 increase resulted from below threshold reprogramming.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605801A Programwide Activities

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	94119	61913	61092	88343	87619	59559	62270		Continuing	Continuing
M881 RDTE Command/Center/General	74684	61913	58305	58988	57853	54352	55797		Continuing	Continuing
MM75 Federal Workforce Restructure	842	0	2787	29355	29766	5207	6473		Continuing	Continuing
MAC3 Ozone Depleting Chemicals (ODC) Elimination	17805	0	0	0	0	0	0		0	26279
MAC4 Pollution Prevention in Acquisition	788	0	0	0	0	0	0		0	788

Mission Description and Budget Item Justification: This program funds the continued operation of non-Army Management Headquarters Activities (AMHA) management and administrative functions at Army Research, Development, Test, and Evaluation (RDTE) commands, centers and activities required to accomplish overall assigned general research and development missions not directly related to specific research and development projects. Also provides funding to develop and implement Army programs for elimination of ozone depleting chemicals in weapons systems and pollution prevention in the acquisition of weapon systems. Project M881 reflects a glide path in response to Army infrastructure drawdown initiatives. FY 1995 MAC3 reflects Army initiatives to comply with Public Law and International treaties to eliminate ozone depleting chemicals. Project MAC4 (Pollution Prevention in Acquisition) is in response to Presidential directions on reducing use and/or release of hazardous materials on DoD installations. Beginning in FY 1996, Ozone Depleting Chemicals Elimination and Pollution Prevention in Acquisition are funded in PE 0605854A. 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: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605801A Programwide Activities

PROJECT: M881

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M881 RDTE Command/Center/General	74684	61913	58305	58988	57853	54352	55797		Continuing	Continuing

A. <u>Mission Description and Budget Item Justification:</u> **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 four international RDTE Standardization Groups located in Australia, Canada, 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 which was realigned from Program Element 0605898A in FY 97. Requested resources finance salaries and related support costs for authorized civilian personnel. This program is central to efficient management of the total Army RDTE program.

FY 1995 Accomplishments:

•	64505	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.
•	3718	Continue operation of the four Standardization Groups and AMC representative in France. Funds U.S. share of embassy costs (communications, custodial services, utilities and guard services).
•	350	Fund travel of the Army Science Board
•	1039	Fund quick reaction capability for accident investigations at U.S. Army Aviation and Troop Command and unique costs related to tenant support.
•	5072	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.
Total	74684	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605801A Programwide Activities
	PROJECT M881

FY 1996 Planned Program:

•	51881	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.
•	4150	Continue operation of the four Standardization Groups and AMC representative in France. Funds U.S. share of embassy costs (communications, custodial services, utilities and guard service).
•	292	Fund travel of the Army Science Board
•	1010	Fund quick reaction capability for accident investigations at U.S. Army Aviation and Troop Command and unique costs related to tenant support.
•	3774	Continue 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.
•	342	Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)
•	464	Revised Economic Assumption not available for execution
Total	61913	

FY 1997 Planned Program:

•	45807	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
•	4045	Continue operation of the four Standardization Groups and AMC representative in France. Funds U.S. share of embassy costs (communications, custodial services, utilities and guard services
•	898	Fund quick reaction capability for accident investigations at U.S. Army Aviation and Troop Command and unique costs related to tenant support.
•	7555	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 Hqs activities which administers the medical research, development, and acquisition program to sustain military technology superiority.
Total	58305	

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605801A Programwide Activities

PROJECT: M881

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	76619	63649	55365
Appropriated Amount (FY 1995)	73673		
Adjustments to FY 1995	+1011		
Appropriated Amount (FY 1996)		62529	
Adjustments to FY 1996		-616	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			+2940
Current President's Budget Submit	74684	61913	58305

Change Summary Explanation: Program resources from PE 0605898A, project MM03 will be transferred into this PE. (FY97)

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605801A Programwide Activities

PROJECT: MM75

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
MM75 Federal Workforce Restructure	842	0	2787	29355	29766	5207	6473		Continuing	Continuing

A. Mission Description and Budget Item 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 1995 Accomplishments:

•	842	Funds were distributed to qualifying program elements.
Total	842	

FY 1996 Planned Program: Project not funded.

FY 1997 Planned Program:

•	2787	Funds will be distributed to qualifying program elements.
Total	2787	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	2500	0	0
Appropriated Amount (FY 1995)	2500		
Adjustments to FY 1995	-1658		
Appropriated Amount (FY 1996)			
Adjustments to FY 1996			
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			2787
Current President's Budget Submit	842	0	2787

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605801A Programwide Activities

PROJECT: MAC3

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
MAC3 Ozone Depleting Chemicals (ODC) Elimination	17805	0	0	0	0	0	0		0	26279

A. **Mission Description and Budget Item Justification:** **Project MAC3 - Ozone Depleting Chemicals (ODC) Elimination:** Develops and implements the Army program to eliminate the use of ODC on/for weapon systems. The program has been established due to International Agreements (Montreal Protocol), Title VI of the Clean Air Act of 1990.

FY 1995 Accomplishments:

- 1000 Funds required for complete Test and Evaluation for Halon 1301 replacement of ground vehicles
- 1125 Funds required for joint Army/Navy/Air Force/Federal Aviation Agency project to find a Halon 1301 replacement for aviation engine nacelles.
- 255 Funds required to continue project alternatives for aviation specific Ozone-Depleting solvents in critical applications and expand to other critical industrial operations.
- 14716 Funds required to begin Fire Safety Test Enclosure.
- 473 Funds required for alternatives to ODC solvents used in ammunition processes and testing of NBC equipment
- 236 Funds required for program management oversight

Total 17805

FY 1996 Planned Program: Realigns environmental compliance resources to PE 0605854A, Pollution Prevention.

FY 1997 Planned Program: Realigns environmental compliance resources to PE 0605854A, Pollution Prevention.

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	18089	0	0
Appropriated Amount (FY 1995)	17709		
Adjustments to FY 1995	+96		
Appropriated Amount (FY 1996)			
Adjustments to FY 1996			
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	17805	0	0

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605801A Programwide Activities

PROJECT: MAC4

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
MAC4 Pollution Prevention in Acquisition	788	0	0	0	0	0	0		0	788

A. **Mission Description and Budget Item Justification: Project MAC4 - Pollution Prevention in Acquisition:** Develop and implement the Army program to comply with section 3-303 of Executive Order 12856 of 3 August 1993, which requires the elimination/reduction of hazardous materials/processes from acquisition/procurement within the Army.

FY 1995 Accomplishments:

•	115	Develop an Army Pollution Prevention in Acquisition Plan
•	198	Review cognizant documentation to identify toxic chemicals
•	336	Manage and initiate projects to identify, test and evaluate new substitute technologies
•	64	Initiate changes to documentation to replace toxic chemicals with validated alternatives
•	75	Support PEOs/PMs implementation of National Aerospace Standard 411 and pollution prevention requirements.
Total	788	

FY 1996 Planned Program: Realigns environmental compliance resources to PE 0605854A, Pollution Prevention.

FY 1997 Planned Program: Realigns environmental compliance resources to PE 0605854A, Pollution Prevention

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	906	0	0
Appropriated Amount (FY 1995)	887		
Adjustments to FY 1995	-99		
Appropriated Amount (FY 1996)			
Adjustments to FY 1996			
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	788	0	0

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: M798

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M798 International Cooperative Research and Development-Army Research Institude	1581	1561	1566	1559	1551	1547	1534		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 finds 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 1995 Accomplishments:

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

FY 1996 Planned Program:

•	698	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
•	2	Small Business Innovative Research/Science and Technology Transfer (SBIR/STTR)
•	11	Revised Economic Assumption not available for execution
Total	1561	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605802A International Cooperative Research and Development PROJECT M798

FY 1997 Planned Program:

- 716 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 1566

B. Project Change Summary	FY 1996	FY 1996	FY 1997
Previous President's Budget (FY 1996)	1615	1606	1609
Appropriated Amount (FY 1995)	1581		
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		1578	
Adjustments to FY 1996		-17	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-43
Current President's Budget Submit	1581	1561	1566

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	14039	13420	16921	17424	17867	18315	18950	-	Continuing	Continuing
DC16 Field Assistance in Science and Technology	2758	2703	2798	2871	2990	3131	3268	-	Continuing	Continuing
DC18 Board on Army Science and Technology	663	668	690	707	724	740	757	-	Continuing	Continuing
M720 Technical Information Functional Activities	2176	2277	2626	2727	2779	2788	2865	-	Continuing	Continuing
M727 Technical Information Activities	2983	2615	2870	3046	3166	3314	3526	-	Continuing	Continuing
M729 Youth Science Activities	2083	1924	2309	2368	2425	2481	2538	-	Continuing	Continuing
D730 Personnel and Training Analysis Activities	2856	2955	3448	3535	3622	3705	3858	-	Continuing	Continuing
M731 Government/Industry Data Exchange Program/Advisory Group on Electronic Devices (GIDEP/AGED)	150	278	0	0	0	0	0	-	0	428
M733 Acquisition Technology Act	370	0	2180	2170	2161	2156	2138	-	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: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

PROJECT: DC16

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
DC16 Field Assistance in Science and Technology	2758	2703	2798	2871	2990	3131	3268	-	Continuing	Continuing

A. Mission Description and Budget Item Justification Project DC16 - Field Assistance in Science and Technology (FAST): 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 AMCFAST in 1988 to plan for and allocate all AMCFAST 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 1995 Accomplishments:

•	2758	- Provided continuous activity on over 250 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 25 personnel in the Scientist and Engineers Field Experience With Soldiers (SEFEWS) program
Total	2758	

FY 1996 Planned Program:

•	2632	- Provide continuous activity on over 265 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 30 FAST-junior scientists and engineers on two to eight week tours - Provide professional growth opportunity for 55 personnel in the SEFEWS program
•	52	- SBIR/STTR
•	19	- Revised economic assumption not available for execution
Total	2703	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605803A Technical Information Activities / PROJECT: DC16

FY 1997 Planned Program:

- 2798 - 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 2798

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	2843	2778	2880
Appropriated Amount (FY 1995)	2783		
Adjustments to FY 1995	-25		
Appropriated Amount (FY 1996)		2730	
Adjustment to FY 1996		-27	
Adjustments to Budget Year (FY 1997) since FY 1996 Presidents Budget			-82
Current President's Budget Submit	2758	2703	2798

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

PROJECT: DC18

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
DC18 Board on Army Science and Technology	663	668	690	707	724	740	757	-	Continuing	Continuing

A. <u>Mission Description and Budget Item Justification</u> Project DC18 - Board on Army Science Technology (BAST): The 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 1995 Accomplishments

•	663	- Provided support for forecast of Army science and technology needs and responded to immediate science and technology requirements - Provided technical experts and participated in HQDA peer reviews for annual In-House Laboratory Independent Research (ILIR) and Research and Development Achievement (RDA) awards - Initiated study addressing the research status of space-based communications technology for C3I to "win the information war"
Total	663	

FY 1996 Planned Program:

•	648	- 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 - Conclude study addressing research status of space-based communications technology for C3I to "win the information war"
•	15	- SBIR/STTR
•	5	- Revised economic assumption not available for execution
Total	668	

FY 1997 Planned Program:

•	690	- 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"
Total	690	

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

PROJECT: DC18

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget Request (FY 1996)	678	687	704
Appropriated Amount (FY 1995)	663		
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		675	
Adjustment to FY 1996		-7	
Adjustments to Budget Year (FY 1997) since FY 1996 Presidents Budget			-14
Current Budget Estimate Submit	663	668	690

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

PROJECT: M720

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M720 Technical Information Functional Activities	2176	2277	2626	2727	2779	2788	2865	-	Continuing	Continuing

A. Mission Description and Budget Item Justification Project M720 - Technical Information Functional Activities: 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 all U. S. Army Materiel Command (AMC) subordinate commands and laboratories patent fees and patent legal expenses. 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 1995 Accomplishments:

- 1022
  - Provided managerial, programming, data base, 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 which included organizing 2 general membership meetings and a summer study
- 1154
  - Provided administrative support for SBIR/STTR programs
  - Provided Army Science and Technology Reports to include Technology Transfer Brochure
  - Provided Army funding support for patent fees and patent legal expenses
  - Provided for Army S&T Summer Study in FY 1996 by awarding admin support contract, completing site survey and releasing call for papers

Total 2176

FY 1996 Planned Program:

- 985
  - Continue managerial, programming, data base, 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 Army Science Board

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605803A Technical Information Activities
	PROJECT: M720

FY 1996 Planned Program: (continued)

•	1225	- Provide Army Science and Technology Summer Study and awards - Provide administrative support for SBIR/STTR programs - Provide funding for AMC commands and laboratories patent fees and patent legal expenses
•	51	- SBIR/STTR
•	16	- Revised economic assumption not available for execution
Total	2277	

FY 1997 Planned Program:

•	995	- Continue managerial, programming, data base, 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
•	1631	- Provide administrative support for SBIR/STTR programs - Provide Army Science and Technology Reports - Provide funding for AMC commands and laboratories patent fees and patent legal expenses - Provide funding for Army Science and Technology Summer Study and awards
Total	2626	

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget Request (FY 1996)	1689	2341	2397
Appropriated Amount (FY 1995)	1653		
Adjustments to FY 1995	+523		
Appropriated Amount (FY 1996)		2300	
Adjustment to FY 1996		-23	
Adjustments to Budget Year (FY 1997) since FY 1996 Presidents Budget			+229
Current Budget Estimate Submit for FY 1997	2176	2277	2626

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

PROJECT: M727

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M727 Technical Information Activities	2983	2615	2870	3046	3166	3314	3526	-	Continuing	Continuing

A. Mission Description and Budget Item Justification Project M727 - Technical Information Activities: 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 1995 Accomplishments:

- 2983 - Continued the Science and Technology Data Base 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

Total 2983

FY 1996 Planned Program:

- 2541 - Continue the Science and Technology Data Base 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
- 55 - SBIR/STTR
- 19 - Revised economic assumption not available for execution

Total 2615

FY 1997 Planned Program:

- 2870 - Continue the Science and Technology Data Base 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 2870

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

PROJECT: M727

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget Request (FY 1996)	2390	2731	2737
Appropriated Amount (FY 1995)	2340		
Adjustments to FY 1995	+643		
Appropriated Amount (FY 1996)		2641	
Adjustment to FY 1996		-26	
Adjustments to Budget Year (FY 1997) since FY 1996 Presidents Budget			+133
Current Budget Estimate Submit for FY 1997	2983	2615	2870

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605803A Technical Information Activities / PROJECT: M729

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M729 Youth Science Activities	2083	1924	2309	2368	2425	2481	2538	-	Continuing	Continuing

A. Mission Description and Budget Item Justification Project M729 - Youth Science Activities: 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 & Engineering Apprenticeship Program (SEAP) has been included into 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 1995 Accomplishments:

•	2083	- Continued to foster high school student interest in science, mathematics, engineering and computer science, nationally, by supporting: 47 regional Junior Science and Humanities Symposia (JSHS), over 300 science and engineering fairs, the US Math Association and sponsored 6 students for the US math team to participate in the International Math Olympiad (IMO), and supported socially/economically disadvantaged high school students in a 6 to 15 week assignment with a selected mentor for the Research and Engineering Apprentice Program (REAP)
		- Placed 720 high school students in Army/Navy laboratories in the Washington area under the Science & Engineering Apprenticeship Program
		- 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	2083	

FY 1996 Planned Program:

•	1868	- 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 Science & Engineering Apprenticeship Program 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
•	43	- SBIR/STTR
•	13	- Revised economic assumption not available for execution
Total	1924	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605803A Technical Information Activities
	PROJECT M729

FY 1997 Planned Program:

•	2309	- 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 Science & Engineering Apprenticeship Program 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	2309	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget Request (FY 1996)	1895	2302	2409
Appropriated Amount (FY 1995)	1855		
Adjustments to Appropriated Value	+228		
Appropriated Amount (FY 1996)		1943	
Adjustment to FY 1996		-19	
Adjustments to Budget Year (FY 1997) since FY 1996 Presidents Budget			-100
Current Budget Estimate Submit for FY 1997	2083	1924	2309

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

PROJECT: D730

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D730 Personnel and Training Analysis Activities	2856	2955	3448	3535	3622	3705	3858	-	Continuing	Continuing

A. Mission Description and Budget Item Justification Project D730 - Personnel & Training Analysis Activities: 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 designated 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 1995 Accomplishments:

•	2856	- Identified factors that most influence junior officer career commitment and the possible decision to leave the Army - Analyzed enlistment, reenlistment, promotion, and separation policies; identified comparative trends in soldier attitudes regarding personnel system and organizational changes - Analyzed trends in unit performance at the Combat Training Centers which reflect the effectiveness of tactical doctrine, unit organization, training, materiel, and leadership (DOTML) - Assessed the viability and effectiveness of the existing promotion, education, and professional development systems in the smaller Army of the 1990s
Total	2856	

FY 1996 Planned Program:

•	2869	- Determine effects of alternative compensation and personnel policies upon enlistment, attrition, retention, and separation decisions and costs in an era of downsizing. - Determine skills and task training requirements for effective back-up operations to digitization when systems are degraded, disrupted or compromised. - Continue analyses of trends in unit performance at the Combat Training Centers. - Determine training, career and professional concerns of active duty Special Forces NCOs. - Determine impact of reductions in training resources on the quality of TRADOC graduates' performance.
•	66	- SBIR/STTR
•	20	- Revised economic assumption not available for execution
Total	2955	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY: 6 - Management Support	PE NUMBER AND TITLE: 0605803A Technical Information Activities / PROJECT: D730

FY 1997 Planned Program:

•	3448	- Provide information for decisions about leader development program to meet current and future leadership requirements. - Determine efficient allocation of military pay and benefit resources; determine costs of alternative force mixes. - Recommend and evaluate solutions that will reverse adverse trends in unit performance identified at the Combat Training Centers. - Conduct analyses to support assessment, training, and development of Special Forces soldiers.
Total	3448	

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget Request (FY 1996)	2970	3038	3162
Appropriated Amount (FY 1995)	2908		
Adjustment to FY 1995	-52		
Appropriated Amount (FY 1996)		2985	
Adjustments to FY 1996		-30	
Adjustments to Budget Year (FY 1997) since FY 1996 Presidents Budget			+286
Current Budget Estimate Submit for FY 1997	2856	2955	3448

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

PROJECT: M731

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M731 Government/Industry Data Exchange Program/Advisory Group on Electronic Devices (GIDEP/AGED)	150	278	0	0	0	0	0	-	0	428

A. Mission Description and Budget Item Justification Project M731 - Government/Industry Data Exchange program (GIDEP) and the Advisory Group on Electronic Devices (AGED): The Government/Industry Data Exchange Program is a joint government/industry effort for the exchange of data to enhance development, design, engineering logistics and cost defense weapon systems equipment. Funds support GIDEP reliability, maintainability and failure experiences interchange data bases. 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 1995 Accomplishments:

•	150	Continued information exchange of data between industry and government and expansion of the program covering Army elements (industry and government) not currently participating (50) Completed Engineering Design Handbooks: MIL-HDBK-797(Ae), Polymide (Nylon) Plastics Properties, Processing, Performance, and Military Applications; MIL-HDBK-684, Design of Combat Vehicles for Fire Survivability; MIL-HDBK-1206(EA) Liquid-Filled Projectile Design; MIL-HDBK-1211(MI) Missile Flight Simulation Part 1, Surface to Air Missiles; Fire Control Systems-General; Armor and Its Applications and completed an EDHP Catalog of handbooks
Total	150	

FY 1996 Planned Program:

•	270	Complete 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
•	6	- SBIR/STTR
•	2	- Revised economic assumption not available for execution
Total	278	

FY 1997 Planned Program: Project completed in FY 96.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605803A Technical Information Activities
	PROJECT M731

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget Request (FY 1996)	279	285	543
Appropriated Amount (FY 1995)	273		
Adjustments to FY 1995	-123		
Appropriated Amount (FY 1996)		280	
Adjustment to FY 1996		-2	
Adjustments to Budget Year (FY 1997) since FY 1996 Presidents Budget			-543
Current Budget Estimate Submit for FY 1997	150	278	0

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

PROJECT: M733

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M733 Acquisition Technology Act	370	0	2180	2170	2161	2156	2138	-	Continuing	Continuing

A. <u>Mission Description and Budget Item Justification</u> **Project M733 - Acquisition Technology Activities (ATA):** 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 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 1995 Accomplishments:

•	370	Conducted special studies on program integration issues and provided Congressional Issues Analysis. Initiated programmatic requirements analysis
Total	370	

FY 1996 Planned Program: Program not funded in FY 1996

FY 1997 Planned Program:

•	2180	- Develop a simulation and logical modeling test and evaluation environment that provides a prototype development tool in support of technology based initiatives - Design application program and user interface utilities for executive level information systems that offer Standard Query Language (SQL) services to AAC corporate and global data bases - Continue analysis of acquisition program financial programming and budgeting requirements. Initiate development of Weapon Systems Handbook, Analytic/Technical Support for Army Science and Technology Programs, Long-Range Planning and Policy Analysis, Resource Allocation Analysis, Cost Tracking and Analysis, Cost-effectiveness Analysis and Data Base Management/Financial Analysis, SAR Technology Application Concept Research/Analysis
Total	2180	

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605803A Technical Information Activities

PROJECT: M733

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget Request (FY 1996)	250	2239	2240
Appropriated Amount (FY 1995)	245		
Adjustment to FY 1995	+125		
Appropriated Amount (FY 1996)		-2239	
Adjustment to FY 1996			
Adjustments to Budget Year (FY 1997) since FY 1996 Presidents Budget			-60
Current Budget Estimate Submit for FY 1997	370	0	2180

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

DATE: March 1996

BUDGET ACTIVITY: **6 - Management Support**

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

COST *(In Thousands)*	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	14015	17608	2282	6136	5995	6577	6538		Continuing	Continuing
DF21 North Atlantic Treaty Organization (NATO) Small Arms Evaluation	314	278	280	278	275	275	280		Continuing	Continuing
DF24 Conventional Ammunition Demilitarization	7937	16459	731	4609	4589	4731	4699		Continuing	Continuing
D293 Field Artillery Ammunition (NATO) Engineering Development	274	267	0	0	0	0	0		0	834
D620 DOD Munitions Effectiveness	4860	0	0	0	0	0	0		0	189150
M296 Pyrotechnic Reliability and Safety	0	0	682	679	579	766	761		Continuing	Continuing
M857 Explosive Safety Standards	630	604	589	570	552	805	798		Continuing	Continuing

Mission Description and Budget Item Justification: This program supports a continuing technology investigation. 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 safety and hazard evaluation and quantification of 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 program and are correctly placed in Budget Activity 6.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: DF21

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
DF21 North Atlantic Treaty Organization (NATO) Small Arms Evaluation	314	278	280	278	275	275	280		Continuing	Continuing

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

FY 1995 Accomplishments:

•	60	Continued to staff, equip, and maintain the NARTC for 5.56mm and 7.62mm
•	25	Initiated NATO qualification testing for 5.56mm and M856 ammunition
•	65	Continued to maintain standardization of previously qualified calibers, including 25mm
•	72	Established pressure limits for the 6215 pressure transducer for use in testing of previously qualified ammunition designs, including 25mm
•	92	Evaluations of environmentally friendly testing methodology (alternate Mercurous Nitrate Test Procedure)
Total	314	

FY 1996 Planned Program:

•	99	Implement the use of the 6215 pressure transducer for all NATO standardization testing, including 25mm
•	55	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	Incorporate use of new environmentally safe test method as an alternate to current hazardous procedures
•	10	Complete qualification testing of 5.56mm, M856 Trace ammunition
•	4	Funds will be used for SBIR/STTR programs IAW the Small Business Innovation Research Program Reauthorization Act of 1992
•	1	Revised economic assumption- not available for execution
Total	278	

FY 1997 Planned Program:

•	60	Continue to staff, equip and maintain the NARTC for 9mm, 5.56mm and 7.62mm only
•	80	Continue to maintain standardization of previously qualified calibers, including 25mm
•	140	Other activities, including Partners in Peace initiatives
Total	280	

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: DF21

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	317	286	284
Appropriated Amount (FY 1995)	314		
Adjustment to FY 1995			
Appropriated Amount (FY 1996)		281	
Adjustment to FY 1996		-3	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-4
Current President's Budget Submit	314	278	280

Change Summary Explanation:

Funding: FY 1996: This program has been reduced for revised economic assumptions.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: DF24

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
DF24 Conventional Ammunition Demilitarization	7937	16459	731	4609	4589	4731	4699		Continuing	Continuing

A. **Mission Description and Budget Item Justification:** This project supports a continuing technology evaluation of demilitarization methods for existing conventional ammunition and conventional ammunition recovered from formerly used defense sites (FUDS). It will complete the development and demonstration of new, safe, and environmentally acceptable alternatives to open burning/open detonation (OB/OD) 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.

Acquisition Strategy: The plasma arc furnace program is designed to demonstrate/validate a prototype furnace system for the demilitarization of small pyrotechnic ordnance and related items. To accomplish this, a continuation of concept design, prototype procurement, installation, and prove-out is required. Upon completion of a successful demonstration/validation, the design specifications and prototype will be made available to the Industrial Operations Command Ammunition Peculiar Equipment (APE) program office for acquisition planning actions.

FY 1995 Accomplishments:

•	7366	Developed the design and specification of a prototype plasma arc furnace and initiated fabrication and installation
•	461	Continued plasma arc system design, initiated procurement, and began site preparation for production prototype Super Critical Water Oxidation (SCWO) system for demilitarization of colored smokes and dyes
•	110	Completed the testing of an ultrasound concept to remove energetic materials from cast-loaded munitions
Total	7937	

FY 1996 Planned Program:

•	2920	Supercritical water oxidation of carcinogenic/toxic colored smokes and dyes
•	10472	Development of plasma arc furnace system for demilitarization of pyrotechnic ordnance
•	880	Development of explosives rework process for cast-loaded munitions
•	820	Cryofracture demilitarization for explosives-loaded small munitions
•	554	Development of a real-time metal emissions monitoring system
•	147	Development of a high pressure CO2 blastout system for removal of press-loaded explosives
•	130	Conversion of CS (tear gas) to saleable products via hydrolysis

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605805A Munitions Standardization Effectiveness and Safety PROJECT DF24

FY 1996 Planned Program: (continue)

•	125	Develop advanced prototype energetic materials removal technology
•	365	Funds will be used for SBIR/STTR programs IAW the Small Business Innovation Program Reauthorization Act of 1992
•	46	Revised economic assumption- not available for execution
Total	16459	

FY 1997 Planned Program:

•	157	Complete testing and evaluation of production prototype SCWO system for demilitarization of colored smokes and dyes
•	140	Continue cryofracture demilitarization
•	263	Rework of cast-loaded explosives recovered from demilitarization operations
•	171	Complete prove-out of the production prototype plasma arc furnace system for demilitarization of small pyrotechnic ordnance
Total	731	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	8107	5722	748
Appropriated Amount (FY 1995)	7937		
Adjustment to FY 1995	0		
Appropriated Amount (FY 1996)		16626	
Adjustment to FY 1996		-167	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-17
Current President's Budget Submit	7937	16459	731

Change Summary Explanation:

Funding: FY 1996: This program has been reduced for revised economic assumptions.
FY 1997: This program has been reduced for revised economic assumptions.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: D293

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D293 Field Artillery Ammunition (NATO) Engineering Development	274	267	0	0	0	0	0		0	834

A. Mission Description and Budget Item Justification: This project supports US/NATO howitzer and ammunition Rationalization, Standardization, Interoperability, and Compatibility.

FY 1995 Accomplishments:

- 214 Engineering support
- 50 Interoperability testing
- 10 Translation and interpretation

Total 274

FY 1996 Planned Program:

- 184 Engineering support
- 66 Interoperability testing
- 10 Translation and interpretation
- 6 Funds will be used for SBIR/STTR programs IAW the Small Business Innovation Research Program Reauthorization Act of 1992
- 1 Revised economic assumption- not available for execution

Total 267

FY 1997 Planned Program: No planned program. Program terminated.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: D293

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	280	274	271
Appropriated Amount (FY 1995)	274		
Adjustment to FY 1995	0		
Appropriated Amount (FY 1996)		269	
Adjustment to FY 1996		-2	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-271
Current President's Budget Submit	274	267	0

Change Summary Explanation:

Funding: FY 1996: This program has been reduced for revised economic assumptions.
FY 1997: Funds were reduced because the program was terminated.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: D620

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D620 DOD Munitions Effectiveness	4860	0	0	0	0	0	0		0	189150

A. Mission Description and Budget Item Justification: Develops Joint Munitions Effectiveness Manuals (JMEMs) which provide weapon/munitions effectiveness predictions for operational non-nuclear ordnance employed by the Services. Manages joint Services efforts to improve the analytical methodology and data base used to determine the effectiveness of non-nuclear weapons systems. Promotes standardized procedures for parameters associated with munitions effectiveness. Conducts special studies to determine the effectiveness of non-nuclear munitions systems. Develops air-to-air, surface-to-surface, and anti-air weapons effectiveness, environmental effects, and target vulnerability for all types of munitions. Project includes collection, collation, storage, and dissemination of combat data.

FY 1995 Accomplishments:

•	425	Standardize development of prototype CD/ROM system for the automation of JMEMs
•	622	Develop methodologies and models for assessment of damage to hardened bunker/aircraft targets and crew casualties
•	900	Develop data for Smart Weapon Analysis Workstation, Special Operations Planning and Requirements System, and the Aircraft Loading and Target Attack Planning System
•	2913	Maintain/update a library of JMEMs and reports for the Services/JCS/JLC/CINCs/MACOMs/Unified Commands
Total	4860	

FY 1996 Planned Program: No FY 1996 planned program.

FY 1997 Planned Program: No FY 1997 planned program.

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	4958	0	0
Appropriated Amount (FY 1995)	4860		
Adjustment to FY 1995	0		
Appropriated Amount (FY 1996)		0	
Adjustment to FY 1996		0	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			0
Current President's Budget Submit	4860	0	0

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: M296

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M296 Pyrotechnic Reliability and Safety	0	0	682	679	579	766	761		Continuing	Continuing

A. Mission Description and Budget Item 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 1995 Accomplishments: No FY 1995 program.

FY 1996 Planned Program: No FY 1996 program.

FY 1997 Planned Program:

•	195	Initiate development of safer pyrotechnic munitions/systems (i.e., simulators, flares, igniters)
•	97	Initiate development of alternative materials and designs for munitions/systems utilizing magnesium
•	195	Initiate development of materials and process changes to preclude magnesium moisture reaction and hydrogen generation
•	195	Initiate technology determination for shelf life of pyrotechnics
Total	682	

B. Project Change Summary:

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	0	0
Appropriated Amount (FY 1995)	0		
Adjustment to FY 1995	0		
Appropriated Amount (FY 1996)		0	
Adjustment to FY 1996		0	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			682
Current President's Budget Submit	0	0	682

Change Summary Explanation:
Funding: FY 1997: New start.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: M857

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M857 Explosive Safety Standards	630	604	589	570	552	805	798		Continuing	Continuing

A. **Mission Description and Budget Item Justification:** Supports explosives 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 1995 Accomplishments:

•	210	Collected and analyzed data from 105mm projectiles and 81mm mortars in the open, and 105mm projectiles in an earth-covered magazine. Data to be used to revise Tri-Services and NATO hazards interpretation of Hazards Division 1.2 ammunition inside and outside structures
•	180	Developed improved Tri-Services design procedures for explosion-resistant structures that included improved procedures for reinforced steel mechanical splices and re-evaluation of the criteria for substantial dividing walls
•	60	Collected thermal characterization data for several energetic materials, including ammonium nitrate and ammonium perchlorate. Developed a modified Polster fixture to improve collection of decomposition data for metal-loaded explosives
•	180	Conducted other hazards analyses and prepared improved DOD guidelines for munitions storage facilities. Conducted study on the quantity-distance criteria for small quantities in hardened aircraft that resulted in a change to DOD 6055.9-STD. Other studies included a review of risk-based approaches for explosives safety and a review of accident data for purpose of refining quantity-distance criteria
Total	630	

FY 1996 Planned Program:

•	170	Collect and analyze data for revising Tri-Services and NATO hazard interpretations for Hazard Divisions 1.2, and 1.6 ammunition outside and inside structures
•	120	Develop improved Tri-Services design procedures and improved computer codes for explosion-resistant structures
•	50	Develop improved explosives and munitions tests and collect characterization data
•	208	Develop improved DOD guidelines for mu[illegible]torage facilities
•	40	Conduct other hazards analyses and expand/automate explosives safety databases
•	14	Funds will be used for SBIR/STTR programs IAW the Small Business Innovation Research Program Reauthorization Act of 1992
•	2	Revised economic assumption- not available for execution
Total	604	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605805A Munitions Standardization Effectiveness and Safety PROJECT M857

FY 1997 Planned Program:

•	189	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
•	120	Develop improved Tri-Services design procedures and improved computer codes for explosion-resistant structures
•	50	Develop improved explosives and munitions tests and characterization data
•	186	Develop improved DOD guidelines for munitions storage facilities
•	44	Conduct other hazards analyses and expand/automate explosives safety data bases
Total	589	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	644	621	605
Appropriated Amount (FY 1995)	630		
Adjustment to FY 1995	0		
Appropriated Amount (FY 1996)		610	
Adjustment to FY 1996		-6	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-16
Current President's Budget Submit	630	604	589

Change Summary Explanation:

Funding: FY 1996: This program has been reduced for revised economic assumptions.
FY 1997: This program has been reduced for revised economic assumptions.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605853A Environmental Conservation

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	0	2464	1759	775	1820	2150	1769		Continuing	Continuing
M0CC Environmental Conservation - AMC Test Ranges	0	2261	1498	658	1700	1884	1645		Continuing	Continuing
M1CC Environmental Conservation - AMC Major Subordinate Commands/Laboratories	0	10	115	117	120	122	124		Continuing	Continuing
M5CC Environmental Conservation - USASSDC	0	193	146	0	0	144	0		0	0

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 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; Projects M0CC and M1CC were realigned from Program Element 0605856A. Project M5CC was realigned from 0605301A. 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: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605853A Environmental Conservation

PROJECT: M0CC

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M0CC Environmental Conservation - AMC Test Ranges	0	2261	1498	658	1700	1884	1645		Continuing	Continuing

A. **Mission Description and Budget Item 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 1995 Accomplishments: Project funded under PE 0605856A.

FY 1996 Planned Program:

•	2194	Fund 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.
•	51	Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)
•	16	Revised Economic Assumption not available for execution
Total	2261	

FY 1997 Planned Program:

•	1498	Fund 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.
Total	1498	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605853A Environmental Conservation
	PROJECT M0CC

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	2324	1539
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		2283	
Adjustments to FY 1996		-22	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-41
Current President's Budget Submit	0	2261	1498

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605853A Environmental Conservation

PROJECT: M1CC

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M1CC Environmental Conservation - AMC Major Subordinate Commands/Laboratories	0	10	115	117	120	122	124		Continuing	Continuing

A. **Mission Description and Budget Item Justification:** Project M1CC resources in this project ensure an adequate level of funding for environmental natural and cultural resource management requirements, as discussed in paragraph A, at Army Research Laboratory (ARL), Adelphi, MD; Armament Research, Development and Engineering Center (ARDEC), Picatinny Arsenal, Dover, NJ; Soldier Systems Command (SSC), formerly, Natick Research, Development and Engineering Center (NRDEC), Natick, MA.

FY 1995 Accomplishments: Project funded under 0605856A.

FY 1996 Planned Program:

•	10	Fund 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:

•	115	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	115	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605853A Environmental Conservation PROJECT M1CC

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	10	10
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		10	
Adjustments to FY 1996			
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			+105
Current President's Budget Submit	0	10	115

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605853A Environmental Conservation

PROJECT: M5CC

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M5CC Environmental Conservation - USASSDC	0	193	146	0	0	144	0		0	0

A. **Mission Description and Budget Item Justification:** Project M5CC Environmental Conservation - U.S. Army Space and Strategic Defense Command (USASSD): Resources in this project ensure an adequate level of funding for environmental natural and cultural resource management requirements, at USASSDC. Funds for this project were realigned from PE 0605301A in FY 1996 - FY 2001.

FY 1995 Accomplishments: Project funded under 0605301A.

FY 1996 Planned Program:

•	188	Develop an Historic Preservation Plan for management of historic properties to comply with National Historic Preservation Act.
•	4	SBIR/STTR
•	1	Revised Economic Assumption not available for execution
Total	193	

FY 1997 Planned Program:

•	146	Continue development of Historic Preservation Plan for management of historic properties to comply with National Historic Preservation Act.
Total	146	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	199	100
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		195	
Adjustments to FY 1996		-2	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			+46
Current President's Budget Submit	0	193	146

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605854A Pollution Prevention

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	0	12652	13894	4384	4038	9171	2320		Continuing	Continuing
M0PP Pollution Prevention - AMC Test Ranges	0	3398	546	0	1217	905	815		Continuing	Continuing
M1PP Pollution Prevention - AMC Major Subordinate Commands/Laboratories	0	260	143	121	121	120	119		Continuing	Continuing
M5PP Pollution Prevention - USASSDC	0	2855	1957	1371	685	584	532		Continuing	Continuing
M7PP Pollution Prevention - ODC Elimination	0	1976	799	0	0	6701	0		Continuing	Continuing
M8PP Pollution Prevention - Acquisition Pollution Prevention	0	4163	10449	2892	2015	861	854		Continuing	Continuing

Mission Description and Budget Item Justification: This program ensures that resources are available to fund the non-research portion of the Army's RDTE funded environmental pollution prevention program. It finances pollution prevention efforts at Army RDTE installations, laboratories and test ranges; prove-out/engineering of alternatives to the use of ozone depleting chemicals in combat vehicle fire protection systems, as cooling agents in Army unique cooling and refrigeration systems, and as cleaning agents and solvents; and the Army Acquisition Pollution Prevention program to reduce requirements for the procurement of toxic chemicals, including review of standardized documents containing these requirements, prove out/engineering of alternative chemicals and processes, revision of standardized documents revision of manufacturing practices, revision of procurement practices and revisions of the Federal Acquisition Regulations. Pollution prevention is any action that is designed to reduce or eliminate (rather than control or treat) the future impact on operational readiness or that an operation may have on the environment (including impacts to the air, surface and ground waters, vegetation and soils) through the source reduction of pollutants, more efficient use of natural resources, recycling, and/or reduced emissions of toxic and other undesirable materials or wastes to the environment. No Operations and Maintenance, Army (OMA) funds are programmed for these purposes. Army defines environmental effort as: Class I - support compliance with legally binding agreements or judgments under applicable Federal, State, local or host nation environmental laws; 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 - other pollution prevention projects, but where non-compliance is not imminent. Included as Class I and II are projects to comply with the Pollution Prevention Act, the Emergency Planning/Community Right-to Know Act, and the other requirements of Executive Order 12856. Projects M0PP and M1PP were realigned from PE 0605856A. M7PP and M8PP were realigned from Program Element 0605801A. Project M5PP was realigned from 0605301A. (This is a zero sum transfer within Army) 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: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605854A Pollution Prevention

PROJECT: M0PP

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M0PP Pollution Prevention - AMC Test Ranges	0	3398	546	0	1217	905	815		Continuing	Continuing

A. **Mission Description and Budget Item 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 1995 Accomplishments: Program funded in Program Element 0605856A.

FY 1996 Planned Program:

•	3298	Fund Class I, Class II and Class III pollution prevention projects such as conduct 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.
•	76	Small Business Innovation Research (SBIR/Small Business Technology Transfer (STTR)
•	24	Revised Economic Assumption not available for execution
Total	3398	

FY 1997 Planned Program:

•	546	Fund Class I, Class II and Class III 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.
Total	546	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	3493	3215
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		3432	
Adjustments to FY 1996		-34	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-2669
Current President's Budget Submit	0	3398	546

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605854A Pollution Prevention

PROJECT: M1PP

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M1PP Pollution Prevention - AMC Major Subordinate Commands/Laboratories	0	260	143	121	121	120	119		Continuing	Continuing

A. **Mission Description and Budget Item 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, formerly, Natick Research, Development and Engineering Center (NRDEC), Natick, MA; and Army Research Laboratory Materials Technology Directorate (ARLMTD), APG, MD.

FY 1995 Accomplishments: Program funded in Program Element 0605856A.

FY 1996 Planned Program:

•	253	Fund 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.
•	5	SBIR/STTR
•	2	Revised Economic Assumption not available for execution
Total	260	

FY 1997 Planned Program:

•	143	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	143	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	267	147
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		262	
Adjustments to FY 1996		-2	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-4
Current President's Budget Submit	0	260	143

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605854A Pollution Prevention

PROJECT: M1PP

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M5PP Pollution Prevention - USASSDC	0	2855	1957	1371	685	584	532		Continuing	Continuing

A. Mission Description and Budget Item 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 1995 Accomplishments: Program funded in Program Element 0605301A.

FY 1996 Planned Program:

•	2772	Fund pollution prevention programs such as hazardous material satellite areas, Halon reduction, removal and disposal of PCBs, etc.
•	63	SBIR/STTR
•	20	Revised Economic Assumption not available for execution.
Total	2855	

FY 1997 Planned Program:

•	1957	Fund pollution prevention programs such as hazardous material satellite areas, recycling of metals, Halon reduction, pollution prevention, etc.
Total	1957	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	2935	1443
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		2884	
Adjustments to FY 1996		-29	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			+514
Current President's Budget Submit	0	2855	1957

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605854A Pollution Prevention

PROJECT: M5PP

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M7PP Pollution Prevention - ODC Elimination	0	1976	799	0	0	6701	0		Continuing	Continuing

A. Mission Description and Budget Item Justification: Project M7PP - Pollution Prevention - ODC Elimination: Develop and implement the Army program to eliminate the use of ozone depleting chemicals (ODCs) 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.

FY 1995 Accomplishments: Program funded in Program Element 0605801A.

FY 1996 Planned Program:

- 832 Continue fire safety test enclosure
- 350 Continue project on Ozone - Depleting solvents for aviation and industrial composite operations
- 600 Continue Test & Evaluation of hydrochlorofluorocarbon (HCFC)-22 replacement in air conditioners/environmental control units in communication shelters.
- 136 Continue test and evaluation of Halon replacement for aviation engine nacelles
- 44 SBIR/STTR
- 14 Revised Economic Assumption not available for execution

Total 1976

FY 1997 Planned Program:

- 799 Continue Test & Evaluation of HCFC-22 (Class II Ozone-Depleter) in air conditioners/environmental control units in communication shelters.

Total 799

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	2031	320
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		1996	
Adjustments to FY 1996		-20	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			+479
Current President's Budget Submit	0	1976	799

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605854A Pollution Prevention

PROJECT: M7PP

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M8PP Pollution Prevention - Acquisition Pollution Prevention	0	4163	10449	2892	2015	861	854		Continuing	Continuing

A. <u>Mission Description and Budget Item Justification:</u> **Project M8PP - Pollution Prevention - Acquisition Pollution Prevention:** Develop and implement the Army program to reduce requirements for the acquisition and procurement of toxic chemicals. The program has been developed to comply with the requirements of Executive Order 12856, Section 3-303.

FY 1995 Accomplishments: Project funded under Program Element 0605801A.

FY 1996 Planned Program:

- 1379 Continue to review documentation to identify toxic chemicals
- 2107 Continue to manage and initiate projects to identify, test and evaluate new substitute-alternatives
- 369 Continue changes to documentation to replace toxic chemicals with validated alternatives
- 187 Support PEO/PM implementation of validated technologies in contracts and technical requirements.
- 92 SBIR/STTR
- 29 Revised Economic Assumption not available for execution

Total 4163

FY 1997 Planned Program:

- 3883 Continue to review documentation to identify toxic chemicals
- 5016 Continue to manage and initiate projects to identify, test and evaluate new substitute-alternatives
- 950 Continue changes to documentation to replace toxic chemicals with validated alternatives
- 600 Support PEO/PM implementation of validated technologies in contracts and technical requirements.

Total 10449

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE
	March 1996

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
6 - Management Support	0605854A Pollution Prevention	M7PP

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	4279	3682
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		4204	
Adjustments to FY 1996		-41	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			+6767
Current President's Budget Submit	0	4163	10449

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	49973	64349	53911	49900	45047	44449	42299		Continuing	Continuing
M0VV Environmental Compliance - AMC Test Ranges	33402	38657	34856	34215	31742	30995	30445		Continuing	Continuing
M1VV Environmental Compliance - AMC Major Subordinate Command/Laboratories	14638	20900	13972	12709	10698	11056	10009		Continuing	Continuing
M4VV Environmental Compliance - Corps of Engineers	1933	0	0	0	0	0	0		0	0
M5VV Environmental Compliance - USASSDC	0	4792	5083	2976	2607	2398	1845		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 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: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: M0VV

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M0VV Environmental Compliance - AMC Test Ranges	33402	38657	34856	34215	31742	30995	30445		Continuing	Continuing

A. **Mission Description and Budget Item Justification:** Project M0VV - Environmental Compliance- AMC Test Ranges: Resources in the project ensure and 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.

FY 1995 Accomplishments:

•	33402	Fund Class I, Class II, and other "Must Fund" environmental compliance programs such as underground storage tank removal/remediation, sediment and erosion control, asbestos disposal, wastewater compliance, ozone-depleting substance minimization program, toxic release inventory, air emission inventories/permits, ground water monitoring, underground inspection control and responses to Notice of Deficiencies (NOD) for hazardous waste management permits. Fund remaining compliance requirements such as Hazardous Waste Management Program and program management.
Total	33402	

FY 1996 Planned Program:

•	37687	Fund 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 Notice of Deficiencies (NOD) for hazardous waste management permits. Also funds hazardous waste disposal and program management.
•	694	Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)
•	276	Revised Economic Assumption not available for execution
Total	38657	

FY 1997 Planned Program:

•	34856	Fund 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	34856	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY **6 - Management Support**	PE NUMBER AND TITLE **0605856A Environmental Compliance - Research, Development, Testing & Evaluation**
	PROJECT **M0VV**

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	34033	39693	32160
Appropriated Amount (FY 1995)	33483		
Adjustments to FY 1995	-81	-694	
Appropriated Amount (FY 1996)		38999	
Adjustments to FY 1996		-342	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			+2696
Current President's Budget Submit	33402	38657	34856

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: M1VV

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M1VV Environmental Compliance - AMC Major Subordinate Command/Laboratories	14638	20900	13972	12709	10698	11056	10009		Continuing	Continuing

A. **Mission Description and Budget Item 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; Soldier Systems Command, formerly, Natick Research, Development and Engineering Center (NRDEC), Natick, MA; and Army Research Laboratory Materials Technology Directorate (ARLMTD), Watertown (scheduled to close 30 September 1995).

FY 1995 Accomplishments:

- 14638 Fund Class I, Class II, and other environmental compliance programs such as installation of the Cooling Towers and Backflow Preventors, and the Waste Water System Toxic Pollutant Survey at NRDEC; hazardous waste closures, rehabilitation of sanitary west, first phase of installation of reduced emissions burners at powerhouse ARDEC; and at toxic reduction inventory ARL. Fund remaining compliance requirements such as Hazardous Waste disposal and program management.

Total 14638

FY 1996 Planned Program:

- 20283 Fund 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 NRDEC; 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. Fund remaining compliance requirements such as Hazardous Waste disposal and program management.
- 466 SBIR/STTR
- 151 Revised Economic Assumption not available for execution

Total 20900

FY 1997 Planned Program:

- 13972 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 NRDEC; final phase of underground storage tank upgrade program at ARL. Fund remaining compliance requirements such as Hazardous Waste Disposal and program management.

Total 13972

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605856A Environmental Compliance - Research, Development, Testing & Evaluation PROJECT M1VV

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	14980	21481	10878
Appropriated Amount (FY 1995)	14665		
Adjustments to FY 1995	-27	-375	
Appropriated Amount (FY 1996)		21106	
Adjustments to FY 1996		-206	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			+3094
Current President's Budget Submit	14638	20900	13972

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: M4VV

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M4VV Environmental Compliance - Corps of Engineers	1933	0	0	0	0	0	0		0	0

A. **Mission Description and Budget Item 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 1995 Accomplishments:

•	1933	Development of an industry cost-shared demonstration of a 3000 HP low emission natural gas boiler.
Total	1933	

FY 1996 Planned Program: Program not funded.

FY 1997 Planned Program: Program not funded.

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	1974	0	0
Appropriated Amount (FY 1995)	1933		
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		1965	
Adjustments to FY 1996		-1965	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	1933	0	0

Change Summary Explanation:
Funding: FY 96: These funds have been decremented to reflect proposed reprogramming.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: M5VV

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M5VV Environmental Compliance - USASSDC	0	4792	5083	2976	2607	2398	1845		Continuing	Continuing

A. Mission Description and Budget Item 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 1995 Accomplishments: Funded under Program Element 0605301A, Project MAC2.

FY 1996 Planned Program:

•	4653	Fund 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.
•	106	SBIR/STTR
•	33	Revised Economic Assumption not available for execution.
Total	4792	

FY 1997 Planned Program:

•	5083	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	5083	

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: M5VV

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	4927	5838
Appropriated Amount (FY 1995)			
Adjustments to FY 1995		-86	
Appropriated Amount (FY 1996)		4841	
Adjustments to FY 1996		-49	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-755
Current President's Budget Submit	0	4792	5083

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

DATE: March 1996

BUDGET ACTIVITY
6 - Management Support

PE NUMBER AND TITLE
0605876A Minor Construction - Research, Development, Testing & Evaluation

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	5569	5347	4319	4333	4457	4440	4506		Continuing	Continuing
M0WW Minor Construction - Test Ranges	2841	3450	2766	2731	2781	2869	2941		Continuing	Continuing
M1WW Minor Construction - AMC Subordinate Commands and Laboratories	2301	1271	1062	1118	1197	1098	1096		Continuing	Continuing
M4WW Minor Construction - Corps of Engineers	427	626	491	484	479	473	469		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: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605876A Minor Construction - Research, Development, Testing & Evaluation

PROJECT: M0WW

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M0WW Minor Construction - Test Ranges	2841	3450	2766	2731	2781	2869	2941		Continuing	Continuing

A. **Mission Description and Budget Item 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 24.4 million square feet of building space, 3 thousand miles of roads, and 2 thousand miles of utility lines.

FY 1995 Accomplishments:

•	1273	Funded minor construction projects at Aberdeen Proving Ground, MD
•	408	Funded minor construction projects at Dugway Proving Ground, UT
•	783	Funded minor construction projects at White Sands Missile Range, NM
•	377	Funded minor construction projects at Yuma Proving Ground, AZ.
Total	2841	

FY 1996 Planned Program:

•	1477	Fund minor construction projects at Aberdeen Proving Ground, MD
•	457	Fund minor construction projects at Dugway Proving Ground, UT
•	826	Fund minor construction projects at White Sands Missile Range, NM
•	589	Fund minor construction projects at Yuma Proving Ground, AZ
•	77	Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)
•	24	Revised Economic Assumption not available for execution
Total	3450	

FY 1997 Planned Program:

•	1478	Fund minor construction projects at Aberdeen Proving Ground, MD
•	295	Fund minor construction projects at Dugway Proving Ground, UT
•	670	Fund minor construction projects at White Sands Missile Range, NM
•	323	Fund minor construction projects at Yuma Proving Ground, AZ
Total	2766	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605876A Minor Construction - Research, Development, Testing & Evaluation PROJECT M0WW

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	2902	3548	2841
Appropriated Amount (FY 1995)	2841		
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		3486	
Adjustments to FY 1996		-36	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-75
Current President's Budget Submit	2841	3450	2766

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605876A Minor Construction - Research, Development, Testing & Evaluation

PROJECT: M1WW

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M1WW Minor Construction - AMC Subordinate Commands and Laboratories	2301	1271	1062	1118	1197	1098	1096		Continuing	Continuing

A. **Mission Description and Budget Item 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 1995 Accomplishments:

•	1806	Funded minor construction projects at ARDEC, Picatinny Arsenal, NJ
•	320	Funded minor construction projects at ARL, Adelphi, MD
•	175	Funded minor construction projects at SSCOM, Natick, MA.
Total	2301	

FY 1996 Planned Program:

•	976	Fund minor construction projects at ARDEC, Picatinny Arsenal, NJ
•	187	Fund minor construction projects at ARL, Adelphi, MD
•	98	Fund minor construction projects at SSCOM, Natick, MA.
•	10	Revised Economic Assumption not available for execution
Total	1271	

FY 1997 Planned Program:

•	832	Fund minor construction projects at ARDEC, Picatinny Arsenal, NJ
•	150	Fund minor construction projects at ARL, Adelphi, MD
•	80	Fund minor construction projects at SSCOM, Natick, MA.
Total	1062	

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605876A Minor Construction - Research, Development, Testing & Evaluation

PROJECT: M1WW

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	2261	1305	1062
Appropriated Amount (FY 1995)	2261		
Adjustments to FY 1995	+40		
Appropriated Amount (FY 1996)		1283	
Adjustments to FY 1996		-12	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	2301	1271	1062

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605876A Minor Construction - Research, Development, Testing & Evaluation

PROJECT: M4WW

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M4WW Minor Construction - Corps of Engineers	427	626	491	484	479	473	469		Continuing	Continuing

A. **Mission Description and Budget Item 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 1995 Accomplishments:

- 121 Funded minor construction projects at CERL, Champaign, IL.
- 125 Funded minor construction projects at CRREL, Hanover, NH
- 181 Funded minor construction projects at WES, Vicksburg, MS.

Total 427

FY 1996 Planned Program:

- 320 Fund minor construction projects at CRREL, Hanover, NH
- 287 Fund minor construction projects at WES, Vicksburg, MS
- 14 SBIR/STTR
- 5 Revised Economic Assumption not available for execution

Total 626

FY 1997 Planned Program:

- 98 Fund minor construction projects at TEC, Alexandria, VA
- 231 Fund minor construction projects at CRREL, Hanover, NH
- 162 Fund minor construction projects at WES, Vicksburg, MS

Total 491

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605876A Minor Construction - Research, Development, Testing & Evaluation PROJECT M4WW

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	546	644	504
Appropriated Amount (FY 1995)	534		
Adjustments to FY 1995	-107		
Appropriated Amount (FY 1996)		632	
Adjustments to FY 1996		-6	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-13
Current President's Budget Submit	427	626	491

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605878A Maintenance and Repair - Research, Development, Testing & Evaluation

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	79302	93089	66047	67907	68324	63560	61099		Continuing	Continuing
M0YY Maintenance and Repair - AMC Test Ranges	60141	70690	50862	52400	50793	48903	47145		Continuing	Continuing
M1YY Maintenance and Repair - AMC Subordinate Commands/Laboratories	16071	17644	11807	11964	13548	11575	10877		Continuing	Continuing
M4YY Maintenance and Repair - U.S. Army Corps of Engineers	3090	4755	3378	3543	3983	3082	3077		Continuing	Continuing

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. 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: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605878A Maintenance and Repair - Research, Development, Testing & Evaluation

PROJECT: M0YY

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M0YY Maintenance and Repair - AMC Test Ranges	60141	70690	50862	52400	50793	48903	47145		Continuing	Continuing

A. **Mission Description and Budget Item Justification:** Finances functions for maintaining and repairing infrastructure for U.S. Army Materiel Command (AMC) technical test ranges assigned to Test and Evaluation Command (TECOM), i.e., Yuma Proving Ground, Arizona; Aberdeen Proving Ground, Maryland; Dugway Proving Ground, Utah; and White Sands Missile Range, New Mexico. In addition, provides common service host support for over 100 tenants and satellites located on these four TECOM ranges. Facility assets managed include over 4 million acres of land, over 24.4 million square feet of building space, 3 thousand miles of roads, and 2 thousand miles of utility lines.

FY 1995 Accomplishments:

- 32214 Funded minimum operational maintenance requirement and $7 million in repair projects at Aberdeen Proving Ground, MD.
- 6475 Funded minimum operational maintenance requirement and $3 million in repair projects at Dugway Proving Ground, UT.
- 14338 Funded minimum operational maintenance requirement and $10 million in repair projects at White Sands Missile Range, NM.
- 7114 Funded minimum operational maintenance requirement and $5 million in repair projects at Yuma Proving Ground, AZ.

Total 60141

FY 1996 Planned Program:

- 37003 Fund minimum operational maintenance requirement and $13 million for repair projects at Aberdeen Proving Ground, MD.
- 6885 Fund minimum operational maintenance requirement and $3 million for repair projects at Dugway Proving Ground, UT.
- 16133 Fund minimum operational maintenance requirement and $6 million for repair projects at White Sands Missile Range, NM.
- 8731 Fund minimum operational maintenance requirement and $3 million for repair projects at Yuma Proving Ground, AZ.
- 1434 Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)
- 504 Revised Economic Assumption not available for execution

Total 70690

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605878A Maintenance and Repair - Research, Development, Testing & Evaluation
	PROJECT M0YY

FY 1997 Planned Program:

•	27968	Fund minimum operational maintenance requirements and no resources for repair projects at Aberdeen Proving Ground, MD.
•	2482	Fund minimum operational maintenance requirements and no resources for repair projects at Dugway Proving Ground, UT.
•	10952	Fund minimum operational maintenance requirements and no resources for repair projects at White Sands Missile Range, NM.
•	5460	Fund minimum operational maintenance requirements and no resources for repair projects at Yuma Proving Ground, AZ.
•	4000	Funds Federal Energy Management projects.
Total	50862	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	61543	72670	49492
Appropriated Amount (FY 1995)	60359		
Adjustments to FY 1995	-218		
Appropriated Amount (FY 1996)		71399	
Adjustments to FY 1996		-709	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			+1370
Current President's Budget Submit	60141	70690	50862

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605878A Maintenance and Repair - Research, Development, Testing & Evaluation

PROJECT: M1YY

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M1YY Maintenance and Repair - AMC Subordinate Commands/Laboratories	16071	17644	11807	11964	13548	11575	10877		Continuing	Continuing

A. **Mission Description and Budget Item 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 1995 Accomplishments:

•	8275	Funds maintenance and repair projects at Picatinny Arsenal, NJ.
•	5180	Funds maintenance and repair projects at Army Research Laboratory, Adelphi, MD.
•	2616	Funds maintenance and repair projects at Soldier Systems Command, Natick, MA
Total	16071	

FY 1996 Planned Program:

•	10160	Funds maintenance and repair projects at Picatinny Arsenal, NJ.
•	4377	Funds maintenance and repair projects at Army Research Laboratory, Adelphi, MD.
•	2590	Funds maintenance and repair projects at Soldier Systems Command, Natick, MA
•	393	SBIR/STTR
•	124	Revised Economic Assumption not available for execution
Total	17644	

FY 1997 Planned Program:

•	7367	Funds maintenance and repair projects at Picatinny Arsenal, NJ.
•	2750	Funds maintenance and repair projects at Army Research Laboratory, Adelphi, MD
•	1690	Funds maintenance and repair projects at Soldier Systems Command, Natick, MA
Total	11807	

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605878A Maintenance and Repair - Research, Development, Testing & Evaluation

PROJECT: M1YY

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	16534	18140	12659
Appropriated Amount (FY 1995)	16186		
Adjustments to FY 1995	-115		
Appropriated Amount (FY 1996)		17822	
Adjustments to FY 1996		-178	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-852
Current President's Budget Submit	16071	17644	11807

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605878A Maintenance and Repair - Research, Development, Testing & Evaluation

PROJECT: M4YY

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M4YY Maintenance and Repair - U.S. Army Corps of Engineers	3090	4755	3378	3543	3983	3082	3077		Continuing	Continuing

A. **Mission Description and Budget Item 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 1995 Accomplishments:

- 597 Fund maintenance and repair projects at CERL, Champaign, IL.
- 1539 Fund maintenance and repair projects at CRREL, Hanover, NH.
- 388 Fund maintenance and repair projects at TEC, Alexandria, VA
- 566 Fund maintenance and repair projects at WES, Vicksburg, MS.

Total 3090

FY 1996 Planned Program:

- 955 Fund maintenance and repair projects at CERL, Champaign, IL.
- 2235 Fund maintenance and repair projects at CRREL, Hanover, NH.
- 621 Fund maintenance and repair projects at TEC, Alexandria, VA
- 907 Fund maintenance and repair projects at WES, Vicksburg, MS
- 37 Revised Economic Assumption not available for execution

Total 4755

FY 1997 Planned Program:

- 676 Fund maintenance and repair projects at CERL, Champaign, IL.
- 1621 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 3378

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605878A Maintenance and Repair - Research, Development, Testing & Evaluation PROJECT M4YY

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	2983	4886	3379
Appropriated Amount (FY 1995)	2983		
Adjustments to FY 1995	+107		
Appropriated Amount (FY 1996)		4801	
Adjustments to FY 1996		-46	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-1
Current President's Budget Submit	3090	4755	3378

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605879A Operation of Utilities & Other Engineering

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	0	0	92390	87950	88976	88651	89179		Continuing	Continuing
M0UU Real Property Services - TECOM	0	0	62918	58244	57934	57542	57156		Continuing	Continuing
M1UU Real Property Services - AMC MSC/LAB	0	0	24858	24937	26098	25992	26727		Continuing	Continuing
M4UU Real Property Services - COE	0	0	4614	4769	4944	5117	5296		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.

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605879A Operation of Utilities & Other Engineering

PROJECT: M0UU

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M0UU Real Property Services - TECOM	0	0	62918	58244	57934	57542	57156		Continuing	Continuing

A. Mission Description and Budget Item Justification: **Project M0UU - Operation of Utilities & Other Engineering - AMC Test Ranges:** Finances the operation of utilities and other engineering services for U.S. Army Materiel Command (AMC) technical test ranges assigned to Test and Evaluation Command (TECOM), i.e., Yuma Proving Ground, Arizona; Aberdeen Proving Ground, Maryland; Dugway Proving Ground, Utah; and White Sands Missile Range, New Mexico. Also supports civilian and commercial activities contract labor force associated with other engineering programs to include firefighters, custodial and refuse removal. In addition, provides common service host support for over 100 tenants and satellites located on the four TECOM ranges. These tenants consume over 50% of the costs within this project. Facility assets managed include over 4 million acres of lands, over 24.4 million square feet of building space, 3 thousand miles of roads and 2 thousand miles of utility lines.

FY 1995 Accomplishments: Program funded in Program Element 0605896A.

FY 1996 Planned Program: Program funded in Program Element 0605896A.

FY 1997 Planned Program:

•	39059	Fund operations of utilities and other engineering at Aberdeen Proving Ground, Maryland
•	6138	Fund operations of utilities and other engineering at Dugway Proving Ground, Utah
•	13150	Fund operations of utilities and other engineering at White Sands Missile Range, New Mexico
•	4571	Fund operations of utilities and other engineering at Yuma Proving Ground, Arizona
Total	62918	

B. Project Change Summary

	FY 1995	FY 1995	FY 1997
Previous President's Budget (FY 1996)	0	0	0
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)			
Adjustments to FY 1996			
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			+62918
Current President's Budget Submit	0	0	62918

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY **6 - Management Support**	PE NUMBER AND TITLE **0605879A Operation of Utilities & Other Engineering** PROJECT **M1UU**

COST *(In Thousands)*	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M1UU Real Property Services - AMC MSC/LAB	0	0	24858	24937	26098	25992	26727		Continuing	Continuing

A. <u>Mission Description and Budget Item Justification:</u> 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 1995 Accomplishments: Program funded in Program Element 0605896A.

FY 1996 Planned Program: Program funded in Program Element 0605896A.

FY 1997 Planned Program:

- 16353 Armament Research, Development and Engineering Center, Picatinny Arsenal, NJ
- 5733 Army Research Laboratory, Adelphi, MD
- 2772 Soldier Systems Command, Natick, MA

Total 24858

B. <u>Project Change Summary</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>
Previous President's Budget (FY 1996)	0	0	0
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)			
Adjustments to FY 1996			
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			+24858
Current President's Budget Submit	0	0	24858

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605879A Operation of Utilities & Other Engineering

PROJECT: M4UU

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M4UU Real Property Services - COE	0	0	4614	4769	4944	5117	5296		Continuing	Continuing

A. Mission Description and Budget Item 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 1995 Accomplishments: Program funded in Program Element 0605896A.

FY 1996 Planned Program: Program funded in Program Element 0605896A.

FY 1997 Planned Program:

•	1103	Waterways Experiment Station, Vicksburg, MS
•	1154	Cold Regions Research and Engineering Laboratories; Hanover, NH
•	1112	Construction Engineering Research Laboratory, Champaign, IL
•	1245	Topographic Engineering Center, Alexandria, VA
Total	4614	

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	0	0
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)			
Adjustments to FY 1996			
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			+4614
Current President's Budget Submit	0	0	4614

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605896A Base Operations - Research, Development, Testing & Evaluation

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	294085	310822	216649	205297	208512	207196	212256		Continuing	Continuing
M0ZZ Base Operations - Army Materiel Command (AMC) Test Ranges	185024	192211	143043	135950	141028	140814	144965		Continuing	Continuing
M1ZZ Base Operations - AMC Major Subordinate Commands and Laboratories	90485	101902	61588	57687	57551	56325	57160		Continuing	Continuing
M4ZZ Base Operations - Corps of Engineers	18576	16709	12018	11660	9933	10057	10131		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 1996 and beyond includes a plus-up for DFAS operations. FY 1997 provides austere funding level for continued base operation and 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: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605896A Base Operations - Research, Development, Testing & Evaluation

PROJECT: M0ZZ

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M0ZZ Base Operations - Army Materiel Command (AMC) Test Ranges	185024	192211	143043	135950	141028	140814	144965		Continuing	Continuing

A. Mission Description and Budget Item 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).

FY 1995 Accomplishments: This project funds BASEOPS activities and functions for TECOM Test Ranges and over 100 tenant/satellite activities. Funds Civilian Illness and Injury Compensation costs. Base Operations infrastructure included fixed costs for payroll and utilities required to provide support for technical testing, diverse Army R&D tenants, and a principal training mission at the Ordnance Center and School, as follows:

- 96124 Aberdeen Proving Ground Support Activity, MD
- 19822 Dugway Proving Ground, UT
- 50759 White Sands Missile Range, NM
- 18319 Yuma Proving Ground, AZ

Total 185024

FY 1996 Planned Program: This project funds BASEOPS activities and functions for TECOM Test Ranges and over 100 tenant/satellite activities. Base Operations infrastructure includes fixed costs for payroll and utilities required to provide support for technical testing, diverse Army R&D tenants, and a principal training mission at the Ordnance Center and School.

- 98356 Aberdeen Proving Ground Support Activity, MD
- 20062 Dugway Proving Ground, UT
- 51670 White Sands Missile Range, NM
- 19655 Yuma Proving Ground, AZ
- Above funding includes specific projects below:
  - Civilian Illness and Injury Compensation Costs.
  - Defense Finance and Accounting Services
  - Military Police (MP) conversion to civilian police/guards (partial workyears)
- 1019 Small Business Innovation Research (SBIR/Small Business Technology Transfer (STTR)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605896A Base Operations - Research, Development, Testing & Evaluation
	PROJECT M0ZZ

FY 1996 Planned Program: (continued)

- 1449 Revised Economic Assumption not available for execution

Total 192211

FY 1997 Planned Program: Effective FY97 operations of utilities and other engineering support funds will transfer to the new PE 65879.

This project funds BASEOPS activities and functions for TECOM Test Ranges and tenant/satellite activities. Base Operations infrastructure includes fixed costs for payroll as well as personnel costs associated with downsizing and re-engineering to civilian workforce. Program provides support for technical testing, diverse Army R&D tenants, and a principal training mission at the Ordnance Center and School, as follows:

- 68863 Aberdeen Proving Ground Support Activity, MD
- 15915 Dugway Proving Ground, UT
- 41439 White Sands Missile Range, NM
- 16826 Yuma Proving Ground, AZ
- 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 (143 workyears)

Total 143043

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	184784	205090	208624
Appropriated Amount (FY 1995)	184589		
Adjustments to FY 1995	+435		
Appropriated Amount (FY 1996)		194108	
Adjustments to FY 1996		-1897	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-65581
Current President's Budget Submit	185024	192211	143043

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605896A Base Operations - Research, Development, Testing & Evaluation

PROJECT: M1ZZ

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M1ZZ Base Operations - AMC Major Subordinate Commands and Laboratories	90485	101902	61588	57687	57551	56325	57160		Continuing	Continuing

A. Mission Description and Budget Item 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.

FY 1995 Accomplishments: Continues to fund the BASEOPS activities and functions for the AMC RDTE Major Subordinate Command installations, laboratories and tenant/satellite activities. The current program reflects a restoral of minimum essential funding. Funding by installation is as follows:

- 43858 ARDEC, Picatinny Arsenal, NJ.
- 33798 ARL, Adelphi, MD
- 12829 SSCOM, Natick, MA

Total 90485

FY 1996 Planned Program: Continues to fund the BASEOPS activities and functions for the AMC RDTE Major Subordinate Command installations, laboratories and tenant/satellite activities. The FY 1996 program reflects minimum essential funding. Funding by installation as follows:

- 41404 ARL, Adelphi, MD
- 40851 ARDEC, Picatinny Arsenal, NJ
- 16894 SSCOM, Natick, MA
- 2010 SBIR/STTR
- 743 Revised Economic Assumption not available for execution

Total 101902

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY **6 - Management Support**	PE NUMBER AND TITLE **0605896A Base Operations - Research, Development, Testing & Evaluation**
	PROJECT **M1ZZ**

FY 1997 Planned Program: Effective FY97 operations of utilities and other engineering support funds will transfer to the new PE 0605879A.
Continues to fund the BASEOPS activities and functions for the AMC RDTE Major Subordinate Command installations, laboratories and tenant/satellite activities. The FY 1997 program reflects minimum essential funding. As indicated by the outyear profiles, the workforce and infrastructure support will be reduced in line with the Army's downsizing plans. Funding by installation as follows:

- 22038 ARL, Adelphi, MD
- 27027 ARDEC, Picatinny Arsenal, NJ
- 12523 SSCOM, Natick, MA

Total 61588

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	92137	107054	87511
Appropriated Amount (FY 1995)	90452		
Adjustments to FY 1995	+33		
Appropriated Amount (FY 1996)		102908	
Adjustments to FY 1996		-1006	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-25923
Current President's Budget Submit	90485	101902	61588

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605896A Base Operations - Research, Development, Testing & Evaluation

PROJECT: M4ZZ

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M4ZZ Base Operations - Corps of Engineers	18576	16709	12018	11660	9933	10057	10131		Continuing	Continuing

A. Mission Description and Budget Item 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 1995 Accomplishments: Continue to fund the BASEOPS activities and functions for the U.S. Army Corps of Engineers RDTE,A Laboratories, at the following locations:

- 5150 WES, Vicksburg, MS
- 4363 CRREL, Hanover, NH
- 4577 CERL, Champaign, IL
- 4486 TEC, Alexandria, VA

Total 18576

FY 1996 Planned Program: Continues to fund the BASEOPS activities and functions for the U.S. Army Corps of Engineers RDTE,A Laboratories, at the following locations:

- 3876 WES, Vicksburg, MS
- 4073 CRREL, Hanover, NH
- 3912 CERL, Champaign, IL
- 4358 TEC, Alexandria, VA
- 373 SBIR/STTR
- 117 Revised Economic Assumption not available for execution

Total 16709

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605896A Base Operations - Research, Development, Testing & Evaluation PROJECT M4ZZ

FY 1997 Planned Program: Effective FY97 operations of utilities and other engineering support funds will transfer to the new PE 65879.
Continues to fund the BASEOPS activities and functions for the U.S. Army Corps of Engineers RDTE,A Laboratories

- 2994 CERL, Champaign, IL
- 3005 CRREL, Hanover, NH
- 3147 TEC, Alexandria, VA
- 2872 WES, Vicksburg, MS

Total 12018

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	18770	17834	16818
Appropriated Amount (FY 1995)	18376		
Adjustments to FY 1995	+200		
Appropriated Amount (FY 1996)		16878	
Adjustments to FY 1996		-169	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget			-4800
Current President's Budget Submit	18576	16709	12018

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	24404	15334	4801	4822	4727	5138	5128		Continuing	Continuing
MM03 Command Headquarters - MRDC	5074	3690	0	0	0	0	0		Continuing	Continuing
MM65 Army Research Laboratory	7741	4837	4801	4822	4727	5138	5128		Continuing	Continuing
M831 AKAMAI	11589	6807	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). 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: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: MM03

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
MM03 Command Headquarters - MRDC	5074	3690	0	0	0	0	0		Continuing	Continuing

A. Mission Description and Budget Item 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 1995 Accomplishments:

•	5074	Funded the operation of the USAMRMC headquarters activities which administers the medical research, development and acquisition program to sustain military medical technological superiority.
Total	5074	

FY 1996 Planned Program:

•	3581	Fund the operation of the USAMRDC headquarters activities which administers the medical research, development and acquisition program to sustain military medical technological superiority.
•	83	Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)
•	26	Revised Economic Assumption not available for execution
Total	3690	

FY 1997 Planned Program: Program resources realigned to PE 0605801A.

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	3877	3795	3743
Appropriated Amount	3877		
Adjustment to FY 1995	+1197		
Appropriated Amount (FY 1996)		3728	
Adjustment to FY 1996		-38	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-3743
Current President's Budget Submit	5074	3690	0

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605898A Management Headquarters (Research and Development)
	PROJECT MM65

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
MM65 Army Research Laboratory	7741	4837	4801	4822	4727	5138	5128		Continuing	Continuing

A. **Mission Description and Budget Item 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 1995 Accomplishments:

•	7741	Funded the operation of ARL headquarters activities which administers the Army laboratory research and development program to sustain technological superiority.
Total	7741	

FY 1996 Planned Program:

•	4799	Fund the operation of ARL headquarters activities which administers the Army laboratory research and development program to sustain technological superiority.
•	1	SBIR/STTR
•	37	Revised Economic Assumption not available for execution
Total	4837	

FY 1997 Planned Program:

•	4801	Fund the operation of ARL headquarters activities which administers the Army laboratory research and development program to sustain technological superiority.
Total	4801	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605898A Management Headquarters (Research and Development)
	PROJECT MM65

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget(FY 1996)	7777	4971	4803
Appropriated Amount	7741		
Adjustment to FY 1995			
Appropriated Amount (FY 1996)		4885	
Adjustment to FY 1996		-48	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-2
Current President's Budget Submit	7741	4837	4801

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

DATE: March 1996

BUDGET ACTIVITY: 6 - Management Support

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

PROJECT: M831

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M831 AKAMAI	11589	6807	0	0	0	0	0		0	0

A. Mission Description and Budget Item 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 1995 Accomplishments:

•	6632	Expand number of spokes and continue hub infrastructure development
•	4957	Provide additional research planning guidance to Georgetown University and develop technology assessment constructs.
Total	11589	

FY 1996 Planned Program:

•	6608	Expand number of spokes and continue hub infrastructure development.
•	152	SBIR/STTR
•	47	Revised Economic Assumption not available for execution
Total	6807	

FY 1997 Planned Program: No planned program.

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	11838	0	0
Appropriated Amount (FY 1995)	11589		
Adjustment to FY 1995	0		
Appropriated Amount (FY 1996)		6877	
Adjustment to FY 1996		-70	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	11589	6807	0

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102419A Aerostat Joint Program Office

PROJECT: DE55

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
DE55 Aerostat Program	0	12993	38940	106592	134940	110091	114158		Continuing	Continuing

A. Mission Description and Budget Item Justification: The Under Secretary of Defense (Acquisition and Technology) and the Army Acquisition Executive (AAE) directed the establishment of the Joint Aerostat Program Management Office (PMO) for Cruise Missile Defense (CMD) and provided the funding for FY 96-01. This is a multiservice effort with the Army as the lead service. The PMO 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 missiles 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 attention to CMD. 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 Air Defense System/Corps SAM and Aegis.

Acquisition Strategy: The Joint Aerostat PMO will execute a Definition Phase by soliciting CMD architecture concepts that employ aerostats from a select group of contractors. The most promising concept(s) will be further developed as proposals for the Development phase of the program. The selected proposal(s) will be put on contract to develop two aerostat systems. An option to develop an additional two deployable prototypes may be exercised once successful end-to-end system testing is complete.

FY 1995 Accomplishments: Project not funded in FY 1995

FY 1996 Planned Program:

•	8000	Execute the Definition Phase of the program.
•	1743	Establish and operate aerostat testbed.
•	1250	Establish Joint Program Management Office.
•	1000	Program management support.
•	1000	Risk reduction program.
Total	12993	

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102419A Aerostat Joint Program Office

PROJECT: DE55

FY 1997 Planned Program:

•	21800	Initiate Development Phase of the program.
•	6140	Conduct Test and Evaluation (Testbed)
•	4000	Joint Program Management Office.
•	4000	Program management support.
•	3000	Risk reduction program.
Total	38940	

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	0	0
Appropriated Amount (FY 1995)			
Adjustment to FY 1995			
Appropriated Amount (FY 1996)			
Adjustment to FY 1996		12993	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			38940
Current President's Budget Submit	0	12993	38940

Change Summary Explanation:

Funding: FY 1996: OSD realigned funds from other lower priority programs. (Reprogramming)

FY 1997: OSD realigned funds from other lower priority programs.

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
Tractor Hike PE 0603009A	0	5000	0	0	0	0	0	5000	5000

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Program Office established						X						
Program Plan to OSD						X						
Award up to 4 contracts for Definition Phase								X				
Award Contract(s) for system development										X		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102419A Aerostat Joint Program Office

PROJECT: DE55

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Product Development	0	8000	21800
Test and Evaluation	0	500	6140
Program Management Support	0	4493	11000
Total	0	12993	38940

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
TBD	C/CPFF	2nd Qtr 97	TBD	TBD	0	0	8000	21800	Cont	Cont
Support and Management Organizations										
Aerostat PMO and OGAs	MIPR				0	0	2250	7000	Cont	Cont
Support Contracts	C/CP	TBD			0	0	2243	4000	Cont	Cont
Test and Evaluation Organizations										
OGAs	MIPR				0	0	200	5140	Cont	Cont
Test Bed - TBD	C/FFP	3rd Qtr 96	TBD	TBD	0	0	300	1000	Cont	Cont
Subtotal Product Development					0	0	8000	21800	Cont	Cont
Subtotal Support and Management					0	0	4493	11000	Cont	Cont
Subtotal Test and Evaluation					0	0	500	6140	Cont	Cont
Total Project					0	0	12993	38940	Cont	Cont

Government Furnished Property - None

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203726A Advanced Field Artillery Tactical Data System

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	50737	35420	39497	9438	7129	3372	3350		88081	535754
D322 AFATDS Development	47470	35420	34564	4570	2980	1538	3350		88081	516703
D2ET AFATDS Operational Test	3267	0	4933	4868	4149	1834	0		0	19051

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 existing Tactical Fire Direction System (TACFIRE) and 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 March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203726A Advanced Field Artillery Tactical Data System
	PROJECT D322

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D322 AFATDS Development	47470	35420	34564	4570	2980	1538	3350		88081	516703

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. Under the concept of software "spiral development," development of any release is not dependent on completion of another release. Version 1, which is complete, 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, weather/terrain analysis, 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 1995 Accomplishments:

•	1900	Prepared for Initial Operational Test and Evaluation (IOTE)
•	21100	Completed Version 1 and Supported Testing
•	22270	Continued AFATDS '97 and AFATDS '98 software development
•	2200	Initiated Air Defense/AFATDS Integration efforts
Total	47470	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203726A Advanced Field Artillery Tactical Data System PROJECT D322

FY 1996 Planned Program:

•	300	Conduct Army Systems Acquisition Review Council (ASARC) (Milestone III)
•	27208	Continue AFATDS '97 and '98 software development
•	7033	Start AFATDS '99 software development
•	779	SBIR/STTR
•	100	Revised Economic Assumptions - Not available for execution
Total	35420	

FY 1997 Planned Program:

•	10089	Complete AFATDS '97 and Support Testing
•	800	Prepare for AFATDS '97 Operational Testing
•	23675	Continue AFATDS '98 and '99 software development
Total	34564	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 96)	44997	39422	36483
Appropriated Amount (FY 95)	44070		
Adjustments to FY 95	+3400		
Appropriated Amount (FY 96)		35778	
Adjustments FY 96		-358	
Adjustments to Budget Year (FY97) since FY 96 President's Budget			-1919
Current President's Budget Submit	47470	35420	34564

Change Summary Explanation:

Funding: FY 95 increased (+3400) for integration and operational test support.
FY 96 (-3644) Congressional cut and (-358) reduction is amount that has been proposed for rescission.
FY97 (-1007) was reprogrammed to D2ET for operational test support and (-912) reduction due to revised inflation rates.

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203726A Advanced Field Artillery Tactical Data System

PROJECT: D322

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
OPA - B28600	9631	28478	31569	35155	38482	39948	41882	252697	495877
Spares (BA9708/MA9708/BS9708)	2256	3141	3084	2012	2554	3001	2977	14517	35099

(*Total includes prior year sunk)

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Resume V2.0	X*											
System Design Review (V2.0)		X*										
V1 IOTE				X*								
V1 First Unit Equipped (FUE)				X*								
ASARC - Mile III					X*							
Begin Fielding Total Force								X				
Release AFATDS '97												X

*Milestone Complete

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203726A Advanced Field Artillery Tactical Data System

PROJECT: D322

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Software Development	27730	26135	26030
Support Contracts	4204	2980	2162
In-House Support	6858	5128	4372
GFE	8678	1177	2000
Total	47470	35420	34564

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
MX	SS/CPAF	27 Apr 90		183334	99940	21330	24635	24830	12599	183334
TBD		FY 01		63260					63260	63260
Various, MX BOA		FY 87	34891	34891	34891				0	34891
STRICOM/FSATS	MIPR		12092	12092	9392	2700			0	12092
COE/ATCCS	MIPR		10660	10660	4060	1500	1500	1200	2400	10660
ADCCS	MIPR	FY 95				2200			0	2200
Support and Management Organizations										
CSC/ARC	C/CPFF	Dec 92	11584	11584	4813	2164	1445	1348	1814	11584
PROGRAM MANAGEMENT:										
PM FATDS					14894	1600	1458	1417	6190	25559
MATRIX					15117	2367	2323	2226	5728	27761
Misc Contracts										
CECOM					68311	2040	1386	814	2791	75342

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Test and Evaluation Organizations										
OPTEC					4000	1924	322			6246
MISC. (Ft. Hood)	MIPR				1367	967	1174	729	400	4637
Government Furnished Property										
Item Description		Award or Obligation Date	Delivery Date		Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Property										
LCU, TCU, PSE	C/FFP				23755	8678	1177	2000	5486	41096
Support and Management Property: None										
Test and Evaluation Property										
TEST HARDWARE					18041					18041
Subtotal Product Development					172038	36408	27312	28030	83745	347533
Subtotal Support and Management					103135	8171	6612	5805	16523	140246
Subtotal Test and Evaluation					23408	2891	1496	729	400	28924
Total Project					298581	47470	35420	34564	100668	516703

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203726A Advanced Field Artillery Tactical Data System

PROJECT: D2ET

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D2ET AFATDS Operational Test	3267	0	4933	4868	4149	1834	0		0	19051

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 with Initial Operational Tests and Evaluations (IOTEs) in FY 95 and FY 97 for Versions 1.0 and AFATDS '97 respectively. 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 1995 Accomplishments:

- 2298 Conducted Version 1.0 IOTE testing
- 642 Evaluated Version 1.0 IOTE test results
- 327 Completed IOTE unit (Test Players) preparation and conduct of Version 1.0 IOTE

Total 3267

FY 1996 Planned Program: Project not funded in FY 1996

FY 1997 Planned Program:

- 3886 Conduct AFATDS '97 IOTE testing
- 700 Evaluate AFATDS '97 IOTE test results
- 347 Complete IOTE unit (Test Players) preparation and conduct of AFATDS '97 IOTE

Total 4933

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203726A Advanced Field Artillery Tactical Data System

PROJECT: D2ET

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 96)	3083	0	2302
Appropriated Amount (FY 95)	3018		
Adjustments to FY 95	+249		
Appropriated Amount (FY 96)		0	
Adjustments FY 96			
Adjustments to Budget Year (FY 97) since FY 96 President's Budget			+2631
Current President's Budget Submit	3267	0	4933

Change Summary Explanation:

Funding: FY 95 increased (+249) for V1 IOT&E.

FY 97 increased (+2765) for AFATDS '97 IOTE and (-134) reduction due to revised inflation rates.

C. Other Program Funding Summary: Not Applicable.

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Version 1.0 IOTE				X*								
AFATDS '97 IOTE												X

*Completed Milestone

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203726A Advanced Field Artillery Tactical Data System

PROJECT: D2ET

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Operational Test and Evaluation	3267	0	4933
Total	3267		4933

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations: None										
Support and Management Organizations: None										
Test and Evaluation Organizations										
OPTEC						3267	0	4933	10851	19051
Government Furnished Property: None										
Subtotal Product Development										
Subtotal Support and Management										
Subtotal Test and Evaluation						3267		4933	10851	19051
Total Project						3267		4933	10851	19051

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	107205	209131	197796	123522	54316	5262	0		0	1330325
D2TT Bradley A3 IOTE	0	0	2079	4315	5880	575	0		0	12849
D2UT Abrams IOTE	0	0	1460	969	0	0	0		0	2429
D280 Recovery Vehicle Improvement Program	6468	3000	3116	0	0	0	0		0	48335
D330 Abrams Improvement	10441	38047	70046	32415	1933	0	0		0	701896
D344 Fire Support Team Vehicle	13973	22559	20398	3818	0	0	0		0	60768
D371 Bradley Base Sustainment Program	76323	114638	87135	61952	32115	0	0		0	433386
D392 Armored Gun System Improvements	0	16269	0	0	0	0	0		0	16269
DC64 TRACTOR DUMP	0	14618	13562	20053	14388	4687	0		0	54393

Mission Description and Budget Item Justification: This Program Element (PE) responds to deficiencies highlighted during Desert Storm, continues evolutionary technological advancements and enhances the combat capability of today's force. The PE also provides combat effectiveness enhancements for the Abrams Tank through a series of product improvements to the current production vehicles. Additional improvements will provide the Bradley with a digital capability and Second Generation Forward Looking Infrared (2nd GEN FLIR) capability to enhance operations and allow operation in conjunction with the Abrams Tank. 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: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D2TT

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D2TT Bradley A3 IOTE	0	0	2079	4315	5880	575	0		0	12849

A. Mission Description and Budget Item Justification: This project provides for the operational testing (OT) of the Bradley A3 prototype, OT of pre-production vehicles, and generates a performance record in support of a Milestone III decision. Critical areas for test include command and control, sustainability, lethality, survivability, and mobility. This project is a new start in FY 97.

Acquisition Strategy: Not Applicable

FY 1995 Accomplishments: Program not funded in FY 95

FY 1996 Planned Program: Program not funded in FY 96

FY 1997 Planned Program:

•	2079	Testing Support
Total	2079	

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)			0
Appropriated Value (FY 1995)			0
Adjustments to FY 1995 Appropriated Value			0
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			2079
Current Budget Estimate Submission			2079

Change Summary Explanation:
Funding: 2079 increase in FY 97; realigned from PE 23735, Project D371

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
Bradley Base Sustainment (G80717)			126886	157464	349050	699657	830270	796170	2959497

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203735A Combat Vehicle Improvement Programs
	PROJECT D2TT

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Limited User Test 1										X		
Limited User Test 2												X

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D2UT

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D2UT Abrams IOTE	0	0	1460	969	0	0	0		0	2429

A. Mission Description and Budget Item Justification: This project funds a 1-2 vehicle limited user excursion to verify operational test (OT) and/or developmental test (DT) attributes of the 2nd GEN FLIR and SEP programs.

Acquisition Strategy: Not Applicable

FY 1995 Accomplishments: Program not funded in FY 95

FY 1996 Planned Program: Program not funded in FY 96

FY 1997 Planned Program:

•	1460	Testing Support
Total	1460	

B. Project Change Summary

	FY 1995	FY 1996	FY 997
Previous President's Budget (FY 1996)			0
Appropriated Amount (FY 1995)			
Adjustment to FY 1995			
Appropriated Amount (FY 1996)			
Adjustment to FY 1996			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			1460
Current President's Budget Submit	0	0	1460

Change Summary Explanation:

Funding: This project is a new start in FY 97.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203735A Combat Vehicle Improvement Programs PROJECT D2UT

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
Abrams Upgrade Program (GA0750)	280013	565126	464486	572869	673335	651149	653335	Con't	Con't
Abrams Vehicle modification Program (GA0700)	37162	50093	50217	40509	23200	40539	95219	Con't	Con't

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
OT/DT												X

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D280

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D280 Recovery Vehicle Improvement Program	6468	3000	3116	0	0	0	0		0	48335

A. **Mission Description and Budget Item Justification:** The M88A2 HERCULES Improved Recovery Vehicle (IRV) is an armored, full-tracked, diesel-powered recovery vehicle configured with an A-frame boom, two winches, and a spade. The M88A2 HERCULES IRV has a 1050 HP engine, an improved transmission to handle the additional towing capability, and hydraulic assisted brakes were added. The boom has a 35 ton lift capacity, the main winch has a constant pull capability of 70 tons and an additional 3 ton auxiliary which is used to deploy the main winch. The hull is armored for protection against small arms fire, artillery fragments, and anti-tank mines. The vehicle has a .50 caliber machine gun mounted for self-protection. The M88A2 HERCULES IRV is capable of performing recovery, evacuation, and limited repair of the main battle tank. The HERCULES IRV is currently migrating from the Engineering, Manufacturing and Development Phase to Low Rate Initial Production (LRIP) with a MS III decision scheduled for 4Q96.

Acquisition Strategy: Only UDLP possesses the M88A2 HERCULES system expertise necessary for completion of development and production of the M88A2 HERCULES, Improved Recovery Vehicle version within cost and time constraints. Award to another source would result in unacceptable delays in schedule and a duplication of costs and work efforts that would not be offset by the normal expected benefits of competition. An approved Justification and Approval for Other than Full and Open Competition, will be solicited prior to the issuance of any sole source contractual actions. Small and small-disadvantaged business will have opportunities to participate at the subcontract level. Monitoring of prime contractor subcontracting plans to ensure compliance will occur throughout the contract.

FY 1995 Accomplishments:

•	1988	Definitized Initial Production Release TDP and Packaging Modification
•	3650	Awarded LRIP Provisioning Spares and Repairs TDP
•	462	Awarded LRIP Contract for Final Production Release
•	219	Testing
•	149	Program Management
Total	6468	

FY 1996 Planned Program:

•	1827	Production Qualification Test (Performance)/Initial Operational Test & Evaluation
•	1000	Finalize LRIP Spares and Repairs TDP Mod
•	98	Program Management
•	67	SBIR/STTR
•	8	Revised economic assumptions not available for execution
Total	3000	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203735A Combat Vehicle Improvement Programs
	PROJECT D280

FY 1997 Planned Program:

- 3116 Refurbishment of Test Vehicles

Total 3116

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	4653	3085	0
Appropriated Value (FY 1995)	4555		
Adjustments to FY 1995 Appropriated Value	1913		
Appropriated Value (FY 1996)		3031	
Adjustments to FY 96 Appropriated Value		-31	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			3116
Current Budget Estimate Submission	6468	3000	3116

Change Summary Explanation:

Funding: FY 1995: +2500 reprogrammed from PE 0604619A, Project D088; -487 as billpayer for Congressional Rescission; -100 to PE 0604649A, Project DG26.
FY 1996: Economic Adjustment.
FY 1997: Increased to refurbish test vehicles.

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
GA0570 Improved Recovery Vehicle (M88 Mod)	36788	55550	28641	28992	40693	47708	74879	Con't	Con't
GE0171 Spares (Initial) M88A1E1		430	299	867	1144	1093	1086	Con't	Con't

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Award LRIP Options - 15 vehs	X*											
Award FMS Options - 14 vehs	X*											
Award LRIP level III Provisioning Spares and Repairs						X*						
Definitize Initial Production release TDP and Packaging						X*						
Definitize LRIP Option - 15 Veh						X*						

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D280

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Definitize LRIP Option - 14 Veh						X*						
PQT (Performance)/IOT&E						X	X	X				
Milestone III Decision								X				
First Unit Equipped (FUE)									X			
Refurbish Test Vehicles										X		

* Milestone Completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203735A Combat Vehicle Improvement Programs PROJECT D280

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Data (TDP)	1988		
Spares/Repairs TDP	3650	1000	
Final Production Release	462		
System Test & Evaluation	219	1827	
Refurbish Test Vehicles			3116
Program Management Support	149	98	
SBIR/STTR & Revised Econ Adj N/A for execution		75	
Total	6468	3000	3116

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
United Defense York, PA	SS-CPFF	Sep 91	N/A		21027					21027
United Defense York, PA	SS-CPFF	Jun 94	N/A		3990					3990
United Defense York, PA	SS-CPFF	Oct 94	N/A		2346	1988				4334
United Defense York, PA	SS-CPFF	Sep 95	N/A			462				462
United Defense York, PA	SS-CPFF	Aug 95	N/A			3650	1000			4650
United Defense York, PA	SS-CPFF	Nov 96	N/A					3116		3116

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Support and Management Organizations										
PMO/TACOM Warren, MI					1358	149	98			1605
Other Government Agencies					278					278
SBIR/STTR & Revised Econ Adj							75			75
Test and Evaluation Organizations										
TECOM/CSTA-APG, MD					5279	219	1827			7325
TACOM Warren, MI					542					542
Other					931					931
Government Furnished Property: Not Applicable										
Subtotal Product Development					27363	6100	1000	3116		37579
Subtotal Support and Management					1636	149	173			1958
Subtotal Test and Evaluation					6752	219	1827			8798
Total Project					35751	6468	3000	3116		48335

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203735A Combat Vehicle Improvement Programs PROJECT D330

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D330 Abrams Improvement	10441	38047	70046	32415	1933	0	0		0	701896

A. Mission Description and Budget Item Justification: Abrams Main Battle Tank (M1A2) incorporates significant advances in crew protection, firepower and mobility. The Abrams Block Improvement Program (BIP) provides for timely initiation of evolutionary improvements anticipating threat changes and capitalizes on technological opportunities. The BIP introduces time-phased product improvement to the production line in groups called "Blocks" to minimize production costs while providing effective configuration control. The FY 1978-1985 block improvements resulted in the M1A1 Abrams Tank which incorporated the 120 mm gun system, a hybrid nuclear, biological and chemical (NBC) overpressure system, upgraded armor and suspension/final-drive upgrades. The FY 1985-1993 block improvement (M1A2/Block II) included Commander's Independent Thermal Viewer (CITV), Position Navigation Unit and the Inter-Vehicular Information System (IVIS). The M1A2 design is founded upon a core digital electronics architecture that interconnects the vehicle's components via power and data busses. The digital architecture and modular design enables rapid system enhancements without major hardware changes.

The BIP supports two Army Horizontal Technology Initiatives by integrating into the Abrams Tank common Second Generation Forward Looking Infra-Red (2nd GEN FLIR) sensors and electronics improvements which support the Army's digitization effort. Currently Abrams M1A2 Tank employs a Thermal Imaging System (TIS) and Commander's Independent Thermal Viewer (CITV) to provide the Gunner/Commander with improved all-weather, day/night surveillance, target acquisition and target engagement sighting systems. The TIS and CITV are based on 1970's technology in the areas of image processing electronics and thermal detector design. Recent advances in these areas have demonstrated the ability to build detectors containing many more individual detector elements and to integrate image processing electronics directly into the detector chip. FLIR systems incorporating these advances are capable of imagery possessing significantly higher resolution, improving the crew's ability to detect, recognize and identify targets at longer ranges when compared to the current FLIR technology. The 2nd GEN FLIR will improve the tank's lethality, fightability and survivability by extending the engagement envelope under all weather conditions and by increasing the situational awareness of the tank crew. The 2nd GEN FLIR will also reduce fratricide due to mis-identification of targets.

The System Enhancement Package (SEP) was initiated to support the US Army's Digitization of the Battlefield effort. This effort upgrades the M1A2 electronics with improved processors, increased memory and software partitioning necessary for the M1A2 to operate in the Army's common operating environment (ACOE). The upgrade also provides for future growth without significant changes in vehicle architecture. Growth provisions are required to allow the insertion of technology forecast to mature between now and 2003. Software partitioning will allow the insertion of new hardware with minimal change to existing software. These changes are designed to be exportable to other Abrams platforms, meet Army requirements for joint interoperability with Combined Arms Command & Control Systems and maximize compatibility/ commonality with other Armored Systems Modernization (ASM) systems.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203735A Combat Vehicle Improvement Programs PROJECT D330

Acquisition Strategy: The present SEP/2nd GEN FLIR acquisition strategy calls for a four and one-half year development effort, which began in 4Q94, to upgrade the M1A2 Abrams Tank electronics and fire control subsystems. The program integrates common 2nd GEN FLIR sensors and components (B-Kit) into Abrams thermal sights and updates the core electronics to be compatible with the Army Common Operating Environment.

FY 1995 Accomplishments:

•	1062	Completed concept study (Phase I) for integration of 2nd GEN FLIR technology into Abrams tank
•	7914	Began EMD (Phase II) for 2nd GEN FLIR development and integration.
•	1465	PMO/Engineering Support/Other
Total	10441	

Note: Completed Systems Requirements Review (SRR) and Preliminary Design Review (PDR) for SEP (Phase I), partially funded by 23758/D374.

FY 1996 Planned Program:

•	32155	Continue SEP/2nd GEN FLIR Critical Design Review, continue development and begin demonstration hardware fabrication component testing and assembly. Perform Pentastar sub-contract scope on GDLS and TI development contracts for TMDE (DSESTS) efforts.
•	4936	PMO/Engineering Support/GFE to Contractor to support fabrication and component testing.
•	107	Revised Economic Assumption not available for execution
•	849	SBIR / STTR
Total	38047	

Note: Complete Critical Design Review (CDR) for SEP (Phase II).

FY 1997 Planned Program:

•	62646	Continue development and demonstration hardware fabrication and assembly. Evaluate pre-SEP M1A2 compatibility with ACOE and conduct System Requirements Review and System Design Reviews (SRR/SDR).
•	3400	Begin testing of hardware/software on tank.
•	4000	PMO/Engineering Support/GFE to Government test.
Total	70046	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203735A Combat Vehicle Improvement Programs
	PROJECT D330

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	11674	38807	48702
Appropriated Amount (FY 1995)	11429		
Adjustment to FY 1995	-988		
Appropriated Amount (FY 1996)		38432	
Adjustment to FY 1996		-385	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			21344
Current President's Budget Submit	10441	38047	70046

Change Summary Explanation:

Funding: FY 95 - Funds were reprogrammed for higher priority requirements within PEO.
FY 96 - Adjusted for inflation rates.
FY 97 - Funds increased to incorporate an under armor auxiliary power unit (UAAPU) and a thermal management system (TMS), as well as to assure compatibility with the ACOE.

Schedule: Slipped 6 months with production cut-in now planned for 3Q FY 99.

Technical: Requirement for increased power and a thermal management system (UAAPU/TMS) and the ongoing effort to fully comply with the ACOE, required additional funds and time.

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
Abrams Upgrade Program (GA0750)	280013	565126	464486	572869	673335	651149	653335	Con't	Con't
Abrams Vehicle Modification (GA0700)	37162	50093	50217	40509	23200	40539	95219	Con't	Con't
M1A2 Training Devices (GB1302)	16797	6058	12602	13413	13935	8580	11316	Con't	Con't
Training Device Mod (GA5208)	987	3015	3184	6086	2698	2817	5773	Con't	Con't
Initial Spares (GE0161)	13451	14552	9290	17776	21069	20617	21094	Con't	Con't

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D330

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Program Milestones												
PDR - 2nd GEN FLIR					X*							
PDR - SEP				X*								
CDR - 2nd GEN FLIR							X					
CDR - SEP							X					
Begin Technical Testing - SEP											X	

* Milestone Completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D330

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
System Enhancement Package (SEP)/2nd GEN FLIR	5346	22982	55946
Sight Development - 2nd GEN FLIR	3630	9173	6700
Testing - SEP/2nd GEN FLIR			3400
GFE - SEP/2nd GEN FLIR		2400	1000
Engineering Support - SEP/2nd GEN FLIR	1465	2536	3000
Economic Adjustment & SBIR/STTR		956	
Total	10441	38047	70046

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
GDLS - M1A2 Sterling Hgts, MI	SS-CPIF	Dec 85		472549	472549					472549
GDLS - SEP/2nd GEN FLIR Sterling Hgts, MI	SS-CPFF	Sep 94		109930	11834	5346	22982	55946	13822	109930
Texas Inst-GEN II FLIR Sight (A Kit)	C-CPAF	Jul 94		26703	4200	3630	9173	6700	3000	26703
Note: FY 95 and FY 96 GDLS SEP contract efforts partially funded by 23758/D374.										
Support and Management Organizations										
Engr Spt/Other (M1A2)				30756	30756					30756
Econ Adjust-& SBIR/STTR							956			956
Engr Spr (SEP/FLIR)						1465	2536	3000	2226	9227

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D330

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Test and Evaluation Organizations										
Testing M1A2				29675	29675					29675
Testing- SEP/2nd Gen FLIR								3400	1130	1470
Government Furnished Property										
GFE - SEP/FLIR							2400	1000	4000	7400
Subtotal Product Development					488583	8976	32155	62646	16822	609182
Subtotal Support and Management					30756	1465	3492	3000	2226	40939
Subtotal Test and Evaluation & GFE					29675		2400	4400	15300	51775
Total Project					549014	10441	38047	70046	34348	701896

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D344

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D344 Fire Support Team Vehicle	13973	22559	20398	3818	0	0	0		0	60768

A. Mission Description and Budget Item Justification: This project supports material development and the conversion of a number of Bradley Fighting Vehicles to the Bradley Fire Support Team (BFIST) vehicle configuration. Fire Support Teams (FIST) equipped with the M981, the current fire support vehicle, were unable to maintain the operational tempo of Bradley/Abrams equipped maneuver forces during Operation Desert Storm (ODS). Additionally, the M981 displayed a number of other operational deficiencies and shortcomings. This project integrates selected existing M981 fire support equipment (FSE) equipment (i.e. the AN/TAS-4B Night Locator Designator) into candidate Bradley A2-ODS and A3 vehicles. New or improved components will include bioccular display, cameras, video electronics, targeting station control display, ring laser/inertial gyroscope, a handheld terminal unit in the turret, a lightweight computer unit and a communication fire mission planning station in the hull, and associated computer software and electronic interconnections. A new turret slip ring and mounting/communication provisions for four SINCGARS radios are also provided. This system involves engineering, manufacturing development, test, and evaluation.

Acquisition Strategy: The BFIST program integrates FSE into candidate Bradley A2-ODS and A3 vehicles. An Engineering and Manufacturing Development (EMD) contract was solicited for the Bradley A2-ODS through full and open competition and was awarded to United Defense Limited Partnership (UDLP) in June 1995. Target cost was $29.8M. The contract's scope of work requires design and fabrication of four BFIST prototypes for pre-production and user testing . Completion is scheduled for September 1997. A low rate initial production (LRIP) contract for 12 BFIST vehicles is planned for award to UDLP by October 1998. The Full Rate Production contract is planned for award to UDLP in FY 99 for a total of 16 vehicles, with options for 33 vehicles in FY 00, 47 in FY 01, and 59 in FY 02.

Development and production of the Bradley A3 BFIST is expected through award of a sole source EMD contract to UDLP by first quarter FY 97 with completion in FY 99. Follow-on award of an LRIP contract is planned in FY 02 for production of 10 A3 BFIST. A full Rate Production contract is planned in FY 03 for 52 vehicles with options in FY 04 for 48 vehicles, FY 05 for 53 vehicles, FY 06 for 48 vehicles, and FY 07 for 28 vehicles.

FY 1995 Accomplishments:

•	11478	Phase I Design Engineering
•	21	Phase I Prototype Manufacturing
•	2474	In-House Tasks
Total	13973	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY: 7 - Operational System Development	PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs / PROJECT: D344

FY 1996 Planned Program:

•	17623	Phase I Design Engineering
•	1310	Phase I Prototype Manufacturing
•	3060	In-House Tasks
•	503	SBIR/STTR
•	83	Revised Economic Assumption Not Available For Execution
Total	22559	

FY 1997 Planned Program:

•	12422	Phase I Design Engineering
•	121	Phase I Prototype Manufacturing
•	3000	Phase II Design Engineering
•	4855	In-House Tasks
Total	20398	

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	18357	23192	20954
Appropriated Value (FY 1995)	17972		
Adjustments to FY 1995 Appropriated Value	- 3999		
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget		-613	-556
Current Budget Estimate Submission	13973	22559	20398

Change Summary Explanation:

Funding: 3999 decrease in FY 95: 1100 reprogrammed to PE 64640, Project D627, 2806 reprogrammed PE 23735, Project D371, and 93 reprogrammed PE 64640, Project DDG27
613 decrease in FY 96 due to economic adjustments
556 decrease in FY 97 due to economic adjustments

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
GZ2300 FIST Vehicle				18976	25422	31763	37111	Con't	Con't

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203735A Combat Vehicle Improvement Programs PROJECT D344

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Phase I												
Contract Award			X*									
Preliminary Design Review					X*							
Critical Design Review						X*						
Deliver Prototypes									X			
PPQT - Contractor/Government									X			
Limited User Test #1											X	
Phase II												
Contract Award										X		

* Milestone Completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D344

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Phase I Design Engineering	11478	17623	12422
Phase I Prototype Manufacturing	21	1310	121
Phase II Design Engineering			3000
Phase II Prototype Manufacturing			
In-House Tasks	2474	3060	4855
SBIR/STTR		503	
Revised Economic Assumption Not Available For Execution		83	
Total	13973	22559	20398

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
UDLP	C/CPIF	Jun 95		48484		11499	19594	12543	3632	47268
UDLP	SS/CPIF	Nov 96						3000		3000
Support and Management Organizations:										
PM/Govt						2474	3060	3228	186	8948
Test and Evaluation Organizations:										
ATC/TECOM								1627		1627
Subtotal Product Development					0	11499	19594	15543	3632	50268
Subtotal Support and Management					0	2474	2985	3228	186	8873
Subtotal Test and Evaluation								1627		1627
Total Project					0	13973	22559	20398	3818	60768

Government Furnished Property: Not Applicable

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D371

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D371 Bradley Base Sustainment Program	76323	114638	87135	61952	32115	0	0		0	433386

A. Mission Description and Budget Item Justification: This project upgrades 1602 Bradley M2A2/M3A2s to the A3 configuration giving the system improved electronics, digital command and control (compatible with the M1A2 Tank), and Commander/Gunner 2nd GEN FLIR displays for enhanced target acquisition. Other major A3 improvements include a 1553 databus based core electronics architecture, digital information displays, software packages for command and control, navigation, communications, autotracking, diagnostics, embedded training and fire control, as well as full digital integration of all Operation Desert Storm (ODS) Improvements. This program began in FY 94 and was funded under Project D332. The project involves engineering, manufacturing development, test, and evaluation.

Acquisition Strategy: A letter contract, not to exceed $280M, was awarded for this effort in May 1994. The contract was definitized in August 1995 with award of a Cost Plus Incentive Fee (CPIF) contract. The CPIF contract has a 65 month period of performance including three months for close-out. There are ten subcontractors, comprising approximately 33% of the contract cost. Of these, five are firm fixed price (FFP) contracts and five are CPIF. The majority of the contracts were awarded competitively. Three low rate initial production (LRIP) awards are scheduled for July 1997 for 29 vehicles, May 1998 for 41 vehicles, and December 1998 for 74 vehicles. A production award is scheduled for January 2000 for 121 vehicles.

FY 1995 Accomplishments:

- 57695 Design Engineering
- 10841 Prototype Manufacturing
- 7787 In-House Tasks

Total 76323

FY 1996 Planned Program:

- 82293 Design Engineering
- 20620 Prototype Manufacturing
- 8846 In-House Tasks
- 2557 SBIR/STTR
- 322 Revised Economic Assumption Not Available For Execution

Total 114638

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203735A Combat Vehicle Improvement Programs
	PROJECT D371

FY 1997 Planned Program:

- 73642 Design Engineering
- 4688 Prototype Manufacturing
- 8805 In-House Tasks

Total 87135

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	75094	117858	91643
Appropriated Value (FY 1995)	73517		
Adjustments to FY 1995 Appropriated Value	2806		
Appropriated Amount (FY 1996)		115797	
Adjustments to FY 1996		-1159	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-4508
Current Budget Estimate Submission	76323	114638	87135

Change Summary Explanation:

Funding: 2806 increase in FY 95; reprogrammed from PE 23735, Project D344
1159 decrease in FY 96 due to economic adjustments
2079 decrease in FY 97; realigned to PE 23735, Project D2TT; 2429 decrease due to economic adjustment

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
G80716 Bradley Base Sustainment (M2A2)	136117	133868	7542						596273
G80717 Bradley Base Sustainment (M2A3)			126886	157464	349050	699657	830270	Con't	Con't
GC0163 Spares (Initial) BFVS	11492								11492
GE0163 Spares (Initial) BFVS-BBSP		14374	9306	475	1594				25749
GZ2400 BFVS Series (Mod)	88631	87802	83649	62057	59880	70098	70887	Con't	Con't
GZ2500 Bradley FVS Training Devices (Mod)	5969	1813	900						8682
G20900 Bradley FVS Training Devices			573	1424	9603	10575	9860	Con't	Con't

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203735A Combat Vehicle Improvement Programs PROJECT D371

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Software Design Review	X*											
Preliminary Design Review				X*								
Critical Design Review					X*							
Software Critical Design Review					X*							
PPQT-Government									X			
Limited User Test #1										X		
LRIP IPR											X	
LRIP Award												X
Limited User Test #2												X

* Milestone Completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203735A Combat Vehicle Improvement Programs
	PROJECT D371

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Design Engineering	57695	82293	73642
Prototype Manufacture	10841	20620	4688
In-House Tasks	7787	8846	8805
SBIR/STTR		2557	
Revised Economic Assumption Not For Execution		322	
Total	76323	114638	87135

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
United Defense (LP) San Jose, CA	CPIF	Aug 95	277834	279334	31628	48491	83115	56100	60000	279334
Texas Instruments McKinny, TX	SS/CPIF	Feb 94	63555	62319	20408	15349	16262	9200	1100	62319
Other Contracts					3522	4696	6897	10614	11464	37193
Support and Management Organizations:										
PMO					861	1069	1978	1550	2818	8276
PM CCAWS					3721	4700	4722	5500	1706	20349
Other					1083	2018	2146	1755	1200	8202
Test and Evaluation Organizations:										
TECOM								2416	15779	18195

Government Furnished Property: Not Applicable

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203735A Combat Vehicle Improvement Programs PROJECT D371

	Total* Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	55558	68536	106274	75914	72564	378846
Subtotal Support and Management	5665	7787	8364	8805	5724	36345
Subtotal Test and Evaluation				2416	15779	18195
Total Project**	61223	76323	114638	87135	94067	433386

* $61.223M obligated in FY 94; dollars prior to FY 95 were in PE 23735, Project 332

** Total project represents FY 94 to completion

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D392

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D392 Armored Gun System Improvements	0	16269	0	0	0	0	0		0	16269

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 is being terminated. The funding in FY 96 will pay for work accomplished prior to stop of work and efforts associated with program termination.

FY 1995 Accomplishments: Program not funded in FY 1995

FY 1996 Planned Program:

- 6600 Engineering/Manufacturing Development
- 9260 AGS Program Termination
- 363 SBIR/STTR
- 46 Revised Economic Assumption not available for execution

Total 16269

FY 1997 Planned Program: Program not funded in FY 1997

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)		14727	9128
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount FY 1996		16434	
Adjustments to FY 1996		-165	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-9128
Current President's Budget Submit		16269	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203735A Combat Vehicle Improvement Programs
	PROJECT D392

Change Summary Explanation:

Funding: FY 1996 - Revised economic assumptions.

FY 1997 - Program adjusted to reflect changed acquisition strategy.

Schedule: All efforts have been put on hold pending program termination.

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
64710/DL69 HTI 2nd GEN FLIR ED	24401	28704	13443	3317					
23735/D330 Abrams 2nd GEN FLIR	10441	22532	38113	3600					
GA0750 Abrams 2nd GEN FLIR			22973	106721	106140	94069	88580		
GA0700 Abrams (Mods) 2nd GEN FLIR						28423	68032		
G80717 BFVS 2nd GEN FLIR B-Kit			25776	27149	50240	109850	120359		
23735/371 Bradley 2nd GEN FLIR	36303								

D. Schedule Profile : All efforts have been put on hold pending program termination

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203735A Combat Vehicle Improvement Programs

PROJECT: D392

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Prototype Design & Fabrication		6600	0
AGS Program Termination		9260	0
SBIR/STTR		363	
Revised Economic Assumptions not available for execution		46	
Total		16269	

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
Night Vision Labs	MIPR	MAR 96	6600	6600			6600			6600
United Defense	CPIF	TBD	TBD	TBD			9260			9260
Support and Management Organizations										
SBIR/STTR - Revised Economic Assumptions							477			477
Test and Evaluation Organizations	Not Applicable									
Government Furnished Property:	Not Applicable									
Subtotal Product Development							15860			15860
Subtotal Support and Management							409			409
Subtotal Test and Evaluation										
Total Project							16269			16269

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203740A Maneuver Control System

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	36657	49528	29082	22938	17261	15337	0		Continuing	Continuing
DC49 Standard Theater Army Command and Control System (STACCS)	19652	13805	0	0	0	0	0		Continuing	Continuing
D2HT MCS Operational Test	338	4841	3895	0	0	0	0		0	9074
D484 Maneuver Control System	16667	30882	25187	22938	17261	15337	0		26665	423111

Mission Description and Budget Item Justification: This program element funds the evolutionary software development integration and testing of command and control systems. Project DC49, 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 will become the AGCCS Project DC86 and has been restructured to PE 0303150A, also in Budget Activity 7.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203740A Maneuver Control System		PROJECT DC49

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
DC49 Standard Theater Army Command and Control System (STACCS)	19652	13805	0	0	0	0	0		Continuing	Continuing

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 Reduced Instruction Set Computer (RISC) based machines with expanded processing, storage and communications capability as well as office-automation and management software.

FY 1995 Accomplishments:

•	2064	Performed Systems Engineering
•	12773	Continued Prime Mission Software Development - Capability Package #3
•	688	Performed Data Engineering
•	4127	Conducted Systems Test and Evaluation - Capability Package #1
Total	19652	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203740A Maneuver Control System
	PROJECT DC49

FY 1996 Planned Program:

•	1835	Perform Systems Engineering
•	7749	Continue Prime Mission Software Development - Capability package #5
•	612	Perform Data Engineering
•	3262	Conduct Systems Test and Evaluation - Capability Packages #2 and #3
•	308	SBIR/STTR
•	39	Revised Economic Assumptions - Not available for execution
Total	13805	

FY 1997 Planned Program: See PE 0303150A, Project DC86

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	20073	14271	8143
Appropriated Amount (FY 1995)	19652		
Adjustments to (FY 1995)			
Appropriated Amount (FY 1996)		13944	
Adjustments to FY 1996		-139	
Adjustments to Budget Year (FY97) since FY 1996 President's Budget			-8143
Current President's Budget Submit	19652	13805	0

Change Summary Explanation:

Funding: FY 96 - (-139) the portion of the program that has been proposed for rescission.
FY97 - (-8143) restructured to PE 0303150A, Project DC86

C. Other Program Funding Summary

Procurement OPA-2	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
BA8250 Std Theater Army Cmd & Contr System	13008	14071	20462	17788	25193	14078	9379	CONT	CONT

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203740A Maneuver Control System
	PROJECT DC49

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
OSD MAISRC In Process Review	X*											
Award AGCCS Contract	X*											
AGCCS Capability Package 1 delivered				X*								
GCCS Block 1 Completed					X*							
AGCCS Capability Package 2 delivered						X						
AGCCS Capability Package 3 delivered								X				
AGCCS Capability Package 4 delivered										X		
AGCCS Capability Package 5 delivered												X

*Milestone Complete

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203740A Maneuver Control System

PROJECT: DC49

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Systems Engineering	2064	1835	
Prime Mission - Software Development	12773	7749	
Data Engineering	688	612	
System Test and Evaluation	4127	3262	
SBIR/STTR		308	
Revised Economic Assumptions - Not available for execution		39	
Total	19652	13805	

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
TRW-W	C/CPFF	JUL 87	101604	101604	99687	2552				102239
TRW-E	C/CPAF	MAR 87	N/A	N/A	1785	676				2461
LMC	C/CPAF/FFP	DEC 94	TBD	TBD	0	14145	11674		CONT	CONT
Support and Management Organizations										
SBIR/STTR							308		CONT	CONT
Rev Econ Assmp							39		CONT	CONT
Test and Evaluation Organizations										
MITRE	C/FFP	OCT 92	1075	4272		1529	800		CONT	CONT

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203740A Maneuver Control System

PROJECT: DC49

Government Furnished Property:

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
LMC	C/CPAF/FFP	DEC 94			0	750	984		CONT	CONT
Support and Management Organizations: None										
Test and Evaluation Organizations: None										
Subtotal Product Development					101472	18123	12658		CONT	CONT
Subtotal Support and Management							347		CONT	CONT
Subtotal Test and Evaluation						1529	800		CONT	CONT
Total Project					101472	19652	13805		CONT	CONT

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203740A Maneuver Control System

PROJECT: D2HT

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D2HT MCS Operational Test	338	4841	3895	0	0	0	0		0	9074

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 1995 Accomplishments:

•	338	Analyzed data and prepared report on the results of ATCCS III Integrated Interoperability Demo
Total	338	

FY 1996 Planned Program:

•	2927	MCS V12 IOT&E preparation
•	1800	MCS V12 instrumentation
•	13	Revised economic assumption - not available for execution
•	101	SBIR/STTR
Total	4841	

FY 1997 Planned Program:

•	1895	Conduct MCS V12 IOT&E
•	800	Evaluation of MCS V12
•	1200	IOTE Unit (Test Players) Support
Total	3895	

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203740A Maneuver Control System

PROJECT: D2HT

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 96)	90	4975	0
Appropriated Amount (FY 95)	88		
Adjustment to FY 95	+250		
Appropriated amount (FY 96)		4888	
Adjustment to FY 96		-47	
Adjustments to Budget Year (FY97) since FY 96 President's Budget			+3895
Current President's Budget Submit	338	4841	3895

Change Summary Explanation:

Funding: FY 95 (+250) and FY97 (+3895) funds increased for operational test and evaluation support to MCS.
FY 96 - (-47) the portion of the program that has been proposed for rescission.

C. Other Program Funding Summary: Not Applicable

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
MCS V12 IOT&E Preparation					X*							
MCS V12 IOT&E									X			

*Milestone completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203740A Maneuver Control System

PROJECT: D2HT

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Operational Test and Evaluation	338	4841	3895
Total	338	4841	3895

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations: None										
Support and Management Organizations: None										
Test and Evaluation Organizations										
MISC	Allot				0	338	0	0	0	338
TEXCOM	Allot				0	0	4666	1895	0	6561
OEC	Allot				0	0	175	800	0	975
III Corps	MIPR				0	0	0	1200	0	1200

Government Furnished Property: None

Subtotal Product Development				
Subtotal Support and Management				
Subtotal Test and Evaluation	338	4841	3895	9074
Total Project	338	4841	3895	9074

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203740A Maneuver Control System

PROJECT: D484

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D484 Maneuver Control System	16667	30882	25187	22938	17261	15337	0		26665	423111

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 supports the operational concepts of initiative, agility, depth, synchronization and versatility. MCS provides commanders and staffs, at corps through battalion, accurate, up-to-date information for quicker decisions and effective utilization of firepower and maneuver resources. The MCS data base provides decision support information and functional tools in both text and map graphics form. The system also automates the preparation and distribution of operational orders and reports to facilitate the initiation and execution of the commander's decision. Reports received through MCS automatically update the data base ensuring that current tactical information is available whenever and wherever it is needed.

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 1995 Accomplishments:

- 15825 Continued MCS V12 development/integration/prototyping.
- 200 Release Request For Proposals (RFP) for Block IV software development.
- 642 Integrated Brigade and Below Command and Control (B2C2) and Terrain Evaluation Module (TEM) applications into MCS V12.

Total 16667

FY 1996 Planned Program:

- 1200 Begin subsystem engineering, integration and test for the Maneuver functional areas.
- 1531 Conduct Technical Test (TT)/Customer Test (CT)
- 21336 Continue MCS V12 development and integration effort.
- 2248 Horizontal Battlefield Digitization
- 500 Initial preparation for IOT&E
- 300 Block IV source selection activities

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203740A Maneuver Control System
	PROJECT D484

FY 1996 Planned Program: (continued)

•	1000	Award Block IV software development contract
•	2000	Common ATCCS support
•	89	Revised economic assumption - not available for execution
•	678	SBIR/STTR
Total	30882	

FY 1997 Planned Program:

•	2500	Continue subsystem engineering, integration and test for the Maneuver functional areas.
•	19958	Continue MCS V12 development and integration efforts
•	392	Support for IOT&E activities
•	1937	Horizontal Battlefield Digitization
•	400	Prepare for Army Systems Acquisition Review Council (ASARC)/Defense Acquisition Board (DAB) Milestone III review and decision
Total	25187	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 96)	16995	19081	25848
Appropriated Amount (FY 95)	16667		
Adjustment to FY 95			
Appropriated Amount (FY 96)		31196	
Adjustment to FY 96		-314	
Adjustments to Budget Year (FY97) since FY 96 President's Budget			-661
Current President's Budget Submit	16667	30882	25187

Change Summary Explanation:

Funding: FY 96: funds increased to develop significant additional functionality in the MCS V12.01 software package which will serve as the software baseline for the MCS IOT&E and Task Force XXI experiment.
FY 96: (-314) the portion of the program that has been proposed for rescission
FY97: (-661) reduction due to revised inflation rates

Schedule: No change.

Technical: Phoenix functionality being integrated into MCS software.

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

DATE: March 1996

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 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
BA9320 Maneuver Control System	0	18221	19126	16157	18865	42208	55847	0	568424
Spares - BS9710	0	97	0	0	0	0	0	20389	66486

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	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 IOT&E									X			
Task Force XXI Participation										X		
Begin V12.2 SW Dev										X		
ASARC											X	
Milestone III DAB											X	

*Milestone Complete

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203740A Maneuver Control System

PROJECT: D484

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Major Contracts	11237	23672	20428
Support Contracts	743	561	484
In-House Support	3887	3443	3485
GFE/Other	800	3206	790
Total	16667	30882	25187

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
Block IV	C/CPIF	MAY 96	TBD	72000	0	0	1000	11000	60000	72000
TKC	C/CPIF/AF	VARIOUS		54479	18013	9945	18543	7978	0	54479
Other Cntrs	C/Various	VARIOUS			155596	1292	4129	1450	7309	169776
CECOM Matrix					6133	1863	1735	1770	3600	15101
In-House					20795	48				20843
Loral	CPIF/CPAF	NOV 87			30769					30769
Support and Management Organizations										
In-House					12871	1976	1708	1715	5700	23970
Other Cntrs	C/Various				14841	743	561	484	1132	17761
Test and Evaluation Organizations										
OGA					904	214	932	790	2890	5730
Other Cntrs							1042		0	1042

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Property									
ATCCS Contr				7159	0	0	0	0	7159
Pgm Spt Env				350	586	1232	0	1700	3868
Support and Management Property: None									
Test and Evaluation Property									
CHS-1 HW				613	0			0	613
Subtotal Product Development				238815	13734	26639	22198	72609	373995
Subtotal Support and Management				27712	2719	2269	2199	6832	41731
Subtotal Test and Evaluation				1517	214	1974	790	2890	7385
Total Project				268044	16667	30882	25187	82331	423111

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	4538	2262	194	193	0	0	0		0	7187
DB75 TRACTOR CHECK	411	0	0	0	0	0	0		0	411
D179 CH-47 Product Improvement	0	1778	0	0	0	0	0		0	1778
D423 AH-64 Product Improvement	1401	0	0	0	0	0	0		0	1401
D430 Improved Cargo Helicopter	2726	484	194	193	0	0	0		0	3597

Mission Description and Budget Item Justification: The Tractor Check Program is classified. The CH-47D Product Improvement will develop a 1050-gallon self-sealing tactical fuel tank for long range deployment. This tank will extend the flight range of the CH-47D. The AH-64 PIP provides the necessary development, testing and integration for the addition of Alternate Laser Code (ALC) to the Apache. The Improved Cargo Helicopter (ICH) program began in FY 1995. This funding will definitize a program to extend the life of the CH-47D cargo helicopter. The projects in this Program Element support development efforts for system upgrades and are correctly placed in Budget Activity 7.

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D179

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D179 CH-47 Product Improvement	0	1778	0	0	0	0	0		0	1778

A. Mission Description and Budget Item Justification: Project D179 - CH-47 Product Improvement: The CH-47 Product Improvement was initially planned to develop a 1050-gallon self-sealing tactical fuel tank for long range deployment. In May 95, the FY 95 funding was approved by Congress to be used for initial studies for Improved Cargo Helicopter. This effort is a higher priority effort than the fuel tanks, so funding in FY 96 will also be reprogrammed to Project D430 Improved Cargo Helicopter. The following information on this Project addresses execution of funding for Improved Cargo Helicopter.

Acquisition Strategy: Studies and analysis will be performed utilizing contractor and inhouse support.

FY 1995 Accomplishments: Project Not Funded

FY 1996 Planned Program:

- 1420 Vibration Analysis
- 313 Inhouse Support
- 5 Revised Economic Assumption not available for execution
- 40 SBIR/STTR

Total 1778

FY 1997 Planned Program: Project Not Funded

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY1996)	2812	1828	0
Appropriated Amount (FY 1995)	2753		
Adjustments to FY 1995	-2753		
Appropriated Amount (FY 1996)		1796	
Adjustments to FY 1996		-18	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current Budget Submit/President's Budget	0	1778	0

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203744A Aircraft Modifications/Product Improvement Program PROJECT D179

Change Summary Explanation:

Funding: FY 95 Funds reprogrammed to Project D430 Improved Cargo as a higher priority effort.

FY 96 Funds adjusted (-18) for Revised Economic Assumptions.

C. Other Program Funding Summary: No other funding has been identified for this effort.

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Vibration Analysis							X					

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D179

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Contract Engineering	0	1420	0
Program Management Support	0	313	0
Revised Economic Assumption not available for execution		5	
SBIR/STTR		40	
Total		1778	

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
Boeing Defense & Space Group	SS/FP	Jun 96	ATCOM	NA			1420			1420
Support and Management Organizations										
Army Aviation & Troop Command							163			163
Army Training & Doctrine							150			150
Revised Economic Assumption not available for execution							5			5
SBIR/STTR							40			40

Test and Evaluation Organizations - NA

Government Furnished Property: Not Applicable

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203744A Aircraft Modifications/Product Improvement Program PROJECT D179

	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development			1420			1420
Subtotal Support and Management			358			358
Subtotal Test and Evaluation						
Total Project			1778			1778

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203744A Aircraft Modifications/Product Improvement Program PROJECT D423

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D423 AH-64 Product Improvement	1401	0	0	0	0	0	0		0	1401

A. Mission Description and Budget Item Justification: This program element (PE) provides the necessary development, testing and integration for the addition of Alternate Laser Code (ALC) to the Apache. Design includes the elimination of the Remote Hellfire Electronics (RHEs) and four (4) pylon Multiplex Remote Terminal Units (MRTUs). Integration of the Longbow launcher will be accomplished and a Launcher Interface Assembly (LIA) will be added to provide power requirements to the Longbow launcher. Also included are the software modifications to the Fire Control Computer (FCC) and software and hardware modifications to the Laser Electronics Unit (LEU). Changes in the mux architecture will also occur. The addition of the ALC will ensure optimum Hellfire performance on a modern battlefield with known counter measures and will allow optimal use of the planned Electro-Optic Counter Measures (EOMC) to the Hellfire missile. ALC will also be used on the Longbow Apache.

Acquisition Strategy: ALC development will lead to the request for a Class I Engineering Change Proposal (ECP) from the prime contractor and the award of a sole source contract for the integration of ALC on the AH-64A. The ALC will also used on the Longbow Apache.

FY 1995 Accomplishments:

- 155 First Prototype
- 500 Aircraft integration and system test
- 256 Flight testing
- 100 Final data item deliveries
- 390 Inhouse Support

Total 1401

FY 1996 Planned Program: Project Not Funded

FY 1997 Planned Program: Project Not Funded

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D423

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	1125	0	0
Appropriated Amount (FY 1995)	1101		
Adjustments to FY 1995	300		
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current Budget Submit/President's Budget	1401	0	0

Funding Change Explanation:
Funding: FY 95 increased (+300/cost growth).

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
AA6605,AH-64 Mods (Alternate Laser Code)	0	6405	10836	8643	24251	21505	17311	3313	92264

This procurement funding represents only the portion of this line to be used for this effort. The procurement line (SSN) includes additional funding for other modification efforts.

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
First Prototype					X							
Aircraft Integration						X						
Flight Test						X						

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D423

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Contractor engineering support	455	0	0
Testing	846	0	0
Hardware Procurement	100	0	0
Total	1401		

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
McDonnell Douglas Helicopter	SS/FFP	Apr 94	N/A	N/A	4881	1401				6282
Support and Management Organizations: N/A										
Test and Evaluation Organizations: N/A										
Government Furnished Property Not Applicable										
Subtotal Product Development					4881	1401				6282
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project					4881	1401				6282

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D430

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D430 Improved Cargo Helicopter	2726	484	194	193	0	0	0		0	3597

A. Mission Description and Budget Item Justification: This is a development program to extend the life of the CH-47D cargo helicopter. This funding will assure heavy lift capability into the 21st century. The CH-47D modernization program began in FY 81 with the modernization of nine aircraft. Delivery of these aircraft began in March 1982. These modified aircraft have now been in use for 14 years with a total of 34 years on the airframe itself. The intent is to study the feasibility of service life extension and correct known deficiencies. This program will study the necessary effort required to sustain the heavy lift capability, decrease operation and support costs as the fleet ages, improve engine power and incorporate a new electronics/architecture system for compatability with the digital battlefield and to replace obsolete equipment. This program will be the basis for establishing an overhaul, modernization, upgrade or retrofit program to meet the readiness needs of the future for heavy lift capability.

Acquisition Strategy: Initial studies and program planning will be done utilizing contractor and inhouse support.

FY 1995 Accomplishments:

- 245 Survivability/Vulnerability Study
- 500 Concept Formulation
- 200 Fleet Sustainment Study
- 382 Operation and Support/Vibration Study
- 754 Electronic/Architecture Study
- 186 Programmatic Documentation
- 300 Tradeoff Determination/Best Technical Approach
- 159 Inhouse Support

Total 2726

FY 1996 Planned Program:

- 222 Inhouse Support
- 250 Programmatic Documentation
- 1 Revised Economic Assumption not available for execution
- 11 SBIR/STTR

Total 484

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203744A Aircraft Modifications/Product Improvement Program PROJECT D430

FY 1997 Planned Program:

•	194	Inhouse Study Effort & Inhouse Support
Total	194	

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	498	199
Appropriated Amount (FY 1995)	0		
Adjustments to FY 1995	+2726		
Appropriated Amount (FY 1996)		489	
Adjustments to FY 1996		-5	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-5
Current Budget Submit/President's Budget	2726	484	194

Change Summary Explanation:

Funding: FY 95 Funds were appropriated to Project Element D179 and reprogrammed by Congressional approval to Project Element D430.
FY 96 Funds adjusted (-5) for Revised Economic Assumptions
FY 97 Funds adjusted (-5) for Revised Economic Assumptions

C. Other Program Funding Summary: 3931 in FY 96 was appropriated in Project Element 063003, Project D368 for this effort. There are no other future RDT&E efforts for this program at this time. Aircraft Procurement Appropriations (AAACIP CH-47 CIP) funding begins in FY 02.

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Concept Formulation			X		X				X			
Survivability/Vulnerability Study				X								
Fleet Sustainment Study				X								
Electronic/Architecture Study				X								
Program Documentation				X		X						
Vibration Analysis												
Tradeoff Determination/Best Technical Approach				X								

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D430

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Contract Studies	1486	250	
Inhouse Study Effort & Inhouse Support	1240	222	194
Revised Economic Assumptions not available for obligation		1	
SBIR/STTR		11	
Total	2726	484	194

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
WESTAR	SS/FP	Aug 95	ATCOM	NA		400				400
CAMBER	SS/FP	Aug 95	ATCOM	NA		186	250			436
TBS	SS/FP	Sep 95	NRL	NA		700				700
AEPCO	SS/FP	Sep 95	TRADOC	NA		200				200
Boeing Defense & Space Group	SS/FP	Feb 96	ATCOM	NA						
Support and Management Organizations										
Army Aviation & Troop Command		Feb 95				640	221	94	93	1048
Army Training & Doctrine Command		Dec 95				500		100	100	700
Naval Research Laboratory						100				100

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Revised Economic Assumption not available for execution							2			2
SBIR/STTR							11			11

Test and Evaluation Organizations - NA

Government Furnished Property - Not Applicable

	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development		1486	250			1736
Subtotal Support and Management		1240	234	194	193	1861
Subtotal Test and Evaluation						
Total Project		2726	484	194	193	3597

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D106

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D106 Aircraft Engine Component Improvement Program (CIP)	3123	3999	2947	2936	2928	2993	3054		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 new flight safety parts service life surveillance program. CIP included in the RDT&E vice procurement appropriations in accordance with Congressional direction. 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 1995 Accomplishments:

- 1669 **T700 Engine**: Continued update of life limits on engine components utilizing improved analytical and modeling techniques. Completed qualification testing of the Blackhawk Digital Electronic Control Unit (DECU) improvements to enhance Electromagnetic Interference (EMI) capability and operability. Initiated program to develop and qualify an advanced fuel boost pump that is much less susceptible to air ingestion and therefore reduce engine flameouts. Completed program to reduce friction in the torquemeter design by utilizing better sealing of the power turbine shaft and reducing the reference shaft stiffness.
- 1000 **T55 Engine**: Continued bearing improvement program to reduce cost and improve reliability and fatigue life. Continued machined combustor liner program to improve durability and survivability and reduce O&S costs. Continued pinned first turbine blade program to prevent catastrophic failure.
- 454 **GTCP36 APU**: Designed an erosion resistant turbine wheel for BLACKHAWK Auxillary Power Units (APU). Designed a feature to preclude erroneous chiplight warnings. Designed improved planetary gears to preclude gear failures; improve reliability and durability of BLACKHAWK APUs.

Total 3123

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203752A Aircraft Engine Component Improvement Program PROJECT D106

FY 1996 Planned Program:

•	1506	**T700 Engine**: Continue update of life limits on engine components utilizing improved analytical and modeling techniques. Completed qualification testing of the Apache DECU improvements to enhance Electromagnetic Interference (EMI) capability and operability. Complete design and perform qualification testing of an advanced fuel boost pump that is much less susceptible to air ingestion and therefore reduce engine flameouts. Continue program to update the mission profiles used in life analysis by gathering field data. Redesign and test a new IPS blower shaft with improved torsional resilience to impact torque to preclude shaft failures.
•	1158	**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.
•	348	**GTCP36 APU**: Qualify improved durability/reliability design planetary gears for the GTCP36-150 APU for the UH-60 Black Hawk.
•	888	**LOLA Pump**: To design, test and qualify a Liquid or Light-ends Air (LOLA) fuel pump for UH-60 Black Hawk and AH-64 Apache to prevent flameouts.
•	88	Small Business Innovative Research (SBIR)/Small Business Technology Transfer (STTR)
•	11	Revised Economic Assumption not available for execution
Total	3999	

FY 1997 Planned Program:

•	1435	**T700 Engine**: Continue update of life limits on engine components utilizing improved analytical and modeling techniques. Continue program to update the mission profiles used in life analysis by gathering field data. Improve the A-sump pressurization to eliminate oil leakage and maintain cleanliness of compressor and performance retention. Redesign the gas generator accelerator to reduce gas generator components cooling air thereby resulting in improved component life and reduced costs.
•	1163	**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.
•	349	**GTCP36 APU**: Design a ceramic turbine nozzle for all GTCP36 APUs to reduce sand erosion the major cause for APU removal during Desert Shield/Storm; improve readiness/durability while reducing O&S cost for the UH-60 Black Hawk and AH-64 Apache.
Total	2947	

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D106

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	7435	3012	3025
Appropriated Amount (FY 1995)	7281		
Adjustment to FY 1995	-4158		
Appropriated Amount (FY 1996)		4040	
Adjustment to FY 1996		-41	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-78
Current President's Budget Submit	3123	3999	2947

Change Summary Explanation:

Funding: FY 1995 reprogramming action (+342). FY 95 rescission for FFRDC/Consulting Svcs (-4500).
FY 1996 revised (-41) for revised economic assumptions
FY 1997 revised (-78) for revised economic assumptions

C. Other Program Funding Summary: There are no other RDTE or other Appropriation efforts.

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
T700 Engine: Complete electronic control redesign and qualify improvements. Design improved film cooled turbine blades.				X*								
T700 Engine: Complete definition of HMU service limits. Complete development and qualify improvements to anti-ice and start-bleed valves. Complete qualification of improved boost pump.								X				
T55 Engine: Complete design and qualify pinned turbine blades.					X							

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D106

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
T55 Engine: Design and develop improved bearings; incorporate state-of-the-art advancements to enhance reliability, durability, and readiness; Qualify machine combustor liner; Design high efficiency light weight gearbox.										X		
GTCP36 APU: Redesign clutch assembly.		X										
GTCP36 APU: Design an erosion resistant turbine wheel for BLACKHAWK APUs; Design a feature to preclude chiplight warnings. Design improved planetary gears to preclude gear failures.					X							
GTCP36 APU: Qualify improved planetary gears; improve reliability and durability; Complete design and qualify pinned gearbox bearing.									X			

* Denotes Milestone Completion

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D106

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Product Development	2781	3999	2947
Support and Management	342	0	0
Test and Evaluation	0	0	0
Total	3123	3999	2947

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
General Electric (T700)	SS/CPFF	Dec 94		112000	36937	1481	1489	1435	Cont	Cont
Textron/Lycoming (T55)	SS/CPFF	Dec 94		57300	16872	1000	1158	1163	Cont	Cont
Air Force (APU)	MIPR	Dec 94		16100	12300	300	348	349	Cont	Cont
Chandler Evans Corp (LOLA)	SS/CPFF	Jun 96		1004	0	0	1004	0	1004	1004
Support and Management Organizations										
ATCOM (in-house)	MIPR	Dec 94	N/A	N/A	10000	342	0	0	Cont	Cont
T53 Engine					352				Cont	Cont
Test and Evaluation Organizations: Not Applicable										
Government Furnished Property: Not Applicable										
Subtotal Product Development					66109	2781	3999	2947	Cont	Cont
Subtotal Support and Management					10352	342	0	0	Cont	Cont
Subtotal Test and Evaluation					0	0	0	0		
Total Project					76461	3123	3999	2947	Cont	Cont

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203758A Digitization

PROJECT: D374

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D374 Horizontal Battlefield Digitization	84738	99103	110180	26963	0	0	0		Continuing	Continuing

A. **Mission Description and Budget Item Justification.** This program element integrates dissimilar 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)/Brigade and Below Command and Control (B2C2), 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 advanced warfighting experiment in FY 1998. The Army Digitization Office focuses, coordinates and implements all Army digitization efforts. This project is in Budget Activity 7 since it supports experimentation and modification of equipment in the Army inventory.

Acquisition Strategy. Provide a digital capability to platforms supporting multiple battlefield operating systems that do not have an embedded digital capability, with initial emphasis on meeting the near-term requirements for the designated Experimental Force (EXFOR). Provide three variant appliqués based on platform field 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.

FY 1995 Accomplishments:

- 18028 Initiated development of command and control software for brigade and below.
- 23387 Initiated development of appliqués and their platform integration
- 5453 Initiated development of an upgrade to the M1A2 command and control system.
- 4042 Supported establishment of a Digitization Integration Laboratory, Army Systems Engineering Office and Joint Interoperability efforts.
- 2168 Supported development of digitization systems architecture
- 19012 Initiated simulation, experimentation and evaluation of prototype hardware and software.

4301 Initiated development of a data distribution system.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203758A Digitization
PROJECT D374	

FY 1995 Accomplishments: (continued)

•	7046	Obtained avionics equipment for the Experimental Force (EXFOR).
•	1301	Initiated interim operational solution for 1st Cavalry Division M1A2 digital connectivity.
Total	84738	

FY 1996 Planned Program:

•	23594	Continue development of appliqués and their platform integration.
•	34305	Continue development of command and control software for brigade and below..
•	8009	Continue simulation, experimentation and evaluation of prototype hardware and software.
•	3480	Continue development of a data distribution system.
•	3391	Initiate development of protocols and standards, and systems engineering.
•	10800	Continue development of an upgrade to the M1A2 intervehicular information system.
•	1500	Obtain avionics equipment for the Experimental Force (EXFOR).
•	14024	Support for TF XXI Advanced Warfighting Experiment requirements.
Total	99103	

FY 1997 Planned Program:

•	23454	Continue development of appliqués and their platform integration.
•	35392	Complete development of command and control software for brigade and below.
•	32046	Conduct simulation, experimentation and evaluation of prototype hardware and software.
•	9000	Complete development of data distribution system.
•	5177	Interoperability: Continue development of protocols and standards and International Command and Control Systems Interoperability Program.
•	5111	M1A2 interoperability and appliqué digital connectivity.
Total	110180	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	82727	88567	80631
Appropriated Amount (FY 1995)	81125		
Adjustments to FY 1995	3613		
Appropriated Amount (FY 1996)		99103	
Adjustments to FY 1996 Appropriated Value		0	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			29548
Current Budget Submission/President's Budget	84738	99103	110180

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0203758A Digitization

PROJECT: D374

Change Summary Explanation:

Funding: FY 1995 $3613 reprogrammings for applique development; FY 1996 Congressional increase to support TF XXI Advanced Warfighting Experiment requirements. FY 1997 increase for Force XXI experimentation efforts. $2811 addition in FY 1997 to evaluate appliqué digital connectivity with M1A2 tanks.

C. Other Program Funding Summary.

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
OMA, PSP 11, PE 118207000				5000				Continuing	Continuing
Other Procurement Army Activity 2, SSN W61900	0	0		72297	58479	0	0	Continuing	Continuing

D. Schedule Profile.

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Roving Sands, TMD Experiment			X									
System Design Review			X									
Focus Dispatch Advanced Warfighting Experiment (AWE)				X								
Critical Design Review				X								
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		
Integrated Product Team (IPT)Review											X	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203758A Digitization
	PROJECT D374

A. Project Cost Breakdown	FY 1995	FY 1996	FY 1997
Hardware Development	16650	18892	21011
Software Development	21728	32377	33500
Development, Experimentation, & Evaluation	36665	40440	46533
Program Management and Engineering Support	9695	7394	9136
Total	84738	99103	110180

B. Budget Acquisition History and Planning Information Not Applicable

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	35890	63057	30959	11720	9330	19187	37046	0	Continuing	Continuing
D036 PATRIOT Product Improvement Program	23354	46477	12291	9406	6481	5792	4785	——	0	365294
D038 Avenger Product Improvement Program	7726	2918	0	0	0	0	0	——	0	32476
D303 Stinger Product Improvement Program	4810	13662	18668	2314	2849	12439	28465	——	Continuing	Continuing
D633 THAAD P3I	0	0	0	0	0	0	1898	——	Continuing	Continuing
D634 THAAD GBR P3I	0	0	0	0	0	956	1898	——	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 US 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. FY 96 is the last year of funding for AVENGER upgrades. The FY 97 budget funds critical improvements to major acquisition programs of PATRIOT and STINGER. The 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: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D036

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D036 PATRIOT Product Improvement Program	23354	46477	12291	9406	6481	5792	4785		0	365294

A. Mission Description and Budget Item Justification **D036 - PATRIOT Product Improvement Program:** The PATRIOT system is being upgraded through a series of individual materiel changes (MMC) 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 1995 Accomplishments:

•	11443	P3I Test Program
•	9368	Communications Upgrades
•	1793	P3I Test Program Sets
•	750	Responsive Threat Analysis
Total	23354	

FY 1996 Planned Program:

•	5733	P3I Test Program
•	5083	Communications Upgrades
•	750	Responsive Threat Analysis
•	33769	PAC 2 Anti-Cruise Missile Upgrade
•	131	Revised Economic Assumption (Not available for execution)
•	1011	SBIR/STTR
Total	46477	

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D036

FY 1997 Planned Program:

- 5600 P3I Test Program
- 5941 Communications Upgrades
- 750 Responsive Threat Analysis

Total 12291

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	24294	12823	12626
Appropriated Value (FY 1995)	23809		
Adjustment to FY 1995	-455		
Appropriated Amount (FY 1996)		46946	
Adjustment to FY 1996		-469	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-335
Current President's Budget Submit	23354	46477	12291

Change Summary Explanation:

Funding: FY 1995: Below Threshold Reprogramming (-455).
FY 1996 Revised Economic Assumption not available for execution (-469).
FY 1997 Revised Economic Assumption (-335)

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Complete	Total Cost
Missile Procurement, Army									
Budget Activity 2 - PATRIOT (C49100)	8799	4924	2862	0	0	0	0	0	9636859
Budget Activity 3 - PATRIOT Mod (C50700)	25916	6767	11464	14737	15956	36538	19729	0	484732

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Contractor Test & Evaluation				X								
Development Test & Evaluation						X						

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203801A Missile/Air Defense Product Improvement Program PROJECT D036

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Contract Engineering Support	11580	38115	2000
Program Management Support	4588	2227	1791
Developmental Test and Evaluation	7186	6135	8500
Total	23354	46477	12291

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 1995	FY 1995	FY 1996	FY 1997	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	2963	800	100			3863
Raytheon										
DAAH0191C0602	SS/CPIF	22Apr92	20702	20702	18302	4775				23077
DAAH0192C0006	SS/CPAF	27Jan92			56460					56460
DAAH0195C0043	SS/CPAF	01Feb95				6005	3646	2000	4234	15885
PAC 2 Anti-Cruise							34369			34369

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Support and Management Organizations										
CAS										
DAAH0187CA008					2270					2270
DAAH0190C0487					6266					6266
DAAH0194C0105	C/CPAF	31Jan94			2093	3251	791	791	1058	7984
In-house Support					9480	1337	1436	1000	2912	16165
Test and Evaluation Organizations										
Missile Command	1095					2322	1962	2100	5478	11862
White Sands										
Missile Range	1095/MIPR					2841	2847	3200	6208	15096
Other Govt Agen	MIPR					2023	1326	3200	6574	13123
RDEC and										
Other Govt Agen					95377					95377
Government Furnished Property: None.										
Subtotal Product Development					141222	11580	38115	2000	4234	197151
Subtotal Support and Management					20109	4588	2227	1791	3970	32685
Subtotal Test and Evaluation					95377	7186	6135	8500	18260	135458
Total Project					256708	23354	46477	12291	26464	365294

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D038

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D038 Avenger Product Improvement Program	7726	2918	0	0	0	0	0		0	32476

A. Mission Description and Budget Item Justification **D038 - Avenger Product Improvement Program:** The Avenger PIP permits worldwide employment of Avenger through the addition of an Environmental Control Unit (ECU, with cooling for hot desert climates) and Prime Power Unit (PPU, to provide power needed to operate ECU under all climatic conditions). Additionally, this PIP will increase the lethality and survivability of the total system through the addition of the Command and Control(C2)/Manual, Fire Control-1, Command and Control/Automatic, and improved Remote Control Unit (RCU) subsystems. These subsystems will increase Avenger's ability to process target data, resulting in increased probability of target detection and identification by cueing the gunner to the target location using air track data reported by Army and USMC C2 systems. The gunner can then launch (without delay for visual identification), using the ID data in the C2 report and locally obtained passive sensor data. The Stinger-RMP missile will be far more lethal since the improved fire control can upload software at launch time which is optimized for the specific target of interest. The system will be more survivable because the improved RCU will allow the gunner to engage with full system capability from protected positions such as bunkers. Flight evaluations of complementary missile utilizing the Avenger system will provide the Army with the ability to determine complementary capabilities to the Stinger and Air-to-Air Stinger missiles. Project funding in FY 1995 provides for an operational assessment to include comparison of the ground-to-air Starstreak missile system and Stinger Block II missile system. Project funding for FY 1996 provides for concept development and design for increased capability of the AVENGER Control Electronics (ACE) to provide for a more robust processor having standardized processor architecture and ADA software. This upgrade is essential for other follow-on upgrades which will facilitate gunner communication with the FAAD command and control system and non cooperative target recognition.

Acquisition Strategy: Initial funding provided Phase I P3I concept development and design for C2 Manual and Automatic, Fire Control, RCU, and ECU/PPU. Concepts were developed and refined for subsystem and software requirements. Gunner heat stress in the Avenger turret made the ECU/PPU the first priority for production due to safety issues. The first fire units were equipped with an interim solution during Desert Storm, with the first production scheduled for mid-FY 96. No further R&D contracts are scheduled for these programs. The Congressionally-directed FY 94 evaluation to determine the suitability of the Starstreak Hyper-Velocity Missile (HVM) as a complementary missile to Stinger on the Avenger platform was completed through a sole source cost reimbursable contract to Boeing. The FY 95 operational assessment of the HVM to Stinger Block II in terms of requirements, capabilities and costs has been canceled. Further progression of FY 95 program is on OSD withhold pending completion of Phase I of the HVM/Apache program.

FY 1995 Accomplishments: Pending release of funds, plans remain as follows:

•	7726	Apply to Phase II HVM/Apache program upon successful completion of Phase I by PE 63003A.
Total	7726	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203801A Missile/Air Defense Product Improvement Program PROJECT D038

FY 1996 Planned Program:.

•	2844	Apply to Concept Development and Design of the AVENGER Control Electronics Upgrade.
•	66	SBIR/STTR.
•	8	Revised economic assumption not available for execution.
Total	2918	

FY 1997 Planned Program: No program planned.

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	7892		
Appropriated Value (FY 1995)	7726		
Adjustments to FY 1995	-166		
Appropriated Amount (FY 1996)		2948	
Adjustments to FY 1996		-30	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	7726	2918	

Change Summary Explanation:
Funding: FY 1995: Below Threshold Reprogramming (-166)
FY 1996: Revised Economic Assumption (-30)

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Complete	Total Cost
Avenger Missile Procurement, C14900	17696	30532	12581						927708
Avenger Modifications, CE8710	10716								24151

D. Schedule Profile To be determined.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D038

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
TBD	7726	2918	
Total	7726	2918	

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
RDEC	1095	Various			1181					1181
Targets Mgt Ofc	1095	3Q95			2150					2150
Dev Contractors	Various	Various		10087	10087					10087
Miscellaneous Contracts	Various	Various			7774					7774
Other Govt Agen	MIPR	Various			640					640
TBD						7726	2918			10644

Support and Management Organizations: None

Test and Evaluation Organizations: None

Government Furnished Property: None.

Subtotal Product Development	21832	7726	2918		32476
Subtotal Support and Management					
Subtotal Test and Evaluation					
Total Project	21832	7726	2918		32476

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D303

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D303 Stinger Product Improvement Program	4810	13662	18668	2314	2849	12439	28465		Continuing	Continuing

A. Mission Description and Budget Item Justification: 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 1997 initiate development of a MIL-STD 1760 launcher 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 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 program, with a sole source CPIF contract awarded in 1992, increases the Stinger missile's performance through addition of a roll sensor and enhanced software. Contract management is through the Cost/Schedule Status Report (C/SSR) and Contract Funds Status Report (CFSR). Production cut-in to 493 missiles begins FY 96. A sole source FFP contract for the modification production program begins mid-FY 96 at the end of current missile production.

The Block II program began in FY 93 as a Technology Base Broad Agency Announcement (BAA) for 2.75" focal plane array (FPA) seeker technology development. Current funding is being used to demonstrate the performance of the FPA seeker head and initiate miniaturization of the Block II electronics package through a sole source-CPIF contract with the BAA prime contractor. Contract management is through C/SSR and CFSR. These efforts reduce risks associated with the planned FY 00 start of a sole source-CPIF contract for the Engineering, Manufacturing, and Development phase.

A CPIF contract to the prime to initiate development of the MIL-STD 1760 launcher is planned for mid-FY 1997.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203801A Missile/Air Defense Product Improvement Program PROJECT D303

The VSHORADS/SHORADS strategy is based on the conduct of a multi-national industrial competitive procurement, which will select two or more consortia composed of industry from the MOU signature nations, to perform the short range air defense technology and system studies. The output of the Feasibility Study, the NATO Staff Requirement, will form the basis for the next phase in the NATO weapon system acquisition process, Project Definition, as well as support the U.S. follow-on to STINGER effort. The Request for Proposal for the Feasibility Study (funded by NATO) was released to industry in January 1995. Proposals were received from two international consortia in July 1995. Award of contracts is scheduled for June 1996. The United Kingdom (UK) has been designated the Pilot Nation for the Feasibility Study, providing management office support and serving as the Contracting Authority.

FY 1995 Accomplishments:

•	2900	Demonstrate the Performance of Broad Area Announcement (BAA) 2.75" Infrared (IR) Focal Plane Array (FPA) Seeker Head
•	1000	Initiate Miniaturization of the 2.75" IR FPA Electronics Package
•	910	Initiate Target Identification and Countermeasure Algorithms for the 2.75" IR FPA Seeker
Total	4810	

FY 1996 Planned Program:

•	2007	Conduct Testing of Block I Phase II Software
•	1019	Perform Block I Software Critical Design Review and Release Engineering Change Proposal
•	493	Initiate Block I Performance Assessment
•	4238	Perform Evaluation of Seeker In Rolling Airframe and Captive Carry Tests
•	3088	Initiate Block II Electronics State of the Art Packaging (Miniaturization) of Electronics Section
•	1433	Upgrade Block II Seeker to Correct Limitations Discovered in Initial Development
•	200	VSHORADS/SHORADS International Proposal Evaluation/Negotiations/Contract Awards
•	840	VSHORADS/SHORADS Technology and Subsystem Development
•	305	SBIR/STTR
•	039	Revised Economic Assumption not available for execution
Total	13662	

FY 1997 Planned Program:

•	702	Complete Block I Performance Assessment
•	2435	Initiate Development of Unmanned Aerial Vehicle-Specific Software
•	531	Block I Flight Demonstration
•	2191	Perform Evaluation of Seeker In Rolling Airframe and Captive Carry Tests

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203801A Missile/Air Defense Product Improvement Program PROJECT D303

FY 1997 Planned Program: (continued)

- 3898 Produce Prototype Block II Electronics State of the Art Packaging (Miniaturization) of Electronics Section
- 4811 Integration of Tactical-sized Block II Guidance Assembly
- 2202 VSHORADS/SHORADS-System Variants Development and Evaluation of System Variants
- 1898 Initiate Development of MIL-STD 1760 Launcher

Total 18668

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget	4933	4246	3766
Appropriated Amount (FY 1995)	4829		
Adjustments to FY 1995	-19		
Appropriated Amount (FY 1996)		13800	
Adjustment to FY 1996		-138	
Adjustments to Budget Year (FY 1997) since FY 1996 PB			14902
Current Budget Submit/President's Budget	4810	13662	18668

Change Summary Explanation:

Funding: FY 1996: Revised Economic Assumptions (-138).
FY 1997: Continued risk reduction program leading to an accelerated Block II EMD (+14902).

Schedule: Adjustments to schedule have been made to incorporate Block II development program increase in FY 1996 and FY 1997.

Technical: Reduction of FY 1996 Block I funding resulted in deletion of one Flight Test and delay of Government Performance Assessment completion to FY 1997. Technical realignment in process to optimize technology insertion for Block I and Block II programs.

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
Missile Procurement, Army									
Budget Activity 2 - Stinger									1143340
Budget Activity 3 - Stinger Mods (C20000)	4958	9804	16903	17674	24071	26087	39082	Cont'd	Cont'd

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203801A Missile/Air Defense Product Improvement Program PROJECT D303

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Block I Qualification				X*								
Acq Tests, IR Imaging Seeker Assy				X*								
Block I CDR Software ECP								X				
Block I Performance Assessment										X		
Complete Block I Dev Flight Tests								X				
Initiate Future Software Development										X		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203801A Missile/Air Defense Product Improvement Program PROJECT D303

A. Project Cost Breakdown

Project Management Matrix Support	181	2334	4267
Major Development Contractor	4629	9132	10707
Contracted Services		50	52
Other Government Agencies		42	42
UK MOU Contractor		643	1732
UK Management Office		106	176
UK MOU U.S. Program Support		291	294
Total	4810	13662	18668

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
Hughes Msl Sys	SS-CPIF	Apr 92	26232	26232	18224		2382	2111	3515	26232
Hughes Msl Sys	SS-CPIF	Apr 93	4629	4629		4629				4629
Hughes Msl Sys	SS-CPIF	Mar96	138246	138246			6750	7496	124000	138246
Hughes Msl Sys	SS-CPIF	Apr97		1100				1100		1100
Targets Mgt Ofc	MIPR	Apr 94			2100					2100
Targets Mgt Ofc	MIPR	Various							12280	12280
BSFV Aggregate	Various	Various			7028					7028
Block I Aggregate	Various	Various			8152		394	52	1648	10246
PMO/Matrix	Allot/1095	Various					3054	5665	49944	58663
Block II Aggregate	Various	Various				181			1572	1753
Other Govt Agen	MIPR	Various					42	42	3108	3192
British Aerospace	C-FFP	Jun 96					322	866		1188
Thomson-CSF	C-FFP	Jun 96					321	866		1187

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
UK Ministry of Defense (MgtOfc)	MOU/1095	Dec 95					106	176		282
Support and Management Organizations										
U.S. Prog Spt MOU VSHORAD/ SHORADS	1095	Dec 95					291	294		585
Test and Evaluation Organizations: None										
Government Furnished Property: N/A										
Subtotal Product Development					35504	4810	13371	18374	196067	268126
Subtotal Support and Management							291	294		585
Subtotal Test and Evaluation										
Total Project					35504	4810	13662	18668	196067	268711

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	62176	63709	6199	17095	21472	17090	9505		0	971674
D045 HELLFIRE Product Improvement Program	280	0	0	15853	20247	17090	9505		0	522516
D304 Army TACMS BLK IA	36337	22813	4469	0	0	0	0		0	88971
D2MT ATACMS BLK IA Oper Tests	0	3483	390	0	0	0	0		0	3873
D336 TOW Product Improvement Program	25559	27686	1340	1242	1225	0	0		0	346587
D701 Hydra 70 Program Improvement Program	0	9727	0	0	0	0	0		0	9727

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 consists of the Longbow Home-on-Jam (HOJ) and Counter Active Protection System (CAPS). The Longbow missile provides a fire-and-forget HELLFIRE 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. Project D2MT provides for the operational testing of the Army TACMS Block IA Program. The ATACMS BLK II transitioned into the BAT PE 0604768A, Project D688 in FY 95. 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 2nd Gen 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: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D045

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D045 HELLFIRE Product Improvement Program	280	0	0	15853	20247	17090	9505		0	522516

A. Mission Description and Budget Item Justification: Project D045 - 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 formally qualifying the designs in missile flight tests. Costs in FY 1998 - FY 2001 in the amount of 62695 is for Longbow HELLFIRE product improvements only.

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).

FY 1995 Accomplishments:

- 280 Funds appropriated for testing in support of Counter Active Protection System (CAPS) for Laser HELLFIRE II

Total 280

FY 1996 Planned Program: No planned program.

FY 1997 Planned Program: No planned program.

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	3945		
Appropriated Amount (FY 1995)	3862		
Adjustment to FY 1995	-3582		
Appropriated Amount (FY 1996)			
Adjustment to FY 1996			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	280		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203802A Other Missile Product Improvement Programs PROJECT D045

Change Summary Explanation (Funding): FY 1995: Below threshold reprogramming (-3582).

C. Other Program Funding Summary	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Comp	Total Cost
Missile Procurement Army									
C70300 Longbow HELLFIRE	41195	188714	249521	268430	336513	290778	290388	492411	2157950
C70100 Laser HELLFIRE	86330	50740	108069	93000	99000	103000	110000		2458629

D. Schedule Profile	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Main Warhead Qual for HELLFIRE II	X*											
Main Warhead Hardware Delivery for HELLFIRE II	X*											

* Milestone completed.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203802A Other Missile Product Improvement Programs PROJECT D045

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Support of long standoff warhead technology development for HELLFIRE II	280		
Total	280		

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
Prior yr contracts					364336					364336
Conventional Munitions Sys Tampa, FL	SS/CPIF	Mar 93			1132					1132
AGMS Proj Ofc - Warhead Tech Div					2000	280				2280
Program Mgmt Support					91289					91289
Longbow HF PIP									62695	62695
Support and Management Organizations: None										
Test and Evaluation Organizations										
Misc					784					784
Government Furnished Property: None										
Subtotal Product Development					458757	280			62695	521732
Subtotal Support and Management										
Subtotal Test and Evaluation					784					784
Total Project					459541	280			62695	522516

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D304

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D304 Army TACMS BLK IA	36337	22813	4469	0	0	0	0		0	88971

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 will incorporate the improved APAM warhead 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 Vought. Low Rate Initial Production (LRIP) begins in FY 1996.

FY 1995 Accomplishments:

•	1910	GPS Integration/interface Preliminary Support.
•	4473	Begin Block IA lab, static, warhead vibration, and road tests.
•	29613	Block IA EMD (second increment).
•	341	Studies, development, and validation of future improvement programs.
Total	36337	

FY 1996 Planned Program:

•	13487	Block IA EMD (third increment).
•	8316	Initiate and complete Production Prove-Out Test (PPT), Pre-production Qualifications Test (PPQT) and support Operational Test (OT), continue vibration and road tests.
•	442	Studies, development, and validation of future improvement programs.
•	64	Revised Economic Assumption not available for execution
•	504	SBIR/STTR decrements
Total	22813	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203802A Other Missile Product Improvement Programs PROJECT D304

FY 1997 Planned Program:

•	3123	Block IA EMD (fourth increment).
•	1246	Complete testing activities, data analysis and reporting.
•	100	Studies, development, and validation of future improvement programs.
Total	4469	

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	37282	23454	4583
Appropriated Amount (FY 1995)	36504		
Adjustment to FY 1995	-167		
Appropriated Amount (FY 1996)		23044	
Adjustment to FY 1996		-231	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-114
Current President's Budget Submit	36337	22813	4469

Change Summary Explanation:

Funding: FY 1995 - Below threshold reprogramming (-167)
FY 1996 - Adjustment due to Revised Economic Assumptions/Improved Management Savings (-231).
FY 1997 - Adjustment due to Revised Economic Assumptions/Improved Management Savings (-114).

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Complete	Total Cost
Missile Procurement, Army									
C98510 ATACMS	112824	121303	92816	97097	103400	100573	112384	136489	1789520

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D304

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
JPSD Contract Award												
Block IA Milestone IV												
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		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D304

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Contractor Engineering Support	28083	10100	2400
Developmental Test & Evaluation	4473	8316	1246
Project Management Support	1883	1824	291
Project Management Personnel	1898	2573	532
Total	36337	22813	4469

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
Loral Vought Sys	SS/CPIF	Nov 93	8041	8041	6548	1493				8041
Loral Vought Sys	SS/CPIF	Mar 94	52850	52850	13760	26590	10100	2400		52850
In-House Spt					989	1542	1382	191		4104
Support and Management Organizations										
Sys Eng & Tech Asst Contracts and Program Mgt					542	341	442	100		1425
In-House Spt					1721	1898	2573	532		6724

Test and Evaluation Organizations: None

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Property: None									
Support and Management Property: None									

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D304

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Test and Evaluation Property									
White Sands Missile Range (WSMR)	MIPR			1220	3270	5472	100		10062
Range Support	MIPR			131		1036	796		1963
Redstone Technical Test Center (RTTC)	MIPR			50	100	500	50		700
Army Research Laboratory (ARL)	MIPR				374	679	282		1335
Misc	MIPR			391	729	629	18		1767
Subtotal Product Development				21297	29625	11482	2591		64995
Subtotal Support and Management				2263	2239	3015	632		8149
Subtotal Test and Evaluation				1792	4473	8316	1246		15827
Total Project				25352	36337	22813	4469		88971

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203802A Other Missile Product Improvement Programs PROJECT D2MT

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D2MT ATACMS BLK IA Oper Tests	0	3483	390	0	0	0	0		0	3873

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 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 1995 Accomplishments: Project not funded in FY 95.

FY 1996 Planned Program:

•	3397	Conduct Army TACMS Block IA operational testing.
•	9	Revised Economic Assumption not available for execution
•	77	SBIR/STTR
Total	3483	

FY 1997 Planned Program:

•	390	Complete Army TACMS Block IA operational testing.
Total	390	

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D2MT

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)		3582	398
Appropriated Amount (FY 1995)			
Adjustment to FY 1995			
Appropriated Amount (FY 1996)		3519	
Adjustment to FY 1996		-36	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-8
Current President's Budget Submit		3483	390

Change Summary Explanation:

Funding: FY 1996 - Revised Economic Assumption (-36).

FY 1997 - Revised Economic Assumptions/Improved Management Savings (-8)

C. Other Program Funding Summary : There are no other related RDTE or other Appropriation efforts.

D. Schedule Profile

	FY 1995			FY 1996				FY 1997			
	1	2	3	1	2	3	4	1	2	3	4
Begin Army TACMS Block IA											
Operational Testing						X					
Complete Army TACMS Block IA											
Operational Testing									X		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D2MT

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Operational Testing		3483	390
Total		3483	390

B. Budget Acquisition History and Planning Information: None

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Property: None									
Support and Management Property: None									
Test and Evaluation Property									
Misc						3483	390		3873
Subtotal Product Development									
Subtotal Support and Management									
Subtotal Test and Evaluation						3483	390		3873
Total Project									

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203802A Other Missile Product Improvement Programs PROJECT D336

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D336 TOW Product Improvement Program	25559	27686	1340	1242	1225	0	0		0	346587

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 2nd Gen 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 depending on the total quantities.

FY 1995 Accomplishments:

•	4704	Continued ITAS EMD.
•	3734	Completed ITAS PPT.
•		Delivered prototypes for initial system level test.
•	3815	Procured prototypes for Pre Production Qualification Tests (PPQT).
•	2879	Procured prototypes for Initial Operational Test and Evaluation (IOTE).
•	2779	Continued ITS.
•	493	Completed the Limited User Test (LUT).
•	2910	Initiated ITAS software testing.
•	3555	Initiated pilot line.
•	690	Continued missile enhancement efforts against the evolving threat.
Total	25559	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203802A Other Missile Product Improvement Programs PROJECT D336

FY 1996 Planned Program:

•	14305	Continue ITAS EMD.
•	1855	Complete ITS.
•	960	Complete pilot line.
•	799	Conduct LRIP Review.
•		Deliver prototypes for PPQT.
•	6517	Conduct PPQT.
•		Deliver 3 prototypes for IOTE.
•	2000	Support IOTE.
•	560	Continue missile enhancement efforts against the evolving threat.
•	79	Revised Economic Assumption not available for execution
•	611	SBIR/STTR decrements
Total	27686	

FY 1997 Planned Program:

•	93	Review IOTE reports and complete Milestone III.
•	1247	Continue missile enhancement efforts against the evolving threat (Counter Active Protection System (CAPS)).
•		Develop analytical model
•		Design/test long stand-off warhead
•		Design/demonstrate electrical active/passive
•		Perform long stand-off sensor study
•		Redesign armament section
Total	1340	

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D336

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	26138	30913	1367
Appropriated Amount (FY 1995)	25596		
Adjustment to FY 1995	-37		
Appropriated Amount (FY 1996)		27965	
Adjustment to FY 1996		-279	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-27
Current President's Budget Submit	25559	27686	1340

Change Summary Explanation:

Funding: FY 1995 Below threshold reprogramming (-37).
FY 1996 Revised Economic Assumption (-279).
FY 1997 Revised Economic Assumption (-27).

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Complete	Total Cost
Missile Procurement, Army C61700 TOW Mods		32394	16	79458	63673	60973	9100	239600	990179

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Initiated ITAS Pilot Line	X*											
Completed ITAS PPT Part 2				X*								
Completed ITAS LUT			X*									
Initiate ITAS PPQT						X*						
LRIP Decision								X				
IOT&E								X				
ITAS Milestone III Review										X		
Initiate ITAS PQT												X

* Milestone Completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D336

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Primary Hardware Development	13474	13583	763
Program Management Support	4490	4436	298
Developmental Test and Evaluation	4816	7812	279
Training Development	2779	1855	
Total	25559	27686	1340

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
PY Sunk Cost			54403	55908	145427					145427
Texas Instruments, McKinney, TX	C/CPIF/AF	Apr 93			36043	13383	13333			62759
STRICOM, Orlando, FL	MIPR	Sep 93			4496	2779	1855			9130
Misc	TBD	TBD			351	91	250	763	1532	2987
Support and Management Organizations										
PY Sunk Cost					46912					46912
PM CCAWS, RSA	PO				989	660	699	151	316	2815
MICOM, RSA, AL	PO				7107	3247	3308	147	353	14162
Misc	TBD				659	583	429			1671
Test and Evaluation Organizations										
					42221					42221
TECOM,APG,MD	PO				4614	4376	5051	279	266	14586
TEXCOM, Ft Bliss, TX	MIPR						2000			2000
Misc	TBD				716	440	761			1917

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203802A Other Missile Product Improvement Programs PROJECT D336

Government Furnished Property: None.

	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	186317	16253	15438	763	1532	220303
Subtotal Support and Management	55667	4490	4436	298	669	65560
Subtotal Test and Evaluation	47551	4816	7812	279	266	60724
Total Project	289535	25559	27686	1340	2467	346587

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D701

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D701 Hydra 70 Program Improvement Program	0	9727	0	0	0	0	0		0	9727

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 1995 Accomplishments: No FY 95 program

FY 1996 Planned Program:

- 1560 Engineering support
- 990 Phase I qualification
- 6933 Phase II qualification
- 217 Funds will be used for SBIR/STTR programs IAW the Small Business Innovation Research Program Reauthorization Act of 1992
- 27 Revised economic assumption- not available for execution

Total 9727

FY 1997 Planned Program: No FY 97 planned program

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	0	0
Appropriated Amount (FY 1995)	0		
Adjustment to FY 1995			
Appropriated Amount (FY 1996)	0	9825	
Adjustment to FY 1996		-98	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			0
Current President's Budget submit	0	9727	0

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0203802A Other Missile Product Improvement Programs PROJECT D701

Change Summary Explanation:
Funding: Revised Economic Assumption (-98).

C. Other Program Funding Summary: Not applicable.

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	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: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D701

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Project management support	0	554	0
Engineering support	0	1250	0
Test support	0	4003	0
Rocket motor procurement	0	2920	0
Hydra-70 asset procurement	0	1000	0
Total		9727	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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
To be determined	TBD				0	0	2920	0		2920
Support and Management Organizations										
Industrial Operations Cmd					0	0	554	0	0	554
Naval Surface warfare Cntr					0	0	475	0	0	475
ARDEC: Picatinny					0	0	240	0	0	240
ATCOM					0	0	325	0	0	325
MICOM					0	0	150	0	0	150
Edgewood					0	0	60	0	0	60
TBD	TBD	TBD			0	0	1000	0		1000

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D701

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Test and Evaluation Organizations										
NAWC/WD, China Lake					0	0	318	0	0	318
IHD/NSWC					0	0	590	0	0	590
YPG					0	0	2400	0	0	2400
ARL, APG					0	0	420	0	0	420
DD/NSWC					0	0	150	0	0	150
NAWC/AD, Patuxtent River					0	0	75	0	0	75
MICOM					0	0	50	0	0	50

Government Furnished Property: Not applicable

	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development			2920			2920
Subtotal Support and Management			2804			2804
Subtotal Test and Evaluation			4003			4003
Total Project			9727			9727

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D107

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D107 Echelons Above Corps (EAC) Comm	18803	12972	18693	9409	10420	6409	0	0	0	108324

A. Mission Description and Budget Item Justification: A requirement exists to automate Signal 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 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 1995 - FY 1998 support the development of the first three software releases (P0, IOT&E & P2), 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 is in support of a development acquisition program, still in engineering and manufacturing development but has received approval for production.

Acquisition Strategy: The acquisition strategy for the development phase was to competitively award an Engineering Manufacturing Development phase contract (awarded SEP 92) leading to a production contract in FY 97. Approval granted 8 May 1995 to enter into a Low Rate Initial Production (LRIP).

FY 1995 Accomplishments:

- 2850 Complete Software Requirements Specifications (SRS) and conduct Preliminary Design Review (PDR) for P0 Baseline
- 2500 Deliver draft SRS and conduct Software Specifications Review (SSR) for Phase 2 (P2) Baseline
- 200 Complete PDR for hardware prototype
- 5663 Complete Detail Design and conduct Critical Design Review (CDR) for Baseline
- 4990 Code, unit test, release Software Baseline
- 2600 Complete BSM Software Version 3.0

Total 18803

FY 1996 Planned Program:

- 1046 Initiate Systems Design for IOT&E Software Baseline
- 523 System Integration Test
- 2616 Complete Detail Design and conduct Developmental Progress Review (DPR)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0208010A Joint Tactical Communications Program (TRI-TAC)
	PROJECT D107

FY 1996 Planned Program: (continued)

•	2616	Complete Systems of IOT&E Software Baseline
•	600	Complete BSM Version 4.0
•	3662	Code, unit test, and system test of the IOT&E Software Baseline
•	584	Deliver draft training materiel
•	500	CDR for hardware prototypes
•	500	Develop and deliver draft tech pubs
•	289	Small Business Innovative Research (SBIR)(269)/SB Tech Transfer Prog (STTR)(20)
•	36	Revised economic assumption - not available for execution
Total	12972	

FY 1997 Planned Program:

•	1869	IOT&E spt for Software Baseline (& follow up actions)
•	1869	Initiate Systems Design for Phase 2 (P2) Baseline
•	3739	Complete Systems Design for P2 Baseline
•	4673	Complete detailed design and conduct DPR for P2 Baseline
•	5608	Code, unit test, system test for P2 Baseline
•	935	Initiate systems design of P3 Specifications for P2 Baseline
Total	18693	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	19206	13368	15232
Appropriated Amount	18803	0	0
Adjustments to FY 1995	0	0	0
Appropriated Amount (FY 1996)		13104	
Adjustment to FY 1996		-132	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			+3461
Current President's Budget Submit	18803	12972	18693

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: D107

Change Summary Explanation

Funding: FY 1996: (-132) the portion of this program that has been proposed for rescission.

FY 1997: (+3970) plus up required to satisfy costs associated with schedule delays on the prime software contract which resulted from protests under the original competitive contract. (-509) revised inflation rates.

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Comp	Total Cost
Other Procurement, Army-2, BX0007	0	12766	9822	11321	11240	4678	0		49827

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
P0 Software												
PDR		*X										
CDR			*X									
IOT&E Software												
DPR					*X		X					
IOT&E										X		
P2 Software												
DPR									X		X	
FOT&E												X

*Milestone Completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0208010A Joint Tactical Communications Program (TRI-TAC)
	PROJECT D107

A. Project Cost Breakdown	FY 1995	FY 1996	FY 1997
Software Development (Contractor)	16105	10784	16480
Integrated Log Spt	92	0	0
Contractor Engr Spt	466	567	544
Government Engr Spt	1873	1000	1359
Program Mgt Spt	267	296	310
SBIR/STTR		289	
Revised economic assumption - not available for execution		36	
Total	18803	12972	18693

B. Budget Acquisition History and Planning Information - Not applicable.

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208053A Joint Tactical Ground System (TIARA)

PROJECT: M635

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
M635 Joint Tactical Ground Station-P3I (TIARA)	0	0	2124	3192	0	0	0		0	5316

A. Mission Description and Budget Item Justification: This Program Element (PE) 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 sensor technology advances and to increase the accuracy and timeliness of TBM warning and cueing.

Acquisition Strategy: Critical JTAGS improvements under this PE 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. Upgrades will be accomplished on site. These projects support development of upgrades to current production modifications and is appropriately funded in Budget Activity 7.

FY 1995 Accomplishments: Program not funded in FY 1995

FY 1996 Planned Program: Program not funded in FY 1996

FY 1997 Planned Program:

•	1448	Initiate modification to integrate the JTIDS commo net into JTAGS.
•	386	Initiate modification to fuse DSP sensor data with data from other battlefield sensors.
•	290	Initiate modification to calibrate sensor via in-theater beacons.
Total	2124	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	0	0
Appropriated Value	0	0	0
Adjustments to Appropriated Value			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			2124
Current President's Budget Submit	0	0	2124

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0208053A Joint Tactical Ground System (TIARA)
	PROJECT M635

Change Summary Explanation:
Funding: The Dod budget funds the upgrades to JTAGS beginning in FY 1997.

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
Other Procurement Army, OPA-2 BZ8410 Joint Tactical Ground Station	0	29950	0	3059	2846	0	0	0	35855

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Initiate JTAGS Modification Program									X			
Initiate JTIDS Development									X			
Initiate Sensor Fusion Development									X			
Initiate Beacon Development										X		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208053A Joint Tactical Ground System (TIARA)

PROJECT: M635

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Prime Contractor			1715
Contract Engineering Support			127
Program Management Support			170
Government Engineering Support			112
Government Furnished Equipment			0
Total			2124

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
Aerojet (Prime)	C/CPFF				0	0	0	1715	1793	3508
Support and Management Organizations										
Proj Mgt/Matrix	N/A	N/A	N/A	N/A	0	0	0	170	697	867
Contract Eng Spt	C/CPIF	Mar 95	N/A	N/A	0	0	0	127	508	635
Govt Eng Spt			N/A	N/A	0	0	0	112	194	306

Government Furnished Property : To be Defined

Subtotal Product Development	0	0	0	1715	1793	3508
Subtotal Support and Management	0	0	0	409	1399	1808
Subtotal Test and Evaluation	0	0	0	0	0	0
Total Project	0	0	0	2124	3192	5316

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140A Communications Security (COMSEC) Equipment

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	7426	3623	3161	14609	14896	6844	6300		Continuing	Continuing
D491 Communications Security Equipment Technology (COMSEC)	5085	2350	2574	940	1297	4834	4493		Continuing	Continuing
D501 Army Key Management System (AKMS)	2341	1273	587	13669	13599	2010	1807		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. 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. AKMS is the result of restructure of the COMSEC project and is not a new start. 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: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140A Communications Security (COMSEC) Equipment

PROJECT: D491

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D491 Communications Security Equipment Technology (COMSEC)	5085	2350	2574	940	1297	4834	4493		Continuing	Continuing

A. <u>Mission Description and Budget Item Justification</u> 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.

<u>Acquisition Strategy</u>: Initial Operational Testing and Evaluation (IOTE) for Tactical End-to-End Encryption Device (TEED) will be done during Task Force XXI in FY 96. Production Milestone decision will be made after Joint Warfighter Demonstration in Fall FY 96.

FY 1995 Accomplishments:

•	2600	Completed concept development of the Tactical End-to-end Encryption Device (TEED) to include NSA certification.
•	966	Initiated prototype development of the TEED Internet Security Manager (TISM)
•	619	Procured, evaluated, and integrated platforms performing Guard functions between different classified levels User
•	600	Initiated contract to design programmable COMSEC/TRANSEC functions
•	300	Designed, fabricated and tested installation kits for the AIRTERM COMSEC
Total	5085	

FY 1996 Planned Program:

•	1200	Continue development of TEED Internet Security Manager, completing Critical Design Review, initiating software coding to perform network management security services of Key Management, Audit, and Access Control
•	545	Continue development of re-programmable COMSEC/TRANSEC using Cypris Module or Digital Signal Processing (DSP) chips for embedment into speakeasy programmable digital radio.
•	534	Initiation of Engineering and Manufacturing Development (EMD) at Baton TEED - a security device for Internet Protocol (IP) as well as Asynchronous Transfer Mode (ATM) networks.
•	52	Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)
•	19	Revised Economic Assumption not available for execution
Total	2350	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303140A Communications Security (COMSEC) Equipment PROJECT D491

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

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	5194	2363	2644
Appropriated Amount (FY 1995)	5085		
Appropriated Amount (FY 1996)		2327	
Adjustment to FY 1996		-23	
Adjustment to Budget Year (FY 1997) since FY 1996 President's Budget			-70
Current President's Budget Submit	5085	2350	2574

Change Summary Explanation:
Funding: FY 96 - Revised Economic Assumption ($-23)
FY97 - Revised Inflation Rates ($-70)

C. Other Program Funding Summary: None

D. Schedule Profile

	FY 1995				FY 1996				FY 1997				FY 1998			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
TEED Prototype Model Testing				X												
TEED Prototype Model Delivery					X											
Trusted Network Base contract award			X													
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												

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140A Communications Security (COMSEC) Equipment

PROJECT: D491

D. Schedule Profile

	FY 1995				FY 1996				FY 1997				FY 1998			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Re-Programmable COMSEC card design								X								
Re-Programmable COMSEC card test									X							
Integration into multiband, multimode digital radio										X						
AIRTERM installation kits designed			X													
AIRTERM installation kits testing				X												
INFOSEC COTS evaluations			X		X				X				X	X			X
Secure Gateway Study																
Acquisition Planning and Procurement Packages for SEGAT, Wireless LAN,NDI Evaluation, Installation Support and Material Acquisition Contracts																

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140A Communications Security (COMSEC) Equipment

PROJECT: D491

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Ancillary Hardware and Software Development	3094	1146	1330
System Engineering	725	0	0
Government Engineering Support	1106	1023	1134
Travel	90	60	60
Miscellaneous	70	50	50
Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)		52	
Revised Economic Assumption not available for execution		19	
Total	5085	2350	2574

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 1995	FY 1995	FY 1996	FY 1997	FY 1998	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	600	2491	650	800	0	20000	24541
TBD	C-CPFF	JUN 95	2050	2050	0	966	0	0	0	6000	6966
Rome Labs	MIPR	FEB 95	1525	1525	0	600	450	600	0	0	6078
Alliant Tech Sys., Eatontown, NJ	C-CPFF	OCT 91	1100	1100	600	583	0	0	0	cont'd	cont'd
CECOM, RDEC	PO	OCT 95	700	700	0	0	1250	1174	940	cont'd	cont'd
NSA	MIPR	MAR 95	200	200	0	145	300	0	0	0	845
TEXCOM, Tinton Falls, NJ	SS-CPFF	FEB 91	900	900	900	300	0	0	0	0	3000
Totals						5085	2350	2574	940		

Support and Management Organizations: N/A

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140A Communications Security (COMSEC) Equipment

PROJECT: D491

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 1995	FY 1995	FY 1996	FY 1997	FY 1998	Budget to Complete	Total Program
Test and Evaluation Organizations: N/A											
Government Furnished Property: N/A											
Subtotal Product Development					115535	5085	2350	2574		31426	157053
Subtotal Support and Management					0	0	0	0		0	0
Subtotal Test and Evaluation					0	0	0	0		0	0
Total Project					115535	5085	2350	2574		31426	156970

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140A Communications Security (COMSEC) Equipment

PROJECT: D501

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D501 Army Key Management System (AKMS)	2341	1273	587	13669	13599	2010	1807		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 May FY 96 with IOC in FY97.

FY 1995 Accomplishments:

•	2076	Continued the software development of the AKMS workstation
•	265	Provided contractor and programmatic support to the Automated Net Control Device (ANCD) Key Distribution Device (KDD), Army's engineering support to Tier I theater level and Commander In Chief regional controller effort
Total	2341	

FY 1996 Planned Program:

•	800	Complete workstation software
•	298	Develop software upgrade to ANCD software
•	139	Develop software upgrade to KDD software
•	28	Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)
•	8	Revised Economic Assumption not available for execution
Total	1273	

FY 1997 Planned Program:

•	200	Develop software upgrade to the AKMS workstation
•	249	Develop software upgrade to ANCD software
•	138	Develop software upgrade to KDD software
Total	587	

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140A Communications Security (COMSEC) Equipment

PROJECT: D501

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	2391	1281	603
Appropriated Amount (FY 1995)	2341		
Appropriated Amount (FY 1996)		1273	
Adjustment to FY 1996			
Adjustment to Budget Year (FY 1997) since FY 1996 President's Budget			-16
Current President's Budget Submit	2341	1273	587

Change Summary Explanation:
Funding: FY97 - Revised Inflation Rates ($-16)

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Comp	Total Cost
OPA. Z16800	13718	13708	13556	0	0	0	0	cont'd	cont'd
OPA. TA0600	13389	10758	10678	13065	11321	8899	9944	cont'd	cont'd
OPA BB1611	3470	0	0	0	0	0	0	cont'd	cont'd
OPA MA9106	0	3933	0	0	0	0	0	0	0
OPA TA0200	0	527	0	0	0	0	0	0	0
OPA BS9716	0	568	861	591	391	988	990	con'd	cont'd

D. Schedule Profile

	FY 1995			FY 1996				FY 1997				FY 1998			
	1	2	3	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					

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140A Communications Security (COMSEC) Equipment

PROJECT: D501

D. Schedule Profile

	FY 1995			FY 1996				FY 1997				FY 1998			
	1	2	3	1	2	3	4	1	2	3	4	1	2	3	4
AKMS Begin Fielding with Upgraded Software										X					
AKMS Initial Operational Capability												X			
AKMS Material Release ANCD														X	
AKMS Material Release Work Station														X	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303140A Communications Security (COMSEC) Equipment PROJECT D501

A. Project Cost Breakdown	FY 1995	FY 1996	FY 1997
Software Engineering (Contractor)	2076	750	354
Government Engineering Support	190	298	115
Program Management Support	75	167	118
Congressional Adjustments		22	
Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)		28	
Revised Economic Assumptions not available for execution		8	
Total	2341	1273	587

B. Budget Acquisition History and Planning Information: Not Applicable

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	68935	54362	40677	54067	16327	35493	30545	0	Continuing	Continuing
D2PT SMART-T Operational Test	0	0	142	4708	106	0	0	0	0	4956
D2RT SCAMP Operational Test	0	267	0	0	0	0	0		0	267
D253 Defense Satellite Communications Systems-Defense Communications Systems (DSCS-DCS)(Phase II)	31237	18290	17063	15226	11946	11871	11766		Continuing	Continuing
D384 SMART-T	30108	21226	17217	23764	95	4495	3700		Continuing	Continuing
D386 SCAMP	3168	9549	1029	6056	0	14342	15079		Continuing	Continuing
D455 MILSTAR EDM Terminal (Includes All Four Major Army MILSTAR Terminal Programs Thru FY93)	763	786	878	0	0	0	0		0	299925
D456 Tactical Satellite Communications System	3659	4244	4348	4313	4180	4785	0	0	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 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 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: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D2PT

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D2PT SMART-T Operational Test	0	0	142	4708	106	0	0	0	0	4956

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. Previously, funding for operational testing was programmed in PE 0605712A, Support of Operational Testing.

Acquisition Strategy: Not Applicable.

FY 1995 Accomplishments: No Planned program

FY 1996 Planned Program: No Planned program

FY 1997 Planned Program:

•	142	Planning and preparation for SMART-T IOT&E
Total	142	

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)			199
Appropriated Amount (FY 1995)			
Adjustment to FY 1995			
Appropriated Amount (FY 1996)			
Adjustment to FY 1996			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-57
Current President's Budget Submit			142

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)
	PROJECT D2PT

Change Summary Explanation:
Funding: FY97 - (-57) reduction due to revised inflation rates

C. Other Program Funding Summary: Not Applicable

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Initiate IOT&E planning and preparation										X		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)
	PROJECT D2PT

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Operational Test and Evaluation			142
Total			142

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations: Not Applicable										
Support and Management Organizations: Not Applicable										
Test and Evaluation Organizations										
OPTEC		Jan 97						142	4814	4956

Government Furnished Property: None

Subtotal Product Development										
Subtotal Support and Management										
Subtotal Test and Evaluation								142	4814	4956
Total Project								142	4814	4956

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D2RT

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D2RT SCAMP Operational Test	0	267	0	0	0	0	0		0	267

A. Mission Description and Budget Item Justification: Project D2RT - Scamp Operational Test: Project D2RT currently 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 Phase I Operational Test to evaluate early operational suitability of contractor prototype hardware prior to award of the FY97 option. OPTEC provides Army leadership with an independent test and evaluation effectiveness and suitability of the system. Project D2RT is restructured from within PE 0303142A, Satellite Communications Ground Environment, and is therefore, not a new start.

Acquisition Strategy: Not Applicable.

FY 1995 Accomplishments: No planned program

FY 1996 Planned Program:

•	267	Evaluate Pre-Award Equipment Demonstrations and Phase I Operational Test
Total	267	

FY 1997 Planned Program: No planned program

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)		274	
Appropriated Amount (FY 1995)			
Adjustment to FY 1995			
Appropriated Amount (FY 1996)		269	
Adjustment to FY 1996		-2	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit		267	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)
	PROJECT D2RT

Change Summary Explanation:
Funding: FY 96 (-2) the portion of this program that has been proposed for rescission

C. **Other Program Funding Summary**: Not Applicable

D. **Schedule Profile**

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Evaluate Pre-Award Equipment Demonstrations					X*							
Conduct Phase I Operational Test and Evaluation (OT&E)								X				

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE) PROJECT D2RT

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Evaluate Pre-Award Equipment Demonstrations and Conduct Phase I OT&E		267	
Total		267	

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations: Not Applicable										
Support and Management Organizations: Not Applicable										
Test and Evaluation Organizations										
OPTEC		1996					267			267

Government Furnished Property: None

Subtotal Product Development										
Subtotal Support and Management										
Subtotal Test and Evaluation							267			267
Total Project							267			267

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)
	PROJECT D253

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D253 Defense Satellite Communications Systems-Defense Communications Systems (DSCS-DCS)(Phase II)	31237	18290	17063	15226	11946	11871	11766		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: Both the Universal Modem (UM) Development, Replacement Satellite Configuration Control Element (RSCCE) Non-development Item (NDI) Adaptation and Replacement BATSON (RBATSON) Programs will be followed by Competitive Firm Fixed Price Procurement Programs that contain a basic production and acquisition year followed by several option years of production. The AN/USC-28 engineering effort has been followed by a sole source acquisition of hardware in FY 96. The DSCS Integrated Management System (DIMS) program (software) does not have a follow-on production program.

FY 1995 Accomplishments:

- 8808 Continued basic Universal Modem development and initiated the Medium Data Rate (MDR) Technical Insertion UM program.
- 6000 Continued development for DSCS Training Devices
- 3730 Completed engineering development for the AN/USC-28 embedded computer and continuation of miscellaneous upgrades
- 2348 Continued development of DIMS Interface Software (Phase I)
- 7210 Initiated the NDI Adaptation Phase for the RSCCE
- 3141 Continued support and upgrades to the Integrated Research Facility (IRF) and Systems Engineering Technical Support (SETA) efforts

Total 31237

FY 1996 Planned Program:

- 7229 Complete UM development and continue MDR Technical Insertion UM Program
- 2050 Continue DIMS Interface Software (Phase I)
- 4160 Continue NDI Adaptation Phase of RSCCE
- 701 Develop the Specification and Acquisition Requirements Package for RBATSON
- 465 Complete DSCS Training Device development.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)
	PROJECT D253

FY 1996 Planned Program: (continued)

•	2833	Continue IRF and SETA
•	400	Task Force XXI
•	30	Revised Economic Assumptions amount not available for execution
•	422	Small Business Innovation Research / Small Business Technology Transfer Program (SBIR/STTR)
Total	18290	

FY 1997 Planned Program:

•	4350	Complete MDR Technical Insertion UM Program
•	2800	Continue DIMS Interface Software (Phase II)
•	2000	Complete the NDI Adaptation Phase for the RSCCE
•	2800	Initiate development of the Replacement BATSON
•	2000	Initiate development of the Integrated Baseband Workstation (IBWS)
•	3113	Continue IRF and SETA
Total	17063	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	31861	19055	21313
Appropriated Amount (FY 1995)	31237		
Adjustment to FY 1995			
Appropriated Amount (FY 1996)		18474	
Adjustment to FY 1996		-184	
Adjustments to Budget Year (FY97) since FY 96 President's Budget			-4250
Current President's Budget Submit	31237	18290	17063

Change Summary Explanation:

Funding: FY 96: (-184) the portion of the program that has been proposed for rescission

FY97: (-4250) Total Adjustment. (-3800) of adjustment is due to a realignment of RDT&E funds from Project D253 to OPA funds SSN: BB8416. (-450) reduction due to revised inflation rates.

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D253

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
OPA 2 - SSN: BB8500	103469	72403	97528	87626	100246	66106	65639	Cont.	Cont.

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
RSCCE Contract Award			X*									
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		

* Denotes Milestone Completion

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)
	PROJECT D253

A. Project Cost Breakdown	FY 1995	FY 1996	FY 1997
Development (Prototype, Sys Engr, Test & Eval)	25047	12017	11987
Integrated Research Facility	610	700	800
Contractor Engineering Support	758	1052	860
Government Engineering Support	3597	2454	1901
Program Management Support	1225	1615	1515
Revised Economic Assumptions	0	30	0
SBIR/STTR	0	422	0
Total	31237	18290	17063

B. Budget Acquisition History and Planning Information: Not Applicable.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE) PROJECT D384

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D384 SMART-T	30108	21226	17217	23764	95	4495	3700		Continuing	Continuing

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 employs 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 Scale Production (FSP) were competitively awarded to Raytheon Company on 7 Feb 96 under a single contract (2QFY96) based upon the development contract effort and LRIP/FSP proposals. A SMART-T Milestone III Decision will be conducted prior to exercising the first FSP 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 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 1995 Accomplishments:

•	25634	Continued Contractor Technical Test
•	1789	Conducted Payload to Terminal Interface Test (MST-3000)
•	2685	Conducted Terminal Test with Lincoln Lab Medium Data Rate (MDR) Simulator
Total	30108	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)
	PROJECT D384

FY 1996 Planned Program:

•	9330	Complete Contractor Technical Test and obtain Low Rate Initial Production (LRIP) Decision
•	10976	Begin development effort for Joint Interoperability Standard, Automated Communications Management System, Network Control, and Demand Assigned Multiple Access
•	451	Begin development of interactive training courseware
•	60	Revised Economic Assumption - Not available for execution
•	409	SBIR/STTR
Total	21226	

FY 1997 Planned Program:

•	12174	Continue implementation of Automated Communications Management System, Network Control, Demand Assigned Multiple Access and Payload Specification Changes
•	3300	Continue development of interactive training courseware
•	1743	Conduct Terminal Test with Lincoln Labs MDR Simulator
Total	17217	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	26755	21849	10896
Appropriated Amount (FY 1995)	27121		
Adjustment to FY 1995	+2987		
Appropriated Amount (FY 1996)			
Adjustment to FY 1996		21440	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget		-214	+6321
Current President's Budget Estimate Submit	30108	21226	17217

Change Summary Explanation:

Funding: FY 95: (+2987)Reprogrammed into PE to continue competitive development efforts

FY 96: (-214) the portion of the program that has been proposed for rescission.

FY97: (+6730) plus-up to fund interactive courseware development effort, some system level tests and network control efforts and (-409) due to revised inflation rates.

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

DATE: March 1996

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 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
Other Procurement Army 2 - SSN: BC 4002	0	64629	45427	33787	79308	88737	75720	Cont	Cont
Other Procurement Army 3 - SSN: BS 9720	0	0	0	7755	10144	0	13579	Cont	Cont

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Conduct SIM 1 Test	X*											
Conduct MST-3000 Test		X*										
Release Solicitation for LRIP/FSP				X*								
Complete Contract Technical Test					X*							
Obtain LRIP Decision						X*						
Receive 12 EDM Terminals						X*						
Begin Joint Interoperability Standards Development effort						X*						
Conduct SIM 2 Test											X	

*Denotes Milestone Completion

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D384

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Contractor	27928	15222	10697
Government Systems Engineering & Project Mgmt	2180	6004	6520
Total	30108	21226	17217

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
Dual Development Contracts	C-CPIF	09 Nov 92	*	*	81207	27579	7345	0	0	116131
Other Contracts						349	7877	10697	Cont	Cont
Govt Support					4583	899	1963	1960	Cont	Cont
Support and Management Organizations										
Other Contracts					9910	350	980	1515	Cont	Cont
Core Support					2185	909	753	400	Cont	Cont
Lab Activities					2406	22	1708	1842	Cont	Cont
Lincoln Labs					20160	0	600	803	Cont	Cont

* Contract effort completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE: March 1996	
BUDGET ACTIVITY: 7 - Operational System Development				PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)					PROJECT: D384
Government Furnished Property									
Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Property									
CDH Chips/Chip Carriers	MIPR	Jul 93		149					149
Subtotal Product Development				85939	28827	17185	12657	CONT	CONT
Subtotal Support and Management				34661	1281	4041	4560	CONT	CONT
Subtotal Test and Evaluation									
Total Project				120600	30108	21226	17217	CONT	CONT

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D386

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D386 SCAMP	3168	9549	1029	6056	0	14342	15079		Continuing	Continuing

A. Mission Description and Budget Item Justification: Project D386 - SCAMP. The SCAMP BLK I Terminal will provide a manportable, four simultaneous channel, full duplex communications and data transfer system at 2400 bits per second (bps) each. 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 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. 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. A paging capability is also under development. These efforts will provide confidence in technical approach and lead to Milestone II Engineering and Manufacturing Development (EMD) Phase for the objective system. The SCAMP Block II effort that was previously funded in this PE was restructured to PE 0603856A, Project D389 in beginning in FY97.

Acquisition Strategy: The SCAMP terminal will be procured in a block approach. Block I will be a manportable terminal not to exceed 37 pounds using today's technologies to meet communications deficiencies resulting from Desert Storm and other operations. 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. The SCAMP Engineering Feasibility Efforts (EFE) will lead to an objective 12-15 lb Block II terminal placing emphasis on downsizing the following subsystems: Radio Frequency (RF) Generator, Digital Processor, Transmitter, and Antenna. These subsystems will utilize technologies such as Millimeter Microwave Integrated Circuits (MIMIC), custom Very Large Scale Integrated Circuits (VLSIC) and increased efficiency power devices. Further weight savings and power efficiency increases will investigate battery technology and lightweight composite materials. The EFE efforts will lead to the Engineering and Manufacturing Development (EMD) Phase to begin in FY 00. On 7 Apr 95, the SCAMP Block I was redesignated an ACAT III program. Team Fort Monmouth awarded the SCAMP Block I Firm Fixed Production Contract to Rockwell International, Richardson, Texas, on 23 Feb 96.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)
	PROJECT D386

FY 1995 Accomplishments:

•	507	Conducted Milestone III Decision Review
•	1656	Continued acquisition requirements activities
•	1005	Began Pre-award Evaluation/Demonstration Activities
Total	3168	

FY 1996 Planned Program:

•	3711	Complete Pre/Post Award Evaluation/Demonstrations/Reviews
•	5600	Begin Engineering Feasibility Efforts (EFE) (i.e., lightweight composite structures, paging prototype system, enhanced vocoder, etc.)
•	27	Revised Economic Assumption - Not available for execution
•	211	SBIR/STTR
Total	9549	

FY 1997 Planned Program:

•	485	Conduct Electro-Magnetic Pulse (EMP) Tests
•	544	Initiate UHF Follow-On (UFO) Waveform Modifications
Total	1029	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	99	9883	2871
Appropriated Amount (FY 1995)	97		
Adjustment to FY 1995	+3071		
Appropriated Amount (FY 1996)		9645	
Adjustment to FY 1996		-96	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-1892
Current President's Budget Submit	3168	9549	1029

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D386

Change Summary Explanation:

Funding: FY 95: (+3071) reprogrammed within PE to conduct Milestone III Acquisition Efforts
FY 96 (-96) the portion of the program that has been proposed for rescission
FY97: (-1892) breakout as follows: (+6483) was previously reprogrammed into this line to fund approved EFE requirements. PE 0603856, Project D389 has been established and funds (-8310) were reprogrammed to it for follow-on efforts , (-15) reduction due to revised inflation rates.

Schedule: Additional funds provided for execution of approved EFE in FY 96 (IAW APB dtd 15 Nov 94)

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
Other Procurement Army 2 - SSN: BC 4003		25009	23555	4812	5691	1794	1682	Cont	Cont
Other Procurement Army 3 - SSN: BS 9718				3027	3777			Cont	Cont

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
MS III Decision Review	X*											
Begin Engineering Feasibility Efforts (EFE)					X*							
Complete Pre-Award Equipment Demonstrations					X*							
Conduct Pre-Award Review						X*						
Award Production Contract						X*						
Conduct Phase I Operational Test & Evaluation (OT&E)								X				
Award Rebuy										X		
Conduct Follow-On Test and Evaluation (FOT&E)												X
Begin Fielding and Support												X

*Denotes Milestone Completion

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D386

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Contractor	0	3517	544
Government Systems Engineering and Project Management	3168	6032	485
Total	3168	9549	1029

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations**										
Martin Marietta	CPIF	Sep 92			38998	0	0	0	0	38998
Lockheed	CPIF	Sep 92			9650	0	0	0	0	9650
Other Contracts					11750	0	3517	544	Cont	Cont
Govt Support					4881	1747	1749	0	Cont	Cont
Support and Management Organizations:										
Other Contracts					6074	599	1426	0	Cont	Cont
Core Support					2094	822	890	85	Cont	Cont
Lincoln Labs					10385	0	1967	0	Cont	Cont
Lab Activities					353	0	0	0	Cont	Cont
Test and Evaluation Organizations:										
EMP Test (Kirkland AFB)					0	0	0	400	Cont	Cont

** 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: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D386

	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	65279	1747	5266	544	Cont	Cont
Subtotal Support and Management	18906	1421	4283	485	Cont	Cont
Subtotal Test and Evaluation						
Total Project	84185	3168	9549	1029	Cont	Cont

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D455

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D455 MILSTAR EDM Terminal (Includes All Four Major Army MILSTAR Terminal Programs Thru FY93)	763	786	878	0	0	0	0		0	299925

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 1995 Accomplishments:

•	763	Continued Government and Contractor support of testing with SCAMP and SMART-T to reduce risk
Total	763	

FY 1996 Planned Program:

•	783	Continue Government and Contractor support of testing with SCAMP and SMART-T to reduce risk
•	3	Revised Economic Assumption - Not available for execution
Total	786	

FY 1997 Planned Program:

•	878	Continue Government and Contractor support of testing with SCAMP and SMART-T to reduce risk
Total	878	

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D455

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	763	807	878
Appropriated Amount (FY 1995)	763		
Adjustment to FY 1995			
Appropriated Amount (FY 1996)		793	
Adjustment to FY 1996		-7	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	763	786	878

Change Summary Explanation:

Funding: FY 96 - (-7) the portion of the program that has been proposed for rescission

C. Other Program Funding Summary: Not Applicable

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
SMART-T Low Data Rate (LDR) Verification		X*			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 March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)
	PROJECT D455

A. Project Cost Breakdown	FY 1995	FY 1996	FY 1997
Government Systems Engineering and Project Management	763	786	878
Total	763	786	878

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 1995	FY 1995	FY 1996	FY 1997	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					30699	454	422	480		32055
Lab Activities					4256					4256
Lincoln Labs					18949					18949
Support and Management Organizations										
Other Contracts					16125	67	203	219		16614
SS/MSP JMPO					4373					4373
Crosslink										
Statistical					3396					3396
Mitre					1527	86				1613
Core Support					67241	156	161	179		67737
Test and Evaluation Organizations										
Test Support					24966					24966

Government Furnished Property: Not applicable

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)
	PROJECT D455

	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	179870	454	422	480		181226
Subtotal Support and Management	92662	309	364	398		93733
Subtotal Test and Evaluation	24966					24966
Total Project	297498	763	786	878		299925

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D456

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D456 Tactical Satellite Communications System	3659	4244	4348	4313	4180	4785	0	0	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 are associated with acquisition of satellite communications terminals and control systems. Initial development efforts for Over the Air Rekey (OTAR), Demand Assigned Multiple Access (DAMA), and voice recognition will be accomplished via government engineering efforts and implemented via Engineering Change Proposal (ECP) on the current Fixed-Price Production Contract. Successive EMUT upgrades are anticipated which will utilize the same strategy.

FY 1995 Accomplishments:

•	1812	Continued P3I on PSC-5 Enhanced Manpack Ultra High Frequency Terminal (EMUT) for OTAR Analysis, (DAMA), and the new 5KHz Waveform
•	1847	Continued P3I on PSC-5 EMUT for voice recognition
Total	3659	

FY 1996 Planned Program:

•	891	Complete P3I on PSC-5 EMUT for OTAR Analysis and voice recognition
•	750	Continue EMUT 5 KHz DAMA Waveform Improvement
•	822	Initiate and complete specification development for Super High Frequency (SHF) Tri-Band Advanced Range Extension Terminal (STAR-T)
•	1174	Initiate development of Ultra High Frequency (UHF) Tracking Antenna (SCATS)
•	500	Task Force XXI
•	95	SBIR/STTR
•	12	Revised Economic Assumptions - Not available for execution
Total	4244	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)
	PROJECT D456

FY 1997 Planned Program:

•	948	Continue EMUT 5KHz DAMA Waveform Improvement
•	1000	Continue government and contractor support of STAR-T
•	900	Continue development and conduct field test for UHF Tracking Antenna (SCATS)
•	1500	Initiate the development of the Phased Array Prototype Antenna and Advanced Single Channel UHF Manpack study
Total	4348	

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	7804	4487	4465
Appropriated Amount (FY 1995)	6730		
Adjustment to FY 1995	-3071		
Appropriated Amount (FY 1996)		4287	
Adjustment to FY 1996		-43	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-117
Current President's Budget Submit	3659	4244	4348

Change Summary Explanation:

Funding: FY 95: Funds (-3071) were reprogrammed to D386 for higher priority requirements.
FY 96: (-43) the portion of this program that has been proposed for rescission
FY97: (-117) reduction due to revised inflation rates

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
Other Procurement Army 2; SSN: K77200	15062	16952	18632	0	0	0	0	0	60226
Other Procurement Army 2, SSN: BB8417	5329	4035	5444	7084	7099	4074	4046	Cont	Cont
Other Procurement Army 2, SSN BA9350			9134	14821	33587	41950	79864	277641	456997

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE) PROJECT D456

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Complete EMUT OTAR Effort					X*							
Complete Specification development for STAR-T						X						
UHF Tracking Antenna Contract Award/ Field Test							X					
Complete EMUT Voice Recognition								X				
Initiate Development of Phased Array Antenna										X		
Conduct 5KHZ waveform demonstration												X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303142A Satellite Communications (SATCOM) Ground Environment (SPACE)

PROJECT: D456

A. Project Cost Breakdown	FY 1995	FY 1996	FY 1997
Development Support Equipment Acquisition	2082	2367	2669
Contractor Engineering Support	452	400	479
Government Engineering Support	582	916	591
Program Management Support	543	561	609
Total	3659	4244	4348

B. Budget Acquisition History and Planning Information: Not Applicable

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303150A Army Global Command and Control System (AGCCS)

PROJECT: DC86

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
DC86 Army Global Command and Control System	0	0	19804	15088	14808	9566	4743		9500	73509

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 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 Global Command and Control System. 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. 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-II (CHS-II) contract and will include equipment and basic Commercial off the Shelf (COTS) software packages. The COTS hardware and software will provide Reduced Instruction Set Computer (RISC) based machines with expanded processing, storage and communications capability as well as office-automation and management software.

FY 1995 Accomplishments: Program not funded in FY 1995

FY 1996 Planned Program: Program not funded in FY 1996

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
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
•	12511	Continue Prime Mission Software Development - Capability Package #7
•	644	Perform Data Engineering
•	3013	Conduct Systems Test and Evaluation - Capability Package #5
•	2000	Perform Program Support and Management Efforts
Total	19804	

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)			0
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)			
Adjustments to FY 1996			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			19804
Current President's Budget Submit			19804

Change Summary Explanation:

Funding: FY 97 (+8143) moved from PE 0203740A, Project DC49 and additional (+11661) added to support accelerated software development

Schedule: Additional funding allows the Army to remain in lock step with the implementation of the Joint Global Command and Control System (GCCS).

C. Other Program Funding Summary

Procurement OPA-2	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
BA8250 Std Theater Army Cmd & Contr System	13008	14071	20462	17788	25193	14078	9379	84000	197979

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
AGCCS Capability Package 4 delivered										X		
AGCCS Capability Package 5 delivered												X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

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 1995	FY 1996	FY 1997
Systems Engineering			1636
Prime Mission - Software Development			12511
Data Engineering			644
System Test and Evaluation			3013
Support and Management			2000
Total			19804

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
LMC	C/CPAF/FFP	DEC 94	TBD	TBD	0	0	0	15034	19530	34564
COE Support	MIPR				0	0	0	500	3800	4300
TBD	TBD	TBD	TBD	TBD	0	0	0	0	12300	12300
Support and Management Organizations										
FEDSIM	MIPR				0	0	0	1200	9600	10800
MITRE	C/FFP	OCT 92			0	0	0	800	1600	2400
Test and Evaluation Organizations										
CECOM - IV&V	MIPR				0	0	0	1570	3975	5545

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Property									
LMC - GFE HW/SW	MIPR			0	0	0	700	2900	3600

Support and Management Property: None

Test and Evaluation Property: None

Subtotal Product Development	16234	38530	54764
Subtotal Support and Management	2000	11200	13200
Subtotal Test and Evaluation	1570	3975	5545
Total Project	19804	53705	73509

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305128A Security and Intelligence Activities

PROJECT: H12

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
H12 Intelligence Support to Force XXI	0	0	487	485	939	933	927		3771	3771

A. Mission Description and Budget Item Justification: This program element provides funding to develop 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 is therefore appropriately funded in Budget Activity 7.

Project H12 - Intel XXI Technology Proof of Concept and Force XXI Integration: This project consists of continuing series of Intel XXI technology proof of concepts designed to address fundamental issues within each of the above seven critical technology areas. These results provide the basis for integrating the technologies into all echelons in either tactical or simulation environment. For this methodology to work, existing infrastructures will be utilized. This will require integration of these technologies into these infrastructures to leverage current and evolving capabilities for evaluation. However, this integration process will occur in a building block approach utilizing lessons learned. An initial technology proof of concept which looks promising will continually be integrated into more complex environments-ultimately integrated into Force XXI exercises. Technical support will be required at all stages from individual proofs of concepts to exercise integration.

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 1995 Accomplishments: Project not funded in FY 1995

FY 1996 Planned Program: Project not funded in FY 1996

FY 1997 Planned Program:

•	487	Continue Proofs of Concepts with quarterly integration test
Total	487	

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305128A Security and Intelligence Activities

PROJECT: H12

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget	N/A	N/A	500
Appropriated Value	N/A	N/A	
Adjustments to Appropriated Value	N/A	N/A	-13
Current Budget Submit/President's Budget	N/A	N/A	487

Change Summary Explanation:

Funding: FY97 revised inflation rate adjustment ($13)

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 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
Proofs of Concepts									X	X	X	X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305128A Security and Intelligence Activities	PROJECT H12

A. Project Cost Breakdown	FY 1995	FY 1996	FY 1997
Primary Hardware Development			95
Software Development			195
Developmental/Operational Test			147
Integrated Logistics Support			50
Total			487

B. Budget Acquisition History and Planning Information: Not Applicable

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost	57814	70603	64271	14617	0	0	12361		0	Continuing
D027 Improved Launcher Mechanical System	2897	19253	27038	14617	0	0	0		0	63805
D050 Improved Fire Control System	34068	33506	26324	0	0	0	0		0	139522
D054 Extended Range Rocket	20849	17844	10909	0	0	0	0		0	89435
D090 MLRS HIMARS	0	0	0	0	0	0	12361		0	Continuing

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). The Product Improvement Program (PIP) provides for the Engineering and Manufacturing Development of an Extended Range Rocket (ER-MLRS), Improved Fire Control System (IFCS), and Improved Launcher Mechanical System (ILMS). The ER-MLRS project will enhance the capability of the existing MLRS by providing improvements in range, accuracy and 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 cost 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 will decrease the stow to aim point timeline and enhance effectiveness in countering surface to surface missile fire. These projects support development of upgrades to current production vehicles and are appropriately funded in Budget Activity 7. Budget Activity 7 includes R&D effort directed toward development, engineering, and test of changes to fielded systems or systems already in procurement which alter the performance envelopes and may include operational test and evaluation costs.

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D027

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D027 Improved Launcher Mechanical System	2897	19253	27038	14617	0	0	0		0	63805

A. Mission Description and Budget Item Justification **Project D027 - Improved Launcher Mechanical System:** This project provides the Engineering and Manufacturing Development (EMD) of the Improved Launcher Mechanical System (ILMS). The ILMS will decrease the stow to aim point timeline, enhance effectiveness in engaging and supporting the force, and increase MLRS platform survivability. ILMS, as a modification to the MLRS M270 Launcher, will replace selected components of the 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 Modification, 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 retrofits beginning in FY 00. A sole source contract for EMD was awarded to Loral Vought Systems (LVS) in August 95.

FY 1995 Accomplishments:

•	858	Initiate and Develop Product Team Design
•	1642	Initiate and Develop Trade Studies
•	397	Minor Tasks Including In-House
Total	2897	

FY 1996 Planned Program:

•	16776	Hardware & Software Design
•	500	GFE Retrofit Kits
•	1493	Minor Tasks Including In-House
•	54	Revised Economic Assumption not Available for Execution
•	430	SBIR/STTR
Total	19253	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0603778A Multiple Launch Rocket System Product Improvement Program PROJECT D027

FY 1997 Planned Program:

•	22726	Software Development Qualification, H/W Delivery, Qualification & System Testing
•	125	System Integration
•	1075	GFE Launcher Modifications
•	3112	Minor Tasks Including In-House
Total	27038	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	2959	15994	21545
Appropriated Amount (FY 1995)	2897		
Adjustments to FY 1995 Appropriated Value			
Appropriated Amount (FY 1996)		19448	
Adjustments to FY 1996 Appropriated Value		-195	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			5493
Current President's Budget Submission	2897	19253	27038

Change Summary Explanation:

Funding: FY 96: Revised Economic Assumption (-195). FY 97 funding was increased to accelerate the ILMS program, enabling concurrent launcher modification with ILMS and IFCS (+5493).

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D027

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Complete	Total Cost
Missile Procurement, Army									
BUDGET ACT 2:									
MLRS RKT (C65401)	25917	0	0	0	0	0	0	0	3580410
MLRS LAUNCHER (C65900)	141648	95092	38039	0	0	0	0	0	2042197
ER-MLRS (C65402)	0	44607	24443	44300	47308	46896	52743	CONT	CONT
BUDGET ACT 3:									
MLRS MODS (C67500)	29289	17476	6416	45252	67459	117168	162622	CONT	CONT
BUDGET ACT 4:									
MLRS INITIAL SPARES (CA0257)	12066	5077	0	0	0	0	0	0	159017
MLRS MOD SPARES (CA0265)	1269	2051	1831	4307	4179	5654	5505	CONT	CONT

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
MSII				X*								
SYSTEM REQ REV/SYSTEM DES REV						X*						
PRELIMINARY DESIGN REV (PDR)							X					
CRITICAL DESIGN REV (CDR)								X				
ENGINEERING DEV TEST (EDT)										X		
ROAD TESTS												
OPERATIONAL TESTS												
MSIII A												
CONTRACT COMPLETE												

*Milestone Complete

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

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 1995	FY 1996	FY 1997
Contractor Engineering Support	2500	17276	23801
Program Management Support	397	1516	2822
Developmental Test Support		406	365
Miscellaneous		55	50
Total	2897	19253	27038

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
LVS	CPIF	AUG 95				2500	16776	22726	8605	50607
Support and Management Organizations										
MLRS Project Off						263	839	1753	1310	4165
RDEC-MICOM						134	732	1119	982	2967
Test and Evaluation Organizations										
Range Support							110	20	900	1030
Other Test Act							296	345	295	936
Oper Test									400	400

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Property									
LVS	CPIF	Aug 95				500	1075	2125	3700

Support and Management Property: None

Test and Evaluation Property: None

	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development		2500	17276	23801	10730	54307
Subtotal Support and Management		397	1571	2872	2292	7132
Subtotal Test and Evaluation			406	365	1595	2366
Total Project		2897	19253	27038	14617	63805

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D050

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D050 Improved Fire Control System	34068	33506	26324	0	0	0	0		0	139522

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 Improved Fire Control System (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: This is an ACAT III program with a sixty month EMD phase ending in FY 97 and retrofits beginning in FY 00. A sole source contract was awarded to Loral Vought Systems (LVS) 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. Also, as an internationally, co-developed and co-produced system, the computer software must have common application to that utilized by the sponsor countries.

FY 1995 Accomplishments:

•	32253	System EDT Integration, Subsystem EDT and Final LRU Design Activities
•	400	Software Development
•	200	Launcher Pool Maintenance
•	1215	Minor Tasks Including In-House
Total	34068	

FY 1996 Planned Program:

•	28648	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
•	1872	Minor Tasks Including In-House
•	93	Revised Economic Assumption not Available for Execution
•	748	SBIR/STTR
Total	33506	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0603778A Multiple Launch Rocket System Product Improvement Program PROJECT D050

FY 1997 Planned Program:

- 17726 System Integration Tests, Flight Tests, Extended System Integration Tests
- 6000 EMD Contract Award Fee
- 530 White Sands Missile Range (WSMR) Test & Software
- 2068 Minor Tasks Including In-House

Total 26324

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	34799	34448	14957
Appropriated Amount (FY 1995)	34068		
Adjustments to FY 1995 Appropriated Value			
Appropriated Amount (FY 1996)		33845	
Adjustments to FY 1996 Appropriated Value		-339	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			11367
Current President's Budget Submission	34068	33506	26324

Change Summary Explanation:

Funding: FY 96: Revised Economic Assumption (-339). FY 97: IFCS EMD Award Fee/ Facilitate integration of Wind Measurement Device (WMD) into the IFCS Modification (+11367).

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D050

B. Project Change Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Complete	Total Cost
Missile Procurement, Army									
BUDGET ACT 2:									
MLRS RKT (C65401)	25917	0	0	0	0	0	0	0	3580410
MLRS LAUNCHER (C65900)	141648	95092	38039	0	0	0	0	0	2042197
ER-MLRS (C65402)	0	44607	24443	44300	47308	46896	52743	CONT	CONT
BUDGET ACT 3:									
MLRS MODS (C67500)	29289	17476	6416	45252	67459	117168	162622	CONT	CONT
BUDGET ACT 4:									
MLRS INITIAL SPARES (CA0257)	12066	5077	0	0	0	0	0	0	159017
MLRS MOD SPARES (CA0265)	1269	2051	1831	4307	4179	5654	5505	CONT	CONT

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
PDR*												
H/W CDR*												
S/W CDR			X*									
INTEGRATION LAB OPER			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: March 1996

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 1995	FY 1996	FY 1997
Contractor Engineering Support	32253	28648	23726
Program Management Support	1391	4168	2068
Developmental Test Support	424	690	530
Total	34068	33506	26324

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
LVS	CPIF	SEP 92			35452	32253	28648	23726		120079
Support and Management Organizations										
MLRS Project Off					3467	890	1989	1005		7351
RDEC-MICOM					4646	501	2179	1063		8389
Test and Evaluation Organizations										
Develop Test Spt					263	424	690	530		1907
Total					43828	34068	33506	26324		137726

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Property									
GFE	CPIF	SEP 92		1796					1796

Support and Management Property: None

Test and Evaluation Property: None

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0603778A Multiple Launch Rocket System Product Improvement Program PROJECT D050

	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	37248	32253	28648	23726		121875
Subtotal Support and Management	8113	1391	4168	2068		15740
Subtotal Test and Evaluation	263	424	690	530		1907
Total Project	45624	34068	33506	26324		139522

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D054

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
D054 Extended Range Rocket	20849	17844	10909	0	0	0	0		0	89435

A. Mission Description and Budget Item Justification Project D054 - Extended Range -MLRS: This project provides for the Engineering and Manufacturing Development (EMD) of an Extended Range Rocket (ER-MLRS) for the Multiple Launch Rocket System (MLRS). The rocket will enhance the capability of the existing MLRS by providing improvements in range, accuracy, effectiveness, and maneuver force safety (improved submunitions with self destruct fuze).

Acquisition Strategy: The ER-MLRS acquisition strategy is a streamlined product improvement program which permits entering Low Rate Initial Production (LRIP) then Full-Scale Production, after completion of a 57 month EMD program. The primary objective of the EMD phase is to develop and qualify a successor rocket to the MLRS basic M77 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 modified submunition (a derivative of the basic submunition, but including a self-destruct fuze) to reduce the dud rate, a wind measurement device (WMD) and a 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, LVS, containing a requirement to increase subcontract competition for subsystems and components.

FY 1995 Accomplishments:

- 9604 Class Loader SW Code/Test & V6 Software Integration/Test
- 7558 WMD-SW Code/Test EDT Units
- 480 XM451 Fuze Qualifications
- 639 SDF Development
- 1074 Ballistic Flight Tests
- 1494 Minor Tasks Including In-House and Preparation for MDR

Total 20849

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0603778A Multiple Launch Rocket System Product Improvement Program
	PROJECT D054

FY 1996 Planned Program:

•	6500	WMD Integration and Preproduction Qualification Test
•	2200	Complete Ballistic Algorithm Flight Test
•	2068	Fuze Development
•	4200	Software Design Integration
•	2432	Minor Tasks Including In-House and Milestone Decision Review IIIA Preparation
•	51	Revised Economic Assumption not Available for Execution
•	393	SBIR/STTR
Total	17844	

FY 1997 Planned Program:

•	2100	WMD Integration
•	3162	Software Integration & Test
•	977	Fuze Development
•	2148	Software IV & V Testing and Audits
•	2522	Minor Tasks Including In-House and Milestone Decision Review III Preparation
Total	10909	

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	20044	18344	17195
Appropriated Amount (FY 1995)	19623		
Adjustments to FY 1995 Appropriated Value	+1226		
Appropriated Amount (FY 1996)		18024	
Adjustments to FY 1996 Appropriated Value		-180	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-6286
Current Budget Estimate Submission	20849	17844	10909

Change Summary Explanation:

Funding: FY 95: Funding increased to satisfy ER-MLRS EMD Contract requirements (+1226). FY 96: Revised Economic Assumption (-180), FY 97: Funding was transferred to the MLRS-IFCS Program to facilitate integration of WMD into the IFCS Modification (-6286).

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0603778A Multiple Launch Rocket System Product Improvement Program

PROJECT: D054

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Complete	Total Cost
Missile Procurement, Army									
BUDGET ACT 2:									
MLRS RKT (C65401)	25917	0	0	0	0	0	0	0	3580410
MLRS LAUNCHER (C65900)	141648	95092	38039	0	0	0	0	0	2042197
ER-MLRS (C65402)	0	44607	24443	44300	47308	46896	52743	CONT	CONT
BUDGET ACT 3:									
MLRS MODS (C67500)	29289	17476	6416	45252	67459	117168	162622	CONT	CONT
BUDGET ACT 4:									
MLRS INITIAL SPARES (CA0257)	12066	5077	0	0	0	0	0	0	159017
MLRS MOD SPARES (CA0265)	1269	2051	1831	4307	4179	5654	5505	CONT	CONT

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
S/W PDR/CDR												
BEGIN INITIAL FLT TEST												
H/W CDR	X*											
BALLISTIC ALGO TEST				X								
FCS FQT				X								
PPQT					X							
MSIII A							X					
IFCS RKT MGR FQT										X		
CONTRACT COMPLETE												X

*Milestone Complete.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: March 1996

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 1995	FY 1996	FY 1997
Contractor Engineering Support	18281	12768	6239
Program Management Support	1494	2876	2522
Developmental Test Support	1074	2200	2148
Total	20849	17844	10909

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 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
LVS	CPIF	DEC 92			14830	9604	4200	3162		31796
LVS	CPIF	SEP 92			14345	7558	6500	2100		30503
KDI	CPIF	JUN 93			3010	1119	2068	977		7174
Support and Management Organizations										
MLRS Project Off					1901	731	1401	1135		5168
RDEC-MICOM					3972	763	1475	1387		7597
Test and Evaluation Organizations										
Develop Test Spt					1775	1074	2200	2148		7197
Total Project					39833	20849	17844	10909		89435

Government Furnished Property Not Applicable.

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

DATE: March 1996

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708045A Army Industrial Preparedness Manufacturing Technology

PROJECT: DE25

COST (*In Thousands*)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
DE25 Mfg Science and Technology	0	27927	16842	17152	17253	17998	18638		Continuing	Continuing

A. Mission Description and Budget Item Justification: This program element supports the Manufacturing Science and Technology Program (MS&T). The goals of the program include: development of advanced manufacturing processes, equipment and systems, enhanced quality and reduced cost of Army materiel, and transfer of this technology to the industrial base. In the current environment, the MS&T program is even more important than in past years because of the large decline in weapon system production investments where much manufacturing technology was accomplished within individual production programs. Beginning in FY 90, the program was restructured to focus resources on a smaller number of technology thrust areas and leverage Army resources with private and other government efforts. The technology areas supported by the program include electronics manufacturing, metals fabrication and processing, composites processing, manufacturing systems, and advanced industrial practices. The technologies selected have the potential for high payoff across the spectrum of Army weapons systems as well as significant impact on national manufacturing issues and the U.S. industrial base. The Army MS&T Strategic Plan definitizes projected requirements, objectives and technical approaches. This program was realigned from Program Element 0603771A. This program element is assigned to Budget Activity 7 since it includes projects that support development of processes in technological feasibility assessment, weapon systems in development or production, and modifications/upgrades to or sustainment of fielded systems.

Acquisition Strategy: The Army MS&T program funds a variety of individual tasks, each of which solves a pervasive manufacturing issue associated with weapon systems. The MS&T 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 1995 Accomplishments: Funded in PE 0603771A, project DE20.

FY 1996 Planned Program:

- 1222 Electronics Manufacturing - Develop a heat dissipation technique, and design and model a test chuck for thermal stress screening/testing of high power electronic wafers; develop evaluation plan and conduct materials and process evaluations for qualification of conductive adhesives for electronics applications; finalize demonstration of circuit card assembly module using the CALCE software suite of physics of failure models; initiate development of automated production methods for Objective Individual Combat Weapon System (OICWS) fuze assembly; and continue educational partnerships to advance small business and minority electronics manufacturing technology.
- 1946 Advanced Non-Metallic Rechargeable Batteries - Complete contractual efforts to adapt high volume production techniques to utilize lithium-ion and other battery technologies in military-unique form/fit applications.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708045A Army Industrial Preparedness Manufacturing Technology PROJECT DE25

FY 1996 Planned Program: (continued)

- 1482 Electro-Optics - Complete process development for Compact Class FPA Dewar Module, prepare final reports, and conduct industry review; prepare final reports for Staring Class FPA (Missile Seeker) and conduct final industry demonstration for technology transfer; continue development of manufacturing processes for components of High and Mid to High FPA Cooler, begin implementation and validation processes on the manufacturing line; and begin investigation of Manufacturing Properties of Advanced Electro-Optics Materials.
- 1337 Optics - Modify and improve Opticam magnetorheological finishing (MRF) machine prototype based on process studies and pilot production runs; perform validation pilot production runs on modified Opticam MRF; expand MRF process data base to high hardness and electro-optic materials; assemble and test subassemblies for Opticam AM prototype machine; assemble and acceptance test Opticam AM prototype for fabrication of aspheric lenses in optical glass; incorporate non-contact metrology into deterministic microgrinding process on Opticam SX or Opticam PM machines; evaluate closed-loop control based on in-process metrology; transition Opticam micro SX machine to industry; develop advanced tooling concepts to support fabrication of aspheric and non-axisymmetric surfaces; adapt software to support all CNC machinery development and changes; conduct industrial demos to promote and transition Opticam technology to US optics industry.
- 3331 Missile Seekers - Develop manufacturing processes for a 2-3 layer optically integrated image processor and a 64 x 64 UV/IR stacked array; develop IPPD manufacturing methodology for millimeter wave transceivers; evaluate impact of crossovers for various fiber optic winding configurations and develop techniques for detection of crossover patterns.
- 920 Composites Fabrication - Complete Comanche baseline spar redesign for fiber-placed rotor blades; select test variables and initiate test procedures on metallic substrates for adhesive-bonded structures; continue maximum variable flexibility determination for thermoplastic composites.
- 3892 Polyacrylonitrile (PAN) Fibers - Define material requirements of all composite manufacturers and establish target requirements for PAN fibers.
- 324 Composite Armored Vehicle (CAV) - Evaluate application of composite design tools to Land Combat Vehicles, including large/thick composite structures.
- 1083 Metals and Processing - Develop sputtering process specification for deposition of refractory metals; initiate and complete demonstration of modeling and simulation for beryllium-aluminum casting process; and initiate investigation of process for high deposition welding of low cost titanium for tank turrets.
- 5000 Instrumented Factory for Gears - Continue process optimization and carburization studies; continue development of improved heat treatment processing; continue development of improved grinding, automated deburring and netshape forming of gears; initiate validation of computer model to predict and control heat treatment distortion; and fabricate prototype system to automate gear deburring.
- 713 Manufacturing Test Technology - Complete prototype automated test station for uncooled Staring FPA's; complete sensor suite and pattern matching algorithms for Non-Intrusive, In-Field Diesel Engine Diagnostic System; install blade inspection system for Non-Contact Measurement of Propulsion System Components and conduct demonstration test; complete testing and debugging of prototype sorption and permeation test apparatus.
- 650 Chemical/Biological Defense - Complete one anti-pathogen antibody process, specifications and demonstration; and complete scale-up of thermostable urease process to 150-liter capacity, specifications and demonstration.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708045A Army Industrial Preparedness Manufacturing Technology PROJECT DE25

FY 1996 Planned Program: (continued)

•	1733	Propellants and Explosives - Initiate live demo of continuous processing system; complete HAN process technology demo; initiate triethanolammonium nitrate (TEAN) process optimization; develop and test alternative methods of computer simulation analysis procedures for munitions Load Assemble Pack (LAP) process to enhance productivity.
•	1065	Advanced Integrated Manufacturing Systems - Conduct field tests of parts produced in laser forming titanium structures without molds; simulate injection molding of composite components for Composite Armored Vehicle, demonstrate virtual environment, and deploy Smartweave sensors to observe resin flow; develop preliminary enterprise information architecture that enables concurrent operation of multiple functional systems; develop missile/munitions IPPD database tools.
•	556	Remanufacturing and Reclamation - Optimize the remanufacturing process for servovalve assemblies and conduct Tri-Service application studies; complete prove-out of the supercritical CO2 cleaning process and specifications for optical parts/subassemblies; develop alternative to chromium plating process using High Velocity Oxygen Fuel (HVOF) techniques.
•	987	Sensors in Manufacturing - Conduct process optimization trials for Smartweave In-Situ Sensors; develop hardware, software and prototype to inspect additional flaw classes for Nondestructive Visualization Using 3D/X-ray Laminography; conduct validation testing of prototype nondestructive detector array tester; and develop and evaluate alternate Micro-Electro-Mechanical System (MEMS) designs of a vibratory rate microgyroscope for low cost solutions to position sensing problems.
•	279	Soldier Systems - Develop technology and processes required for troop equipment including next generation of body armor and parachutes and economic production of advanced combat rations.
•	765	Integrated Composites Manufacturing - Continue demonstration of business practices and improved process technologies through fabrication of selected components.
•	625	Funds will be reprogrammed for SBIR/STTR programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992.
•	17	Revised Economic Assumption not available for execution.
Total	27927	

FY 1997 Planned Program:

•	1425	Electronics Manufacturing - Catalog existing commercial materials and analyze suitability for military applications for Advanced Conductive Adhesives; develop prototype high power test chuck and evaluate heat dissipation techniques using missile seeker electronics hardware; conduct accelerated life testing to validate CALCE model for physics of failure of electronic equipment; conduct in-process testing and apply process control methods to produce high yield, high quality final fuze assemblies for Objective Individual Combat Weapon System; and continue educational partnerships to advance small business and minority manufacturing technology.
•	1800	Electro-Optics - Build and test High and Mid to High FPA Coolers for demonstration and validation of developed processes; formulate and test material composition and structure models for manufacturing properties of electro-optical materials.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708045A Army Industrial Preparedness Manufacturing Technology PROJECT DE25

FY 1997 Planned Program: (continued)

- 1500 Optics - Adapt MRF or other suitable process for deterministic finishing of aspheric and non-axisymmetric optical components; determine requirements for a CNC machine capable of finishing aspheric components; perform process studies and pilot production runs of aspheric lenses of all types on the Opticam AM machine; develop design modifications to Opticam AM machine based on pilot runs; incorporate in-process metrology into Opticam machines; adapt software to support all CNC machinery development and changes; conduct industrial demos to promote and transition Opticam technology to US optics industry.
- 3600 Missile Seekers - Demonstrate manufacturing techniques for a 3-5 layer image processor in TACAWS Auto Target Recognition System and a 128 x 128 UV/IR stacked array for potential use in Stinger Block II; and continue to develop IPPD manufacturing methods for millimeter wave 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.
- 800 Composites Fabrication - Complete Comanche fiber-placed rotor blade spar mandrel design, and fabrication of mandrel and spar; continue testing on metallic substrates and initiate test procedures on composite matrix materials; continue maximum variability flexibility determination for composites and begin qualification testing of microfactory facility.
- 200 Composite Armored Vehicle - Develop fabrication and assembly process models to detail sequence of activities in manufacturing composite hull/armor components.
- 350 Metals and Processing - Develop and demonstrate process for using beryllium aluminum recycled material in production of precision casting, complete government/industry briefing, and complete final technical report.
- 1000 Instrumented Factory for Gears (INFAC) - Complete validation of computer model; demonstrate automated deburring process; and continue development of improved grinding and net shape forming.
- 450 Manufacturing Test Technology - Develop prototype engine condition analyzer for Non-Intrusive In-Field Diesel Engine Diagnostic System; develop standardized shells with known residual stress levels for Automated Residual Stress Analyzing Machine (ARSAM).
- 400 Chemical/Biological Defense - Initiate development of production processes for decontamination enzymes.
- 2000 Propellants and Explosives - Complete live demo of continuous processing system; complete TEAN process optimization; initiate DNT/TNT process demonstration; complete modeling and issue final report detailing productivity improvements of Computer Simulation Analysis for Munitions LAP Process.
- 960 Advanced Integrated Manufacturing Systems - Complete enterprise information architecture that enables concurrent operation of multiple functional systems for integration and management of manufacturing information; demonstrate process for more sophisticated shapes and structures for laser forming of titanium structures without molds, and transition to industry suppliers; develop missile/munitions virtual factories; and develop rapid design protocol in design tools for resin transfer molding of thick composite structures.
- 600 Remanufacturing and Reclamation - Optimize process and conduct final prove-out of High Velocity Oxygen Fuel Thermal Spray System.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE March 1996
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708045A Army Industrial Preparedness Manufacturing Technology PROJECT DE25

FY 1997 Planned Program: (continued)

- 950 Sensors in Manufacturing - Complete testing of embedded Smartweave grid, conduct ballistic impact damage testing/validation, and develop expert system; develop inspection algorithms and flaw recognition expert system for Nondestructive Visualization Using 3D/X-ray Laminography; continue development of prototype nondestructive detector array tester; use experimental techniques to optimize design parameters for vibratory rate microgyroscope.
- 107 Soldier Systems - Fabricate and conduct operational testing on a portable fabric sorption tester for chemical protective fabrics.
- 700 Integrated Composites Manufacturing - Complete demonstration in pilot production environment; define benefits based on established metrics; develop implementation for transition of demonstrated changes; conduct government/industry end of project briefings; initiate and complete final technical report.

Total 16842

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget Request (FY 1996)	0	0	17284
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		28273	
Adjustments to FY 1996		-346	
Adjustments to Budget (FY 1997) Year Since FY 1996 President's Budget			-442
Current Budget Estimate Submit for FY 1997	0	27927	16842

Change Summary Explanation:

Funding: :FY 95: Program funded in PE 0603771A.

FY 96: Congressional direction to restructure program to PE 0708045A.

C. Other Program Funding Summary: None.

D. Schedule Profile: Each MS&T task has its own schedule.

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES MAILING LIST

PRINT	ADDRESS
1	USD (Policy), DUSD(R&P), Pentagon, Room 1C469, Washington, DC 20301-2100
2	DOD Compt, MS, DMI, Pentagon, Room 1B728, Washington, DC 20310-1100
2	OSD, ATTN: DOT&E, Pentagon, Room 3E318, Washington, DC 20310
1	ASD(RA), Pentagon, Room 3E325, Washington, DC 20310
12	ASD(C3I), Pentagon, Room 3E209, Washington, DC 20310
1	ASD(ISA), Pentagon, Room 4B938, Washington, DC 20310
2	ASD(LA), Pentagon, Room 3D918, Washington, DC 20310
2	USD(P&R), 4000 Defense Pentagon, Room 3C980, Washington, DC 20310-4000
1	ASD(HA), Pentagon, Room 3E321, Washington, DC 20310
1	ASD(PA&E)/GPP/LFD, Pentagon, Room 2B256, Washington, DC 20310
1	ASD (PA&E), Pentagon, Room 2E313, Washington, DC 20310
16	JCS(J-8), Pentagon, Room 1E963, Washington, DC 20310
1	HQDA, (SAUS-OR), Pentagon, Room 2E600, Washington, DC 20310
1	HQDA (SAIL&E), Pentagon, Room 2E614, Washington, DC 20310
1	HQDA (SARD-DEP), Pentagon, Room 2E673, Washington, DC 20310
1	HQDA (SAFM-CAZ-A), 5611 Columbia Pike, Falls Church, VA 22041-5050
1	HQDA (SFIS-API), Hoffman 1, Room 1012, Alexandria, VA 22331-0302
6	HQDA (DACS-DPD), Pentagon, Room 3C738, Washington, DC 20310
1	HQDA (DACS-DPA), Pentagon, Room 1C460, Washington, DC 20310
7	HQDA (SAIS-PPG), Pentagon, Room 1D679, Washington, DC 20310
4	HQDA (DACS-DPA), Pentagon, Room 3C747, Washington, DC 20310
1	HQDA (DACS-DMC), Pentagon, Room 3D631, Washington, DC 20310
1	HQDA (DACS-TE), Pentagon, Room 3C571, Washington, DC 20310
1	HQDA (DAIM-ZR), Pentagon, Room 2B683, Washington, DC 20310
1	HQDA (DAMI-ZXM)(Mr. Bromwell), Pentagon, Room 2D474, Washington, DC 20310
1	HQDA (DAMI-PBB), Pentagon, Room 2E477, Washington, DC 20310

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES MAILING LIST

PRINT	ADDRESS
2	HQDA (DAPE-ZXO), Pentagon, Room 2D735, Washington, DC 20310
2	HQDA (DALO-RMP), Pentagon, Room 1E565, Washington, DC 20310
1	HQDA (DALO-ZA), Pentagon, Room 3E560, Washington, DC 20310
2	HQDA (DAMO-ZR), Pentagon, Room 3D526, Washington, DC 20310
12	HQDA (DAMO-FDR), Pentagon, Room 2D570, Washington, DC 20310
1	HQDA (DAAR-CO), Pentagon, Room 1D432, Washington, DC 20310
1	HQDA (NGB-ZA), Pentagon, Room 2E394, Washington, DC 20310
1	HQDA (DASG-ZA), 5111 Leesburg Pike , Room 638, Falls Church, VA 22041-3258
1	HQDA (DASG-RMZ), 5111 Leesburg Pike, Room 554, Falls Church, VA 22041-3258
2	HQDA (DASG-RDZ), Pentagon, Room 3E368, Washington, DC 20310-2300
1	HQDA (DAIM-ED), Pentagon, Room 1E682, Washington, DC 20310
1	HQDA (DAIM) Pentagon, Room 1E665, Washington, DC 20310
1	HQDA (SAPA-), Pentagon, Room 2E641, Washington, DC 20310
2	HQDA (CSSD-RM-W), P.O. Box 15280, Arlington, VA 22215-0150
1	HQDA (SAAG-PRP), Room 1309, 3101 Park Center Drive, Alexandria, VA 22302-1596
1	HQDA (DAMH-ZB), Pulaski Bldg, Room 4229, 20 Massachusetts Avenue, Washington, DC 20314
1	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
1	OASN(RES), Pentagon, Room 5E779, Washington, DC 20310
2	HQ, U.S. European Command, ATTN: ECCM-B, APO New York 09128
1	HQDA, (JDRS-PBD), Pentagon, Room 1E610, Washington, DC 20310
2	HQ, PACOM, R&D Requirements (J531), BOX 15, USPACOM Staff, Camp H.M. Smith, HI, 96861
2	Commander, US Army Intelligence and Security Command, ATTN: IARM-PB, Fort Belvoir, VA 22060-5370
1	Commander, US Army Nuclear and Chemical Agnecy, ATTN: MONA-OPS, Bldg 2073, Backlick Road, Springfield, VA 22150
1	Commander, US Army Medical R&D Command, ATTN: SGRD-RMC, Fort Detrick, Frederick, MD 21701-5012
2	Commander, US Army Medical R&D Command, ATTN: SGRD-PR, Fort Detrick, Frederick, MD 21701-5012

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES MAILING LIST

PRINT	ADDRESS
10	Commander, US Army Training and Doctrine Command, ATTN: ATCD-E, Fort Monroe, VA 23651-5000
1	CMDT, Army Field Artillery School, ATTN: ATSF-CSI-P, ATSF-CBL, Ft. Sill, OK 73503-5600
1	CDR, Army Aviation Ctr & Ft. Rucker, ATTN: ATZS-CDI, Ft. Rucker, AL 36362-5000
1	CDR, Army Intelligence Ctr and FT. Huachucha, ATTN: ATZS-CDI-I, ATZS-CDT, Ft. Huachucha, AZ 85613-7000
1	CMDT, U.S. Army Signal Ctr, ATTN: ATZH-CDM, ATZH-BLT, Ft. Gordan, GA 30905-5000
1	CDR, USACAC, ATTN: ATZL-CDC, Ft. Leavenworth, KS 66027-5300
1	Force Design Directorate, ATTN: ATCD-F (MAJ Ireland), 415 Sherman Ave., Ft. Leavenworth, KS 66027-5000
1	CDR, USACHCS, ATTN: ATSC-CD (SFC Scott), Ft. Monmouth, NJ 07703-5612
1	CDR, U.S. Army Medical Center & School, ATTN: HSMC-FCM, Ft. Sam Houston, TX 78234
1	CMDT, U.S. Army Air Defense Artillery School, ATTN; ATSA-CDM, Ft. Bliss , TX 79916
1	CMDT, U.S. Army Infantry School, ATTN: ATSH-IWC, ATSH-MLS, Ft. Benning, GA 31905-5400
1	CMDT, U.S. Army Armor School, ATTN: ATZK-CD-ML, ATZK-MW, Ft. Knox, KY 40121-5200
1	CMDT, U.S. Army Engineer School, ATTN: ATSE-CD-M, Ft. Leonard Wood, MO 65473-5000
1	CMDT, U.S. Army Chemical School, ATTN: ATZN-CM-CS, Ft. McClellan, AL 36205-5020
1	CMDT, U.S. Army Military Police School, ATTN: ATZN-MP-CM, Ft. McClellan, AL 36205-5020
1	CMDT, Finance School, ATTN: ATZI, Bldg 4000, 8899 E. 56 Street, Indianapolis, IN 46216
1	Commander, US Army Research Institute for the Behavioral and Social Sciences, ATTN: PERI-MB, 5001 Eisenhower Avenue, Alexandria, VA 22333-5600
4	Commander, US Army Operational Test and Evaluation Command, ATTN: CSTE-RMZ, Park Center IV, 4501 Ford Avenue, Alexandria, VA 22302-1458
25	Commander, US Army Materiel Command, ATTN: AMCRD-AB, 5001 Eisenhower Avenue, Alexandria, VA 22333-0001
2	Commander, US Army Materiel Command, ATTN: AMCAE-P, 5001 Eisenhower Avenue, Alexandria,VA 22333
3	Commander, US Army Materiel Command, ATTN: AMCAQ-B-TILO, 5001 Eisenhower Avenue, Alexandria, VA 22333
2	Commander, US Army Armament, Munitions and Chemical Command, ATTN: AMSMC-RT, Rock Island, IL 61299-6000
2	Commander, US Army Communications-Electronics Command, ATTN: AMSEL-CG, Ft. Monmouth, NJ 07703-5000
1	Commander, US Army Communication-Electronics Command, ATTN: AMSEL-ACSB-BT, Ft. Monmouth, NJ 07703-5008
5	Commander, US Army Missile Command, ATTN: AMSMI-AS (Library), Bldg 5250, RMC-147, Redstone Arsenal, AL 35898-5000

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES MAILING LIST

PRINT	ADDRESS
2	Commander, US Army Test and Evaluation Command, ATTN: AMSTE-RM, Aberdeen Proving Ground, MD 21005-5055
2	Commander, US Army Tank-Automotive Command, ATTN: AMSTA-CG, Warren, MI 48397-5000
2	Commander, US Army Laboratory Command, ATTN: AMSLC-CG, Adelphi, MD 20783-1145
1	Commander, US Army Armament Research, Development and Engineering Center, ATTN: SMCAR-CO, Dover, NJ 07806-5000
1	Commander, Environmental Center, ATTN: SFIM-AEC-RM, Edgewood Area, Aberdeen Proving Ground, MD 21010-5055
2	Commander, US Army Materiel Systems Analysis Activity, ATTN: AMXSY-PB, Aberdeen Proving Ground, MD 21005-5071
1	Commander, US Army Chemical, Biological and Defense Command, ATTN: AMSCB-RR, Aberdeen Proving Ground, MD 21010-5423
1	Commander, US Army Chemical, Biological and Defense Command, ATTN: SCBRD-ASA, Aberdeen Proving Ground, MD 21010-5423
1	Commander, US Army Chemical, Biological and Defense Command, ATTN: AMSCB-EO, Aberdeen Proving Ground, MD 21010-5423
4	Commander, US Army Aviation and Troop Command, ATTN: AMSAT-D-C, 4300 Goodfellow Blvd, St. Louis, MO 63120-1798
2	Program Manager, Instrumentation, Targets and Threat Simulators, ATTN: AMCPM-ITTS, 12350 Research Parkway, Orlando, FL 32826
1	Program Manager, Tank Main Armament Systems, ATTN: AMCPM-TMD PMD, Picatinny Arsenal NJ 07806-5000
2	Program Executive Officer, Missile Defense, ATTN: SFAE-MD-DP-P, Building 5250, Redstone Arsenal, Alabama 35898-5750
2	Program Executive Officer, Field Artillery Systems, ATTN: SFAE-FAS, Building 171, Picatinny Arsenal, Picatinny, NJ 07806-5000
2	Program Executive Officer, Armored Systems Modernization, ATTN: SFAE-HFM-P, Warren, MI 48397-5000
2	Program Executive Officer, Aviation, ATTN: SFAE-AV, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798
2	Program Executive Officer, Tactical Wheeled Vehicles, ATTN: SFAE-TWV, Warren, MI 48397-5000
2	Program Executive Officer, Command and Control Systems, ATTN: SFAE-CC-PMO, Ft. Monmouth, NJ 07703-5000
2	Program Executive Officer, Communication Systems, ATTN: SFAE-COM, Ft. Monmouth, NJ 07703-5000
2	Program Executive Officer, Tactical Missiles, ATTN: SFAE-MSL, Redstone Arsenal, AL 35898-8000
2	Program Executive Officer, Intelligence and Electronic Warfare, ATTN: SFAE-IEW-BM, Ft. Monmouth, NJ 07703
3	Commander, US Army Space and Strategic Defense Command, ATTN: CSSD-RM-BP, P.O. Box 1500, Huntsville, AL 35807-3801
2	Commander, US Army Corps of Engineers, ATTN: CERD-L, Washington, DC 20314
1	Commander, US Army Force Integration support agency, ATTN: MOFI-TRED-O, Building 2588, Fort Belvoir, VA 22060-5587
1	Commander, 902d MI Group, ATTN: IAGPA-OPOP, Ft. Meade, MD 20755-5910
1	Commander, HQ US Army Missile & Space Intelligence Center, ATTN: AIAMS-YCC, Redstone Arsenal, AL 35898-5000

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES MAILING LIST

PRINT	ADDRESS
1	Commander, US Army Countermeasures/Counter Counter measures Center, ATTN: AMX-CM-RF, 2800 Powder Mill Rd, Adelpi, MD 2078
1	Commander, US Army Belvoir Research, Development & Engineering Center, ATTN: STRBE-Z, Ft. Belvoir, VA 22060-5606
2	Commander, US Army Research Office, ATTN: SLCRO-AO (Security Officer), P.O. Box 12211, Research Triangle Park, NC 27709
1	Director, DMA Aerospance Center, ATTN: STT, 3200 South Secong Street, St. Louis, MO 63118
1	Director, DMA Hydrographic/Topographic Center, ATTN: ST(STT), 6500 Brookes Lane, Washington, DC 20315
3	Director, Harry Diamond Laborabtories, ATTN: DELHD-PO-P, 2800 Powder Mill Rd., Adelphi, MD 20783-1197
2	Director, AIRMICS, 1150 O'Keefe boulevard, Georgia Institute of Technology, Atlanta, GA 30332-0800
1	DOD Explosives Safety Board, Hoffman Building 1, Room 856C, 2461 Eisenhower Avenue, Alexandria,VA 22331-0600
3	Executive Office of the President, Office of Management and Budget, National Security Division, Room 10001, Washington, DC 20503
1	Director, Joint Tactical Command, Control & Communication Agency, ATTN: C3A-PPBA, Ft. Monmouth, NJ 07702
1	Headquarters, Central Intelligence Agency, ATTN: OGI/CTID/DI, Room 3G30, Washington, DC
1	Central Intelligence Agency, ATTN: OSWR/SDT, P.O. Box 1925, Washington, DC 20505
1	DOD Assistant Inspector General for Auditing, AM Division, Room 725, 400 Army-Navy Drive, Arlington, VA 22202
2	Inspector General, ATTN: A&IM/FMD, 400 Army-Navy Drive Arlington, VA 22202-2884
12	US General Accounting Office, ATTN: NSIAD, Room 4103, 441 G Street, N.W., Washington, DC 20548
1	Chief of Naval Operations, Navy Department, ATTN: OP-987, Pentagon, Room 5D760, Washington, Dc 20350-2000
2	Office of Naval Research, Science and Technology Directorate, ATTN: 03B, 800 North Quincy Street, Arlington, VA 22217
2	Commander, Naval Weapons Center, ATTN: Code 128 (R&D Planning Program Director), China Lake, CA 93555
2	Commander, Naval Surface Weapons Center, ATTN: Technical Library E432, White Oad, Silver Spring, MD 20910
1	SAF/AQXR, Pentagon, Room 4C347, Washington, DC 20330-6010
2	HQ USAF/FMBMC, Pentagon, Room 5C129, Washington, DC 20330-5012
4	HQ US Marine Corps, Deputy Chief of Staff for RD&S, Code (MC-RDP-30), Washington, DC 20380
2	Commandant, US Army War College, ATTN: Library, Carlisle Barracks, PA 17013-5050
2	HQ Defense Mapping Agency, ATTN: RE, 8613 Lee Highway, Fairfax, VA 22031-2137
1	Defense Nuclear Agency, ATTN: Comp-2.2, 6801 Telegraph Road, Alexandria, VA 22310
1	Advanced Research Projects Agency, ATTN: Comptroller, 3701 North Fairfax Drive, Arlington, VA 22203-1714

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES MAILING LIST

PRINT	ADDRESS
1	National Defense Headquarters, ATTN: DLPC (TRADOC LO), 101 Colonel By Drive, Ottawa, Ontario, Canada K1A 0K2
1	Institute for Defense Analyses, 1801 North Beauregard Street, Alexandria, VA 22311
1	Headquarters, National Aeronautical and Space Administration, Code ID, ATTN: Deputy DOD Affairs, Washington, DC 20546
1	ACDA/NWC/DPA, Room 5741, 320 21st Street, N.W., Washington, DC 20451
2	Pentagon Library, ATTN: Army Studies, Room 1A518, Washington, DC 20310
2	System Planning Corporation, Technical Library, 1500 Wilson Boulevard, Arlington, VA 22209
1	Director, Defense Finance and Accounting Service-Indianapolis Center, ATTN: DFAS-I-PA, Indinanapolis, IN 46249
2	Defense Technical Information Center (DTIC), ATTN: Ms. Mawby, Cameron Station, Bldg 5, 5010 Duke Street, Alexandria, VA 22304-61
	HAND DELIVERY
1	DOD(C)(P&S), Room 3A862
3	DOD(C)(INV), Room 4B916
1	DOD(C)(MILCON), Room 3D841
27	USD(A) MAILROOM, Room 3D139
13	SAFM-BUL, Room 3A652
2	SAFM-BUC-F, Room 3B663
2	SAFM-BUC-I, Room 3A674
2	SAFM-RB, Room 3A720
33	SALL, Room 2C638
94	SAFM-BUI-A, Room 3D400
480	TOTAL PRINT

Any changes to this distribution list should be provided to HQDA (SAFM-BUI-A), Washington, DC 20310, Autovon, 224-8694.