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Supporting Data FY 1996 / FY 1997 Biennial Budget Estimate
Submitted to Congress - February 1995

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DESCRIPTIVE SUMMARIES OF THE

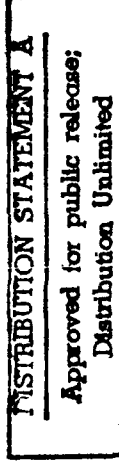


**RESEARCH, DEVELOPMENT, TEST AND EVALUATION,
Army Appropriation, Budget Activities 6 and 7**

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY (FINANCIAL MANAGEMENT)

"READINESS THROUGH MODERNIZATION"

95-01267



VOLUME III

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DESCRIPTIVE SUMMARIES FOR PROGRAM ELEMENTS
OF THE
RESEARCH, DEVELOPMENT, TEST AND
EVALUATION, ARMY
FY 1996/FY 1997

VOLUME III

Budget Activities 6 and 7

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

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FY 1996/1997 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 U.S. Army Research, Development, Test and Evaluation program. The Descriptive Summaries provide narrative information on all RDT&E, A program elements and projects. Because of new and expanded formats, this document now consists of three volumes. A brief explanation of the new formats is provided in paragraph 6 at the end of this section.
2. **Relationship of FY 1996 Budget Submission to the FY 1995 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.** Explanation for these changes can be found in the narrative sections of the Program Element R-2 Exhibits.

OLD <u>PE/PROJECT</u>	<u>TITLE</u>	NEW <u>PE/PROJECT</u>
0203802/D685	ATACMS BLKII	0604768/D688
0602601/DC05	Tractor Card	0602601/DC83
0603012/DC24	STARLOS	0603238/D546
0603238/D182	STARLOS	0603238/D546
0603322/DB93	Tractor Cage	0603322/DB92
0603322/DBB1	Tractor Cage	0603322/DB92
0603005/D221	Non Ozone Depleting Substitutes Technology	0602601/AH82
0603730/D560	Tactical Surveillance System - Advance Development	0603766/D907

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Program Restructures (Continued)

OLD <u>PE/PROJECT</u>	<u>TITLE</u>	NEW <u>PE/PROJECT</u>
0604740/D662	Tactical Surveillance System - Engineering Development	0604766/D909
0604741/D126	Air Defense Tactical Operations Center	0604741/D146
0604746/DL10	Electro-Optic (EO) Test Equipment	0604746/DL59
0604746/D537	Integrated Family of Test Equipment	0604746/DL59
0604804/DH01	Camouflage System Engineering Development	0604804/DL42
0605602/D453	Technical Test Instrumentation	0604759/D984
0605604/D089	Aircraft Certification	0605606/D092
0605801/MAC3	Ozone Depleting Chemical Elimination	0605854/M7PP
0605801/MAC4	Pollution Prevention	0605854/M8PP

Applicable portions of PE 0605856A, Environmental Compliance were restructured to new PEs for Environmental Conservation (PE 0605853A) and Pollution Prevention (PE 0605854A). Host Nation Compliance in PE 0605301A has been restructured to PE 0605856A and the new PEs, 0605853A and 0605854A.

Multiple projects within PE 0601102A, Defense Research Sciences, were restructured into new projects in PE 0601104A which has been renamed University/Industry Research Centers. These projects fund the federated Army Research Laboratory (ARL). The federated approach involves the creation of a distributed, multi-center external component of ARL, leveraging industry and academic laboratories nationally recognized for technical competence in areas essential to the Army.

Portions of PE 0605702A, 0605710A and 0605604A have been restructured into new projects in PE 0605604A to provide visibility for survivability/lethality projects as grouped by system categories.

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Program Restructures (Continued)

Funding from twenty-four Army RDT&E Chemical/Biological Defense projects spread throughout the seven Budget Activities were transferred to the Joint Chemical Biological Defense appropriation under Office of the Secretary of Defense management based on Congressional direction. These transfers are shown in the applicable project R-2 Exhibits.

B. Establishment of New Program Elements/Projects. There are no major system new starts. Minor new initiatives for FY 1996 are shown below with asterisks. The remaining programs listed are outyear initiatives beyond FY 1997.

TITLE

PE/PROJECT

Improved Cargo Helicopter *
Army Missile Defense Systems Integration*
Advance Missile System, Heavy
Kiowa Warrior CSMET *
Aviation Combat Arms Tactical Trainer (AVCATT)
Engineer Combat Arms Tactical Trainer (ENCATT)
Fire Support Combat Arms Tactical Trainer (FSCATT)
Longbow-Apache TESS *
TROJAN Development (TIARA) *

0203744/D430
0603308/D990
0604325/DE18
0604220/D538
0604780/D581
0604780/D582
0604780/D583
0604816/DC87
0604270/DL16

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C. FY 1996 Programs for which funding was shown in the FY 1995 President's Budget Submit (February 1994), but which are no longer funded.

<u>PE/PROJECT</u>	<u>TITLE</u>	<u>BRIEF EXPLANATION</u>
0305150/D914	Airborne Reconnaissance Low (ARL)	Program transferred to OSD.
0602786/A427	Tactical Shelter ED	Program completed.
0603001/DJ28	Test Measurement Tech Dev	Funding resumes in FY 1997.
0604604/DH07	Family of Medium Tactical Vehicles	Development program complete.
0603122/DB95	Tractor Hip	Program terminated.
0605805/D620	DoD Munitions Effects	Program transferred to OSD.
0605604/D235	Missile Counter/Countermeasure Tech	Program terminated.
0605810/DE65	NDI Testing	Efforts funded in system PEs.
0605810/D125	NDI Market Investigations	Efforts funded in system PEs.

3. Classified/Special Access Programs which are submitted offline through OSD are listed below.

0203744, Project DB75	0603018
0203806	0603019
0203808	0603020
0301359	0603238, Projects D182 and D189
0602104	0603322
0602122	0603647
0602601, Project DC83	0603851
0602788	0604018
0603003, Projects DB38 and D391	0604328
0603012	0603017
0603014	

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4. Program Element number 0603639A is classified SECRET and will be provided upon request.
5. **Classification.** This document no longer contains any classified data.
6. **New Formats.** The Department of Defense Financial Management Regulation 7000.14-R, dated May 1994 required the Services to prepare the RDT&E Descriptive Summaries in new formats which are described below. The change in formats increased the overall size of the publication which is now being provided in three volumes.

A. RDT&E Budget Item Justification Sheet (R-2) provides a resource summary table for all projects and the total Program Element. Paragraph A provides descriptions and justifications for the Program Element and for each Project; Paragraph B provides a Program Change Summary for the total Program Element which shows FY 1994-FY 1997 Previous President's Budget submit funding and the current FY 1994-FY 1997 President's Budget Submit. Note that the FY95 Appropriated value represents the Congressionally approved funding less the amounts decremented by the Congressional undistributed reductions, but before the Small Business Innovation Research/Small Business Technology Transfer tax has been applied. Additional R-2 Exhibits are provided for each project to show other related appropriation funding (Paragraph C) and schedule/milestone profiles (Paragraph D). Paragraphs C and D are not provided if there is no other related appropriation funding and if milestone schedules do not apply.

B. Program Element/Project Cost Breakdown (R-3) This Exhibit is prepared for each project in Budget Activities 4, 5 or 7 funded in FY 1995, FY 1996 or FY 1997. Those same projects which meet certain criteria will also show Paragraph B, Budget Acquisition and Planning Information. The criteria for requiring that this information be provided is at least one of the following: Major Defense Acquisition Program, funding revisions of greater than plus or minus 10 percent since the FY 1995 President's Budget request, major milestone schedule change of more than six months, or is a new start.

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5	0602120A Sensors & Electronic Survivability	66
6	0602211A Aviation Technology	78
7	0602270A EW Technology	89
8	0602303A Missile Technology	96
9	0602307A Advanced Weapons Technology	100
10	0602308A Modeling And Simulation	102
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12	0602618A Ballistics Technology	118
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14	0602623A Joint Service Small Arms Program	131
15	0602624A Weapons & Munitions Technology	133
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21	0602783A	Computer And Software Technology	173
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24	0602786A	Logistics Technology	194
25	0602787A	Medical Technology	204
26	0602789A	Army Artificial Intelligence Technology	217
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33	0603007A	Manpower, Personnel And Tng Advanced Technology	301
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43	0603759A	Chem Bio Def And Smoke Adv Tech	370
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

BUDGET ACTIVITY		DATE		February 1995						
PROJECT		PROJECT		D976						
PE NUMBER AND TITLE		0604256A		Threat Simulator Development						
6 - Management Support										
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	19843	19888	14397	12870	14400	14398	16850	17341	Continuing	Continuing

A. Mission Description and Budget Item Justification: This program finances development of realistic mobile threat simulators. It provides the capabilities to create realistic simulated tactical environments during conduct of user testing of new weapon systems. 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.

Project D976 - Army Threat Simulator Program: Army Threat Simulator Program (ATSP) is a continuing program which finances development of realistic 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), CROSSBOW-S, and the associated executive committee (EXCOM), which is administered by the OSD Director for Test, Systems Engineering and Evaluation. These affiliations eliminate any duplication within the U.S. Army or DoD.

FY 1994 Accomplishments: Continued development in the following mission areas:

- Air Defense Systems:
 - Continued contingency concept planning for the XM15 Actual/Simulator (A/S) and initiated acquisition (1261)
 - Baseline, instrumented, validated and fielded one limited XM43A/S Anti Aircraft Artillery (AAA) gun system (2540)
 - Completed requirement definition and specification design of XM17S radar system (100)
- Advanced/Electronic Combat System:
 - Initiated/completed a software simulator development of a high energy laser XMDEWS (1193)
- Aviation Systems:
 - Completed development of one XMHOKS helicopter (355)
- Battle Management Network:
 - Initiated development of XMTRAS Command Control and Communication (C3S) (1000)
 - Initiated/completed Red Net command links of XMC3S (530)
 - Completed procurement, instrumentation, validation and fielding of one XMTAR radar system (39)
- Mission Support:
 - Personnel costs and overhead (3540)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
6 - Management Support	0604256A Threat Simulator Development	D976	
- Operations and plans (1325) - Program technical costs (engineering, accreditation, configuration management and logistic support) (3660) - Supported Army Tactical Command and Control System (ATCCS) III IOTE (4100)			
FY 1995 Planned Program: Continue development in the following mission areas:			
• Air Defense Systems: - Continue acquisition of XM15A/S system (4197) - Complete hardware development of second limited XM43A/S anti-aircraft artillery (AAA) gun system (663) • Advanced/Electronic Combat System: - Initiate/complete a software simulation development of a low energy laser XMDEWS (1340) - Initiate development of XM330S ground based jammer (1569) • Aviation systems: - Complete development of XMHKS helicopter jammer (805) • Battle Management Network: - Complete development, validation, and fielding of XMTAS C3 System (628) - Initiate development of regimental elements of XMC3S (1024) • Mission Support: - Personnel costs and overhead (5254) - Operations and planning (1269) - Program technical support (engineering, accreditation, configuration management, and logistic support) (2700) • Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) (417)			
FY 1996 Planned Program: Continue development in the following mission areas:			
• Air Defense Systems: - Continue acquisition of XM15A/S system (2620) • Advanced/Electronic Combat Systems: - Conduct proof-of-principal testing of eye safe lasers to simulate threat laser weapon XMDEWS (1000) - Complete development of XM330S (964) • Aviation Systems: - Initiate development of next generation HKS/HJS Advanced Airborne jammer (400) • Battle Management Network: - Continue development of regimental elements of XMC3S (2480)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE																																										
BUDGET ACTIVITY	PE NUMBER AND TITLE	February 1995																																										
6 - Management Support	0604256A Threat Simulator Development																																											
- Mission Support: - Personnel costs and overhead (2193) - Operations and planning (1600) - Program technical costs (engineering, accreditation, configuration management, and logistic support) (3140)																																												
FY 1997 Planned Program: Continue development in the following mission areas: - Air Defense Systems: - Continue acquisition of XM15A/S system (3000) - Initiate upgrade of XM43A/S to a fully functional replica emitter receiver processor (1234) - Advanced/Electronic Combat Systems: - Initiate hardware simulator development of a low energy laser XMDEWS (500) - Aviation Systems: - Continue development of next generation HKS/HJS Advanced Airborne jammer (500) - Battle Management Network: - Complete development of regimental elements of XMC3S (1514) Mission Support: - Personnel costs and overhead (1781) - Operations and planning (1400) - Program technical support (engineering, accreditation, configuration management, and logistic support) (2941)																																												
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); SEMA ASE (ALQ-136 Radar Jammer); AN/APRA (XE-2) Advanced Threat Radar Warning Receiver, SEMA Special Operations (Special mission aircraft for performance and survivability test); Forward Area Air Defense Command, Control and Intelligence (FAAD C2I/ATCCS); 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 A ² ACHE Joint Surveillance Target Attack Radar Systems (JSTARS); XM1106 SMOKE Generating System; MH-47E; Standoff Minefield Detection; ATACMS/BAT; Corps SAM; THAAD; Avenger, AFATDS 2.1 (ATCCS); ASAS (ATCCS); and Hawk.																																												
B. Program Change Summary <table border="1"> <thead> <tr> <th></th> <th>FY1994</th> <th>FY1995</th> <th>FY1996</th> <th>FY1997</th> <th>Total Cost</th> </tr> </thead> <tbody> <tr> <td>Previous President's Budget</td> <td>18210</td> <td>20270</td> <td>14469</td> <td>15571</td> <td>Cont'd</td> </tr> <tr> <td>Appropriated Value</td> <td>18210</td> <td>19866</td> <td></td> <td></td> <td>Cont'd</td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td>1433</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>a. SBIR/STTR (-267)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>b. Reprogrammed into PE (1700)</td> <td>19643</td> <td>19866</td> <td>14397</td> <td>12870</td> <td>Cont'd</td> </tr> <tr> <td>Current President's Budget Submit</td> <td></td> <td></td> <td></td> <td></td> <td>Exhibit R-2</td> </tr> </tbody> </table>				FY1994	FY1995	FY1996	FY1997	Total Cost	Previous President's Budget	18210	20270	14469	15571	Cont'd	Appropriated Value	18210	19866			Cont'd	Adjustments to Appropriated Value	1433					a. SBIR/STTR (-267)						b. Reprogrammed into PE (1700)	19643	19866	14397	12870	Cont'd	Current President's Budget Submit					Exhibit R-2
	FY1994	FY1995	FY1996	FY1997	Total Cost																																							
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Adjustments to Appropriated Value	1433																																											
a. SBIR/STTR (-267)																																												
b. Reprogrammed into PE (1700)	19643	19866	14397	12870	Cont'd																																							
Current President's Budget Submit					Exhibit R-2																																							

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE									
6 - Management Support		0604256A Threat Simulator Development									
C. Other Program Funding Summary											
MA6700, Other Procurement/Army 3		FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
Special Equipment for User Testing			6796	5866	3283	3201	3166	4649	5927	Cont'd	Cont'd
This program element is related to: PE 0604256F Threat Simulator Development PE 0604256N Threat Simulator Development PE 0604940D Central Test and Evaluation Program There is no unnecessary duplication of effort within the US Army or DoD. CROSSBOW-S coordinates threat simulator development for the DoD. A lead service is appointed to develop a simulator that has multiple service requirements. Headquarters Department of the Army provides oversight. D. <u>Schedule Profile</u>: Not Applicable.											

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DATE February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0604258A Target Systems Development

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	16536	13929	14292	11393	12051	15902	15729	17292	Continuing	Continuing
D238 AERIAL TARGETS	11304	8489	8717	6881	6829	6768	6922	7850	Continuing	Continuing
D459 GROUND TARGETS	5632	5440	5575	4512	5222	9134	8907	9842	Continuing	Continuing

A. Mission Description and Budget Item Justification: This program funds aerial and ground hardware and software target development, maintenance and upgrade. Hardware targets are developed to support testing and training, are economical and expendable, are remotely controlled or stationary, and are often destroyed in use. 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.

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 and Distributed Interactive Simulation (DIS) compatible virtual computer models that can fully stress the latest air defense and air-to-air weapons. Modern weapons require test and evaluation using threat representative aerial targets to assess their effectiveness on the battlefield. This program encompasses a family of rotary and fixed wing, full-scale and subscale targets, tactical ballistic targets, ancillary devices and remote control systems to stress systems under test. The U.S. Army is the tri-service lead for rotary wing targets for testing. Aerial targets must have flight characteristics, signatures, speed, altitude and other performance factors which emulate the modern threat. This tasking includes the long-range planning to determine future target needs and development of coordinated requirement documents. This tasking also includes the management of the 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; 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.

FY 1994 Accomplishments:

- Helicopter Targets:
 - Awarded development contract for HOKUM-X (1400)
 - Terminated development of HA VOC-X. Program discontinued based on a completed study on the viability of using the same airframe for both HA VOC/HOKUM and the necessity for having two helicopter targets under simultaneous development. (2808)
- Continued engineering development of the Universal Drone Control System (UDCS) (3300)
- Continued development, enhancement, maintenance, and storage for all Research Development Test and Evaluation (RDT&E) aerial targets, towed targets and augmentation devices; developed infrared towed target and conducted towed target simulation investigations for performance (1231)
- Continued participation in Air Force led joint development of Full Scale Fixed Wing Target (QF-4); Participated in development of vector scoring to provide more accuracy and detail about missile performance relative to the threat aircraft with Navy as lead; and participated in and provided funding for Reliance (1122)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
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PE NUMBER AND TITLE		
6 - Management Support		0604258A Target Systems Development
- Exercised intensive management of the MQM-107E for the Army/Air Force acquisition and investigated aerodynamic shapes and profiles, flight controls, propulsion, software, digital, and safety aspects for increasing reliability and performance (1127) - Developed Target, Tracking, and Control System (TTCS) mapping via video monitors to replace current plotting boards. (316)		
FY 1995 Planned Program:		
- Continue development of HOKUM-X helicopter target (3300) - Complete development and testing of UDCS for UH-1 and AH-1 airframes (3200) - Continue development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets and augmentation devices (1204) - Continue 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 (300) - Continue development of Target, Tracking, and Control System (TTCS) mapping via video monitors to replace current plotting boards (350) - Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) (135)		
FY 1996 Planned Program:		
- Helicopter Targets - Continue development of HOKUM-X (4000) - Conduct conceptual studies for generic helicopter target to replace QH-50 (174) - Continue development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets and augmentation devices (2943) - 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 (1000) - Initiate development of a new 1/4th scale aerial target (300) - Continue enhancement of the Target Tracking and Control System (TTCS) (300)		
FY 1997 Planned Program:		
- Helicopter Targets - Continue development of HOKUM-X (4000) - Conduct formulation studies for helicopter target to replace the QH-50 (150) - Provide funding for Reliance (20) - Continue development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets and augmentation devices (861) - Continue enhancement of the Target Tracking and Control System (TTCS) (300) - Continue development of the 1/4th scale aerial target (750) - Initiate development of improved virtual aerial targets (800)		

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BUDGET ACTIVITY	PE NUMBER AND TITLE	
6 - Management Support	0604258A Target Systems Development	
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, full scale helicopters for the Air Force and Navy, and technology programs which demand accurate threat representation in their aerial targets. Project D459 - Ground Targets: This program funds Army efforts to support testing of advanced weapon systems by developing surrogate and acquiring actual foreign vehicle targets and developing Distributed Interactive Simulation (DIS) compatible virtual target computer models. The products are required to adequately stress weapons systems. This tasking includes long range planning to determine future target needs and development of coordinated requirement documents. The US Army is the tri-service lead for providing ground targets for testing. This tasking includes the centralized management of the ground target research, development, test and evaluation process; execution of the validation process; acquiring foreign assets; continuing maintenance, storage, and development/enhancement/update engineering services of the developed and acquired targets to ensure availability for the test and evaluation customer. Project also manages utilization of current assets and operates centralized spare parts program. FY 1994 Accomplishments: • Management of Ground Target Assets - Established major foreign and surrogate asset management and inventory control program and integrated into the overall Department of Defense (DoD) Test and Evaluation process (496) - Implemented Primary Operating Centers (POC) concept, operation, storage, maintenance and repair of Ground Target Assets (2870) - Acquired additional foreign assets and spare parts to support the Ground Targets fleet (559) • Supported validation, accreditation and certification of ground targets (284) • Began development of BMP3-S ground target surrogate (942) • Conducted threat targets requirements study to support Department of Defense (DoD) ground targets needs under Reliance; developed Safety Plan (481) FY 1995 Planned Program: • Management of Ground Target Assets - Manage and oversee Primary Operating Centers operation, storage, maintenance and repair of Ground Targets Assets (1551) - Acquire new foreign materiel assets, remote controls, and manage all ground target foreign asset surrogates (250) - Acquire spare parts to support the Ground Targets fleet (693) • Continue validation, accreditation, and certification of ground targets (150) • Continue development of BMP3-S (1382) • Continue to develop safety plans to meet DoD acquisition requirements and federal safety standards (150) • Develop ground target subsystem signature enhancements, such as, Infrared (IR), Millimeter Wave (MMW), Radio Frequency (RF), etc. (430) • Perform feasibility studies on utilization of Distributed Interactive Simulation (DIS) virtual computer models (420) • Initiate concept exploration of a new ground target surrogate (300)		

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BUDGET ACTIVITY	PE NUMBER AND TITLE		
6 - Management Support	0604258A Target Systems Development		
• SBIR/STTR (114)			
FY 1996 Planned Program: • Management of Ground Target Assets - Manage and oversee Primary Operating Centers operation, storage, maintenance, and repair of Ground Target Assets (1200) - Acquire new foreign materiel assets, remote controls, and manage all ground targets foreign assets and surrogates (450) - Acquire spare parts to support the Ground Targets fleet (500) • Continue validation, accreditation, and certification of ground targets (200) • Continue to develop safety plans (150) • Continue to develop ground target subsystem signature enhancements, such as, Infrared (IR), Millimeter Wave (MMW), Radio Frequency (RF), etc. (195) • Complete development and prototype of BMP3-S (1300) • Initiate development of Distributed Interactive Simulation (DIS) compatible virtual target computer models (700) • Initiate development of a new ground target surrogate (880)			
FY 1997 Planned Program: • Management of Ground Target Assets - Manage and oversee Primary Operating Centers operation, storage, maintenance and repair of Ground Targets assets (1200) - Acquire new foreign materiel assets, remote controls and manage all ground targets foreign assets and surrogates (250) - Acquire spare parts to support the Ground Targets fleet (114) • Continue validation, accreditation, and certification of ground targets (200) • Initiate concept exploration of a Future Main Battle Tank (FMBT) ground target surrogate (463) • Continue ground target subsystem enhancement (285) • Continue Development of Distributed Interactive Simulation (DIS) compatible virtual target computer models (800) • Continue development of a new ground target surrogate (1200)			
GROUND TARGETS Test Programs Supported: Ground Targets efforts are investments which enable DoD customers to conduct appropriate developmental and operational testing 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), NLOS, Line-of-Sight Antitank (LOSAT), Ballistic Anti-Armor Submunition (BAT), Unmanned Aerial Vehicle; (UAV)-SR, Short Range Assault Weapon.			

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BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0604258A Target Systems Development

B. Program Change Summary
Previous President's Budget
Appropriated Value
Adjustments to Appropriated Value
a. SBIR/STTR (-294)
b. Reprogrammed out of PE (-1700)
Current President's Budget Submit

FY 1994
18930
18930
-1994

FY 1995
14092
13929

FY 1996
16327

FY 1997
15420

Total Cost
Cont'd
Cont'd

16936

13929

14292

11393

Cont'd

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BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT																															
6 - Management Support		0604258A Target Systems Development								D238																															
COST (in Thousands)		FY 1994 Actual	FY 1995 Estimate	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		11304	8489	8717	8881	8829	8768	8922	7850	Continuing	Continuing																														
<u>C. Other Program Funding Summary</u> C93000, Missile Procurement Army - Air Defense Targets <table> <tr> <td>FY 1994</td> <td>FY 1995</td> <td>FY 1996</td> <td>FY 1997</td> <td>FY 1998</td> <td>FY 1999</td> <td>FY 2000</td> <td>FY 2001</td> <td>To</td> <td>Total</td> </tr> <tr> <td>14823</td> <td>8234</td> <td>6791</td> <td>6434</td> <td>6507</td> <td>6269</td> <td>6426</td> <td>10021</td> <td>Compl</td> <td>Cost</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Cont'd</td> <td>Cont'd</td> </tr> </table> <u>D. Schedule Profile:</u> Not Applicable.												FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To	Total	14823	8234	6791	6434	6507	6269	6426	10021	Compl	Cost									Cont'd	Cont'd
FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To	Total																																
14823	8234	6791	6434	6507	6269	6426	10021	Compl	Cost																																
								Cont'd	Cont'd																																

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BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0604258A Target Systems Development								D459	
COST (in Thousands)		FY 1994 Actual	FY 1995 Estimate	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		5632	5440	5575	4512	5222	9134	6807	9642	Continuing	Continuing
C. Other Program Funding Summary:											
C93000, Missile Procurement Army - Air Defense Targets		FY 1994 14823	FY 1995 8234	FY 1996 6791	FY 1997 6434	FY 1998 6507	FY 1999 6269	FY 2000 6426	FY 2001 10021	To Compl Cont'd	Total Cost Cont'd
D. Schedule Profile: Not Applicable.											

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BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0604759A Major Test And Evaluation Investment

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	31803	48653	66874	44122	43559	37976	36887	40508	Continuing	Continuing
DC55 DISTRIBUTED DEV SIMULATION TECH	2848	2820	2773	2726	2703	3372	3978	4070	Continuing	Continuing
D983 MAJOR TEST & EVALUATION -USAKA	0	2081	2488	2489	2489	2491	2628	2753	Continuing	Continuing
D984 MAJOR TECHNICAL TEST INSTRUMENTATION	5459	24558	37833	33830	35740	28507	28364	30832	Continuing	Continuing
D986 MAJOR USER TEST INSTRUMENTATION	23486	20394	23680	5077	2627	2808	2719	2851	Continuing	Continuing

A. Mission Description and Budget Item Justification: All Major Test and Evaluation (T&E) Investment programs have been consolidated into a single Program Element for oversight and management. The increase in Project D984 in FY 1996 is due to realigning projects from project D453, PE 0605602A. The FY 1996 - FY 2001 program funds only the minimum level required to develop the new testing capabilities required to evaluate advanced weapon system technologies and gain the planned efficiencies through manpower reductions at TECOM and U.S. Army Operational Test and Evaluation Command (OPTEC).

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; Combat Systems Test Activity (CSTA), MD; Dugway Proving Ground (DPG), UT; and 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. It also provides the capabilities to create simulated tactical environments during conduct of user testing of new weapon systems and to develop and upgrade other range instrumentation in support of testing and training. "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.

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.

FY 1994 Accomplishments:

- Sustainment of Advanced Distributed Simulation Technology (ADST) support which enabled combat, materiel, and training developers and testers to perform experiments to test tactics, doctrine and weapon design. (2848)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		February 1995
PE NUMBER AND TITLE		
6 - Management Support		0604759A Major Test And Evaluation Investment
FY 1995 Planned Program:		
- 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. (2761) - Small Business Innovative Research (SBIR)/Small Business Technology Transfer (STTR) (59)		
FY 1996 Planned Program:		
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. (2773)		
FY 1997 Planned Program:		
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. (2726)		
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 1994 Accomplishments: There were no major instrumentation projects for USAKA funded in FY 1994.		
FY 1995 Planned Program:		
- Technical Control Facility (TCF) Replacement: The TCF replacement is required due to the age and lack of maintainability of the current equipment. The replacement will also provide 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. (2037) - SBIR/STTR (44)		
FY 1996 Planned Program:		
Global Position System Translator Processory System (GTP). The GTP 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. (2488)		
FY 1997 Planned Program:		

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BUDGET ACTIVITY	PE NUMBER AND TITLE	
6 - Management Support	0604759A Major Test And Evaluation Investment	
- Advanced Research Project Agency-Lincoln C-Band Observables Radar (ALCOR) Computer/Receiver Upgrade. The ALCOR computer/receiver upgrade is required to improve performance, increase system reliability and reduce maintenance costs. (2000) - Complete Global Position System Translator Processor System GTP installation and integration. (489) 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 and result in greater operations efficiency, and allow the monitoring of new frequency spectrums used by our modernized weapon systems; and Dynamic Infrared Scene Projector (DISP) which will be used in testing new Infrared munitions and missiles by hardware in the loop simulation and virtual testing. FY 1994 Accomplishments: - Continued development of the Fiber Optic Network (FON) which is a high bandwidth data transmission system linking instrumentation with computers and users at CSTA. (330) - Continued development of the Land Combat Instrumentation (LCI) which will support testing of emerging vehicle technologies, advanced armor concepts and munitions at CSTA. (1020) - Prepared the WSMR Test Support Network (TSN) acquisition package and obtained a Milestone Decision Authority approval for milestone I/II to allow contract award in FY 1995. WSMR-TSN is a total range data transmission system which greatly improves test products while decreasing dramatically the operational cost. (800) - Continued WSMR 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 Air Force Base, 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 vehicles in the conduct of DOD testing. (750) - Continued capability for system level Army Tactical Command and Control System (ATCCS) technical test which instruments both operational and developmental tests of the Army's Command and Control Systems at Electronic Proving Ground (EPG). (293) - Completed Phase I of Frequency Surveillance System (FSS) which modernized three of six sites at WSMR. (200) - Provided in-house support (engineering analysis, concept formulation, salaries, travel, etc.) to on going projects and continued analysis of future instrumentation requirements. (2066) FY 1995 Planned Program: - Continue development of the FON project at CSTA. (426) - Continue development of the LCI project at CSTA. (6500)		

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6 - Management Support	0604759A Major Test And Evaluation Investment	
• Award basic TSN contract for completion of phase I of the project at WSMR. 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. (6924) • 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. (7448) • Provide in-house support (engineering analysis, concept formulation, salaries, travel, etc.) to on going projects and continued analysis of future instrumentation requirements. (2744) • SBIR/STTR. (516) FY 1996 Planned Program: • Continue development of the FON project at CSTA. (3362) • Continue development of the LCI project at CSTA. (3950) • Continue Phase I of WSMR TSN contract support. (9670) • Initiate Phase II of FSS modernization project, automating three to five sites capable of monitoring frequencies from 2 MHz to 100 Ghz at WSMR. (2360) • Continue WSMR execution of the Army's portion of the GPS production contract for all Army organizations at the GPS RAJPO, Eglin Air Force Base. (12381) • Continue from FY 1995 (PE 0605602A, D453) capability for system level Army Tactical Command and Control System (ATCCS) technical test project at WSMR/EPG. (210) • Initiate Hardened Subminiature Telemetry and Sensor System (HSTSS) project to develop transmitters, antennas, sensor and electronic packaging techniques to support flight tests of smart munitions at Yuma Proving Grounds (YPG). HSTSS is a five year Army project with IOC in FY 2000 spring boarding off of OSD funded Test Technology Development Program. (2290) • 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 IOC in FY 1999. (500) • Provide in-house and government contract support (engineering analysis, concept formulation, salaries, travel, etc.) to on going projects and continued analysis of future instrumentation requirements. (3210) FY 1997 Planned Program: • Continue development of the FON project at CSTA. (1408) • Continue development of the LCI project at CSTA. (4000) • Continue Phase I of WSMR TSN project at WSMR. (10981) • Continue Phase II of FSS modernization project at WSMR. (3560) • Conclude the Army's portion of the GPS production contract for all Army test organizations. (6427) • Conclude capability for system level ATCCS technical test at EPG. (207) • Continue development of HSTSS at YPG. (2500)		

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6 - Management Support	0604759A Major Test And Evaluation Investment	
• Continue implementation of the DIRSP project at RTTC. (1340) • Provide in-house and government contract support (engineering analysis, concept formulation, salaries, travel etc.) to on going projects and continued analysis of future instrumentation requirements. (3407) 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 with which 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) reflects revised Initial Operational Capability (IOC) from FY 1996 to FY 1997. The FY 1996 increase was realigned from MAIS production funds to minimize risk during test and to complete project development for a production decision. One additional control center and 469 players are programmed in Other Procurement, Army appropriation. FY 1994 Accomplishments: • Conducted and completed MAIS formal qualification tests to verify allocation requirements were being met. Software test to be witnessed by the government. (2600) • Initiated parts acquisition and started assembly of player unit engineering development prototypes (e.g. ground vehicle, rotary wing, fixed wing, dismounted troop, and crew served weapons). (3300) • Conducted MAIS system software Independent Validation and Verification (IV&V). (1100) • Completed equipment installation and integration in Central Instrumentation Facility/Test Control Center (CIF/TCC) shelters. (2900) • Completed software coding and integration testing including developing software for eight system software components. (12400) • Demonstrated functionality of key hardware/software MAIS components for defined exit criteria. (1196) FY 1995 Planned Program: • Initiate MAIS system integration and conduct subsystem level test. (7324) - Hardware/software integration and test at subsystem level - Conduct subsystem integration and test of player units/Command Control and Communication (C3) center - Conduct qualification tests - Verify Time Division Multiple Access (TDMA) network for data latency, link margins and error rates - Complete Formal Operational Verification Tests validating that the system meets security requirements • Demonstrate critical functionality of the MAIS data communication network for defined milestone III exit criteria. (5500) - Conduct engineering systems test to validate the communication systems design		

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- Demonstrate C3 functionality
- Complete brassboard integration and test for all player units and provide player unit brassboards required for system integration and tests. (3600)
- Release all player unit drawings for assembly. (200)
- Complete C3 center assembly and test. (3342)
 - Procure Software Development Support Facility and logistics shelters
 - Procure equipment for shelter development (e.g. computational, battery chargers)
 - Assemble racks and install equipment into the shelters
 - Validate C3 Center and player unit hardware and software functionality
- SBIR/STTR. (428)

FY 1996 Planned Program:

- Assemble player units. (10882)
- Complete system integration and test. (6798)
- Conduct player unit qualification test. (1600)
- Conduct system developmental test. (4400)

FY 1997 Planned Program

- Conduct system operational test. (3575)
- Initiate product refurbishment. (1502)

B. Program Change Summary

Previous President's Budget
Appropriated Value
Adjustments to Appropriated Value
a. SBIR/STTR (-446)
b. Reprogrammed into PE (3393)
Current President's Budget

	FY 1994	FY 1995	FY 1996	FY 1997	Total Cost Cont'd Cont'd
	28856	55536	49405	30281	
	28856	49853			
	2947				
	31803	49853	66874	44122	Cont'd

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BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0604759A Major Test And Evaluation Investment

PROJECT

DC55

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	2848	2820	2773	2728	2703	3372	3978	4070	Continuing	Continuing

C. Other Program Funding Summary

RDTE, A Budget Activity 5
 PE 0604715A Project DC91 Non-Systems
 Training Devices Engineering Development

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
	0	3445	6139	3745	11328	6992	17063	14053	Cont'd	Cont'd

D. Schedule Profile (*Completed)

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 1997
DC55 DIST DEV SIM TECH	1	2	3	4	1	2	3	4	3
ADST Cont Award	X*	X	X	X	X	X	X	X	X

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BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0604759A Major Test And Evaluation Investment								D983	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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		0	2081	2488	2489	2489	2481	2626	2753	Continuing	Continuing

C. Other Program Funding Summary: Not Applicable.

D. Schedule Profile: Not Applicable.

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PE NUMBER AND TITLE

PROJECT

6 - Management Support

0604759A Major Test And Evaluation Investment

D984

COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	FY 1998 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	5459	24558	37833	33830	35740	28507	28384	30832	Continuing	Continuing

C. Other Program Funding Summary: Not Applicable.

D. Schedule Profile: (*Completed)

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	Cost to Complete	Total Cost
D984 MAJ TECH TEST INST	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Combined 4 projects into LCI	X*																			
ATCCS TCC achieved IOC	X*																			
ORDs approved for FON, LCI				X*																
WSMR-TSN achieved M/S I/II				X*																
GPS awards Full Rate Production (FRP)				X*																
ORDs approved for HSTSS and DIRSP																				
FSS achieves IOC																				
GPS Low Rate Prod Complete																				
HSTSS and DIRSP achieve M/S I/II																				
Contract award Phase I, WSMR-TSN																				
Contract award Phase II, FSS																				
Contract award HSTSS and DIRSP																				
Complete ATCCS TCC contract																				
ATCCS TCC achieves Full Operational Capability (FOC)																				
WSMR TSN achieves IOC																				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY										PROJECT	
6 - Management Support										D986	
PE NUMBER AND TITLE										Major Test And Evaluation Investment	
0604759A										D986	
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	23498	20394	23680	5077	2627	2606	2719	2651	Continuing	Continuing	
C. Other Program Funding Summary											
MA6700, Other Procurement/Army 3											
Special Equipment for User Testing				9000	10200	10900	12959	20200	Cont'd	Cont'd	
D. Schedule Profile: (*Completed)											
D986 MAJ USER TEST INST	1										
CIF Integration	2										
Software Development	3										
Software Formal Qual Test	X*										
Player Unit Prototypes											
Engineering Validation Tests											
Player Unit Brassboard Development											
Release Player Unit Drawings											
C3 Center Assembly and Test											
Hardware/Software Integration											
Fixed Wing Pod Delivery											
System Integration Test											
Player Unit Qualification Test											
Player Unit Deliveries											
Technical Test											
Operational Test											
Physical Configuration Audit											
Product Refurbishment											
Product Improvement											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1995	
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605103A Rand Arroyo Center								D732	
COST (in Thousands)		FY 1994 Actual	FY 1995 Estimate	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		17252	15838	21872	22355	22846	23347	23945	24432	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 supplemented FY94 programmed funds with customer reimbursable funds. In FY95, the Army plans to maintain this same level of effort (104 MTS) with supplemental funding. The FY 1996 program represents the Army's intent to fund the Arroyo Center entirely within a single program element to ensure, for the senior Army leadership, appropriate visibility and stability of the core research program. This 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 590 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: 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 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 Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance. This program supports decision making and resource allocation for general research and development and since it is not allocated to a specific R&D mission, it is appropriately funded in Budget Activity 6.

FY 1994 Accomplishments:

- Research addressing external factors affecting the future Army included determining what practical requirements would be involved in preparing for and performing collective operations with international regional organizations, assessing future intra-state conflict implications for possible U.S. intervention and termination decisions, examining the emerging infrastructure of the Russian military R&D sector, and examining nonlethal technologies and military operations other than war. (2203)
- Research on Army restructuring and methods for becoming more efficient included assessing feasible mechanisms for reserve component peacetime and post-mobilization unit training, examining potential new structures for the total Army school system, analyzing and modeling deployment and intratheater logistics activities to assess the effects of logistics shortfalls on combat capabilities, and analyzing how future requirements spanning the spectrum from major regional contingencies to military operations other than war might be met by alternative Active-Reserve structures. (6353)

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BUDGET ACTIVITY	PE NUMBER AND TITLE		
6 - Management Support	0605103A Rand Arroyo Center		
• Research on adapting Army institutions to a changing military and social context provided the Army with a better understanding of possible improvements in the Reserve Component (RC) and Active Component personnel systems and identifying policies that can ameliorate RC personnel problems, examining options for modifying the term-of-enlistment mix within the Active Army and the likely effects on both the active and reserve personnel systems, and assessing the changes likely to occur in the Army's organizational culture and the implications of these changes for major areas of Army policy. (1553) • Research on using technology to better serve the Army's missions included identifying the frequency and intensity of command and control problems during National Training Center force-on-force exercises, assessing the economic viability of the commercial market of a dual-use technology program for a cargo/commuter rotorcraft, identifying preferred approaches to reducing/preventing fratricide, determining ways to make Army logistics information more reliable and timely to better meet the needs of users and decision makers, integrating simulation models to produce an analytical tool for evaluating anti-armor systems in a combined force, and analyzing technical and policy issues on strategic and theater missile defense development and deployment. (5802) • Research on interacting with the Army's agents of change included providing support for Battle Labs and, through exercise participation and analysis, evaluating Louisiana Maneuvers. (1341)			
FY 1995 Planned Program:			
• Research addressing the nature of power in the future, to include examining the prospective relationship between emerging regional "great powers" and the West, examining 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 examining the resulting implications for the Army and, by focusing on the role of nuclear weapons in Indian and Pakistani grand strategies, examine what kinds of weapons may be developed, what kinds of nuclear deterrence doctrines and employment strategies may be utilized, what kind of circumstances could result in nuclear use, and what these findings imply for U.S. strategic and military policy. (2200) • Research addressing what Army forces should be and how they should operate, including analyzing how broader range missions—spanning the spectrum from major regional contingencies to operations other than war—might be met by alternative Active-Reserve 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, assisting the Army develop doctrine and force structure for its Reception, Staging and Onward Movement Integration 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. (3933) • Research addressing new systems and technologies the Army should acquire, including 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 encourage innovation and risktaking on the part of acquisition managers. (1870) • Research addressing how the Army should be manned, including 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, analyzing historical and current data on Reserve Officer Training Corps (ROTC) participants and estimating potential effects of program changes on the characteristics of future ROTC cohorts, and determining the extent and sources of current personnel turbulence and recommending policies to minimize the resulting readiness impediments. (2280)			

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DATE		February 1995	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
6 - Management Support	0605103A Rand Arroyo Center	D732	
- Research addressing how the Army should accomplish support functions, including investigating strategies to reduce Forces Command (FORSCOM) operating costs without risk to the installation's core mission, examining potential new structures for the total Army school system, providing Army decisionmakers 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 stock levels to achieve specified weapon system availability goals. (5222) - SBIR/STTR. (333)			
FY 1996 Planned Program:			
- Research in Force Development and Technology Program. (5139) - Research in Strategy and Doctrine Program. (4454) - Research in Military Logistics Program. (5723) - Research in Manpower and Training Program. (6556)			
FY 1997 Planned Program:			
- Research in Force Development and Technology Program. (5252) - Research in Strategy and Doctrine Program. (4552) - Research in Military Logistics Program. (5849) - Research in Manpower and Training Program. (6702)			
B. Program Change Summary	FY1994	FY1995	FY1996
Previous President's Budget	15492	15838	15899
Appropriated Value	15492		16043
Adjustments to Appropriated Value	1760		
a. SBIR/STTR (-240)			
b. Reprogramming total (+2000)			
Current President's Budget	17252	15838	21872
			22355
C. Other Program Funding Summary: N/A			
D. Schedule Profile: The efforts in this project are non-system specific and therefore no milestones of events are provided.			

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BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0605301A Army Kwajalein Atoll

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	168832	162174	149769	143798	131503	127072	125852	125830	Continuing	Continuing
D614 US Army Kwajalein Atoll	164133	157140	149769	143798	131503	127072	125852	125830	Continuing	Continuing
MAC2 Host Nation Compliance	4699	5034	0	0	0	0	0	0	Continuing	Continuing

A. Mission Description and Budget Item Justification: U.S. Army Kwajalein Atoll (USAKA) is a remote (located in the republic of the Marshall Islands), secure activity of the Major Range and Test Facility Base as constituted by DoD Directive 3200.11. Its function is to support test and evaluation of major Army and DoD missile systems, Army Space surveillance and object identification, and National Aeronautics and Space Administration (NASA) scientific and space programs. Programs supported include Army missile defense, Ballistic Missile Defense Organization (BMDO) demonstration, validation tests, Air Force Intercontinental Ballistic Missile (ICBM) development and operational tests, U.S. Space Surveillance Network, and NASA Space Transportation System (Shuttle) and orbital debris experiments. USAKA supports the Missile Defense Act of 1991 to put in place a Ground Based Defense System by 2006 or earliest date possible. The technical element of USAKA is the Kwajalein Missile Range which consists of a number of sophisticated, one-of-a-kind, radar, optical, telemetry, command/control/communications, and data reduction systems. These systems include the four unique radars of the Kiernan Reentry Measurement Site (KREMS), super Recording Automatic Digital Optical Tracker (RADOT) long range 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.

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.

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6 - Management Support	0605301A Army Kwajalein Atoll	
FY 1994 Accomplishments: • Management support (salaries, training, travel, Space and Strategic Defense Command (SSDC) matrix support, etc.) (9385) • Accomplished Backlog Maintenance and Repair (BMAR) projects (bachelor quarters, water catchment/tanks, roofs, etc.) (12318) • Procured Petroleum, Oil and Lubricants (POL). (11352) • Procured other mission operating supplies. (8907) • Provided air and sea transportation (cargo to and from continental United States). (3613) • Continued improvement and modernization of non-major and sustaining range instrumentation and facilities. (3357) • Continued to support strategic operational and development testing for the Army, Air Force: conducted missile defense logistical system integration test using element surrogates; continued integration of USAKA technical contract efforts and implemented findings of HQDA directed efficiency review. (42323) • Provided logistical support to self contained islands of USAKA to include awarding new contract for USAKA logistical support. (69941) • Completed installation of USAKA electronic security system and supported physical security upgrades to existing USAKA facilities. (937)		
FY 1995 Planned Program: • Management support (salaries, training, travel, SSDC matrix support, etc.). (9543) • Accomplish BMAR projects (Repair roofs, unaccompanied personnel housing). (9590) • Procure POL. (11500) • Procure other mission operating supplies. (10320) • Provide air and sea transportation (cargo to and from continental United States). (7533) • Continue improvement and modernization of non-major and sustaining range instrumentation and facilities. (3561) • Continue to support Army, BMDO, NASA, and Air Force developmental and operational missile testing. Complete integration of range technical support contract efforts. (43996) • Provide logistical support to self contained islands of USAKA. (54662) • Continue support and physical security upgrades to existing USAKA facilities. (416) • Procure Commercial Equipment and Non-Tactical Vehicles. (2850) • SBIR/STTR (3169)		
FY 1996 Planned Program: • Management support (salaries, training, travel, SSDC matrix support, etc.). (8339) • Accomplish BMAR projects (runway repairs, unaccompanied personnel housing). (10560) • Procure POL. (11500) • Procure other mission operating supplies. (12500) • Provide air and sea transportation (cargo to and from continental United States). (6946) • Continue improvement and modernization of non-major and sustaining range instrumentation and facilities. (3240)		

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BUDGET ACTIVITY	PE NUMBER AND TITLE	February 1995
6 - Management Support	0605301A Army Kwajalein Atoll	
- Continue to support Army, BMDO, NASA, and Air Force developmental and operational testing requirement. Continue integration of the range technical support contract effort. Develop Alternate Launch Site to support Tactical Missile Defense (TMD). (50635) - Provide logistical support to self contained islands of USAKA. (45474) - Continue support and physical security upgrades to existing USAKA facilities. (575)		
FY 1997 Planned Program:		
- Management support (salaries, training, travel, SSDC matrix support, etc.). (8118) - Accomplish BMAR projects (runway repairs, unaccompanied personnel housing). (9521) - Procure POL. (11213) - Procure other mission operating supplies. (12383) - Provide air and sea transportation (cargo to and from continental United States). (6870) - Continue improvement and modernization of non-major and sustaining range instrumentation and facilities. (2945) - Continue to support Army, BMDO, NASA, and Air Force developmental and operational testing requirement. Continue integration of the range technical support contract effort. (48062) - Provide logistical support to self contained islands of USAKA. (44125) - Continue support and physical security upgrades to existing USAKA facilities. (561)		
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 were transferred to this program from PE 0605856A (Environmental Compliance - RDT&E), to provide continued funding of environmental compliance issues and disposal of hazardous waste at USAKA. Funds are realigned to PE's 0605853A, 0605854A, and 0605856A for FY96 thru FY 01.		
FY 1994 Accomplishments:		
- Continued support of Logistic Support Contractor Environmental Compliance Oversight Program. (600) - Continued shipment of hazardous wastes to off-island disposal. (200) - Continued testing of materials to determine hazardous characteristics as required by regulation. (90) - Continued identification, removal, and off-island disposal of asbestos containing materials. (125) - Operated solid waste incinerators. (200) - Continued integrity testing of underground storage tanks. (30) - Constructed and upgraded hazardous materials dispensing and staging areas to comply with regulations. (150) - Completed cleanup/removal/disposal of hazardous wastes from Kwajalein land fill burn pits. (350) - Continued development of Spill Contingency Plan to comply with Clean Water Act. (50) - Continued identification, removal, and off-island disposal of Polychlorinated Biphenyl (PCB) dielectric fluids and equipment. (150)		

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BUDGET ACTIVITY	PE NUMBER AND TITLE	February 1995
6 - Management Support	0605301A Army Kwajalein Atoll	
• Replaced PCB equipment. (150) • Developed a compliant Ozone Depleting Chemical Reduction Program, including reclamation and disposal. (239) • Implemented waste minimization program including life cycle material considerations and product substitutions. (100) • Developed a hazardous materials communication program to support prevention and response needs. (70) • Investigated technologies for effective reuse of contaminated (not hazardous) sandblast grit to reduce disposal cost. (70) • Continued training of USAKA environmental staff to maintain current knowledge of compliance regulations. (40) • Supported other agency travel in support of USAKA environmental standards development and implementation. (50) • Provided environmental awareness training for personnel to ensure understanding of compliance requirements. (35) • Continued contractor investigations and environmental information management system development. (1500) • Conducted water quality and wastewater discharge investigations to support applications for discharge permits/agreements. (225) • Inventoried existing air emissions and performed baseline air quality modeling as required by Clean Air Act. (50) • Continued potable water testing to ensure protection of public health and Safe Drinking Water Act compliance. (125) • Continued support of USASDC Systems Engineering and Technical Assistance Contract (SETAC) in environmental standards development and mitigation tracking. (100)		
FY 1995 Planned Program: • Continue support of Logistic Support Contractor Environmental Compliance Oversight Program. (1200) • Continue shipment of hazardous wastes to off-island disposal. (200) • Continue testing of materials to determine hazardous characteristics as required by regulation. (100) • Continue identification, removal, and off-island disposal of asbestos containing materials. (125) • Operate solid waste incinerators procured under the Productivity Capital Investment Program. (250) • Continue identification, removal, and off-island disposal of PCB dielectric fluids and equipment. (800) • Perform periodic testing of wastewater discharge to establish compliance with Clean Water Act requirements. (60) • Continue potable water testing to ensure protection of public health and Safe Drinking Water Act compliance. (100) • Continue training of USAKA environmental staff to maintain current knowledge of compliance regulations. (60) • Characterize and cleanup fuel and oil contamination. (1325) • Maintain hazardous materials dispensing and staging area to comply with regulations. (50) • Continue ozone depleting chemical reduction program. (75) • Establish a program to replace HALON fire suppression systems. (188) • Continue inventory of existing air emissions and baseline air quality modeling to support air analysis impact. (75) • Continue compliance monitoring of underground storage tanks. (20) • Continue to support Republic of Marshall Islands Environmental Protection Agency travel in support of USAKA environmental standards finalization and implementation. (30)		

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6 - Management Support		0605301A Army Kwajalein Atoll	
• Complete design for and construction of compliant pesticide control and management facilities. (270)			
• SBIR/STTR (106)			
FY 1996 Planned Program: Funds realigned to PE's 0605853A, 0605854A, and 0605856A effective FY 96.			
FY 1997 Planned Program: Funds realigned to PE's 0605853A, 0605854A, and 0605856A effective FY 96.			
B. Program Change Summary			
Previous President's Budget	FY 1994	FY 1995	FY 1996
Appropriated Value	169872	167697	157218
Adjustments to Appropriated Value (Total PE)	169872		162114
a. SBIR/STTR decrement(-2540)	-1040		
b. Reprogramming into PE (+1500)			
Current President's Budget	168832	162174	149769
			143798

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605301A Army Kwajalein Atoll								D614	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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		184133	157140	149769	143798	131503	127072	125852	125830	Continuing	Continuing
C. Other Program Funding Summary											
Military Construction - Army											
Project Number 36324 - Unaccompanied Personnel Housing					2568						
Project Number 27987 - Saltwater Intake							43000				
Project Number 33149 - Power Plant							13400				
Project Number 36617 - Unaccompanied Personnel Housing							9100				
Project Number 28000 - Hazardous Material Facility							9001				
Project Number 25205 - Shore Protection								4501			
Project Number 20631 - Modernize UPH								5600			
Project Number 27996 - Vehicle Maint Shop								13000			
Project Number 33654 - Solid Waste Incinerator									15000		
Project Number 17575 - Modernize UPH									8101		
Project Number 27990 - KREMS Consolidated Warehouses											
D. Schedule Profile: These efforts are continuous in nature therefore no milestone or events are provided.											

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BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT		
6 - Management Support		0605301A Army Kwajalein Atoll								MAC2		
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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		4889	5034	0	0	0	0	0	0	0	Continuing	
C. Other Program Funding Summary Military Construction - Army Project Number 35900 - Sewage Treatment Plant 11200 Project Number 33655 - Fuel Containment Upgrade 1200 Project Number 33703 - Water Tank Covers 5200												
D. Schedule Profile: These efforts are continuous in nature therefore no milestone or events are provided												

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

DATE February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0605601A Army Test Ranges And Facilities

COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	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	14783	154529	147330	146464	132916	135898	129090	132060	Continuing	Continuing
DE90 Yuma Proving Ground	17409	20655	22801	36145	30023	31432	28043	30786	Continuing	Continuing
DE91 Combat Systems Test Activity	38257	40649	37388	38284	34801	35508	33243	33888	Continuing	Continuing
DE92 Dugway Proving Ground	11831	11587	13671	11159	10941	11275	11118	11568	Continuing	Continuing
DE93 White Sands Missile Range	43191	65052	53203	54828	50800	51117	48003	49104	Continuing	Continuing
DE94 Army Electronic Proving Ground	10308	0	0	0	0	0	0	0	0	0
D452 Cold Regions Test Center	3835	0	0	0	0	0	0	0	0	0
D618 Aviation Technical Test Center	14938	12273	14424	0	0	0	0	0	0	0
D630 TECOM Test Design and Evaluation	3780	3254	4753	4826	5194	5376	5450	5867	Continuing	Continuing
D632 Redstone Technical Test Center	1224	1049	1060	1122	1157	1192	1233	1269	Continuing	Continuing

A. 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; Combat Systems Test Activity, 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 will also include efforts toward developing TECOM's Virtual Proving Ground concept to include procurement of essential equipment, personnel training and facility modernization to support Force XXI 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, 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, maintenance cost of test facilities, replacement of test equipment and test modernization projects to maintain current testing capabilities and improvements to safety, environmental protection and efficiency of test operations. This PE does not finance reimbursable costs directly identified to a user of these ranges; these direct

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BUDGET ACTIVITY

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6 - Management Support

0605601A Army Test Ranges And Facilities

costs are borne by materiel developers and project/product managers in accordance with DoD funding policies. To accommodate T&E consolidations within the Army, the following organization realignments are in place: Electronic Proving Ground has been consolidated under White Sands Missile Range and Cold Regions Test Center has been consolidated under Yuma Proving Ground effective 1 Oct 94. Effective 1 Oct 96, it is the Army Plan to consolidate Aviation Technical Center at Yuma Proving Ground. To accomplish these objectives and still conduct a viable T&E test capability requires that sufficient funding be available for personnel termination costs, one-time costs associated with consolidations, and essential modernization of test ranges and facilities. Test ranges support operations are required for general research and development; therefore, this PE is appropriate for inclusion in Budget Activity 6.

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 tracking 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 tank 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 assumes the full munitions production acceptance testing mission from Jefferson Proving Ground in FY95 under the Base Realignment and Closure Act (BRAC). Effective FY95, YPG assumed management of all 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). Effective FY97, it is the Army plan to consolidate aviation testing currently managed by Aviation Technical Test Center (ATTC), Ft. Rucker, Alabama and Edwards AFB, California to YPG.

FY 1994 Accomplishments:

- Approximately 325 tests were accomplished. Some of the systems tested include: (16534)
 - Heavy Equipment Transportation System
 - M762/767 Artillery Electronic Fuze
 - Improved Recovery Vehicle
 - BRADLEY Fighting Vehicle System
 - Advanced Field Artillery System (AFAS)
 - Field Artillery Resupply Vehicle (FARV-A)
- Range modernization which included upgrade of the Castle Dome heliport complex (875)

FY 1995 Planned Program:

- Approximately 320 tests will be accomplished. Some of the systems to be tested include: (20604)
 - 155MM SADARM
 - Advanced Field Artillery System (AFAS)
 - Wide Area Mine (WAM)

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BUDGET ACTIVITY		
6 - Management Support	PE NUMBER AND TITLE	February 1995
- Countermine/Counterbarrier Program - Soldier Enhancement Program - BRADLEY Improvement Program - Lightweight Arctic Refueling System - LONGBOW-APACHE - Modular Decontamination System - Effective with FY95, the transfer of the Jefferson Proving Ground ammunition acceptance testing mission will be completed and YPG will assume management for all natural environment testing (desert, cold weather and tropics). • Small Business Innovation Research (SBIR)\Small Business Technology Transfer (STTR) (51)		
FY 1996 Planned Program: • Approximately 280 tests will be accomplished. Some of the systems to be tested include: (22801) - Armored Gun System - M1A1 ABRAMS Block Improvement Program - Ground Combat Identification - Air Drop Equipment Advanced Developments - Wide Area Mine (WAM) - M1 Breacher - Family of Medium Tactical Vehicles - AFAS		
FY 1997 Planned Program: • Approximately 360 tests will be accomplished. Some of the systems to be tested include: (36145) - Armored Gun System - COMANCHE - 2nd Generation FLIR - Ground Combat Identification - Air Drop Equipment Advanced Developments - AFAS - Field Artillery Resupply Vehicle (FARV) Advanced Development - Aircraft Survivability Equipment - Mine Neutralization		

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6 - Management Support	0605601A Army Test Ranges And Facilities	
Project DE91 Combat Systems Test Activity: Combat Systems Test Activity (CSTA), Aberdeen Proving Ground, MD is DoD's designated lead agency for land vehicle testing and Congressionally mandated live fire testing. Under Project Reliance, CSTA is designated as primary test site for land vehicle and direct fire gun munitions testing. CSTA 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. CSTA is the DoD tester for vulnerability/lethality of Army systems. CSTA also has a capability for a radiation environment simulating the neutron and gamma output of a nuclear weapon using a fast-burst nuclear reactor and prompt gamma pulse simulator and conducts nuclear radiation evaluations. This provides a key capability to replace underground nuclear tests. 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 simulation facility, live fire evasive target, armor/anti-armor depleted uranium containment facility (Super Box), the elevated rail threat launch facility, underwater test facility (Navy support), and a number of special test laboratories.		
FY 1994 Accomplishments: • Approximately 630 tests were accomplished. Some of the systems tested include: (36892) - Family of Medium Tactical Vehicles - Navy ship structures shock testing - Ground Combat Identification (CID) - Armored Gun System - Unmanned Ground Vehicle - Halon Substitutes for Automatic Fire Extinguishing Systems - Generic Appliqué Armor for BRADLEY Fighting Vehicles • Modernization projects included improvements to road test courses, correction of safety issue from building inspection, and correction of test site sedimentation and erosion problems. (1365)		
FY 1995 Planned Program: • Approximately 625 tests will be accomplished. Some of the systems to be tested include: (40649) - Armored Gun System - Armored Mortar System - M1A2 ABRAMS Upgrade Program - Armored Security Vehicle - Soldier Enhancement Program - Heavy Dry Support Bridge - Wide Area Mine (WAM)		

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6 - Management Support	PE NUMBER AND TITLE 0605601A Army Test Ranges And Facilities	
FY 1996 Planned Program: - Approximately 570 tests will be accomplished. Some of the systems to be tested include: (37388) - Advanced Tank Armaments - M1A1 ABRAMS Block Improvement Program - Recovery Vehicle Improvement Program - Ground Combat Identification - Family of Medium Tactical Vehicles - Soldier Enhancement Program - Mine Systems Engineering Development - Heavy Assault Bridge - Fire Support Team Vehicle (FIST-V) Integration FY 1997 Planned Program: - Approximately 540 tests will be accomplished. Some of the systems to be test include: (38284) - Armored Gun System - Advanced Tank Armaments - M1A1 ABRAMS Block Improvement Program - Ground Combat Identification - Tactical Unmanned Ground Vehicle - Enhanced Land Warrior - Countermine/barrier Advanced Development - Distributed Interactive Software 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. Through FY94, tropical environmental testing was funded within this project. Effective FY95 the tropical testing mission in Panama is funded within project DE90, Yuma Proving Ground. Effective FY97, it is the Army plan to draw down DPG to a chemical/biological test facility with no general purpose test capability. FY 1994 Accomplishments: - Approximately 260 tests were accomplished. Some of the systems tested include: (11831) - Collective Protection Systems - Joint Chemical Biological Point of Contact Program		

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- Contamination Avoidance Systems - Chemical Warfare Treaty Verification - Tank Crew Mask System		
FY 1995 Planned Program: • Approximately 240 tests will be accomplished. Some of the systems to be tested include: (11597) - NBC Decontamination Systems - Joint Chemical Biological Point of Contact Program - Cryofracture of Explosives and Hazardous Materials - Chemical Warfare Treaty Verification - Biological Integrated Detection System		
FY 1996 Planned Program: • Approximately 220 tests will be accomplished. Some of the systems to be tested include: (13671) - Soldier Enhancement Program - NBC Protection Systems - NBC Contamination Avoidance Systems - Smoke/Obscurant Systems - Decontamination Systems - Chemical Warfare Treaty Verification		
FY 1997 Planned Program: • Approximately 200 tests will be accomplished. Some of the systems to be tested include: (11159) - Soldier Enhancement Program - Enhanced Land Warrior - NBC Protection Systems - NBC Avoidance Systems - Smoke/Obscurant Systems - Decontamination Systems - CW Treaty Verification		
Project DE93 White Sands Missile Range: White Sands Missile Range (WSMR), NM, is the largest, all 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		

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surface-to-air and surface-to-surface testing 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), and a fully landlocked/secure test flight facility. WSMR is a primary test facility supporting nuclear effects testing under Project Reliance. Test capabilities include temperature, shock, vibration, and electromagnetic effects. WSMR facilities and services are extensively utilized by the Tri-Services, National Aeronautics and Space Administration, and other government agencies. Effective F'95, management of the Electronic Proving Ground (DE94) is consolidated under WSMR.		
FY 1994 Accomplishments: • Approximately 225 tests were accomplished. Some of the systems tested include: (42635) - PATRIOT Product Improvements - DC-X Single Stage Rocket - AVENGER/STINGER Product Improvements - Line of Sight Anti-Tank (LOSAT) Demo - Close Combat Non-Line-of-Sight Missile Demo - Multiple Launch Rocket System (MLRS) - Brilliant Anti-Armor Submunition (BAT) • Range modernization projects included improvement/repair to Vibration and Temperature Test Facilities and establishment of an EPA certified waste analysis capability. (590) FY 1995 Planned Program: • Approximately 290 tests will be accomplished. Some of the systems to be tested include: (64758) - PATRIOT Product Improvements - Forward Area Air Defense Command and Control (FAAD C2) - AVENGER Product Improvements - Extended Range Rocket (MLRS) - Brilliant Anti-Armor Submunition (BAT) - Tactical Electronic Surveillance System - All Source Analysis System (ASAS) - Army J/STARS - SBIR/STTR (294) FY 1996 Planned Program: • Approximately 270 tests will be accomplished. Some of the systems to be tested include: (53203)		

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- Forward Area Air Defense Command and Control (FAAD C2) - STINGER Product Improvement Program - PATRIOT Product Improvement Program - Army Tactical Command and Control System (ATCCS) - Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T) - Single Channel Anti-Jam Man-Portable Terminal (SCAMP) - BAT - EPLRS/JTIDS Hybrid - Command and Control Vehicle		
FY 1997 Planned Program: • Approximately 250 tests will be accomplished. Some of the systems to be tested include: (54828) - FAAD C2 - STINGER PIP - PATRIOT PIP - Theater Missile Defense - BAT P3I - ASAS Evolutionary Development - Defense Satellite Communication System (DSCS) - DCS Phase II - Command and Control Vehicle - Army Tactical Missile System P3I		
Project DE94 Army Electronic Proving Ground: Electronic Proving Ground (EPG), Fort Huachuca, AZ, is unique within DoD because of its electromagnetically "clean" environment, extensive real estate, low annual rainfall, and special facilities required to perform development/development-type 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 tests facility and an electro-optical systems test facility. The mission of creating, developing, and maintaining data bases for standard tactical deployment scenarios for electromagnetic capability and vulnerability will be continued. Effective FY95, management of EPG is consolidated under Project DE93, White Sands Missile Range.		
FY 1994 Accomplishments: • Approximately 160 tests were accomplished. Some of the systems tested include: (10308)		

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6 - Management Support	0605601A Army Test Ranges And Facilities		
- Unmanned Aerial Vehicle - Army Tactical Command and Control Systems (ATCCS) - Global Positioning System (GPS) Receivers - Combat Service Support Control System - EPLRS Downsize Net Control Station - Automated COMSEC Management Engineering System (ACEMES) - Quick Erection Antenna Mast (QEAM) - Defense Communication System - Army J/STARS			
FY 1995 through FY 1997 Planned Program: • Test conducted at the EPG site have been included as part of Project DE93 White Sands Missile Range FY95-97 plans. Project D452 Cold Regions Test Center: Cold Regions Test Center (CRTC), 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. Effective FY95, management of this mission is consolidated under Project DE90, Yuma Proving Ground. FY 1994 Accomplishments: • Approximately 50 tests were accomplished. Some of the systems tested include: (3835) - Soldier Enhancement Program - M1A1 ABRAMS Tank - Family of Medium Tactical Vehicles - BRADLEY Fighting Vehicle System - NBC Recon Vehicle - Arctic Forward Area Refueling Equipment - Arctic Fuel Supply System - Navy TOW/Dragon Firing - Remote Sensing Chemical Agent Alarm - XM22 Automatic Chemical Agent Alarm FY 1995 through FY 1997 Planned Program: • Tests conducted at the CRTC site have been included as part of Project DE90 Yuma Proving Ground FY95-97 plans.			

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6 - Management Support	0605601A Army Test Ranges And Facilities	
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. Effective FY97, it is the Army plan to consolidate this mission in Project DE90, Yuma Proving Ground.		
FY 1994 Accomplishments: - Approximately 140 tests were accomplished. Some of the systems tested include: (14938) - COMANCHE - LONGBOW - APACHE - Lead-the-Fleet 2nd Generation Forward Looking Infra-Red (FLIR) - Aviation Life Support Equipment (ALSE) - Aircraft Survivability Equipment (ASE)		
FY 1995 Planned Program: - Approximately 170 tests will be accomplished. Some of the systems to be tested include: (12257) - COMANCHE - LONGBOW - APACHE - Lead-the-Fleet - T-800 Engine - Aircraft Avionics 2nd Generation FLIR - Aircraft Survivability Equipment (ASE) - SBIR/STTR (16)		
FY 1996 Planned Program: - Approximately 155 tests will be accomplished. Some of the systems to be tested include: (14424) - COMANCHE - T-800 Engine		

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6 - Management Support	0605601A Army Test Ranges And Facilities	
- Aircraft Survivability Equipment (ASE) - 2nd Generation FLIR - Lead-the-Fleet - CH-47D Product Improvement Program - Special Operations Aircraft		
FY 1997 Planned Program: Tests to be conducted have been included as part of the Project DE90 Yuma Proving Ground FY97 plan. 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 FY1996, funding reflects realignment of Test Management and Safety Verification as a part of TECOM's Reshape Program. FY 1994 Accomplishments: • Continued test design and assessment program, addressing new development, production, and materiel changes. Items addressed included: (3790) - Army Integrated Thermal Targets - Airborne Standoff Minefield Detection System - Laser Detecting Set AN/AVR-2 - Advanced Threat Radar Jammer - Aircraft Maintenance Vehicle (AMV) - Close Combat Tactical Trainer (CCTT) - Laser Standoff Chemical Detector - Individual Microclimatic Cooling System - Self-Contained Toxic Environmental Protection Outfit - Advanced Battledress Overgarment - Vapor Protective Flame Resistant Undergarment - Chemical/Biological Hardened Deployable Medical System (DEPMEDS) - Automatic Chemical Agent Alarm - Remote Sensing Chemical Agent Alarm - C-17 Transport - Army Interface - Miniature Binoculars		

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6 - Management Support	0605601A Army Test Ranges And Facilities	
FY 1995 Planned Program:		
- Continue test design and assessment program, addressing new developments, production, and material changes. Programmed items include: (3247) - Radar Jammer System - IEW Common Sensor - IEW Tactical Proficiency Trainer - Fire Support Combined Arms Tactical Trainer - Advance Aerial RADIAC System - Enhanced TRACKWOLF - Advanced Aircraft Borefight Equipment - Generic Aircraft Nitrogen Generator - XM81 Millimeter Wave Screening Grenade - Improved Ribbon Bridge/FFB 7000 - High Mobility Trailer - All Terrain Crane - Advanced Wind and Dust Goggles - Aircrew Anti-Exposure Suit - Improved Toxic Agent Protection (TAP) Suit - Extended Cold Weather Clothing System, 2nd Generation - Advanced Combat Vehicle Crewman Helmet - Long Range Stand-Off Biological Detector - SBIR/STTR (7)		
FY 1996 Planned Program:		
- Continue test design and assessment program, addressing new developments, production, and material changes. Programmed items include: (4753) - Air Traffic Navigation and Communication System - AN/MLQ-34 TACJAM-2 - Army Key Management System - Close Combat Decoy Cueing - Multispectral - Combat Service Support Training Simulation System - Driver's Vision Enhancement - Electro-Optic Helmet Sight System - Night Image Thermal Equipment - Remote Activation Munitions System		

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6 - Management Support	0605601A Army Test Ranges And Facilities	
- Modular Decontamination System - Advanced Battle Dress Overgarment (JLIST) - Heavy Assault Bridge System - Land Warrior - Vapor Protective Flame Resistant Undergarment		
FY 1997 Planned Program: • Continue test design and assessment program, addressing new developments, production, and material changes. Programmed items include. (4926) - Aviation Combined Arms Tactical Trainer - Integrated System Command - Intelligence Electronic Warfare Tactical Proficiency Trainer - Mobile Automated Instrumentation Suite - Individual Soldier Enhanced Ration - Forklift, 6000 LB - Tactical Standoff Biological Detector - Modular Rucksack System - XM 1101 Smoke Generator System		
Project D632 Redstone Technical Test Center: Redstone Technical Test Center (RTTC), Redstone Arsenal, AL provides a capability for development and technology verification, materiel change, production acceptance and long term reliability testing of missiles and missile components. Under Defense Management Resource Decision (DMRD) 936, the mission of RTTC was transferred from US Army Missile Command (MICOM), Redstone Arsenal, AL to Test and Evaluation Command (TECOM). No funds were transferred and MICOM still provides 98% of RTTC test operations costs in the form of reimbursements for testing labor provided.		
FY 1994 Accomplishments: • Approximately 140 tests were accomplished. Some of the systems tested include: (1224) - JAVELIN - HELLFIRE - Bunker Defeat Munition - LONGBOW - Multiple Launch Rocket System (MLRS) - TOW/TOW BRADLEY - DRAGON		
FY 1995 Planned Program:		

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6 - Management Support 0605601A Army Test Ranges And Facilities		
Approximately 115 tests will be accomplished. Some of the systems to be tested include: (1027)		
- PATRIOT Product Improvements - STINGER Product Improvements - LONGBOW - TOW Product Improvement Program - SBIR/STTR (22)		
FY 1996 Planned Program:		
Approximately 100 tests will be accomplished. Some of the systems to be tested include: (1090)		
- PATRIOT Product Improvements - STINGER Product Improvements - TOW Product Improvements - LONGBOW - Brilliant Anti-Armor Submunition (BAT)		
FY 1997 Planned Program:		
Approximately 95 tests will be accomplished. Some of the systems to be tested include: (1122)		
- Unmanned Ground Vehicle - TOW Product Improvements - Brilliant Anti-Armor Submunition (BAT) - LONGBOW - PATRIOT Product Improvements		
B. Program Change Summary		
Previous President's Budget	FY 1994	FY 1995
Appropriated Value	145232	154420
Adjustments to Appropriated Value	145232	147330
a. SBIR/STTR (-155)	-449	147386
b. Reprogrammed out of PE (-294)		
Current President's Budget	144783	146464

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BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0605602A Army Tech Test Instr & Targets

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	23396	31545	27600	23980	24323	25486	26942	28271	Continuing	0
D453 Technical Test Instrumentation	0	3784	0	0	0	0	0	0	0	0
D626 Test Technology & Sustaining Instrumentation	23396	27761	27600	23980	24323	25486	26942	28271	Continuing	0

A. Mission Description and Budget Item Justification: Funds development, acquisition and sustainment of technical test instrumentation for the Army at the Major Ranges and Test Facility Bases (MRTFB) Yuma Proving Ground (YPG), AZ; Combat Systems Test Activity (CSTA), Aberdeen Proving Ground (APG), MD; Dugway Proving Ground (DPG), UT; White Sands Missile Range (WSMR), NM; and Electronic Proving Ground, (EPG), AZ (became a directorate of White Sands Missile Range in Sep 94); Cold Regions Test Activity (CRTA), AK (became a directorate of Yuma Proving Ground in Sep 94); Redstone Technical Test Center (RTTC), AL; and Aviation Technical Test Center (ATTC), AL (scheduled for consolidation at Yuma Proving Ground in Sep 96); to support testing of advanced, high technology systems and weapons developments. Included are 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; the development of specifications and prototype instrumentation not available on-the-shelf. FY 1996 funds the minimum level required to assure adequate test data for acquisition milestone decisions and reduce maintenance costs required to forestall equipment failures and testing delays. 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.

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 1994 Accomplishments: No technical test instrumentation projects were funded in FY 1994

FY 1995 Planned Program:

- Resume execution of the CSTA modernization plan and the Test & Evaluation Resource Investment Board (TERIB) test resource master plan for Land Combat Instrumentation (LCI). (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 Advanced Field Artillery System. (2880)
- Resume capability for system level Army Tactical Command and Control Systems (ATCCS) technical test at Electronic Proving Ground, AZ (EPG). (500)

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6 - Management Support	0605602A Army Tech Test Instr & Targets	
- Resume 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. (100) - Resume development of the Fiber Optic Network (FON) project. This project links the LCI project to the information highway. (174) - Resume analysis of instrumentation requirements for new start projects. (118) - Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) (12)		
FY 1996 Planned Program: All resources realigned to project D984, PE 0604759A. FY 1997 Planned Program: All resources realigned to project D984, PE 0604759A. Project D628 - Test Technology and 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. Current initiatives are directed toward modeling and simulation and virtual test capabilities. Sustaining instrumentation maintains existing technical testing capability 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, M1A2 Main Battle Tank, Army Advanced Field Artillery System (AFAS) and Javelin. FY 1994 Accomplishments: - Maintained existing capability by replacement and limited upgrade of worn out, obsolete or unserviceable equipment/instrumentation at Army technical test ranges. (1532) - Procured pulse waveform generators/amplifiers, antenna systems and associated hardware in support of electromagnetic interference (EMI) testing of electronics communications and countermeasure equipment, aircraft auxiliary electrical equipment and other C4I systems at Electronic Proving Ground (EPG). (400) - Replaced obsolete or unmaintainable flight test cockpit indicators required for airworthiness and weapons integration testing of Army aircraft at Aviation Technical Test Center (ATTC). (1220) - Refurbished vibration equipment to comply with new requirements of MIL-STD-810 at Yuma Proving Ground (YPG) and procured replacement environmental and metrology test equipment. (758) - Continued development of real-time graphics improvements at YPG in order to provide enhanced resolution of simulated terrain features to test high cost target detection sensors in realistic 3D models, significantly reducing actual firing of weapons using the detectors. (400) - Improved acoustic scoring techniques and instrumentation for projectile tracking and impact points and replaced optics and electronic instrumentation at YPG. (1315) - Continued modeling and simulation efforts at WSMR-EPG, including development of computer models/simulation and man-in-the-loop hardware for testing state-of-the-art interoperability and vulnerability to hostile countermeasures in an electromagnetic realistic battlefield environment, and acquired scenario generation capability to enhance EPG's testing of tactical electronic message equipment. (785) - Maintained instrumentation and continued development of methodologies for meteorological support for Army RDT&E. (310)		

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PE NUMBER AND TITLE		
6 - Management Support		0605602A Army Tech Test Instr & Targets
- Continued acquisition of environmental monitors for Nuclear Effects testing at White Sands Missile Range (WSMR). (600) - Sustained optical tracking systems and development software for control of the QF-4 drone at WSMR. (553) - Continued refurbishment of small missile tracking capability, completed millimeter wave (MMW) seeker test equipment and procured data acquisition equipment at Redstone Technical Test Center (RTTC). (685) - Initiated multi-year effort for refurbishment and modernization of the backbone radar tracking capability (AN/FPS16) at WSMR. (1450) - Initiated acquisition of instrumentation for Subsystem Test and Simulation Facility at RTTC to provide test capability for subsystem and component testing of advanced missile systems to reduce requirements for system level testing and supported R&D and production testing. Three year project ending in FY 1996. (800) - Continued replacement of chemical/biological laboratory analysis instrumentation to sustain the Nuclear, Biological, Chemical (NBC) Defense mission at Dugway Proving Ground (DPG). Completed second phase of Mission Control Center (MCC). (900) - Replaced two worn-out instrumentation vans to transport and shelter test instrumentation at remote sites at Cold Regions Test Activity (CRTA). (400) - Continued installation of data acquisition equipment and sensors on the combat vehicle survivability test ranges and the live fire vulnerability ranges at Combat Systems Test Activity (CSTA) to support highly complex Congressionally mandated live-fire testing. (1025) - Acquired high-speed, multi-media data handling equipment at CSTA (interfacing to the Fiber Optic Network), automating test management and data flow processes to accommodate pending reductions in the workforce. (1150) - Continued 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. (2910) - Initiated studies for testing Advance Field Artillery System at YPG. (72) - Provided management and support costs. (3501) - Provided a remote control capability for the WSMR Salinas Peak communications and data transfer site and WSMR Command Destruct system in accordance with personnel downsizing and safety assurance initiatives. (780) - Updated the WSMR Airspace Display and Control System in accordance with FAA requirements for airspace management. (750) - Initiated modification of the WSMR range timing to use satellite timing distributed by the Global Positioning System. (200) - Developed project RAVEN functional prototype for Electronic Warfare demonstration. (900)		
FY 1995 Planned Program:		
- Maintain existing capability by replacement and limited upgrade of worn out, obsolete or unserviceable equipment/instrumentation at Army technical test ranges. (602) - Continue modeling and simulation efforts at Electronic Proving Ground (EPG), in order to test C4I systems in their intended operational environments. (500) - Design, develop, integrate and acquire simulation, stimulation and emulation and data reduction software and hardware for imagery systems requiring actual sensor inputs at EPG. (550) - Continue the acquisition of the Standoff and Tactical Jammer capability to control jamming instrumentation for EPG. (400) - Integrate Enhanced Position Location and Reporting System (EPLRS) Test Control Center into the Army Tactical Command and Control System (ATCCS). Develop system/segment design and associated documentation and software requirements at EPG. (650) - Refurbish nine Climatic Facility Chambers and bring them into line with EPA guidance at Yuma Proving Ground (YPG). (270)		

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BUDGET ACTIVITY		February 1995
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6 - Management Support		0605602A Army Tech Test Instr & Targets
FY 1995 Planned Program (continued):		
- Continue acoustic scoring techniques and instrumentation at YPG for projectile tracking and impact points. (470) - Initiate follow-on studies to enhance the application of simulation to testing at YPG. (115) - Continue acquisition of Flight Test Cockpit Indicators at Aviation Technical Test Activity (ATTC). (276) - Replace obsolete medium speed aircraft instrumentation with CAIS compatible recorders at ATTC. (370) - Acquire Telemetry Front-End Data Processing Equipment at ATTC. (180) - Acquire Common Airborne Instrumentation System (CAIS) at ATTC (Accelerating program from several years into one). (716) - Continue acquisition of environmental monitors for nuclear effects testing at WSMR. (450) - Continue refurbishment of backbone radar tracking capability (AN/FPS16) at WSMR. (2761) - Procure instrumentation to characterize the atmosphere for testing optics and electromagnetic interference testing at Redstone Technical Test Center (RTTC). (350) - Continue refurbishment of data acquisition capability required for small missile testing at RTTC. (650) - Continue acquisition of instrumentation for Subsystem Test and Simulation Facility at RTTC. (800) - Continue replacement of chemical/biological laboratory analysis instrumentation to sustain the Nuclear, Biological, Chemical (NBC) Defense mission at Dugway Proving Ground (DPG). (936) - Develop and acquire 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 at Combat Systems Test Activity (CSTA). (972) - Maintain instrumentation and continue development of methodologies for meteorological support for Army RDT&E. (1400) - Improve capabilities to measure dust, atmospheric transmissivity, and laser scoring at YPG. (372) - Develop test methodology and requirements/specifications for instrumentation to test combat vehicles with advanced embedded computing/electronics systems such as the M1A2, Automatic Target Recognition (ATR), Advanced Field Artillery System (AFAS) and Component Advanced Technology Demonstrator at Combat Systems Test Activity. (730) - Continue to acquire high-speed, multi-media data handling equipment at CSTA (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. (1177) - Develop and acquire modeling and simulation software/hardware, develop validated data bases to support vehicle signature and tire performance models and stimulating equipment at CSTA. (430) - Sustain optical tracking systems and continue to develop software for control of the QF-4 drone at WSMR. (515) - Initiate a study to use radar to capture high altitude missile performance data at WSMR. (175) - 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. (398) - Provide management and support costs. (4576) - Continue to modify the WSMR Command Destruct system for remote control capability in accordance with personnel downsizing and safety assurance initiatives. (1130)		

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6 - Management Support		0605602A Army Tech Test Instr & Targets
FY 1995 Planned Program (continued):		
• Upgrade and extend communications capability at YPG. (350) • Replace the pumps for RTTC electro-hydraulic driven vibration equipment. (110) • Replace two worn-out instrumentation vans at Cold Regions Test Activity (CRTA). (400) • Initiate Development and Integration of TECOM Virtual Proving Ground (VPG) at TECOM test centers. (450) • Modeling and Simulation in support of TECOM Virtual Proving Ground (VPG) at TECOM test centers. (2751) • Force XXI Advanced Warfighting Experiments. (250) • Small Business Innovation Research (SBIR) Small Business Technology Transfer (STTR). (529)		
FY 1996 Planned Program:		
• Maintain 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. (1706) • 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. (445) • Maintain instrumentation and continue development of methodologies for meteorological support for Army RDT&E. (905) • Continue acquisition of Flight Test Cockpit Indicators at Aviation Technical Test Activity (ATTC). (468) • Continue replacement of medium speed aircraft instrumentation with CAIS compatible data recorders at ATTC. (235) • Continue acquisition of Telemetry Front-End Data Processing Equipment at ATTC. (100) • Develop Low Impact, High Performance Signal Conditioning Instrumentation at ATTC. (100) • Acquire Calibration Equipment at ATTC. (165) • Acquire various video and still photograph equipment at ATTC. (67) • Continue to acquire high-speed, multi-media data handling equipment at Combat Systems Test Activity (CSTA) (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. (1317) • Continue to develop and acquire modeling and simulation software/hardware, develop validated data bases to support vehicle signature and tire performance models and nuclear gamma pulse stimulating equipment at CSTA. (1460) • Continue to develop test methodology and requirements/specifications for instrumentation to test and remotely control combat vehicles with advanced embedded computing/electronics systems such as the M1A2, Advanced Field Artillery System (AFAS) and Component Advanced Technology Demonstrator (CAT-D) at CSTA. (800) • Continue to develop and acquire 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 at CSTA. (756) • Complete final phase of Mission Control Center (MCC) and Communication Network to support the laboratory structure at Dugway Proving Ground. (DPG). (372) • Continue replacement of chemical/biological laboratory analysis instrumentation to sustain the Nuclear, Biological, Chemical (NBC) Defense mission at DPG. (1281)		

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6 - Management Support		
FY 1996 Planned Program (continued):		
0605602A Army Tech Test Instr & Targets		
- Continue modeling and simulation efforts at Electronic Proving Ground (EPG), in order to test C4I systems in it's intended operational environment. (720) - Continue the integration and acquisition of simulation, stimulation and emulation and data reduction software and hardware for imagery systems requiring actual sensor inputs at EPG. (500) - Continue the acquisition of the Standoff and Tactical Jammer capability to control jamming instrumentation for C4I testing at EPG. (350) - Continue the integration of the Test Control Center into the Army Tactical Command and Control System (ATCCS). Develop a Local Area Network (LAN) and interfaces to replace existing lap-tops. Integrate jammer control into the TCC at EPG. (350) - Continue the integration and procurement of instrumentation to allow testing the P/Y code of the Army Global Positioning System (GPS) at EPG. (230) - Continue the procurement of multi-channel, multi-protocol communications boards for high speed Digital Signal Processing (DSP) data for C4I testing at EPG. (80) - Develop a theoretical basis, computational algorithms, and a computer program (Interference Model) to evaluate the probability of mutual interference of spread spectrum systems at a particular site within the deployment of similar radios at EPG. (250) - Continue refurbishment of data acquisition capability required for small missile testing at Redstone Technical Test Center (RTTC). (300) - Continue acquisition of instrumentation for Subsystem Test and Simulation Facility at RTTC. (1000) - Procure instrumentation to characterize the atmosphere for testing optics and electromagnetic interference testing at RTTC. (430) - Continue fabrication of a test stand for small missile testing at RTTC. (150) - Procure a telemetry data acquisition system and an environment simulator for small missile testing at RTTC. (750) - Continue acquisition of environmental monitors for nuclear effects testing at WSMR. (400) - Continue refurbishment of backbone radar tracking capability (AN/FPS16) at WSMR. (2712) - Continue to modify WSMR range timing to use satellite timing distributed by the Global Positioning System. (1000) - Sustain optical tracking systems and continue to develop software for control of the QF-4 drone at WSMR. (770) - Procure a Remote Area Disassembly Vehicle to locate, examine and dispose of unexploded ordnance for WSMR range safety. (650) - Continue study to use radar to capture high altitude missile performance data at WSMR. (375) - Complete acoustic scoring techniques at Yuma Proving Ground (YPG). (100) - Improve laser scoring at YPG. (300) - Upgrade automotive data acquisition, processing and display capability at YPG. (720) - Upgrade Gun Position 20 data processing and display capability at YPG. (200) - Conduct studies to improve ground and aircraft vibration testing, virtual target capability and support Advanced Field Artillery System testing at YPG. (175) - Upgrade second of three Laser Trackers at YPG. (280) - Upgrade Global Positioning System accuracy and interface capability at YPG. (120) - Establish ammo safety monitoring. (128) - Establish line-of-sight determinations for modeling from aircraft to 24 ground targets at YPG. (240) - Provide management and support costs. (4143)		

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BUDGET ACTIVITY	PE NUMBER AND TITLE		
6 - Management Support	0605602A Army Tech Test Instr & Targets		
FY 1997 Planned Program:			
• Maintain 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. (1823) • 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. (445) • Maintain instrumentation and continue development of methodologies for meteorological support for Army RDT&E. (205) • Complete replacement of medium speed aircraft instrumentation with CAIS compatible recorders at Aviation Technical Test Center (ATTC). (135) • Complete acquisition of Telemetry Front-End Data Processing Equipment at ATTC. (192) • Continue acquisition of Calibration Equipment at ATTC. (90) • Upgrade Software for Data Reduction Systems at ATTC. (100) • Replace Flight Test Measurement transducers, sensors and test equipment at ATTC. (233) • Continue to acquire high-speed, multi-media data handling equipment at Combat Systems Test Activity (CSTA) (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. (1465) • Continue to develop and acquire modeling and simulation software/hardware, develop validated data bases to support vehicle signature and tire performance models and nuclear gamma pulse stimulating equipment at CSTA. (900) • Continue to develop test methodology and requirements/specifications for instrumentation to test and remotely control combat vehicles with advanced embedded computing/electronics systems such as the M1A2, Advanced Field Artillery System (AFAS) and Component Advanced Technology Demonstrator (CAT-D) at CSTA. (1300) • Continue to develop and acquire 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 at CSTA. (397) • Continue replacement of chemical/biological laboratory analysis instrumentation to sustain the Nuclear, Biological, Chemical (NBC) Defense mission at Dugway Proving Ground (DPG). (850) • Continue the integration of the Test Control Center into the Army Tactical Command and Control System (ATCCS). Complete the Ada rewrite at C4I Test Activity of White Sands Missile Range (WSMR). (250) • Continue the procurement of multi-channel, multi-protocol communications boards for high speed Digital Signal Processing (DSP) data for C4I testing at C4I Test Activity of WSMR. (200) • Continue development of theoretical basis, computational algorithms, and a computer program (Interference Model) to evaluate the probability of mutual interference of spread spectrum systems at a particular site within the deployment of similar radios at C4I Test Activity of WSMR. (150) • Procure additional capability for the C3I database server and associated hardware and software to support increased database requirements at C4I Test Activity of WSMR. (275) • Procure and install a larger (60 Ft) turntable at the Antenna Test Facility ARC Range to enable the testing of larger test items like the Blackhawk and Comanche helicopters at C4I Test Activity of WSMR. (1495)			

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PE NUMBER AND TITLE

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0605602A Army Tech Test Instr & Targets

- Procure instrumentation for electromagnetic interference testing at Redstone Technical Test Center (RTTC). (140)
- Initiate development of laser tracking and data acquisition equipment for small missile testing at RTTC. (945)
- Acquire an acoustic vibration chamber for missile dynamics testing at RTTC. (750)
- Continue acquisition of environmental monitors for nuclear effects testing at WSMR. (125)
- Continue refurbishment of backbone radar tracking capability (AN/FPS16) at WSMR. (2347)
- Sustain optical tracking systems at WSMR. (225)
- Continue study to use radar to capture high altitude missile performance data at WSMR. (375)
- Initiate development of a High Power Microwave Test System at WSMR for simulating threat emitters. (495)
- Begin upgrade of the simulation and analysis computer equipment, data analysis equipment and system-under-test equipment at WSMR. (599)
- Upgrade automotive data acquisition, processing and display capabilities at Yuma Proving Ground (YPG). (850)
- Complete Gun Position 20 data processing and display upgrade at YPG. (340)
- Complete studies on ground and aircraft vibration testing, virtual targets at YPG. (255)
- Upgrade last of three Laser Trackers at YPG. (280)
- Upgrade Range Communication Sites at YPG. (1248)
- Continue upgrade of Global Positioning System accuracy capability at YPG. (400)
- Provide management and support costs. (4101)

B. Program Change Summary

Previous President's Budget

Appropriated Value

Adjustments to Appropriated Value

a. SBIR/STTR (-362)

b. Reprogrammed out of PE (-1750)

Current President's Budget Submit

FY 1994

25508

25508

-2112

FY 1995

41895

FY 1996

33275

FY 1997

32182

23396

31545

27600

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605602A Army Tech Test Instr & Targets								D453	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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		0	3784	0	0	0	0	0	0	0	0
C. Other Program Funding Summary:											
		FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl Cont'd	Total Cost Cont'd
PE 0604759A, D984 Major Tech Test Instr		5459	24558	37933	33830	35740	29507	29364	30832		
Tri-service's requirements are coordinated and duplication of effort is precluded through the DoD sponsored Reliance process. There is no unnecessary duplication in the Army or DoD.											
D. Schedule Profile Not Applicable.											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605602A Army Tech Test Instr & Targets								D628	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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	23398	27761	27600	23960	24323	25486	26942	28271	Continuing	0
C. Other Program Funding Summary: Tri-service's requirements are coordinated and duplication of effort is precluded through the DoD sponsored Reliance process. There is no unnecessary duplication in the Army or DoD. This program element is related to: PE 0605601A Army Test Ranges and Facilities D. Schedule Profile: Not Applicable.											

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

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0605604A Survivability/Lethality Analysis

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	31907	37523	34535	33685	33299	33132	32652	35441	Continuing	Continuing
DC10 Aviation System Survivability/Lethality/Vulnerability	3714	4668	0	0	0	0	0	0	0	0
D067 Air Worthiness Qualification Support	2788	0	0	0	0	0	0	0	0	0
D089 Aircraft Certification	0	2994	0	0	0	0	0	0	0	0
D181 Antiradiation Missile Counter-Countermeasures	0	1063	0	0	0	0	0	0	0	0
D190 Integrated Analysis	6144	6802	0	0	0	0	0	0	0	0
D234 Close Combat/Fire Support Survivability Analysis	6562	6838	0	0	0	0	0	0	0	0
D235 Missile Counter-Countermeasure Technology	657	672	0	0	0	0	0	0	0	0
D267 Air Defense/Missile Defense System Vulnerability	6376	8024	0	0	0	0	0	0	0	0
D626 C-4I Survivability	5668	6384	0	0	0	0	0	0	0	0
D670 Emerging Technology Systems	0	0	5570	5512	5447	5440	5246	5878	Continuing	Continuing
D671 Air Defense/Missile Defense Systems	0	0	6537	6476	6423	6630	6551	7015	Continuing	Continuing
D672 Aviation Systems	0	0	4467	3640	3791	3732	3803	3884	Continuing	Continuing
D675 C-4I/EW Systems	0	0	5140	5164	5106	5008	4897	5416	Continuing	Continuing
D677 Ground Combat Systems	0	0	6010	5982	5915	5840	5755	6295	Continuing	Continuing
D678 Munitions Systems	0	0	5982	5985	5794	5678	5580	6116	Continuing	Continuing
D679 Soldier Systems	0	0	829	836	823	804	820	836	Continuing	Continuing

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RT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE	
6 - Management Support		C605604A Survivability/Lethality Analysis	
A. 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), 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 funds in a single PE. 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 1994 Accomplishments: • Through laboratory simulations, computer modeling, and field experiments, conducted EW vulnerability analysis (EWVA) and provided EW support as part of the integrated SLV program for Comanche, Apache Longbow, Chinook helicopters, and Unmanned Aerial Vehicles (UAV). (1078) • Through laboratory simulations, computer modeling, and field experiments, conducted ballistic vulnerability investigations/analysis of Comanche, Apache Longbow, and Special Operations helicopters (MH-60 and MH-47E). (858) • Conducted theoretical investigation of Comanche and Apache Longbow vulnerability to low level out-of-band RF countermeasures. (200) • Characterized optical/electro-optical devices and IR signatures of Comanche, Kiowa Warrior, Apache Longbow, and Chinook helicopters. (200) • Conducted computer modeling and simulation as part of EWVA for Apache Longbow, Comanche, and UAV. (117) • Assessed advanced tracking and target identification algorithms using ARL test bed for helicopter applications. (1261)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		February 1995
6 - Management Support	PE NUMBER AND TITLE	
	0605604A Survivability/Lethality Analysis	
FY 1995 Planned Program:		
- Through laboratory simulations, computer modeling, and field experiments, conduct, EWVA and ballistic vulnerability investigations and analysis, and provide EW support for SLV of Army aviation systems such as Comanche, Apache Longbow, Chinook helicopters, and UAV. (2386) - Expand the survivability/lethality integrated analysis program to address improvements/modifications to all Army aviation systems across all battlefield threats. (626) - Support development and execution of live fire test and evaluation for Army aviation systems including Comanche and Special Operations (MH-60K and MH-47E) helicopters. (416) - Assessment of acoustic technology for use as low cost long range battlefield sensors for exploiting vulnerabilities of helicopters. (1203) - Funds will be reprogrammed for SBIR/STTR Programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992. (35)		
FY 1996 Planned Program: Project restructured to Project D672 within this PE.		
FY 1997 Planned Program: Project restructured to Project D672 within this PE.		
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/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 065606A Aircraft Certification in FY96)		
FY 1994 Accomplishments: Project not funded.		
FY 1995 Planned Program:		
- Manage/execute technical and airworthiness qualification mission for PEO Aviation force modernization aircraft systems. (759) - Manage/execute the Army Aeronautical Design Standards Program. (152) - Update airworthiness standards. (90) - Continue to ensure safety-of-flight investigations/assessments for PEO Aviation force modernization aircraft systems. (607) - Provide continuing engineering support for emerging technology upgrades to PEO Aviation force modernization aircraft systems. (920) - Continue to provide test management capability for PEO Aviation program/project/product managers. (403) - Funds will be reprogrammed for SBIR/STTR Programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992. (63)		
FY 1996 Planned Program: Project funded under PE 06506A Aircraft Certification in FY96.		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE		
6 - Management Support	0605604A Survivability/Lethality Analysis		
FY 1997 Planned Program: Project funded under PE 06506A Aircraft Certification starting in FY96.			
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 1994 Accomplishments: Program not funded.			
FY 1995 Planned Program:			
• Conduct/coordinate EWVA of ARM threats to U.S. and Allied systems in support of the Army ARM Counter-Warfare Program. (152) • Provide simulation support to ARM-CCM projects. (299) • Provide survivability analysis of proposed and fielded ARM countermeasures. (292) • Develop hardware, tools, techniques, and methodologies to support ARM-CCM. (298) • Funds will be reprogrammed for SBIR/STTR Programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992. (22)			
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.			
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/E) systems. This project also supports investigations of new technologies/methodologies required for SLV analyses.			
FY 1994 Accomplishments:			
• Managed the U.S. Army survivability/lethality integrated analysis programs (Air Defense, Aviation Systems, C4I/IEW, Ground Systems, Munitions, and Integrated Soldier System) and participated in the ARL FOCUS programs, Battle Labs and ATD initiatives, and special projects for ARL, AMC, and HQDA. (1855) • Through laboratory simulations, computer modeling, and field experiments, conducted electronic warfare and ballistic survivability/vulnerability analysis of U.S. Army munitions systems that are in development, production, or undergoing product improvements. Examples of systems under investigation to support decision milestones are Javelin, Hellfire Longbow, and Wide Area Mine (WAM). (2496)			

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BUDGET ACTIVITY	PE NUMBER AND TITLE	
6 - Management Support	0605604A Survivability/Lethality Analysis	
- Exploited state-of-the-art computer science and graphics techniques to improve geometry processing and display of materiel systems for ballistics lethality analysis. (661) - Established a computer virus laboratory and analyzed security models in operating systems and the effects of malicious electronic attack on imbedded processors. (302) - Developed computer control codes, digital simulation models, and methods to increase power spectral density waveforms for EWVA programs. (591) - Conducted integrated survivability analysis in support of The Enhanced Integrated Soldier System (TEISS). (239)		
FY 1995 Planned Program:		
- Manage the U.S. Army survivability/lethality integrated analysis programs (Air Defense, Aviation Systems, C4I/EW, Ground Systems, Munitions, and Integrated Soldier System) for 38 systems under development or in improvement cycles and participate in the ARL FOCUS programs, Battle Labs and ATD initiatives, and special projects for ARL, AMC, and HQDA. (1970) - Through laboratory simulations, computer modeling, and field experiments, conduct, electronic warfare and ballistic survivability/lethality analysis process for U.S. Army smart munitions including Javelin, Hellfire Longbow, and WAM. (3228) - Investigate the effects of new/advanced threat technology on systems in the integrated analysis area. (1585) - Funds will be reprogrammed for SBIR/STTR Programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992. (19)		
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.		
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 1994 Accomplishments:		
- Through laboratory simulations, computer modeling, and field experiments, conducted ballistic survivability/lethality investigations/analysis of U.S. Army ground systems including the AFAS/FARV, AGS, Breacher, Bradley Fighting Vehicle System (BFVS), M1 Abrams Main Battle Tank, and M109 Howitzer systems. (1655) - Performed in depth comparison of the predictions of the Stochastic Quantitative Analysis of System Hierarchies (SQuASH) probabilistic computer models for armored vehicles with the results of the live fire test and evaluations (LFT&E) programs. (1137) - Conducted EWVA of the U.S. Army ground systems including AFAS/FARV and Breacher. (1426) - Conducted EWVA investigations on SADARM, STAFF, M829A2, BAT, LOSAT, TOW ITAS, and ATACMS (APAM) munitions. (1391) - Provided signature measurements and computer modeling and simulation for EWVA of U.S. Army ground systems and smart munitions. (953)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	
6 - Management Support	0605604A Survivability/Lethality Analysis	February 1995
FY 1993 Planned Program: - Through laboratory simulations, computer modeling, and field experiments, conduct, 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. (3292) - Conduct EWVA investigations on SADARM, STAFF, M829A2, BAT, LOSAT, TOW ITAS, and ATACMS (APAM) munitions. (1510) - Provide signature measurements and computer modeling and simulation for integrated survivability/lethality analyses of U.S. Army ground systems and smart munitions. (2067) - Funds will be reprogrammed for SBIR/STTR Programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992. (69) 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. Project D235 - Missile Counter-Measure Technology: Supports Program Management Offices by development of CM/CCM hardening techniques that missile systems use against laser, 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 1994 Accomplishments: - Continued development of surface current dissipation coatings and selective surfaces patterning techniques for CCM applications. (198) - Began testing and analysis of surface current dissipation coatings for hardening of missile systems. (198) - Tested and analyzed missile systems and subcomponents for Radar Cross Section (RCS), Unintentional Radiated Emissions (URE), Special Electromagnetic Interference (SEMI) effects, and High Power Microwaves (HPM) in the context of weapon systems hardening. (100) - Improved upon existing thin film materials for Army missile systems hardening. (50) - Assessed missile system CM/CCM requirements for current/future system threats and conducted missile performance studies and analysis in an EW environment. (61) - Developed one-on-one simulation for analysis of missile systems against known and projected threats. (50) FY 1995 Planned Program: - Continue to improve/upgrade hardening techniques, investigate, and develop new technology advanced CCM application. (175) - Continue 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. (308) - Verify and validate the one-on-one simulation with measured data to determine the region of validity. (177) - Funds will be reprogrammed for SBIR/STTR Programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992. (12)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE	
6 - Management Support	0605604A Survivability/Lethality Analysis	
FY 1996 Planned Program: Project not funded.		
FY 1997 Planned Program: Project not funded.		
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 1994 Accomplishments: - Through laboratory simulations, computer modeling, and field experiments, conducted EWVA of U.S. Army air defense systems including PATRIOT, Stinger-RMP, Avenger, Corps SAM, HAWK, Ground Based Sensor (GBS), and Multi-Role Survivable Radar (MRSR). (2413) - Conducted EWVA of U.S. Army missile defense systems including the Theater High Altitude Area Defense (THAAD) system, the Extended Range Interceptor (ERINT), and the Ground Based Radar (GBR). (1263) - Conducted ballistic susceptibility/vulnerability/lethality analysis of U.S. Army air defense/missile defense systems. (638) - Determined the physical relation and functional capabilities of aerospace systems with degraded states due to ballistic damage. (1054) - Provided EWVA modeling and simulation support, both hardware-in-the-loop and digital simulations, for U.S. Army air defense/missile defense systems. (1008)		
FY 1995 Planned Program: - Conduct EWVA of U.S. Army air defense systems including PATRIOT, Stinger-RMP, Avenger, Corps SAM, HAWK, GBS, and MRSR. (2979) - Conduct EWVA of U.S. Army missile defense systems including THAAD, ERINT, and GBR. (1559) - Conduct ballistic susceptibility/vulnerability/lethality analyses of U.S. Army air defense/missile defense systems. (808) - Provide EWVA and ballistic modeling and simulation support for survivability/vulnerability/lethality analysis of U.S. Army air defense/missile defense systems. (2030) - Develop necessary SLV analyses, methodologies, capabilities and techniques to ensure soldier survivability. (557) - Funds will be reprogrammed for SBIR/STTR Programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992. (91)		
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.		
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		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
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6 - Management Support	0605604A Survivability/Lethality Analysis	
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 1994 Accomplishments: - Conducted integrated survivability/lethality analysis for ATCCS and all of its functional area systems. (1342) - Through laboratory simulations, computer modeling, and field experiments, performed EWVA and ballistics SLA on Army communications systems including SCAMP, SMART-T, MSE, and SINGARS. (1338) - Through laboratory simulations, computer modeling, and field experiments, performed EWVA and ballistics SLA on Army Intelligence Electronic Warfare (IEW) systems including JSTARS and Battlefield Combat Identification System (BCIS). (1062) - Enhanced techniques for and provided Special Electromagnetic Interference (SEMI) analysis of Army C4I systems. (597) - Enhanced capabilities to measure target signatures and performed EWVA of systems to RF countermeasures. (1327) FY 1995 Planned Program: - Conduct integrated survivability/lethality analysis for the Army Battlefield Command System (ABCS) and all of its functional area systems and their improvements. (2312) - Perform EWVA and ballistics SLA on Army communications systems and their improvements. (2201) - Through laboratory simulations, computer modeling, and field experiments, perform EWVA and ballistics SLA on Army IEW systems such as BCIS, JSTARS, and enhanced Firefinder. (1792) - Funds will be reprogrammed for SBIR/STTR Programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992. (59) 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. 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 leaders 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		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
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6 - Management Support		0605604A Survivability/Lethality Analysis
Technology Demonstration initiatives include Active Protection Systems (APS), Missile Countermeasure Devices (MCD) and Advanced Laser Protection Program (ALPP), ARM Counter-Arm efforts assess threat technologies against Theater Missile Defense (TMD), PATRIOT, JSTARS, Corps SAM, and FAAD-C21 ground based sensors.		
FY 1994 Accomplishments: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996. FY 1995 Planned Program: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996. FY 1996 Planned Program: • 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 ALPP. (2861) • 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 support 2ND FLIR, BCIS, GPS, APS, and EPLRS. (1500) • 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 ALPP. (1209) FY 1997 Planned Program: • 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. (2762) • Conduct ballistic effects investigations, develop system description models, perform damage simulations, and collect experimental data to support integrated survivability and lethality analysis reports. (1525) • 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. (1225) 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. Also funds salaries, travel, equipment/facilities, and management/administrative support needed to execute the program.		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE		
6 - Management Support	0605604A Survivability/Lethality Analysis		
FY 1994 Accomplishments: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996.			
FY 1995 Planned Program: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996.			
FY 1996 Planned Program:			
- 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, Corps SAM, Stinger-RMP, Avenger, GBS, TMD-GBR, MRSR, THAAD, and ERINT. (4076) - Conduct the ballistic survivability/lethality analysis for U.S. Army air defense and missile defense systems. (971) - Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army air defense and missile defense systems. (1215) - Provide integrated survivability/lethality analyses to support scheduled air defense/missile defense program decision milestones in FY96. (275)			
FY 1997 Planned Program:			
- 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, Corps SAM, Stinger-RMP, Avenger, GBS, TMD-GBR, MRSR, THAAD, and ERINT. (3962) - Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army air defense and missile defense systems. (1241) - Conduct the ballistic survivability/lethality analysis for U.S. Army air defense and missile defense systems. (992) - Provide integrated survivability/lethality analyses to support scheduled air defense/missile defense program decision milestones in FY97. (281)			
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 milestones 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 1994 Accomplishments: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996.			
FY 1995 Planned Program: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996.			
FY 1996 Planned Program:			
- 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, Short-Range Unmanned Aerial Vehicle, OH-58D Kiowa Warrior, CH-47D Chinook, and UH-60Q Ambulance. (2549) - Conduct the ballistic survivability/lethality analysis for U.S. Army aviation systems. (1077) - Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army aviation systems. (636)			

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

DATE **February 1995**

BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0605604A Survivability/Lethality Analysis

- Provide integrated survivability/lethality analyses to support scheduled aviation systems program decision milestones in FY96. (205)

FY 1997 Planned Program:

- 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, Short-Range Unmanned Aerial Vehicle, RAH-66 Comanche, CH-47D Chinook, and UH-60Q Ambulance. (2183)
- Conduct the ballistic survivability/lethality analysis for U.S. Army aviation systems. (795)
- Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army aviation systems. (651)
- Provide integrated survivability/lethality analyses to support scheduled aviation systems program decision milestones in FY97. (211)

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.

FY 1994 Accomplishments: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996.

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

FY 1996 Planned Program:

- 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. (2204)
- 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. (1674)
- 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. (1052)
- Provide integrated survivability/lethality analyses to support scheduled C4I/IEW systems program decision milestones in FY96. (210)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		February 1995
PE NUMBER AND TITLE		
6 - Management Support		0605604A Survivability/Lethality Analysis
FY 1997 Planned Program:		
- 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. (2130) - Conduct integrated electronic, ballistic, and chemical/biological/nuclear/atmospheric effects survivability analysis for U.S. Army communications systems such as SINGARS, 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. (1730) - 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. (1087) - Provide integrated survivability/lethality analyses to support scheduled C4I/IEW systems program decision milestones in FY97. (217)		
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 1994 Accomplishments: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996.		
FY 1995 Planned Program: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996.		
FY 1996 Planned Program:		
- 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), Armored Gun System (AGS), AFAS/FARV, ABRAMS M1A2, Breacher, and Heavy Assault Bridge. (1852) - Conduct the ballistic survivability/lethality analysis for U.S. Army ground combat systems. (2517) - Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army ground combat systems. (1399) - Provide integrated survivability/lethality analyses to support scheduled ground combat systems program decision milestones in FY96. (242)		
FY 1997 Planned Program:		
- Conduct the electronic warfare vulnerability assessment for U.S. Army ground combat systems such as AFAS/FARV, Armored Gun System, Bradley A3, Command and Control Vehicle, ABRAMS M1A2, Breacher, and Heavy Assault Bridge. (1936) - Conduct the ballistic survivability/lethality analysis for U.S. Army ground combat systems. (2358) - Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army ground combat systems. (1439) - Provide integrated survivability/lethality analyses to support scheduled ground combat systems program decision milestones in FY97. (249)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	
6 - Management Support	0605604A Survivability/Lethality Analysis	February 1995
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 1994 Accomplishments: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996.		
FY 1995 Planned Program: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996.		
FY 1996 Planned Program: - Conduct the electronic warfare vulnerability assessment for U.S. Army munitions systems such as the Hellfire Longbow Missile, BAT/BAT P31, Wide Area Mine, STAFF, and Javelin. (4263) - Conduct the ballistic survivability/lethality analysis for U.S. Army munitions systems. (729) - Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army munitions systems. (785) - Provide integrated survivability/lethality analyses to support scheduled munitions systems program decision milestones in FY96. (205)		
FY 1997 Planned Program: - Conduct the electronic warfare vulnerability assessment for U.S. Army munitions systems such as BAT/BAT P31, Hellfire Longbow Missile, STAFF, Wide Area Mine, and Javelin. (4136) - Conduct the ballistic survivability/lethality analysis for U.S. Army munitions systems. (742) - Conduct the chemical, biological, nuclear, and atmospheric effects survivability analysis for U.S. Army munitions systems. (799) - Provide integrated survivability/lethality analyses to support scheduled munitions systems program decision milestones in FY97. (208)		
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 detectability 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 1994 Accomplishments: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996.		
FY 1995 Planned Program: Work in this area performed in other projects in this PE. Restructured to this project in FY 1996.		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	
6 - Management Support	0605604A Survivability/Lethality Analysis	February 1995
FY 1996 Planned Program:		
• 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. (\$87)		
• Coordinate preparation and direct execution of MANPRINT Soldier Survivability Assessments and Reports. (121)		
• Provide integrated survivability/lethality analyses to support scheduled soldier systems program decision milestones in FY96. (121)		
FY 1997 Planned Program:		
• 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. (592)		
• Coordinate preparation and direct execution of MANPRINT Soldier Survivability Assessments and Reports. (122)		
• Provide integrated survivability/lethality analyses to support scheduled soldier systems program decision milestones in FY97. (122)		
B. Program Change Summary		
Previous President's Budget	FY 1994	FY 1995
Appropriated Value	32995	37757
Adjustments to Appropriated Value	32995	37523
a. SBIR/STTR decrement	(250)	
b. Reprogramming	(838)	
Current President's Budget	31907	37523
		34535
		33695

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605605A DOD High Energy Laser System Test Facility								DE97	
COST (in Thousands)		FY 1994 Actual	FY 1995 Estimate	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)		24471	24474	3000	0	0	0	0	0	9300	TBD

A. Mission Description and Budget Item Justification: 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 in FY96. The Army will maintain the HEL system infrastructure. Funding for the remaining mission will be transitioned to the institutional Program Element 0605601, Army Test Ranges/Facilities in FY96. Test ranges support operations are required for general research and development; therefore, this PE is appropriate for inclusion in Budget Activity 6.

FY 1994 Accomplishments:

- Performed required operation and maintenance activities (4471)
- Provided support to HEL Testing to include Navy/United Kingdom (UK) Point Defense Demonstration (PDD), the Air Force Airborne Laser (ABL) Program, Storm TAD target tracking tests, explosive testing of Large Blast Thermal Simulator Components, plus other tests involving the MIRACL and the other HELSTF facilities (20000)

FY 1995 Planned Program:

- Perform required site operations and maintenance activities (3961)
- Provide Support to HEL testing to include follow on to Navy/UK PDD, the Air Force ABL Program plus other smaller experiments (17500)
- Support Nautilus Program (2500)
- SBIR/STTR (513)

FY 1996 Planned Program:

- Provide funding to perform required site operations and maintenance activities to maintain HEL system infrastructure and terminate MIRACL (3000)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1985
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
6 - Management Support	0605605A DOD High Energy Laser System Test Facility	DE97	

	FY 1994	FY 1995	FY 1996	FY 1997
B. Program Change Summary				
Previous President's Budget	0	0	0	0
Appropriated Value (Congressional Plus-up)	24471	24474		
Adjustments to Appropriated Value				
Current President's Budget	24471	24474	3000	0
C. Other Program Funding Summary: Not Applicable				
D. Schedule Profile: Not Applicable				

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

DATE February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

6 - Management Support

0605606A Aircraft Certification

D092

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	0	2976	2984	2994	3007	3080	3130	Continuing	Continuing

A. Mission Description and Budget Item Justification: The objectives of this program are to: (1) provide for the airworthiness qualification of assigned Army aircraft systems and subsystems, LAW AR 70-62; (2) manage and execute the Army's Aeronautical Design Standards Program which establishes the criteria used in the airworthiness qualification of assigned aircraft systems; provide the airworthiness release, interim statement of airworthiness qualification, statement of airworthiness qualification, or airworthiness approval, as appropriate, for assigned aircraft systems, and (3) provide for new vendor qualification and testing for fielded aircraft systems and materiel changes.

Project D092 - Aircraft Certification: 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/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. The FY95 aircraft certification effort was performed in PE 0605604A Project D089. Since these activities are not allocable to specific R&D missions, this project is appropriately funded in Budget Activity 6.

FY 1994 Accomplishments: Project not funded.

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

FY 1996 Planned Program:

- Manage/execute technical and airworthiness qualification mission for PEO Aviation force modernization aircraft systems (748)
- Continue to ensure safety-of-flight investigations/assessments to include PEO Aviation force modernization aircraft systems (598)
- Manage/execute the Army Aeronautical Design Standards Program (150)
- Provide continuing engineering support for emerging technology upgrades to PEO Aviation force modernization aircraft systems (1032)
- Continue to provide test management capability for PEO Aviation program/project/product managers (448)

FY 1997 Planned Program:

- Manage/execute technical and airworthiness qualification mission for PEO Aviation force modernization aircraft systems (690)
- Continue to ensure safety-of-flight investigations/assessments to include PEO Aviation force modernization aircraft systems (540)

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Exhibit R-2

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
6 - Management Support	0605606A Aircraft Certification	D092	
• Manage/execute the Army Aeronautical Design Standards Program (149) • Provide continuing engineering support for emerging technology upgrades to PEO Aviation force modernization aircraft systems (1215) • Continue to provide test management capability for PEO Aviation program/project/product managers (390)			
B. Program Change Summary			
Previous President's Budget*		FY 1994	FY 1997
Appropriated Value		0	2999
Adjustments to Appropriated Value			
Current Budget Submit/President's Budget		0	2976
			2984
*Note: Aircraft Certification was funded in PE 0605046A, Project D089 in Previous President's Budget.			
C. Other Program Funding Summary: This program is an Army unique mission responsibility assigned to the AVRDEC, US Army Aviation and Troop Command. There is no unnecessary duplication of effort within the Army or DoD. There are no related programs.			
D. Schedule Profile: Not applicable			

Exhibit R-2

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1995	
BUDGET ACTIVITY		PE NUMBER AND TITLE									
6 - Management Support		0605702A Meteorological Support to RDT&E Activities									
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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		17552	12379	6660	6486	6423	6644	6627	6792	Continuing	Continuing
D127	Meteorological Support to ARL Activities	9299	4489	0	0	0	0	0	0	0	0
D128	Meteorological Support to TECOM Activities	8253	7890	6660	6486	6423	6644	6627	6792	Continuing	Continuing

A. 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 (PEOs), Project Managers (PMs) and Army test ranges. Develops methodologies and acquires instrumentation/systems that allow meteorological teams to support Army/DoD RDTE requirements. 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

Project D127 - Meteorological Support to Army Research Laboratory Activities (ARL): Provides atmospheric information critical in tests of high priority Army weapons and materiel to quantify the effects of the atmosphere on test articles and to assist in the analysis of required modifications to weapons and materiel. Provides automated surface and upper air meteorological data acquisition systems to support Army RDT&E activities. Effective FY96, this effort is funded in PE 0605604A, Survivability/Lethality Analysis.

FY 1994 Accomplishments:

- Developed technique to remotely measure turbulence and its effects on Army acoustic systems. (841)
- Developed technology to convert real 2-D obscurant cloud scenes into 3-D time varying scenes based on measured atmospheric diffusion parameters, and continued development of instrumentation and data reduction techniques. (2189)
- Provided atmospheric transport and diffusion model with variable meteorology to Space Strategic Defense Command and Defense Nuclear Agency, and conduct atmospheric susceptibility tests of Army smart sensors for Program Managers and RDE Centers. (1016)
- Defined high speed variability of turbulent effects using the Atmospheric Profiling Research Facility. (1107)
- Applied configuration management procedures in developing, testing, and documenting battlefield weather intelligence software for transition to the Integrated Meteorological System Block 2. (837)
- Provided atmospheric measurements for Smart Weapons Operations Enhancement (SWOE) field trials, and initiated measurements of atmospheric diffusion coefficients above the Planetary Boundary Layer (2054)
- Validated the color contrast transmission model in support of Army target acquisition program. (724)
- Provided near real-time rocket plume signature characterization with the mobile atmospheric spectrometer system in support of air defense programs. (531)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE	
6 - Management Support	0605702A Meteorological Support to RDT&E Activities	
FY 1995 Planned Program: - Assess and validate acoustic propagation model for determining atmospheric effects on long range acoustic propagation. (406) - Complete operational smoke cloud tomography technique, enhance data collection and analysis techniques, and provide field test support. (1110) - Characterize diurnal evolution of planetary boundary layer with application to acoustic and electromagnetic propagation and aerosol transport. (586) - Develop interoperability of battlefield weather intelligence software with Army Tactical Command and Control Systems, Louisiana Maneuvers, and TRADOC Battle Labs. (406) - Relate measurements of atmospheric diffusion coefficients above the Planetary Boundary Layer to laboratory quality upper atmospheric soundings, for missile intercept studies. (904) - Complete validation and model acceptance for time variable transport and diffusion model. (496) - Assess techniques to exploit spectral and spatial contrast divergence for long range target acquisition. (406) - Develop a portable high resolution spectroscopic system for characterization of chemical agents, obscurants, and rocket plumes. (135) - Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) (40) FY 1996 Planned Program: Project restructured to PE 0605604A, Survivability/Lethality Analysis. FY 1997 Planned Program: Project restructured to PE 0605604A, Survivability/Lethality Analysis.		
D128 Meteorological Support to Test and Evaluation Command (TECOM) Activities: 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 (PEOs), Project Managers (PMs) and the Army test ranges. Develops methodologies and acquires instrumentation/systems that allow meteorological teams to support Army/DoD RDTE requirements.		
FY 1994 Accomplishments: - Provided weather forecasts, severe weather warnings/advisories, staff meteorological services, and atmospheric measurements in support of Army/DoD tests and projects at 12 Army test sites/ranges. (6293) - Modernized operational equipment to meet customer requirements for meteorological support. (1510) - Upgraded selected upper air systems with LORAN-C, in order to improve low level resolution. - Upgraded Surface Automated Meteorological System (SAMS) sensors and evaluated improved software systems. - Evaluated Mobile Operational Meteorological Support System (MOMSS). - Fielded three Small Portable Transmitters.		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		February 1995
6 - Management Support		
PE NUMBER AND TITLE		
0605702A Meteorological Support to RDT&E Activities		
• Provided program management for meteorological support to RDTE and technical review/assistance to range and meteorological teams: (450) - Evaluated prototype GPS upper air system for spatial/temporal resolution improvements. - Evaluated follow-on management systems for analysis and forecast/warning support to test sites and ranges.		
FY 1995 Planned Program: • Provide weather forecasts, severe weather warnings/advisories, staff meteorological services, and atmospheric measurements in support of Army/DoD tests and projects at 12 Army test sites/ranges. (6265) • Modernize operational equipment to meet customer requirements for meteorological support. (1125) - Upgrade Surface Automated Meteorological Systems (SAMS). - Field Mobile Operational Meteorological Support (MOMSS) at selected ranges. - Test operational GPS upper air system at several ranges. • Provide program management for meteorological support to RDTE and technical review/assistance to ranges and meteorological teams. (450) - Evaluate the Joint DoD/National Weather Service Program "Next Generation Doppler Weather Radar" (NEXRAD) remote display system at WSMR, for possible use at several ranges. - Evaluate the prototype Automated Weather Information System, of the National Weather Service, as a possible replacement for the current data services from Zepher Corporation system at all ranges. • SBIR/STTR (50)		
FY 1996 Planned Program: • Provide weather forecasts, severe weather warnings/advisories, staff meteorological services, and atmospheric measurements in support of Army/DoD tests and projects at 12 Army test sites/ranges. (5555) • Modernize operational equipment to meet customer requirements for meteorological support. (655) - Phase III (last) upgrade surface automated meteorological system. - Electro optical Instrumentation. - Sustainment of mobile systems. • Provide program management for meteorological support to RDTE and technical review/assistance to ranges and meteorological teams. (450) - Weather forecast support systems/data. - Install 3 National Weather Service "Next Generation Doppler Weather Radar" (NEXRAD) principal user processors.		
FY 1997 Planned Program: • Provide weather forecasts, severe weather warnings/advisories, staff meteorological services, and atmospheric measurements in support of Army/DoD tests and projects at 11 Army test sites/ranges. (5555)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE																																			
BUDGET ACTIVITY		February 1995																																			
PE NUMBER AND TITLE																																					
0605702A Meteorological Support to RDT&E																																					
Activities																																					
• Modernize operational equipment to meet customer requirements for meteorological support. (481) - Surface meteorological/atmospheric characterization instrumentation. - Upgrade expansion of upper air systems. - Electro optical instrumentation. - Sustainment of 11 mobile systems. • Provide program management for meteorological support to RDT&E and technical review/assistance to ranges and meteorological teams. (450) - Weather forecast support systems/data. - Evaluate 1997 National Weather Service, Automated Weather Information System for forecasting at all locations.																																					
B. Program Change Summary <table border="0"> <thead> <tr> <th></th> <th>FY 1994</th> <th>FY 1995</th> <th>FY 1996</th> <th>FY 1997</th> </tr> </thead> <tbody> <tr> <td>Previous President's Budget</td> <td>17947</td> <td>12434</td> <td>7065</td> <td>6915</td> </tr> <tr> <td>Appropriated Value</td> <td>17947</td> <td>12379</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value (Total PE)</td> <td>-395</td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. SBIR/STTR decrement (-145)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. Reprogrammed out of PE (-250)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Current President's Budget Submit</td> <td>17552</td> <td>12379</td> <td>6660</td> <td>6486</td> </tr> </tbody> </table>				FY 1994	FY 1995	FY 1996	FY 1997	Previous President's Budget	17947	12434	7065	6915	Appropriated Value	17947	12379			Adjustments to Appropriated Value (Total PE)	-395				a. SBIR/STTR decrement (-145)					b. Reprogrammed out of PE (-250)					Current President's Budget Submit	17552	12379	6660	6486
	FY 1994	FY 1995	FY 1996	FY 1997																																	
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605702A Meteorological Support to RDT&E Activities								D127	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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	9299	4489	0	0	0	0	0	0	0	0
<u>C. Other Program Funding Summary:</u> Not Applicable. <u>D. Schedule Profile:</u> Not Applicable.											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605702A Meteorological Support to RDT&E Activities								D128	
COST (in Thousands)		FY 1994 Actual	FY 1995 Estimate	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	8253	7880	6860	6496	6423	6644	6627	6792	Continuing	Continuing
C. Other Program Funding Summary: Not Applicable.											
D. Schedule Profile: Not Applicable.											

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

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BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0605706A Materiel Systems Analysis

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	18376	18971	17864	14434	14291	14464	14041	14431	Continuing	Continuing
D026 Test Design and Evaluation	6313	6027	5399	4280	4170	4364	4463	4577	Continuing	Continuing
M541 Materiel Systems Analysis	13063	12944	12465	10174	10121	10100	9588	9854	Continuing	Continuing

A. 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 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 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.

Project D026 - Test Design and Evaluation: This project provides for 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. 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.

FY 1994 Accomplishments:

- Provided test design and evaluation support for 85 systems that are either in development, undergoing major materiel change programs or have been 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. Systems evaluations supported 28 program milestone decision reviews during FY 1994. Examples of evaluations in support of AAE decisions include: PAC 3, Advanced Field Enhanced Position Location and Reporting System and Family of Medium Tactical Vehicles. (4101)

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BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0605706A Materiel Systems Analysis

- Developed test design and evaluation plans for developmental tests to be conducted in FY 1995 through FY 1999. This effort included test design and evaluation planning for seven systems projected to undergo live fire testing in FY 1995. (2212)

FY 1995 Planned Program:

- Provide test design and evaluation support for 76 systems that are either in development, undergoing major materiel change programs, or have been 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 will support 17 projected 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. Evaluate the results of seven live fire tests. (3827)
- Develop test design and evaluation plans for developmental tests to be conducted FY 1996 - FY 2000. This effort includes test design and evaluation planning for systems to undergo live fire testing in FY96-97. (2079)
- Small Business Innovation Research (SBR)/Small Business Technology Transfer (STTR). (121)

FY 1996 Planned Program:

- 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 FY96. (3537)
- Develop test design and evaluation plans for developmental tests to be conducted in FY97 through FY01. This effort includes test design and evaluation planning for systems projected to undergo live fire testing in FY97-98. (1862)

FY 1997 Planned Program:

- 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 FY97. (2791)
- Develop test design and evaluation plans for developmental tests to be conducted in FY98 through FY02. This effort includes test design and evaluation planning for systems projected to undergo live fire testing in FY98-99. (1469)

Project MS41 - Materiel Systems Analysis: This project 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

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE	
6 - Management Support		0605706A Materiel Systems Analysis	
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 1994 Accomplishments: - Developed and certified system performance data for U.S. and foreign systems to support 46 Army Cost and Operational Effectiveness Analyses (COEAs), force structure studies and theater level studies. Included in this was the requirement to support 16 major COEAs. Examples of COEAs supported include: Joint Unmanned Aerial Vehicle-Close Range, Advanced Field Artillery System, Future Armored Resupply Vehicle, Maneuver Control System, Forward Area Air Defense Command, Control and Intelligence and the Combat Service Support Control System. (668) - Provided analysis 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 technical risk, trade-off and requirements and analyses. Provided analytical support for 162 systems/programs. (10762) - Developed methodologies to characterize the performance and combat effectiveness of conceptual, developmental, and fielded systems in a variety of scenarios and conditions for support of force-on-force analyses and war games. Lead development of standards for algorithms portraying physical representation of systems in Distributed Interactive Simulations to support the Training and Doctrine Command (TRADOC) Analysis Center in this HQDA directed effort. (1633) FY 1995 Planned Program: - Develop and certify system performance data for U.S. and foreign systems to support Army 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. (608) - 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. (10731) - 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. (1605) FY 1996 Planned Program: - 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. (585) - 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 milestones acquisition decisions. (10335) - 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. 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. (1545)			

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BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0605706A Materiel Systems Analysis

FY 1997 Planned Program:

- 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. (478)
- 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. (8435)
- 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. 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. (1261)

B. Program Change Summary

Previous President's Budget
Appropriated Value
Adjustments to Appropriated Value
a. SBIR/STTR decrement (-99)
Current President's Budget

<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>
19475	19011	17577	17227
19475	18971		
-99			
19376	18971	17864	14434

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BUDGET ACTIVITY

BUDGET ACTIVITY

PE NUMBER AND TITLE

0605706A Materiel Systems Analysis

PROJECT

D028

COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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	6313	6027	5369	4280	4170	4364	4453	4577	Continuing	Continuing

C. <u>Other Program Funding Summary:</u>		Not Applicable.

D. Schedule Profile: Not Applicable.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605706A Materiel Systems Analysis								M541	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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	13083	12844	12465	10174	10121	10100	9588	9654	Continuing	Continuing
C. Other Program Funding Summary: Not Applicable. D. Schedule Profile: Not Applicable.											

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BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0605709A Exploitation Of Foreign Items

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	18471	11867	8869	7541	7497	7416	12651	11911	Continuing	Continuing
DC28 Acquisition/Exploitation of Threat Items	14494	8011	5376	4151	4088	4010	9190	9175	Continuing	Continuing
D650 Exploitation of Foreign Items	3977	3856	3493	3390	3429	3408	3461	2736	Continuing	Continuing

A. 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 countermeasures 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.

Project DC28 - Acquisition/Exploitation of Threat Items: This is a continuing project for acquisition and exploitation of foreign materiel constituting potential advanced technology threats to U.S. systems. The primary aim of this project is to maximize the efficiency of research and development for force and materiel development by reducing the uncertainties concerning these threats. The project also answers general scientific and technical intelligence requirements, aids in the development of countermeasures to threat materiel and threat technology, and provides materiel for realistic testing and training. Acquisitions and exploitations are executed according to an Army Foreign Materiel Program Five Year Plan, which is updated annually. The Five Year Plan can be amended at any time during the execution year on the advice of the Army Foreign Materiel Review Board (AFMRB) and with the approval of the Army Deputy Chief of Staff for Intelligence (DCSINT).

FY 1994 Accomplishments:

- Acquired threat systems identified and prioritized in the FY94 Army Foreign Materiel Program Five Year Plan (2800)
- Initiated, continued, or completed exploitation projects on ground systems of Army interest identified in the FY94 Army Foreign Materiel Exploitation Plan (8442)
- Initiated, continued, or completed exploitation projects on missile systems of Army interest identified in the FY94 Army Foreign Materiel Exploitation Plan (3252)

FY 1995 Planned Program:

- Acquire threat systems identified and prioritized in the FY95 Army Foreign Materiel Program Five Year Plan. (2000)
- Initiate, continue, or complete exploitation projects on ground systems of Army interest identified in the FY95 Army Foreign Materiel Exploitation Plan. (3856)
- Initiate, continue, or complete exploitation projects on missile systems of Army interest identified in the FY95 Army Foreign Materiel Exploitation Plan. (1987)
- SBIR/STTR (168)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		February 1995
6 - Management Support		
PE NUMBER AND TITLE		
0605709A Exploitation Of Foreign Items		
FY 1996 Planned Program: - Acquire threat systems identified and prioritized in the FY96 Army Foreign Materiel Program Five Year Plan. (1000) - Initiate, continue, or complete exploitation projects on ground systems of Army interest identified in the FY96 Army Foreign Materiel Exploitation Plan. (3000) - Initiate, continue, or complete exploitation projects on missile systems of Army interest identified in the FY96 Army Foreign Materiel Exploitation Plan. (1376) FY 1997 Planned Program: - Acquire threat systems identified and prioritized in the FY97 Army Foreign Materiel Program Five Year Plan. (800) - Initiate, continue, or complete exploitation projects on ground systems of Army interest identified in the FY97 Army Foreign Materiel Exploitation Plan. (2300) - Initiate, continue, or complete exploitation projects on missile systems of Army interest identified in the FY97 Army Foreign Materiel Exploitation Plan. (1051) FY 1998 Planned Program: - Acquire threat systems identified and prioritized in the FY98 Army Foreign Materiel Program Five Year Plan. (800) - Initiate, continue, or complete exploitation projects on ground systems of Army interest identified in the FY98 Army Foreign Materiel Exploitation Plan (2250) - Initiate, continue, or complete exploitation projects on missile systems of Army interest identified in the FY98 Army Foreign Materiel Exploitation Plan (1018) 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 1994 Accomplishments: - Continued on-going project evaluations and exploitations identified prior to FY94. (1320) - Initiated new start FY94 Acquisitions of 30 projects. (1606) - Initiated new start FY94 evaluations and exploitations of foreign materiel and/or technologies. (1051) FY 1995 Planned Program: - Continue on-going project evaluations and exploitations identified prior to FY95. (1100) - Plan new start FY95 acquisitions of 30 projects. (1750) - Plan new start FY95 evaluations and exploitations of foreign materiel and/or technologies. (928) - SBIR/STTR (78) FY 1996 Planned Program: - Continue on-going project evaluations and exploitations identified prior to FY96. (1300) - Plan new start FY96 acquisitions of 25 projects. (1300)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		February 1995
6 - Management Support		PE NUMBER AND TITLE
Plan new start FY96 evaluations and exploitations of foreign materiel and/or technologies. (893)		0605709A Exploitation Of Foreign Items
FY 1997 Planned Program: - Continue on-going project evaluations and exploitations identified prior to FY97. (1359) - Plan new start FY97 acquisitions of 23 projects. (1200) - Plan new start FY97 evaluations and exploitations of foreign materiel and/or technologies. (831)		
FY98 Planned Program: - Continue on-going project evaluations and exploitations identified prior to FY98. (1300) - Plan new start FY98 Acquisitions of 24 projects (1200) - Plan new start FY98 evaluations and exploitations of foreign materiel and/or technologies. (929)		
B. Program Change Summary		
Previous President's Budget		Total
Appropriated Value		Cost
Adjustments to Appropriated Value (Total PE)		Con't
a. SBIR/STTR decrement (-289)		
b. Reprogramming out of PE (-14)		
President's Budget		
FY 1994	FY 1995	FY 1996
18774	11867	10910
18774		
-303		
18471	11867	8869
		7541
		Con't

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605709A Exploitation Of Foreign Items								DC28	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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	14494	8011	5376	4151	4068	4010	9190	9175	Continuing	Continuing
C. Other Program Funding Summary: There are no other related RDT&E or other Appropriation efforts. D. Schedule Profile: The efforts funded in this project represent continuing and newly acquired exploitations of foreign materiel. Exploitations are subject to acquisition opportunities and are presented in the annual Army Foreign Materiel Exploitation Plan.											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1995	
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605709A Exploitation Of Foreign Items								D650	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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		3977	3856	3463	3390	3429	3408	3461	2736	Continuing	Continuing

C. Other Program Funding Summary: There are no other related RDT&E or other Appropriation efforts.

D. Schedule Profile: The efforts funded in this project are non-system specific and represent continuing exploratory development research in the area of foreign materiel advanced technologies exploitation, therefore no milestones or events are provided.

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

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BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0605710A Joint NBC Test, Assessment and
Survivability

COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	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	7048	4714	0	0	0	0	0	0	Continuing	Continuing
DJ30 NBC Survivability	2753	2958	0	0	0	0	0	0	Continuing	Continuing
D040 Joint Chemical/Biological Contact Point and Test	1774	1758	0	0	0	0	0	0	Continuing	Continuing
D204 Field Smoke Assessment	2521	0	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification: This PE develops and implements processes for integrating nuclear, biological, and chemical (NBC) survivability analysis into multiple threat (electronic warfare, ballistics, nuclear effects) analysis process. An annual symposium is conducted to disseminate information on policy and implementation procedures including specific examples on NBC contamination survivability enhancement technique. Field tests are conducted to observe and measure effects on performance of battlefield obscuring on electro-optical/smart weapon systems. Data is gathered, analyzed, cataloged, and disseminated on support of continued development and improvement of Army systems. This PE supports the direct costs of the joint service project which provides input for U.S. Army Dugway Proving Ground in developing operational procedures and doctrine to employ currently fielded equipment in a chemical-biological (CB) environment; to maintain the repository of CB information (CB technical source books); and to respond to unified and specified commands and all services for CB information; and are appropriately funded in Budget Activity 6.

Project DJ30 - Nuclear, Biological, and Chemical (NBC) Survivability: This project provides for test and analytical methodology, generic material testing, and database for design and analysis support to numerous weapons systems programs to insure that NBC survivability is readily and adequately addressed during the acquisition cycle.

FY 1994 Accomplishments:

- Assisted Program Executive Officers/Project Managers (PEOs/PMs), Research, Development and Engineering Centers (RDECs), defense decision makers and the Army Battle Labs to meet chemical, biological, and nuclear (CBN) survivability requirements and field sustainable equipment. (2157)
- Continued development of chemical databases and predictive techniques to determine the effects of agents and decontaminates against materials. (409)
- Expanded the database work, including the Nuclear Survivability Status Tracking System to develop an interface between the CBN databases and Army-wide modeling and simulation programs. (137)
- Hosted the annual Nuclear, Biological, and Chemical Contamination Survivability symposium. (50)

FY 1995 Planned Program:

- Assist PEOs/PMs, RDECs, defense decision makers and the Army Battle Labs to meet CBN survivability requirements and field sustainable equipment. (2721)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	February 1995
	0605710A Joint NBC Test, Assessment and Survivability	
6 - Management Support - Continue development and expansion of CBN databases and predictive techniques to enhance survivability/lethality analysis of Army materiel. (125) - Host the annual Nuclear, Biological, and Chemical Contamination Survivability symposium. (50) - Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) (62) FY 1996 Planned Program: Realigns NBC Survivability resources to PE 0605604A, Survivability/Lethality Analysis. FY 1997 Planned Program: Realigns NBC Survivability resources to PE 0605604A, Survivability/Lethality Analysis. Project D049 - Joint Chemical/Biological Contact Point and Test: Conducts chemical/biological (CB) tests and maintains repository of CB information for multiple users FY 1994 Accomplishments: - Initiated eight studies, two field trials and two laboratory tests evaluating performance and procedure in a chemical environment. (1364) - Updated CB Source Book for Nitrogen Mustard 1,2,3 (HNX), Oxygen Mustard (O), Sesqui-mustard (T) and, Coccidioidomycosis, Venezuelan Equine Encephalomyelitis, and Decontamination. (110) - Continued automation of Joint Technical Information Center. (300) FY 1995 Planned Program: - Initiate seven assessments, three field trials, and two laboratory tests evaluating performance and procedures in a chemical environment. (1302) - Update Antipersonnel Bacteria Source Book. (113) - Continue automation of Joint Technical Information Center. (304) - SBIR/STTR (37) FY 1996 Planned Program: Realigns Joint Chemical/Biological Contact and Test resources to PE 0605384D FY 1997 Planned Program: Realigns Joint Chemical/Biological Contact and Test resources to PE 0605384D Project D204 - Field Smoke Assessment: Conducted field tests to observe and measure the effects of battlefield obscurants on electron-optical/smart weapons systems. FY 1994 Accomplishments: - Conducted Smoke Week 16 at Eglin AFB, FL. (1500)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	February 1995
6 - Management Support	0605710A Joint NBC Test, Assessment and Survivability	
• Provided smoke/obscurants field experiments support for investigations of weapons systems with electro-optical components or subsystems, including Advanced Field Artillery System, Future Armored Resupply Vehicle, Armored Gun System, Future Infantry Fighting Vehicle, Brilliant Anti-Armor Submunition, Javelin, Wide Area Mine, Sense and Destroy Armor Smart Target Activated Fire and Forget, and Hellfire. (621) • Executed the smoke/obscurants part of the integrated survivability/lethality analysis program across the integrated mission areas, i.e.: air defense systems; aviation systems; command, control communications, computers and intelligence systems; intelligence electronic warfare systems; ground systems, munitions, and integrated soldier systems. (300) • Supported NATO Research Study Group (RSG) evaluations. (100)		
FY 1995 Planned Program: Project not funded.		
FY 1996 Planned Program: Project not funded.		
FY 1997 Planned Program: Project not funded.		
B. Program Change Summary		
Previous President's Budget Appropriated Value	FY 1994	FY 1997
Adjustments to Appropriated Value (Total PE)	7395	4661
a. SBIR/STTR decrement (-114)	7395	4779
b. Reprogrammed out of PE (-231)	-347	4714
Current President's Budget Submission	7048	0

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605710A Joint NBC Test, Assessment and Survivability								DJ30	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DJ30 NBC Survivability		2753	2958			0	0	0	0	Continuing	Continuing
C. Other Program Funding Summary: Not Applicable											
D. Schedule Profile: Not Applicable											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605710A Joint NBC Test, Assessment and Survivability								D049	
	COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D049	Joint Chemical/Biological Contact Point and Test	1774	1756		0	0	0	0	0	Continuing	Continuing

C. Other Program Funding Summary: Not Applicable

D. Schedule Profile: Not Applicable

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605710A Joint NBC Test, Assessment and Survivability								D204	
		FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D204	Field Smoke Assessment	2'21	0	0	0	0	0	0	0	0	0
C. <u>Other Program Funding Summary:</u> Not Applicable											
D. <u>Schedule Profile:</u> Not Applicable											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY											
PE NUMBER AND TITLE											
6 - Management Support											
0605712A Spt Of Operational Testing											
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	51592	31637	46491	50110	53619	51263	51440	53928	Continuing	Continuing	
DV02 Test Directorates	17041	15281	15263	15024	15433	16015	15169	15517	Continuing	Continuing	
DV03 TRADOC P2NBC2	1441	0	0	0	0	0	0	0	0	0	
D001 OPTEC IOTE	30006	7385	17413	21563	22764	18908	16467	17459	Continuing	Continuing	
D985 Concepts Evaluation of Materiel	2118	5984	7646	8977	10012	10947	10991	10975	Continuing	Continuing	
D987 OPTEC Instrumentation Sustainment & Development	996	3007	6169	4516	5390	5363	6793	9977	Continuing	Continuing	
A. Mission Description and Budget Item Justification: This program finances the operational testing of developmental materiel systems. The FY96 increase is essential for testing high priority weapon systems, including Joint Service and Multi-Service systems. Project DV02 provides for the recurring costs of operating the test activities of the U.S. Army Operational Test and Evaluation Command (OPTEC). Project DV03 measured the degradation of crew and individual performance during sustained operations in a nuclear, biological and chemical environment and developed measures to lessen the effects. 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. Projects typically provide horizontal technology insertion with potential for broad application across the Army. 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.											
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; and Information Mission Area. The primary mission of these test directorates is to conduct operational testing of developmental materiel, joint testing, and force development test and											

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A. Mission Description and Budget Item Justification: This program finances the operational testing of developmental materiel systems. The FY96 increase is essential for testing high priority weapon systems, including Joint Service and Multi-Service systems. Project DV02 provides for the recurring costs of operating the test activities of the U.S. Army Operational Test and Evaluation Command (OPTEC). Project DV03 measured the degradation of crew and individual performance during sustained operations in a nuclear, biological and chemical environment and developed measures to lessen the effects. 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. Projects typically provide horizontal technology insertion with potential for broad application across the Army. 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.

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; and Information Mission Area. The primary mission of these test directorates is to conduct operational testing of developmental materiel, joint testing, and force development test and

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

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PE NUMBER AND TITLE

6 - Management Support

0605712A Spt Of Operational Testing

experimentation (FDTE). Between FY 1990 and FY 1994, reduced tests and evaluation manpower by 48%. Further reductions are phased consistent with test scheduling and facility availability. Ultimately, OPTEC test directorates will ramp down from 305 civilian spaces in FY 1994 to 208 spaces by the end of FY 1998.

FY 1994 Accomplishments:

- Operational Costs for Fort Hood, TX Test Directorates (5614)
- Operational Costs for Fort Sill, OK Test Directorate (2475)
- Operational Costs for Fort Huachuca, AZ Test Directorate (2693)
- Operational Costs for Fort Bragg, NC Test Directorate (3033)
- Operational Costs for Fort Bliss, TX Test Directorate (3226)

FY 1995 Planned Program:

- Operational Costs for Fort Hood, TX Test Directorates (4598)
- Operational Costs for Fort Sill, OK Test Directorates (2174)
- Operational Costs for Fort Huachuca, AZ Test Directorate (2704)
- Operational Costs for Fort Bragg, NC Test Directorate (2946)
- Operational Costs for Fort Bliss, TX Test Directorate (2829)
- Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) (30)

FY 1996 Planned Program:

- Operational Costs for Fort Hood, TX Test Directorates (4291)
- Operational Costs for Fort Sill, OK Test Directorate (2239)
- Operational Costs for Fort Huachuca, AZ Test Directorate (2785)
- Operational Costs for Fort Bragg, NC Test Directorate (3034)
- Operational Costs for Fort Bliss, TX Test Directorate (2914)

FY 1997 Planned Program:

- Operational Costs for Fort Hood, TX Test Directorates (3724)
- Operational Costs for Fort Sill, OK Test Directorate (2306)
- Operational Costs for Fort Huachuca, AZ Test Directorate (2868)
- Operational Costs for Fort Bragg, NC Test Directorate (3125)
- Operational Costs for Fort Bliss, TX Test Directorate (3001)

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6 - Management Support	0605712A Spt Of Operational Testing	
Project DV03 - TRADOC P2NBC2: This project measures the physiological and psychological effects of a nuclear or chemical environment on individuals and crews of systems in sustained combat operations. This unique program, composed of field tests under the concept evaluation program, combined with laboratory research, is oriented toward understanding the effects and incorporates these measures into revised doctrine, training, organizations, leadership methods or materiel as applicable. P2NBC2 results support program management, development of major systems, and doctrine and training development objectives.		
FY 1994 Accomplishments: • Evaluated capability of processing chemically contaminated patients through treatment system. (239) • Evaluated the capability of Air Assault troops conducting operations in a chemically contaminated environment. (242) • Evaluated capabilities of troops to function dressed in protective chemical gear at high altitudes. (305) • Continued development of state of the art temperature measuring system in a non-intrusive manner. (235) • Developed a set of physiological/psychological predictors of performance of soldiers while wearing protective chemical gear. (232) • Provided field with a way to measure stress as reflected by hormones. (126) • Incorporated heat strain predictors into the JANUS model. (62)		
FY 1995 Planned Program: Project not funded.		
FY 1996 Planned Program: Project not funded.		
FY 1997 Planned Program: Project not funded.		
Project D001 - OPTEC IOTE: This project finances the direct costs of planning and conducting operational testing on major and nonmajor materiel systems, including Joint Service and 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). In FY 1995 and for future years, test funding for ACAT I system is programmed with the PE funding development of each system. Increase in FY 1996 is due to \$9070 required for Multi-Service test for Strategic Sealift Program (SSP). The remaining \$8343 supports on-going and current year Operational Testing and Evaluations. 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. OT&E workload and schedules are identified at paragraphs C, Other Program Funding Summary, and D, Schedule Profile.		
FY 1994 Accomplishments: • Complete On-going Operational Testing and Evaluation (10055) • Conduct Current Year Operational Testing and Evaluation (15104) • Prepare for Future Year Operational Testing and Evaluation (4847)		

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RD&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE		
6 - Management Support	0605712A Spt Of Operational Testing		
FY 1995 Planned Program: • Complete On-going Operational Testing and Evaluation (9) • Conduct Current Year Operational Testing and Evaluation (5780) • Prepare for Future Year Operational Testing and Evaluation (1441) • Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) (155)			
FY 1996 Planned Program: • Complete On-going Operational Testing and Evaluation (163) • Conduct Current Year Operational Testing and Evaluation (17250)			
FY 1997 Planned Program: • Complete On-going Operational Testing and Evaluation (3317) • Conduct Current Year Operational Testing and Evaluation (16486) • Prepare for Future Year Operational Testing and Evaluation (1790)			
Project D985 - Concepts Evaluation of Materiel: The Concepts Evaluation of Materiel 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 Advanced Warfighter Experiments (AWEs). Program growth reflects increased emphasis on accelerated acquisition methods. Funds are used to acquire, lease or fabricate equipment and 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.			
• FY 1994 Accomplishments: • Prototype Decision Support System (301) • Bradley Fighting Vehicle Platoon Organization (38) • Thermal and 12 Driver's Viewers (10) • Compare operational capability of laser aiming device with pulsating beam vs. laser aiming device with steady beam (25) • Brigade/Battalion Night Fighting System (300) • Personal Communications for the Warrior (47) • Advanced Communications Technology Satellite (44) • Radio Access Unit on the Move (67) • Secure Tactical Data Network-Phase 5/Joint Task Force deployment (69) • Bradley Fire Support Vehicle (53)			

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BUDGET ACTIVITY	PE NUMBER AND TITLE	February 1995
6 - Management Support	0605712A Spt Of Operational Testing	
• Vehicle Integrated Defense System (280) • M1 2nd Generation Thermal Systems (174) • Advanced Precision Airborne Delivery System (140) • Multi-Spectral Camouflage Systems for Mobile Equipment (30) • Assault Breaching System (42) • Command Post Bunker (70) • Counter UAV (20) • Bradley Stinger (15) • Integrated Meteorological Systems (5) • En-Route Communications (50) • Heavy Repair Vehicle (57) • Sensor AI Communication Integrated Maintenance Systems (135) • Recovery Support for Light Contingency Force (91) • Split Operations (55)		
FY 1995 Planned Program: • Supports test and experimentation initiatives undertaken by the Battle Command Battle Lab (1230) • Supports test and experimentation initiatives undertaken by the Combat Services Support Battle Lab (911) • Supports test and experimentation initiatives undertaken by the Depth & Simultaneous Attack Battle Lab (704) • Supports test and experimentation initiatives undertaken by the Dismounted Warfare Battle Lab (1374) • Supports test and experimentation initiatives undertaken by the Mounted Warfare Battle Lab (797) • Supports test and experimentation initiatives undertaken by the Early Entry, Lethality & Survivability Battle Lab (829) • Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) (119)		
FY 1996 Planned Program: • Test and Experimentation initiatives continue based on the results of the FY 1995 Concept Evaluation Program (7646)		
FY 1997 Planned Program: • Test and Experimentation initiatives continue based on the results of the FY 1996 Concept Evaluation Program (8977)		
Project D987 - OPTEC Instrumentation Sustainment & Development: To remain abreast of new weapons and communications systems, the tester 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		

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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 supports Real-Time Casualty Assessment (RTCA) providing realistic simulated attrition of forces. The funding programmed for OPTEC's Operational Test Instrumentation Program (OTIP) starting in FY 1996 continues development of a target identification and RTCA pairing system for dismounted troops and crew-served weapons that is effective in battlefield obscuration: smoke, dust, and fog. It 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 measurable, 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, 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 1994 Accomplishments:

- Acquired instrumentation to support ACAT I, ACAT II-IV, and Joint Service and Multi-Service tests funded in Project D001. (615)
 - Air Defense Artillery (ADA) Data Link Interface
 - Command and Control Vehicle Quick
 - Advanced Warfighting Experiment Quick
- Acquired instrumentation to sustain current OPTEC test capability. (371)
 - Video Acquisition and Imaging System
 - Low Light Video
 - Control Monitor
 - Sustaining Instrumentation

FY 1995 Planned Program:

- Acquire or modify instrumentation to support the OTIP to conduct ACAT I, ACAT II-IV, and Joint Service and Multi-Service tests funded in Project D001. (3869)
 - Air Defense Artillery (ADA) Data Link Interface (116)
 - Automated Intelligence/Electronic Warfare Test System (AI/EWTS) Upgrades (274)
 - Buffered Airdrop Altitude Transducer (50)
 - Command Audio/Visual Upgrade (190)
 - Commercial Radio Upgrade (35)
 - Digital Camera System (60)
 - Digital Imaging Cameras (33)
 - Hi-Frequency EW Upgrades (105)
 - Operational Test Display System (246)
 - Video Instrumentation (111)

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BUDGET ACTIVITY		February 1995
6 - Management Support		PE NUMBER AND TITLE
		0605712A Spt Of Operational Testing
- Video Telemetry and Recording System (520) - Telemetry Discriminator (65) • Acquire equipment and software to provide interim RTCA capability to support the LONGBOW APACHE IOTE and other tests requiring RTCA. (896) - Mobile TEC (MTEC) Real Time Casualty Assessment (RTCA) Capability - Pairing Through Obscuration - CO2 Real Time Casualty Assessment (RTCA) - Mobile Integrated Non Intrusive (MINI) - C3I • Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) (63)		
FY 1996 Planned Program:		
• Acquire or modify instrumentation to support ACAT I, ACAT II-IV, a nd Joint Service and Multi-Service tests funded in Project D001. (139) - Fiberoptics Range Network (540) - High-Speed Telemetry System (840) - High-Speed Video Systems (100) - Instrumented Personnel Parachutes (130) - Mobile Command Post (280) - Operational Test Display System (400) - Video Telemetry and Recording System (500) • Acquire equipment and software to provide interim RTCA capability to support tests requiring RTCA. (2300) - Automated and Intelligence/Electronic Warfare Test System (AJ/EWTS) External Modulation Sources - Mobile TEC (MTEC) Real Time Casualty Assessment (RTCA) Capability - Pairing Through Obscuration - CO2 Real Time Casualty Assessment (RTCA)		
FY 1997 Planned Program:		
• Acquire or modify instrumentation to support the OTTP to conduct ACAT I, ACAT II-IV and Joint Service and Multi-Service tests funded in Project D001. (3511) - Airborne Position Location System (250) - Fiberoptics Range Network (500) - Geometric Automated Video Enhanced Location System (GAVELS) Upgrade (75) - Global Positioning System (GPS) Time, Space, Position and Event Information (TSPPI) Tracking System (300) - High-Speed Video Systems (125) - Integrated Logistics System (ILS) Digital Recording & Display System (132) - Instrumented Personnel Parachutes (100) - Mobile Command Post (180) - Operational Test Display System (400)		

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BUDGET ACTIVITY		February 1995
6 - Management Support		
PE NUMBER AND TITLE		0605712A Spt Of Operational Testing
- Perspective View Generator & Analysis System for Unmanned Sensors (375) - Video Telemetry and Recording System (500) • Acquire equipment and software to provide RTCA capability and digitized battlefield data collection/telemetry and Force XXI experiments. (1005) - Pairing Through Obscuration - C02 Real Time Casualty Assessment (RTCA)		
B. Program Change Summary		
Previous President's Budget Appropriated Value Adjustments to Appropriated Value SBIR/STTR (-563) HQDA reprogramming (-9) Current President's Budget		
FY 1994	FY 1995	FY 1996
52164	31917	73775
52164	31637	64598
-572		
51592	31637	46491
		50110

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE		February 1995																	
BUDGET ACTIVITY										PROJECT																			
6 - Management Support										DV02																			
PE NUMBER AND TITLE										0605712A Spt Of Operational Testing																			
COST (In Thousands)										FY 1994 Actual		FY 1995 Estimate		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										17041		15281		15283		15024		15433		18015		15169		15517		Continuing		Continuing	

C. Other Program Funding Summary: Not applicable.

D. Schedule Profile: The efforts in this project are non-system specific and represent recurring costs of operating the test activities of OPTEC, therefore no milestones or events are provided.

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BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605712A Spt Of Operational Testing								DV03	
COST (In Thousands)		FY 1984 Actual	FY 1985 Estimate	FY 1986 Estimate	FY 1987 Estimate	FY 1988 Estimate	FY 1989 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DV03	TRADOC P2NBC2	1441	0	0	0	0	0	0	0	0	0
C. <u>Other Program Funding Summary</u> ; Not applicable.											
D. <u>Schedule Profile</u> ; Not applicable.											

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BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support 0605712A Spt Of Operational Testing

PROJECT

D001

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	30008	7385	17413	21593	22784	18608	16487	17459	Continuing	Continuing

C. Other Program Funding Summary:

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Comp	Total Cost
RDTE,A Budget Activity 4	0	0	0	0	0	0	0	0	0	4478
PE 0603713A Project D2QT EPLRS /JTIDS										
OPER TEST										
RDTE,A Budget Activity 4	0	91	0	0	0	0	0	0	0	91
PE 0603805A Project D2GT CSSCS										
OPERATIONAL TEST										
RDTE,A Budget Activity 5	0	2955	1493	1990	3383	498	0	0	0	10319
PE 0604321A Project D2FT ASAS										
OPERATIONAL TEST										
RDTE,A Budget Activity 5	0	2909	0	0	0	0	0	0	0	2909
PE 0604645A Project D2AT AGS										
OPERATIONAL TEST										
RDTE,A Budget Activity 5	0	0	0	0	0	3740	1220	100	0	5060
PE 0604645A Project D2KT AFAS										
OPERATIONAL TEST										
RDTE,A Budget Activity 5	0	0	299	1791	6268	3981	0	0	0	12339
PE 0604768A Project D2NT BAT										
OPERATIONAL TEST										
RDTE,A Budget Activity 5	0	5932	1781	0	0	0	0	0	0	7713
PE 0604770A Project D2CT JSTARS										
OPERATIONAL TEST										
RDTE,A Budget Activity 5	0	0	0	3626	2428	0	0	0	0	6054
PE 0604814A Project D2ST SADARM OPER										
TEST										

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PROJECT

C001

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ATCCS II EUTE	X															
BCS-ADA IOTE	X															
PLGR IOTE	X															
FP IOTE	X															
NBCRS IOTE		X														
ATCCS III IOTE		X		X												
TROJAN SPIRIT II IOTE		X														
MMS-FOB IOTE				X												
REFLUPS IOTE	X															
LCMS IOTE		X														
XM56 MSS IOTE		X														
GUARDFIST IOTE		X														
SAWE-RF IOTE					X											
C-17 MOTE					X											
SSP-S PI IOTE												X				
IFSAS-BCD IOTE												X				
MHG IOTE												X				
GLPS EUTE									X							
BREACHER EUTE													X			
FHMUX/HPBVWA IOTE																
LAFARE IOTE					X											
JTAGS IOTE					X											
UMARK IOTE							X									
AMCS IOTE							X									
TTCs LU.												X				
FF(V)8 IOTE												X				
ST HMMWV IK IOTE					X											
IEWCS IOTE																
CCTT-QS LUT													X			
60K LVADS IOTE																
VIS LUT																
ITAS LUT																

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PROJECT

D001

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ACPM IOTE																
CBPS IOTE																
MDS-PS-HPW IOTE																
DSCS-TD IOTE																
UM IOTE																
IRV IOTE																
ASV IOTE																
AKMS IOTE																
C2V LUT																
IMETS IOTE																
FATDS PKG 11 IOTE																
GLPS IOTE																
GRCS SYS II LUT																
IMETS IOTE																
CCTT IOTE																
CB MASS SPECTROMETER IOTE																
FSCATT IOTE																
MLRS ERR IOTE																
LARRS 60K IOTE																
BCIS IOTE																
M109A6 PALADIN VER II IOTE																
IEWTPT IOTE																
JUSTS IOTE																
SHORTSTOP IOTE																
LARRS 42K IOTE																

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BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605712A Spt Of Operational Testing								D985	
	COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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 Materiel		2118	5984		7846	8977	10012	10947	10991	Continuing	Continuing
C. Other Program Funding Summary: Not applicable.											
D. Schedule Profile											
		FY 1994			FY 1995			FY 1996		FY 1997	
		1 2 3	4	1	2 3	4	1	2 3	4	1 2 3	4
BATTLE COMMAND BATTLE LAB											
Proto Graphic Course of Action Dev Tool											
Mission Plan and Rehearsal											
Integrated Meteorological System (IMETS)											
Communications in Corps Battle Simulation											
Super High Frequency Tri-Band C2 Payload Package for High Alt Endurance											
Joint Warfare Interop Demo (JWID-95)											
COMBAT SERVICE SPT BATTLE LAB											
Automated Property Mgt & Inventory											
Sensor Communications Int Maint Sys											
Hydraulic excavator/Rock Drill Attach											
Tactical Automated Teller Machine											
Small Diesel Engine driven Generators											
Future Distribution Platform											
Heavy Repair Vehicle											
Contingency Force Recovery Vehicle											
DEPTH & SIMULTANEOUS ATTACK											
Cobra Evaluation											

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BUDGET ACTIVITY		PE NUMBER AND TITLE		DATE		PROJECT			
6 - Management Support		0605712A Spt Of Operational Testing		February 1995		D985			
				FY 1994		FY 1995		FY 1996	
		1	2	3	4	1	2	3	4
FAAD Enhancements									
JANUS Digitization Test Bed									
DISMOUNTED WARFARE BL									
Simulation Integration into Proto Class									
Range Determination for Night Vision									
Non-Lethal Defense									
Munitions/Technology									
Night Fighting Training Facility									
Thermal Signature Training System									
Backlight Technologies									
Nightfiring Phase II									
Dismounted Combat ID - Phase I									
Dismounted Combat ID - Phase II									
Light Brigade & Below TOC Config									
Own the Night									
MOUNTED WARFARE BATTLE LAB									
Tele-Operative Engineer Vehicle									
Combat Engr Vehicle Night Fire Cap									
Abrams Fire Control Upgrade									
Surrogate Dynamic Terrain for CATT									
Multi Mine Clearing Line Charge Trailer									
Battlefield Combat Identification System									
Helmet Mounted Display									
EELS BATTLE LAB									
Low Cost Precision Kill Weapon									
Laser Gun Mine Clearing									
Enroute Communications									

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BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

6 - Management Support

0605712A Spt Of Operational Testing

D987

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	988	3007	6169	4518	5390	5393	6793	9877	Continuing	Continuing

C. Other Program Funding Summary

MA6700

Other Procurement Army

Special Equipment for User Testing

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl Cont'd	Total Cost Cont'd
	2408	3646	3299	1807	2410	2381	2504	4132		

D. Schedule Profile: The efforts in this project are non-system specific and represent recurring costs of instrumenting the test activities of OPTEC, therefore no milestones or events are provided.

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BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support 0605801A Programwide Activities

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	97374	85614	63849	55365	56208	55239	51756	53275	Continuing	Continuing
M881 RDTE Command/Center/General	86900	76819	63649	55365	56208	55239	51756	53275	Continuing	Continuing
MAC3 Ozone Depleting Chemicals (ODC) Elimination	8474	18089	0	0	0	0	0	0	0	0
MAC4 Pollution Prevention in Acquisition	0	908	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification. This program funds the continued operation of non-Army Management Headquarters Activities (AMHA) management and administrative functions at 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.

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 Development Command (USAMRDC) 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. 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.

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DATE

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BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0605801A Programwide Activities

FY 1994 Accomplishments:

- Provided continued operation of management and administrative functions at a level consistent with mission requirements and support needs at Army non-AMHA RDT&E commands, centers and activities. (79640)
- Continued operation of the four Standardization Groups and AMC representative in France. Funded U.S. share of embassy costs (communications, custodial services, utilities and guard service). (3027)
- Funded travel of the Army Science Board. (350)
- Funded quick reaction capability for accident investigations at U.S. Army Aviation and Troop Command and unique costs related to tenant support. (1008)
- Continued to provide acquisition management functions in support of USAMRDC RDT&E programs and its tenant organization, Ft Detrick, MD including medical materiel procurement of biological defense vaccines. (4875)

FY 1995 Planned Program:

- Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at Army non-AMHA RDT&E commands, centers and activities. (65987)
- 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). (3735)
- Fund travel of the Army Science Board. (350)
- Fund quick reaction capability for accident investigations at U.S. Army Aviation and Troop Command and unique costs related to tenant support. (1039)
- Continue to provide acquisition management functions in support of USAMRDC RDT&E programs and its tenant organizations, Ft Detrick, MD including medical materiel procurement contracts, and procurement of biological defense vaccines. (5062)
- Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) (446)

FY 1996 Planned Program:

- Provide continued operation of management and administrative functions at a level consistent with mission requirements and support needs at Army non-AMHA RDT&E commands, centers and activities. (54238)
- 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). (4249)
- Fund travel of the Army Science Board. (287)
- Fund quick reaction capability for accident investigations at U.S. Army Aviation and Troop Command and unique costs related to tenant support. (1010)
- Continue to provide acquisition management functions support of USAMRDC RDT&E programs and its tenant organizations, Ft Detrick, MD including medical materiel procurement contracts, and procurement of biological defense vaccines. (3865)

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BUDGET ACTIVITY		February 1995
6 - Management Support	PE NUMBER AND TITLE 0605801A Programwide Activities	
FY 1997 Planned Program: • 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. (46128) • 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). (4156) • Fund travel of the Army Science Board. (280) • Fund quick reaction capability for accident investigations at U.S. Army Aviation and Troop Command and unique costs related to tenant support. (989) • Continue to provide acquisition management functions in support of USAMRDC RDT&E programs and its tenant organizations, Ft Detrick, MD including medical materiel procurement contracts, and procurement of biological defense vaccines. (3812) Project MAC3 Ozone Depleting Chemicals (ODC) Elimination: Develop and implement 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 1994 Accomplishments: • Funded test and evaluation on finding Halon 1301 (fire extinguishing agent) replacement for engine compartments of ground combat vehicles. (6438) • Funded joint Army/Navy/Air Force/Federal Aviation Agency project to find a Halon 1301 replacement (fire extinguishant) for aviation engine nacelles. (1540) • Funded alternatives for aviation specific Ozone-Depleting solvents in critical applications. (220) • Funded ODC program development, management and oversight. (256) FY 1995 Planned Program: • Funds required for complete Test and Evaluation for Halon 1301 replacement of ground vehicles. (1000) • Funds required for joint Army/Navy/Air Force/Federal Aviation Agency project to find a Halon 1301 replacement for aviation engine nacelles. (1125) • Funds required to continue project alternatives for aviation specific Ozone-Depleting solvents in critical applications and expand to other critical industrial operations. (253) • Funds required to begin Fire Safety Test Enclosure. (14620) • Funds required for alternatives to ODC solvents used in ammunition processes and testing of NBC equipment. (473) • Funds required for program management oversight. (236) • SBIR/STTR (380) 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.		

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BUDGET ACTIVITY

PE NUMBER AND TITLE

B - Management Support

0605801A Programwide Activities

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 1994 Accomplishments: Project not funded.

FY 1995 Planned Program:

- Develop an Army Pollution Prevention in Acquisition Plan. (115)
- Review cognizant documentation to identify toxic chemicals. (316)
- Manage and initiate projects to identify, test and evaluate new substitute technologies. (317)
- Initiate changes to documentation to replace toxic chemicals with validated alternatives. (64)
- Support PEOs/PMs implementation of National Aerospace Standard 411 and pollution prevention requirements. (75)
- SBIR/STTR (19)

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. Program Change Summary

Previous President's Budget

Appropriated Value

Adjustments to Appropriated Value (Total PE)

a. SBIR/STTR decrement (-347)

b. Reprogrammed into PE (4891)

Current President's Budget Submit

FY 1994	FY 1995	FY 1996	FY 1997
92830	103262	58534	52201
92830	95614		
4544			
97374	95614	63649	55365

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BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605801A Programwide Activities								M881	
	COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	88900	70619	63849	55385	56203	55239	51756	53275	Continuing	Continuing

C. Other Program Funding Summary: Not Applicable.

D. Schedule Profile: Not Applicable.

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BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605801A Programwide Activities								MAC3	
		FY 1994 Actual	FY 1995 Estimate	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	8474	18089	0	0	0	0	0	0	0	0
C. Other Programs Funding Summary: Not Applicable. D. Schedule Profile: Not Applicable.											

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BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605801A Programwide Activities								MAC4	
COST (in Thousands)		FY 1994 Actual	FY 1995 Estimate	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		0	908	0	0	0	0	0	0	0	0

C. Other Program Funding Summary: Not Applicable.

D. Schedule Profile: Not Applicable.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY		PROJECT	
6 - Management Support		0605802A International Cooperative Research and Development	
		M798	

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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 Institute	1700	1615	1608	1609	1609	1609	1616	1613	Continuing	Continuing

A. Mission Description and Budget Item Justification: The goal of this program is to expand worldwide allied standardization and interoperability through cooperative research and development (R&D) and technology sharing. This program partially funds the travel costs and administrative support (studies, analysis, interpretation, equipment, etc.) required to participate in international fora, such as the North Atlantic Treaty Organization (NATO) Army Armaments Group (NAAG), and to pursue new cooperative R&D initiatives and international cooperative agreements, such as memoranda of understanding. This program also includes the United States' share of costs of the NATO Industrial Advisory Group (NIAG) and the Special Fund for Cooperative Planning, partially funds the Four Power Senior National Representatives Army (SNR(A)); the American, British, Canadian, Australian (ABCA) Standardization Program; the Technical Cooperative Program; bilateral staff talks; and Army armaments working groups with many nations. This project supports general research and development activities and since it is not allocable to specific R&D missions is appropriately funded in Budget Activity 6.

Project M798 - International Cooperative Research and Development-Army Research Institute:

FY 1994 Accomplishments:

- Funded domestic and international travel linked to scientific and technological exchanges having military applications and mutual benefit to United States and its allies (930)
- Fund the United States' share of the NIAG and special fund for cooperative planning budget (770)

FY 1995 Planned Program:

- Continue to fund domestic and international travel linked to scientific and technological exchanges having military applications and mutual benefit to United States and its allies (748)
- Continue to fund the United States' share of the NIAG and special fund for cooperative planning budget (833)
- SBIR/STTR (34)

FY 1996 Planned Program:

- Continue to fund domestic and international travel linked to scientific and technological exchanges having military applications and mutual benefit to United States and its allies (756)
- Continue to fund the United States' share of the NIAG and special fund for cooperative planning budget (850)

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
6 - Management Support	0605802A International Cooperative Research and Development	M798	
FY 1997 Planned Program:			
- Continue to fund domestic and international travel linked to scientific and technological exchanges that have military applications and mutual benefit for the United States and its allies (759) - Continue to fund the United States' share of the NIAG and special fund for cooperative planning budget (850)			
B. Program Change Summary			
Previous President's Budget	FY 1994	FY 1995	FY 1997
Appropriated Value	1861	1638	956
Adjustments to Appropriated Value	1861	1615	817
a. SBIR/STTR (-29)	-161		
b. Reprogrammed out of PE (-132)			
Current President's Budget	1700	1615	1609
C. Other Program Funding Summary: There are no other related RDT&E or other Appropriation efforts.			
D. Schedule Profile: The efforts funded in this project are non-system specific, therefore no milestones or events are provided.			

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BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0605803A Technical Info Activities

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	11672	12994	16401	17072	17657	18212	18603	19581	Continuing	Continuing
DC16 Field Assistance In Science and Technology	2577	2843	2778	2880	2969	3216	3362	3531	Continuing	Continuing
DC18 Board on Army Science and Technology	565	678	687	704	720	738	771	810	Continuing	Continuing
M720 Technical Information Functional Activities	1239	1689	2341	2397	2509	2574	2598	2693	Continuing	Continuing
M727 Technical Information Activities	2633	2360	2731	2737	2808	2877	3112	3268	Continuing	Continuing
M729 Youth Science Activities	1465	1895	2302	2409	2463	2520	2581	2696	Continuing	Continuing
D730 Personnel and Training Analysis Activities	3029	2970	3038	3162	3285	3363	3536	3714	Continuing	Continuing
M731 Government/Industry Data Exchange Program/Advisory Group on Electronic Devices (GIDEPI/AGED)	134	279	285	543	553	584	591	621	Continuing	Continuing
M733 Acquisition Technology Act	0	250	2239	2240	2240	2242	2252	2248	Continuing	Continuing

A. Mission Description and Budget Item Justification: This program is vital to sharing science and technology with US industry and academia and strengthening cooperative research and development between the Army and Industry. This program directly 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 such as Women in Science, Army/Navy Washington Summer Apprenticeship, and Science and Engineering fairs as an example. This program also 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. 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 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, the Army Science and Technology Master Plan (ASTMP), Science and Technology Objectives (STOs) milestones for the Army's key emerging technologies, and the Army Modernization Plan. These programs are accomplished under the management of the Army Research Laboratory, the Army Materiel Command, the Army Research Office, the Army Research Institute, 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.

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BUDGET ACTIVITY		PE NUMBER AND TITLE
6 - Management Support		0605803A Technical Info Activities
Project DC16 - Field Assistance in Science and Technology (FAST): This program focuses AMC resources to rapidly identify and solve field Army technical problems affecting improved readiness, safety, training, and operations and support (O&S) cost reductions. The Commanding General, AMC institutionalized AMC FAST in 1988 to plan for and allocate all AMC-FAST program funding for projects to support CINCs and commanders and to operate the director's office. FAST tours provide major professional growth for scientists and engineers. Science advisers are recruited from Army Materiel Command (AMC) engineering centers and the Army Research Laboratory serving Commanders-in-Chief (CINCs) and major Army commanders world-wide and are supported by assigned Quick Reaction Coordinators (QRCs) within each AMC engineering center, Army Research Laboratory, and other Army agencies. Program director reports to Commanding General, AMC. 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 1994 Accomplishments: • Provided continuous activity on over 240 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 (1952) • Provided professional growth opportunity for 20 science advisers on two year, three year and four year tours and 25 FAST-junior scientists and engineers on two to eight week tours (570) • Provided professional growth opportunity for 25 personnel in the Scientists and Engineers Field Experience with Soldiers (SEFEWS) program (50) • Provided Science Advisor to US Transportation Command to serve on the CINCs's Initiatives Team to support future contingency actions and developed a direct relationship between organizations for optimum planning and execution (5) FY 1995 Planned Program: • Provide continuous activity on over 250 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 (2103) • 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 (630) • Provide professional growth opportunity for 25 personnel in the SEFEWS program (50) • Funds will be reprogrammed for SBIR/STTR programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992 (60) FY 1996 Planned Program: • 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 (1675) • 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 (977) • Provide professional growth opportunity for 55 personnel in the SEFEWS program (126)		

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BUDGET ACTIVITY

PE NUMBER AND TITLE

0605803A Technical Info Activities

6 - Management Support

FY 1997 Planned Program:

- 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 (1736)
- 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 (1013)
- Provide professional growth opportunity for 70 personnel in the SEFEWS program (131)

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 1994 Accomplishments:

- Provided support for forecast of Army science and technology needs and responded to immediate science and technology requirements (277)
- Provided experts to participate in peer reviews for annual In-House Laboratory Independent Research (ILIR) program, the Research and Development Achievement (RDA) award and Research and Development Organization of the year (RDO) award reviews (70)
- Provided a study to address space-based communications technology for Command, Control, Communications and Intelligence (C3I) to "win the information war" research status (218)

FY 1995 Planned Program:

- Provide support for forecast of Army science and technology needs and respond to immediate science and technology requirements (358)
- Provide experts to participate in peer reviews for annual ILIR and RDA awards review (39)
- Provide a study to address space-based communications technology for C3I to "win the information war" research status (266)
- Funds will be reprogrammed for SBIR/STTR in accordance with the Small Business Innovation Research Reauthorization Act of 1992 (15)

FY 1996 Planned Program:

- Provide support for forecast of Army science and technology needs and respond to immediate science and technology requirements (362)
- Provide experts to participate in peer reviews for annual ILIR and RDA awards review (40)
- Provide a study to address space-based communications technology for C3I to "win the information war" research status (285)

FY 1997 Planned Program:

- Provide support for forecast of Army science and technology needs and respond to immediate science and technology requirements (377)

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6 - Management Support	PE NUMBER AND TITLE 0605803A Technical Info Activities	
• Provide experts to participate in peer reviews for annual ILIR and RDA awards review (40) • Provide a study to address space-based communications technology for C3I to "win the information war" research status (287) Project M720 - Technical Information Functional Activities: Technology transfer activities 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 Federal Laboratory Consortium (FLC); the Army Science Board; administration of the Army's Small Business Innovative Research (SBIR) and Small Business Technology Transfer Program (STTR) in accordance with the "Small Business Innovation Research Program 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 line 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 1994 Accomplishments: • Continued managerial, programming, data base, clerical and personnel support to process, store, control and report the WUIS, 1498's (362) • Provided the Army funding for the annual data collection and printing of the DoD Tri-Service In-House RDT&E Facilities Report (27) • Provided Army funding support for FLC as required by Public Law 99-502 (225) • Provided administrative and contractual support for the Army Science Board (ASB) (300) • Provided Army Science and Technology reports/studies (325) FY 1995 Planned Program: • Continue managerial, programming, data base, clerical and personnel support to process, store, control and report the WUIS, 1498's (400) • Provide the Army funding for the annual data collection and printing of the DoD Tri-Service In-House RDT&E Facilities Report (28) • Provide Army funding support for FLC as required by Public Law 99-502 (225) • Provide administrative and contractual support for the ASB (310) • Provide administrative support for SBIR/STTR programs (500) • Provide Army Science and Technology Reports (130) • Provide Army Technology Transfer Brochures (60) • Funds will be reprogrammed for the SBIR/STTR Programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992 (36) FY 1996 Planned Program: • Continue managerial, programming, data base, clerical and personnel support to process, store, control and report the WUIS, 1498's (400)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		February 1995
PE NUMBER AND TITLE		
6 - Management Support		0605803A Technical Info Activities
• Provide the Army funding for the annual data collection and printing of the DoD Tri-Service In-House RDT&E Facilities Report (30) • Provide Army funding support for FLC as required by Public Law 99-502 (225) • Provide administrative and contractual support for the ASB (330) • Provide Army Science and Technology reports/studies (131) • Provide administrative support for SBIR/STTR programs (525) • Provide funding for AMC commands and laboratories patent fees and patent legal expenses (700)		
FY 1997 Planned Program:		
• Continue managerial, programming, data base, clerical and personnel support to process, store, control and report the WJIS, 1498's (410) • Provide the Army funding for the annual data collection and printing of the DoD Tri-Service In-House RDT&E Facilities Report (30) • Provide Army funding support for FLC as required by Public Law 99-502 (225) • Provide administrative and contractual support for the ASB (330) • Provide administrative support for SBIR/STTR programs (550) • Provide Army Science and Technology Reports (142) • Provide funding for AMC commands and laboratories patent fees and patent legal expenses (710)		
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) and Army Materiel Command (AMC) levels. This project includes support of the Acquisition Management Integration Subgroup (AMIS) dealing with acquisition management systems.		
FY 1994 Accomplishments:		
• Continued the Science and Technology Data Base computer engineering support contract (1020) • Continued support to Army S&T strategic planning, analysis, and prioritization (963) • Continued support AMC/Joint Directors of Laboratories (JDL) database (212) • Provided guidance and policy relative to the content, utilization, and requirements of current and future acquisition management systems (413) • Supported Tech Integration technical and analytical support contract (25)		
FY 1995 Planned Program:		
• Continue the Science and Technology Data Base computer engineering support contract (1000) • Continue support to Army S&T strategic planning, analysis, and prioritization (900) • Continue support to AMC/JDL database (200)		

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BUDGET ACTIVITY	PE NUMBER AND TITLE	February 1995
6 - Management Support	0605803A Technical Info Activities	
• Provide guidance and policy relative to the content, utilization, and requirements of current and future acquisition management systems (240) • Funds will be reprogrammed for SBIR/STTR Programs in accordance with the Small Business Innovation Research Reauthorization Act of 1992 (50)		
FY 1996 Planned Program:		
• Continue the Science and Technology Data Base computer engineering support contract (1100) • Continue support to Army S&T strategic planning, analysis, and prioritization (950) • Continue support to AMC/JDL database (275) • Provide guidance and policy relative to the content, utilization, and requirements of current and future acquisition management systems for AMIS (406)		
FY 1997 Planned Program:		
• Continue the Science and Technology Data Base computer engineering support contract (1106) • Continue support to Army S&T strategic planning, analysis, and prioritization (950) • Continue support to AMC/JDL database (275) • Provide guidance and policy relative to the content, utilization, and requirements of current and future acquisition management systems for AMIS (406)		
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 that in turn supports Defense industry and laboratory needs.		
FY 1994 Accomplishments:		
• Continued to foster high school student interest in science, mathematics, engineering and computer science, nationally, through: International Science and Engineering Fairs (ISEF), Junior Science and Humanities Symposia (JSHS), Research and Engineering Apprenticeship Program (REAP), Uninitiated Introduction to Engineering Program (UNITE) and the International Mathematics Olympics (IMO) and increase participation by minorities (1017) • Continued the Joint Army/Navy Washington Regional Area Science & Engineering Apprenticeship Program and increased Army Laboratory/RDE Center sponsorship of students (254) • 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 (224)		

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0605803A Technical Info Activities

FY 1995 Planned Program:

- Continue to foster high school student interest in science, mathematics, engineering and computer science, nationally, through: SEAP, ISEF, JSHS, REAP, UNITE and the IMO and increase minority participation (1220)
- Continue the Joint Army/Navy Washington Regional Area Science & Engineering Apprenticeship Program (327)
- Continue special tutorial programs for Native Americans and Spanish-speaking Americans designed to increase their chances of attending and completing engineering and/or science curriculum at the university level (308)
- Funds will be reprogrammed for the SBIR/STTR Programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992 (40)

FY 1996 Planned Program:

- Continue to foster high school student interest in science, mathematics, engineering and computer science, nationally, through: ISEF, JSHS and the IMO and increase minority participation (1272)
- Continue the Joint Army/Navy Washington Regional Area Science & Engineering Apprenticeship Program and increase Army Laboratory/RDE Center sponsorship of students (365)
- Continue special tutorial programs of UNITE and REAP 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 (340)
- Begin institutionalized funding of the West Point cadet research internship program to enhance cadet training through field experience within Army research laboratories and centers (325)

FY 1997 Planned Program:

- Continue to foster high school student interest in science, mathematics, engineering and computer science, nationally, through: ISEF, JSHS and the IMO and increase minority participation (1319)
- Continue the Joint Army/Navy Washington Regional Area Science & Engineering Apprenticeship Program and increase Army Laboratory/RDE Center sponsorship of students (400)
- Continue special tutorial programs of UNITE and REAP 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 (360)
- Continue the West Point cadet research internship program to enhance cadet training through field experience within Army research laboratories and centers (330)

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.

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BUDGET ACTIVITY		February 1995
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FY 1994 Accomplishments: - Identified the most critical leader development factors in support of the art of battle command; identified appropriate measures to ensure that soldiers who are promoted to Non-Commissioned Officer (NCO) will be those who perform most effectively (658) - Developed and conducted surveys of Army alumni and civilian nurses for improving recruiting objectives (355) - Developed prototype officer personnel inventory, cost, and compensation policy analysis model and a PC-based prototype enlisted personnel selection system (614) - Provided survey and performance data which supported Army decision to gender-integrate non-combat basic training (177) - Identified requirements and developed concept for a computer-based system for tracking the utilization of Army training aids, devices, simulators, and simulations (TADSS) (730) - Determined and reported to Training and Doctrine Command (TRADOC) the adequacy of resources at TRADOC schools for conducting instruction, updating training programs, and developing new training programs (202) - Analyzed observer/controller (O/C) interviews at the National Training Center (NTC) to derive lessons learned in tactical doctrine and training (293) FY 1995 Planned Program: - Identify factors that most influence junior officer career commitment and the possible decision to leave the Army (744) - Analyze enlistment, reenlistment, promotion, and separation policies; identify comparative trends in soldier attitudes regarding personnel system and organizational changes (680) - Analyze trends in unit performance at the Combat Training Centers which reflect the effectiveness of tactical doctrine, unit organization, training, materiel, and leadership (DOTML), for use in the Army lessons learned and Battle Lab concept development programs (1054) - Perform analyses to determine the relationship between reduced training resources and the quality of TRADOC school graduates (430) - Funds will be reprogrammed for SIBR/STTR programs in accordance with the small business innovation research program reauthorization act of 1992 (62) FY 1996 Planned Program: - Perform a multi-disciplinary review of downsizing effects on soldier retention, job satisfaction, and career intent (459) - Investigate information for decisions about leader development programs for current and future leadership requirements (523) - Determine the effects of alternative compensation and personnel policies upon enlistment, attrition, retention, and separation decisions and costs in an era of downsizing (492) - Continue analyses of trends in unit performance at the Combat Training Centers (680) - Continue analyses of TRADOC classroom instruction resource/quality relationships (884) FY 1997 Planned Program: - Determine effects of alternative compensation and personnel policies upon enlistment, attrition, retention, and separation decisions and costs in an era of downsizing (531) - Investigate information for decisions about leader development programs for current and future leadership requirements (221)		

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• Perform analyses on issues that are critical to the development of the Army's comprehensive Combined Arms Training Strategy and battalion level training model (1528) • Investigate information for decisions about leader development programs for current and future leadership requirements (221) • Provide recommendations concerning how the Army Occupational Survey Program could be used in the Military Occupational Specialty (MOS) restructuring process (305) • Determine improvements in predicted performance by improving soldier classification (356) 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 1994 Accomplishments: • Continued information exchange of data between industry and government and expansion of the program covering Army elements (industry and government) not currently participating (34) • Completed Engineering Design Handbooks for System Engineers Design for Discard (MIL-HDBK-797(Ae)); Fuzes (MIL-HDBK-798(Ae)); and one Compact Disk Read Only Memory (CDROM) Military Handbook (MIL-HDBK-767(Mi)), Design Guidance for Interior Noise Reduction in Light Armored Tracked Vehicles. The CDROM will allow the user to review electronic documentation in a fast, friendly way with little training. Computer and software requirements match the current personal computer configurations (100) FY 1995 Planned Program: • Continue information exchange of data between industry and government and expansion of the program covering Army elements (industry and government) not currently participating (50) • Complete Engineering Design Handbooks: MIL-HDBK-797(Ae), Polyimide (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 complete an EDHP Catalog of handbooks (223) • Funds will be reprogrammed for SBIR/STTR Programs in accordance with the Small Business Innovation Research Reauthorization Act of 1992 (6) FY 1996 Planned Program: • Continue information exchange of data between industry and government and expansion of the program covering Army elements (industry and government) not currently participating (50)			

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Complete Engineering Design Handbooks: Fuze Shock and Vibration Design Handbook, Vol. I; Rotorcraft and Light Aircraft Qualification; Documentation of Electronic Systems with VHDL; Design for Projection; Rotorcraft and Light Aircraft Qualification (235)		
FY 1997 Planned Program: - Continue information exchange of data between industry and government and expansion of the program covering Army elements (industry and government) not currently participating (50) - Complete Engineering Design Handbooks: Fuze Shock and Vibration Design Handbook, Vol. II; Electromagnetic Compatibility; and Design of Projectiles for Terminal Ballistic Effects (493)		
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 1994 Planned Program: Program commences in FY95 in accordance with the planned program starting date.		
FY 1995 Planned Program: - Initiate analysis of acquisition program financial programming and budgeting requirements. Requirements will include Major Program Review Monitoring and Support, Policy and Program Review, Special Studies, Program Integration, and Congressional Issues Analysis. Initiate programmatic requirements analysis (245) - Funds will be reprogrammed for SBIR/STTR Programs in accordance with the Small Business Innovation Research Reauthorization Act of 1992 (5)		
FY 1996 Planned Program: - Provide knowledge based design, tool sets, and prototype support of Executive and Expert Information Systems which support the AAC; improve the Information Technology component of a strategic IM process (70) - Develop a simulation and logical modeling test and evaluation environment that provides a prototype development tool in support of technology based initiatives (90) - Provide Knowledge based design, tool sets, and prototype support of Executive and Expert Information Systems which support the AAC; improve the Information Technology component of a strategic IM process (90) - 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. Analyze strategies associated with Horizontal Technology Integration. Assess impact of digitization efforts and value added to force capability of Second Generation Forward Looking Infrared Seeker (1989)		

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	0605803A Technical Info Activities																															
FY 1997 Planned Program: • Develop a simulation and logical modeling test and evaluation environment that provides a prototype development tool in support of technology based initiatives (90) • 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 (85) • Develop a simulation and logical modeling test and evaluation environment that provides a prototype development tool in support of technology based initiatives (76) • 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 (1989)																																
B. Program Change Summary <table border="0"> <thead> <tr> <th></th> <th>FY1994</th> <th>FY 1995</th> <th>FY 1996</th> <th>FY 1997</th> </tr> </thead> <tbody> <tr> <td>Previous President's Budget Appropriated Value</td> <td>11944</td> <td>13304</td> <td>13457</td> <td>13856</td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td>11944</td> <td>12994</td> <td></td> <td></td> </tr> <tr> <td> a. SBIR/STTR decrement (-183)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. Reprogramming (-83)</td> <td>-272</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Current President's Budget</td> <td>11672</td> <td>12994</td> <td>16401</td> <td>17072</td> </tr> </tbody> </table>				FY1994	FY 1995	FY 1996	FY 1997	Previous President's Budget Appropriated Value	11944	13304	13457	13856	Adjustments to Appropriated Value	11944	12994			a. SBIR/STTR decrement (-183)					b. Reprogramming (-83)	-272				Current President's Budget	11672	12994	16401	17072
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6 - Management Support		0605805A Munitions Stdzn Effect And Safety									
	COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	23611	14306	6903	1906	1889	1875	2364	2370	Continuing	Continuing
DC38	CHICKEN LITTLE FOLLOW-ON	3732	0	0	0	0	0	0	0	0	22908
DF21	NORTH ATLANTIC TREATY ORGANIZATION (NATO) SMALL ARMS EVALUATION	321	317	266	264	263	261	262	269	Continuing	Continuing
DF24	CONVENTIONAL AMMUNITION DEMILITARIZATION	10770	8107	5722	748	750	754	834	833	Continuing	Continuing
D280	FIELD ARTILLERY AMMUNITION (NATO) ENGINEERING DEVELOPMENT	281	280	274	271	268	268	308	309	Continuing	Continuing
D620	DOD MUNITIONS EFFECTIVENESS	8039	4858	0	0	0	0	0	0	0	189150
M657	EXPLOSIVE SAFETY STANDARDS	468	644	621	605	586	572	640	639	Continuing	Continuing
A. 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 weapon 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 (MOPPI); operation of the North American Regional Test Center (NARTC); evaluation of demilitarization methods for existing conventional ammunition; and safety and hazard evaluation and quantification of DoD munitions via the DoD Explosives Safety Board. The projects in this Program Element support studies and analyses in support of numerous Army and Joint-Services R&D programs and are correctly placed in Budget Activity 6. Project DC38 - Chicken Little: This project is a joint munitions test and evaluation program executed by the Army and Air Force. It evaluates developmental smart munitions and components against mobile ground vehicles and strategic relocatable targets using actual threat vehicles and realistic countermeasures. The project serves as a center for target signature data collection /exploitation and assists in the test and evaluation of U.S. vehicles countermeasures. FY 1994 Accomplishments: - Signature exploitation of rest of world (ROW) targets to support development and intelligence communities. - Conducted captive flight tests to evaluate target sensing systems and system algorithm improvements of advanced smart weapons. - Evaluation of advanced warhead designs against advanced targets. FY 1995-97 Planned Program: Not Applicable; program terminated.											

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Project DF21 - North Atlantic Treaty Organization (NATO) Small Arms Evaluation: 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 1994 Accomplishments: • Relocation of the NARTC from Ft. Dix, NJ to the Ballistic Service Office (BSO) at Lake City Army Ammunition Plant (55) • Staffed, equipped, and maintained the NARTC (95) • Completed the STANAG on 40mm ammunition (20) • Completed a program to replace the NATO 6203 pressure transducer (40) • Continued to maintain standardization of previously qualified calibers (70) • Completed STANAG for 12.7mm ammunition (25) • Completed re-draft of 25mm Manual of Proof and Inspection Procedures (16)		
FY 1995 Planned Program • Continue to staff, equip, and maintain the NARTC for 5.56mm and 7.62mm only (50) • Complete NATO qualification testing for 5.56mm M856 ammunition (35) • Continue to maintain standardization of previously qualified calibers, including 25mm (65) • Establish pressure limits for the newly adopted 6215 pressure transducer for use in testing of previously qualified ammunition designs, including 25mm (72) • Continue evaluations of environmentally friendly testing methodology (alternate Mercurous Test Procedure) (92) • Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) decrement (3)		
FY 1996 Planned Program: • Continue to staff, equip, and maintain the NARTC for 9mm, 5.56mm, and 7.62mm only (55) • Continue to maintain standardization of previously qualified calibers, including 25mm (70) • Incorporate use of new environmentally safe test method as an alternate to current hazardous procedures (45) • Implement the use of the 6215 pressure transducer for all NATO standardization testing, including 25mm (116)		
FY 1997 Planned Program: • Continued to staff, equip, and maintain the NARTC for 9mm, 5.56mm, and 7.62mm only (60) • Continue to maintain standardization of previously qualified calibers, including 25mm (80) • Other activities, including Partners in Peace initiatives (144)		

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Project DF24-Conventional Ammunition Demilitarization: This project supports a continuing technology evaluation of demilitarization methods for existing conventional ammunition and conventional ammunition recovered from formerly used defense sites (FUDS). It will complete the development and demonstration of new, safe, and environmentally acceptable alternatives to open burning/open detonation (OB/OD) for recovery/recycle/reclamation equipment and processes to reduce the extremely large stockpile of munitions in the resource recovery disposition account and recovered munitions from FUDS. FY 1994 Accomplishments: - Completed the implementation (at Pine Bluff Arsenal) of a new line for recovery/recycle of the red phosphorous/butyl rubber fill from obsolete L8A1 grenades for reuse in L8A3 grenades. Manufactured 140,552 L8A3 grenades with recovered materials resulting in savings/cost avoidance of \$978K (64) - Continued the detailed design and pilot testing of a Supercritical Water Oxidation (SCWO) System for the demilitarization of munitions containing carcinogenic/toxic colored smokes and dyes (358) - Initiated site selection/preparation for prototype SCWO System. (120) - Continue development of Plasma Arc Furnace technology for demilitarization of small caliber pyrotechnic ordnance (6000) - Complete pilot testing, finalize prototype design and initiate procurement of production prototype SCWO system for demilitarization of smokes and dyes. Continue site selection/preparation activities (1462) - Complete design modifications and the first stage of production prototype testing of the High Pressure Carbon Dioxide Blastout System for removal of press-loaded explosives (625) - Complete design modifications and begin testing of the cryofracture demilitarization prototype facility for small, explosive-loaded items such as grenades and submunitions (770) - Initiate development of a pilot ultrasound system to remove energetic material from cast-loaded munitions (110) - Safety engineering support for all demilitarization processes (265) - Initiate development of a prototype rapid analysis system to determine the stabilizer content in Resource Recovery and Disposition Account (RRDA)-recovered propellants (176) - Complete the design of a pilot process for the reworking of energetic material recovered from the demilitarization of cast-loaded munitions (483) - Initiate development of a prototype system for real-time monitoring of the metals content of effluent gases generated during various demilitarization operations (337) FY 1995 Planned Program: - Complete the design, specification, fabrication, and installation of a production prototype Plasma Arc Furnace System for demilitarization of small pyrotechnic ordnance and initiate proveout (7366) - Continue technical support of equipment procurement and carry out installation and site preparation for production prototype SCWO system for demilitarization of colored smokes and dyes (461) - Complete the development and testing of a pilot ultrasound system to remove energetic material from cast-loaded explosives (110) - SBIR/STTR decrement (170)		

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FY 1996 Planned Program:			
• Continue prove-out of production prototype Plasma Arc Furnace System for demilitarization of small pyrotechnic ordnance (300) • Complete technical support of equipment procurement and complete installation and site preparation for production prototype SCWO system for demilitarization of colored smokes and dyes (380) • Complete production testing and evaluation of fully installed prototype High Pressure Carbon Dioxide Blastout System for removal of press-loaded explosives (147) • Complete testing and evaluation of prototype cryofracture facility for demilitarization of explosive-loaded items (820) • Prepare design specifications for and fabricate, install, and test prototype ultrasound system to remove energetic materials from cast-loaded explosives (589) • Complete equipment fabrication, installation, and preliminary hazards analysis of a pilot process for the reworking of energetic materials recovered from demilitarization of cast-loaded munitions (880) • Continue development of prototype system for real-time monitoring of the metals contents of effluent gases generated during various demilitarization operations (554) • Continue development of prototype rapid analysis system to determine the stabilize content in RRDA-recovered propellants (387) • Initiate development of a prototype process for recycle/reuse of magnesium and aluminum recovered from medium and large caliber projectiles (533) • Initiate development of a prototype process for recycle/reuse of smokepot oil as boiler/incinerator fuel (475) • Initiate development of a prototype process for multi-base propellant recovery (657)			
FY 1997 Planned Program:			
• Complete testing of and evaluation of production prototype SCWO system for demilitarization of colored smokes and dyes (285) • Initiate testing and evaluation of pilot process for reworking of energetic materials recovered from demilitarization operations (363) • Complete prove-out of production prototype Plasma Arc Furnace System for demilitarization of small pyrotechnic ordnance (100)			
Project D293- Field Artillery Systems (NATO) Engineering Development: This project supports US/NATO howitzer and ammunition Rationalization, Standardization, Interoperability, and Compatibility. This project is an on-going, level of effort program.			
FY 1994 Accomplishments:			
• Supported engineering efforts (186) • Supported interoperability testing (77) • Supported translation and interpretation (18)			
FY 1995 Planned Program:			
• Engineering support (202) • Interoperability testing (52) • Translation and interpretation (20) • Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) decrement (6)			

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FY 1996 Planned Program: • Continue engineering support (160) • Continue interoperability testing (99) • Continue translation and interpretation (15) FY 1997 Planned Program: • Continue engineering support (155) • Continue interoperability testing (101) • Continue Translation and Interpretation (15) Project D620- DoD Munitions Effectiveness: Develops Joint Munitions Effectiveness Manuals (JMEM) 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. Air-to-air, surface-to-surface, and anti-air weapons effectiveness, environmental effects, and target vulnerability for all types of munitions are developed. Project includes collection, collation, storage, and dissemination of combat data. FY 1994 Accomplishments: • Development of prototype CD-ROM system for automation of JMEMs (350) • Methodology improvement programs for hardened targets, aircraft, and crew casualties (975) • Expansion of Joint Live Fire/Live Fire database and providing weaponeering inputs to Service force studies (375) • Maintenance and update of a library of over 450 JMEMs and technical reports for the JCS, the Services, and OSD (6339) FY 1995 Planned Program: • Standardize development of prototype CD-ROM system for the automation of JMEMs (425) • Develop Methodologies and models for assessment of damage to hardened bunker/aircraft targets and crew casualties (622) • Develop data for Smart Weapon Analysis Workstation, Special Operations Planning and Requirement System, and the Aircraft Loading and Target Attack Planning System (900) • Maintain/update a library of JMEMs and reports for the Services/JCS/JILC/CINCS/MACOMs/Unified Commands (2913) • SBIR/STTR decrement (98) FY 1996 Planned Program: Army will remain the executive agent for this program, but the funding and oversight transfers to OSD D&E beginning in FY 1996. FY 1997 Planned Program: No planned Army program			

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BUDGET ACTIVITY	PE NUMBER AND TITLE	February 1995
6 - Management Support	0605805A Munitions Stdzn Effect And Safety	
Project M857- Explosive Safety Standards: 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 1994 Accomplishments: - Conducted Hazard Division 1.2 tests with 105mm projectiles in open; designed test structure (magazine) for follow-on tests inside structures, and planned tests for 81mm mortars in open and inside structures (165) - Developed improved computer codes and conducted workshop to develop rule-based explosives safety and environmental management system (88) - Conducted other hazard analyses and prepared DoD guidelines for munitions storage facilities (215)		
FY 1995 Planned Program: - Collect and analyze data for revising tri-services and NATO hazards interpretation of Hazard Division 1.2 ammunition outside and inside structures (210) - Develop improved tri-service design procedures for explosion-resistant structures (180) - Develop improved explosives and munitions tests and collect characterization data (60) - Conduct other hazards analyses and prepare improved DoD guidelines for munitions storage facilities (180) - SBIR/STTR decrement (14)		
FY 1996 Planned Program: - Collect and analyze data for revising tri-services and NATO hazard interpretations for Hazard Division 1.2, 1.3, 1.4, and 1.6 ammunition outside and inside structures (200) - Develop improved tri-service design procedures and improved computer codes for explosion-resistant structures (200) - Conduct weapons hazards analyses; develop improved explosives and munitions tests and collect characterization data; develop DoD guidelines for munitions storage facilities, and expand explosives safety databases (221)		
FY 1997 Planned Program: - Collect and analyze data for revising tri-services and NATO hazard interpretations for Hazard Division 1.2, 1.3, 1.4, and 1.6 ammunition outside and inside structures (190) - Develop improved tri-service design procedures and improved computer codes for explosion-resistant structures (200) - Conduct weapon hazards analyses; develop improved explosives and munitions tests and characterization data; develop DoD guidelines for munitions storage facilities, and expand explosives safety databases (215)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE	
6 - Management Support		0605805A Munitions Stdzn Effect And Safety	
B. Program Change Summary			
Previous President's Budget		FY 1994	FY 1995
Appropriated Value		23975	7038
Adjustments to Appropriated Value (SBIR/STTR)		23975	14306
Current Budget Submit/President's Budget		-364	
		23611	14306
			6903
			1915
			1908

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605805A Munitions Stdzn Effect And Safety								DC38	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DC38 CHICKEN LITTLE FOLLOW-ON		3732	0	0	0	0	0	0	0	0	22906
C. <u>Other Program Funding Summary</u> : Not applicable											
D. <u>Schedule Profile</u> : Not applicable											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT				
6 - Management Support					0605805A Munitions Stdzn Effect And Safety					DF21				
COST (In Thousands)					FY 1994 Actual	FY 1995 Estimate	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					321	317	286	284	283	281	282	289	Continuing	Continuing

C. Other Program Funding Summary: Not applicableD. Schedule Profile: Not applicable

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605805A Munitions Stdzn Effect And Safety								DF24	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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	10770	8107	5722	748	750	754	934	933	Continuing	Continuing
C. Other Program Funding Summary											
Procurement, Ammunition, Army: Conventional Ammunition Demilitarization, SSN EP1800		FY 1994 70468	FY 1995 109228	FY 1996 96280	FY 1997 31598	FY 1998 35161	FY 1999 35301	FY 2000 35900	FY 2001 36900	To Compl Cont	Total Cost Cont
D. Schedule Profile: Not applicable											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY										PROJECT	
6 - Management Support										D293	
PE NUMBER AND TITLE										0605805A Munitions Stdzn Effect And Safety	
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	261	260	274	271	268	268	308	309	Continuing	Continuing	

C. Other Program Funding Summary: Not applicable

D. Schedule Profile: Not applicable

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605805A Munitions Stdzn Effect And Safety								D620	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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	8038	4958		0	0	0	0	0	0	189150
C. <u>Other Program Funding Summary</u> : Not applicable											
D. <u>Schedule Profile</u> : Not applicable											

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

DATE _____

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

M857

6 - Management Support

0605805A Munitions Stdzn Effect And Safety

COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
	M967 EXPLOSIVE SAFETY STANDARDS	468	644	621	605	568	572	640	839	Continuing

C. Other Program Funding Summary:		Not applicable

D. Schedule Profile: Not applicable

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE									
6 - Management Support		0605810A RDT&E Support for Non-Developmental Items (NDI)									
	COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	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		3482	0	0	0	0	0	0	0	0
DE65	NDI Testing	4570	2504	0	0	0	0	0	0	0	0
D125	NDI Market Investigation	991	978	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification: Funding of the Army's Non-Developmental Item (NDI) program directly supports the Army's initiatives in dual-use technology and defense conversion. An NDI is any material available from a variety of sources for use in the Army with little or no developmental effort. This program uses materials/items that are available from the commercial marketplace, other governmental agencies, or foreign countries. The NDI program saves RDTE dollars by recommending these commercially available items, thereby avoiding the cost and time necessary to field a system developed through the normal research and development (R&D) process. The market investigation portion (Project D125) is the conduct of surveys and analyses of those commercial items which are either to be a replacement item or the finalization of new equipment. The operational testing and evaluation portion (Project DE65) is the conduct of operational testing and evaluation of commercial items identified by the NDI market investigation as satisfying a new requirement or replacement for standard items in the Army inventory. These efforts directly support procurement. After FY 1993, candidate NDI programs will be funded under the proper program element in Budget Activity 5.

Project DE65 - NDI Testing: The operational testing portion conducts evaluation of production items identified by NDI market investigations. These investigations seek to satisfy new requirements or replacements for standard items in the Army inventory when that standard item is no longer available to meet the need and/or significant savings can be realized by precluding an R&D effort. The evaluation typically includes minor engineering modifications and testing of an item to development of performance specifications.

FY 1994 Accomplishments:

- Gun Laying and Positioning System (GLPS) - Completed testing, evaluation and preparation of test reports on the GLPS. (1209)
- Water Chiller Components - Completed testing and evaluation of commercial diesel engines with water chiller. Updated technical data package to incorporate changes in engine, type of refrigerant used (one that will not harm the ozone layer) and associated components. (455)
- Tactical Propulsion System - Completed testing and evaluation of truck components using truck demonstrator II. These truck components will end up being incorporated in the FMTV, Palletized Loading System (PLS), and Family of Heavy Tactical Vehicle (FHTV) buys. Examples of these components are: anti-lock braking system and traction control, suspension arm bushing, and air starter. (1615)
- Combat Propulsion System - Started dynamometer testing of (2) medium integrated propulsion systems - a Detroit Diesel engine with an Allison transmission and a Mack engine with General Electric transmission. These powerpacks have potential use in the Advanced Field Artillery System (AFAS), Future Armored Resupply Vehicle (FARV), Bradley and repower of the M109 Self Propelled Howitzer. (1291)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE	
6 - Management Support	0605810A RDT&E Support for Non-Developmental Items (NDI)	
FY 1995 Planned Program: - Humanitarian Airdrop Container (HAC) - Identify, test and evaluate most promising HAC for use in low cost, expendable method of airdropping relief supplies for humanitarian operations. (686) - Helicopter FM Intercom - Complete test and evaluate a helicopter FM intercom that allows the crew chief to talk to the pilot/copilot without being connected through an umbilical cord during ground operations. (850) - Auxiliary Brake Testing - Identify, test, prepare report and system specification on an auxiliary brake device attached to the Abrams Tank that would allow the recovery vehicle to safely tow it without the use of a hold back vehicle. (921) - Small Business Innovation Research (SBIR)/Small Business Technology Transfer(STTR) (47) FY 1996 Planned Program: No Planned Program. FY 1997 Planned Program: No Planned Program. Project D125 - NDI Market Investigation: Funding is for the conduct of surveys and analyses of production items (commercial, other military or government) which are to be a replacement item or to meet a new requirement or to replace an item which can no longer be cost-effectively supported in the field. FY 1994 Accomplishments: - Construction Equipment - Prepared questionnaire, conducted market investigation and prepared technical reports for the 25 ton all terrain cranes and high mobility mobile handler. (420) - Tactical Propulsion Systems - Conducted market investigation of advanced technology components to improve mobility, performance and transportability of heavy tactical vehicles. (286) - Coastal Harbor and Inland Waterways (CHI) Boat - Conducted a complete market investigation and prepared technical data and program management documentation needed for type classification. A CHI boat carries personnel and cargo between anchored shipping and shore facilities. (285) FY 1995 Planned Program: - Lower Cost Material, Joining and Design Simplicity of One Time Use Cargo Parachutes - Conduct market survey and identify best state-of-the-art design simplicity for one time use cargo parachute. (196) - Pusher Tug and Crane Barge Program - Complete market survey on the Pusher Tug and crane barge to include review of American Bureau of Shipping computer listings. Distribution of industry questionnaires, vessel inspection, evaluation of data and report preparation. (336) - High Speed Diesel Engines (HSDEs) for Generators/Auxiliary Power Units (APUs) - Conduct market survey and prepare report on HSDE in support of Army's requirements for tactical generators over 5 to 60 KW power range. (166)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE		
6 - Management Support	0605810A RDT&E Support for Non-Developmental Items (NDI)		
• Peacekeeper, Family of Vehicles Concept - Conduct market survey and analyze a vehicle that can provide adequate internal security and self-protection for light infantry soldiers during operations other than war. (264) • SBIR/STTR (16)			
FY 1996 Planned Program: No Planned Program.			
FY 1997 Planned Program: No Planned Program.			
B. <u>Program Change Summary</u>			
Previous President's Budget	FY 1994	FY 1995	FY 1996
Appropriated Value	5874	3524	3501
Adjustments to Appropriated Value	5874	3482	
a. SBIR/STTR decrement (-87)	-313		
b. Reprogrammed out of PE (-226)			
Current President's Budget Submit	5561	3482	0

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995		
BUDGET ACTIVITY		PE NUMBER AND TITLE										PROJECT	
6 - Management Support		0605810A RDT&E Support for Non-Developmental DE65										DE65	
		Items (NDI)											
	COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost		
DE65	NDI Testing	4570	2504	0	0	0	0	0	0	0	0		
C. <u>Other Program Funding Summary</u> : Not Applicable.													
D. <u>Schedule Profile</u> : Not Applicable.													

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE									PROJECT
6 - Management Support		0605810A RDT&E Support for Non-Developmental Items (NDI)									D125
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D125 NDI Market Investigation		991	978	0	0	0	0	0	0	0	0
C. Other Program Funding Summary: Not Applicable. D. Schedule Profile: Not Applicable.											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY											
PE NUMBER AND TITLE											
6 - Management Support											
0605853A Environmental Conservation											
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	2533	1849	1426	1774	2128	1740	Continuing	Continuing	
M0CC Environmental Conservation - AMC Test Ranges	0	0	2324	1538	1416	1764	1968	1730	Continuing	Continuing	
M1CC Environmental Conservation - AMC Major Subordinate Commands/Laboratories	0	0	10	10	10	10	10	10	Continuing	Continuing	
M5CC Environmental Conservation - USAKA	0	0	199	100	0	0	150	0	0	0	

A. 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 outleashing 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; Class III - project required to maintain/improve natural or cultural resource quality, but where non-compliance is not imminent. 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.

Project M0CC - Environmental Conservation - Army Materiel Command (AMC) Test Ranges: Resources in this project ensure an adequate level of funding for environmental natural and cultural resource management requirements, as discussed in paragraph A, 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. Improper management of natural and cultural resources at these installations could shut down the test mission.

FY 1994 Accomplishments: Project funded under PE 0605856A.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	February 1995
6 - Management Support	0605853A Environmental Conservation	
FY 1995 Planned Program: Project funded under PE 0605856A.		
FY 1996 Planned Program:		
Fund Class I, Class II and Class III environmental natural and cultural resource management programs such as Chesapeake Bay and tributary surface water sampling, management/protection of endangered species, historic preservation plans, Land Condition Trend Analysis and wetlands management/studies. (2324)		
FY 1997 Planned Program:		
Fund Class I, Class II and Class III environmental natural and cultural resource management programs such as Chesapeake Bay shoreline erosion survey, paleobotany management study, management/protection of endangered species, preservation of cultural resources according to the historic preservation plans. (1539)		
Project M1CC - Environmental Conservation - Army Materiel Command (AMC) Major Subordinate Commands/Laboratories: 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; and Army Research Laboratory Materials Technology Directorate (ARLMTD), Watertown, MA.		
FY 1994 Accomplishments: Project funded under 0605856A.		
FY 1995 Planned Program: Project funded under 0605856A		
FY 1996 Planned Program:		
Fund Class I, Class II and Class III 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. (10)		
FY 1997 Planned Program:		
Fund Class I, Class II and Class III environmental natural and cultural resource management programs such as historical building surveys. (10)		
Project M5CC - Environmental Conservation - U.S. Army Kwajalein Atoll: Resources in this project ensure an adequate level of funding for environmental natural and cultural resource management requirements, as discussed in paragraph A, at the U.S. Army Kwajalein Atoll. Funds for this project were realigned from PE 0605301A in FY1996 - FY2001.		
FY 1994 Accomplishments: Project funded under 0605301A		
FY 1995 Planned Program: Project funded under 0605301A		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE	
6 - Management Support	0605853A Environmental Conservation	
FY 1996 Planned Program: Develop an Historic Preservation Plan for management of historic properties to comply with National Historic Preservation Act. (199)		
FY 1997 Planned Program: Continue development of Historic Preservation Plan for management of historic properties to comply with National Historic Preservation Act. (100)		
B. Program Change Summary		
	<u>FY 1994</u>	<u>FY 1995</u>
		<u>FY 1996</u>
		<u>FY 1997</u>
Previous President's Budget		2533
Current President's Budget Submit		1649

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605853A Environmental Conservation								M0CC	
COST (in Thousands)		FY 1994 Actual	FY 1995 Estimate	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	0	2324	1539	1416	1764	1968	1730	Continuing	Continuing
C. <u>Other Program Funding Summary</u> : Not Applicable.											
D. <u>Schedule Profile</u> : Not Applicable.											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
6 - Management Support		0605853A Environmental Conservation								M1CC	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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	0	10	10	10	10	10	10	Continuing	Continuing
<u>C. Other Program Funding Summary:</u> Not Applicable. <u>D. Schedule Profile:</u> Not Applicable.											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995							
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT						
6 - Management Support		0605853A Environmental Conservation		M5CC						
COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
MSCC Environmental Conservation - USAKA	0	0	199	100	0	0	150	0	0	0

C. Other Program Funding Summary: Not Applicable.

D. Schedule Profile: Not Applicable.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE									
6 - Management Support		0605854A Pollution Prevention									
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	13005	8807	6508	4760	2320	2249	Continuing	Continuing	
M0PP Pollution Prevention - AMC Test Ranges	0	0	3493	3215	2816	1898	946	857	Continuing	Continuing	
M1PP Pollution Prevention - AMC Major Subordinate Commands/Laboratories	0	0	267	147	125	125	125	125	Continuing	Continuing	
M5PP Pollution Prevention - USAKA	0	0	2935	1443	582	647	350	369	Continuing	Continuing	
M7PP Pollution Prevention - ODC Elimination	0	0	2031	320	0	0	0	0	Continuing	Continuing	
M8PP Pollution Prevention - Acquisition Pollution Prevention	0	0	4279	3682	2985	2080	869	898	Continuing	Continuing	

A. 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 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 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 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 agreement/s 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.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		February 1995
6 - Management Support		
PE NUMBER AND TITLE		0605854A Pollution Prevention
Project MOPP - Pollution Prevention - Army Materiel Command (AMC) Test Ranges: Resources in this project ensure an adequate level of funding for pollution prevention requirements, as discussed in paragraph A, 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 1994 Accomplishments: Program funded in Program Element 0605856A.		
FY 1995 Planned Program: Program funded in Program Element 0605856A		
FY 1996 Planned Program: 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. (3493)		
FY 1997 Planned Program: 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. (3215)		
Project MIPP - Pollution Prevention - Army Materiel Command (AMC) Major Subordinate Commands/Laboratories: Resources in this project ensure an adequate level of funding for pollution prevention 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, formerly, Natick Research, Development and Engineering Center (NRDEC), Natick, MA; and Army Research Laboratory Materials Technology Directorate (ARLMTD), APG, MD.		
FY 1994 Accomplishments: Program funded in Program Element 0605856A		
FY 1995 Planned Program: Program funded in Program Element 0605856A		
FY 1996 Planned Program: Fund Class I, Class II and Class III 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. (267)		
FY 1997 Planned Program: Fund Class I, Class II and Class III 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. (148)		
Project MSPP - Pollution Prevention - U.S. Army Kwajalein Atoll: Resources in this project ensure an adequate level of funding for pollution prevention requirements, as discussed in paragraph A, at the U.S. Army Kwajalein Atoll.		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	
6 - Management Support	0605854A Pollution Prevention	February 1995
FY 1994 Accomplishments: Program funded in Program Element 0605301A. FY 1995 Planned Program: Program funded in Program Element 0605301A. FY 1996 Planned Program: • Maintain hazardous material satellite areas to comply with regulations. (100) • Continue program to replace use of Halon in fire suppression systems. (1580) • Develop and implement Kwajalein Environmental Emergency Plan (KEEP) as required by UES. (250) • Continue identification removal and off-island disposal of PCBs. (1005) FY 1997 Planned Program: • Continue implementation of Kwajalein Environmental Emergency Plan (KEEP) as required by UES. (300) • Ship recyclable metals from USAKA to a receiving port for resale/reclamation. (400) • Continue identification, removal and off-island disposal of PCBs. (743) 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 1994 Accomplishments: Program funded in Program Element 0605801A. FY 1995 Planned Program: Program funded in Program Element 0605801A. FY 1996 Planned Program: • Continue fire safety test enclosure. (1190) • Complete project on Ozone - Depleting solvents for aviation and industrial operations. (105) • Continue Test & Evaluation of hydrochlorofluorocarbon (HCFC)-22 replacement in air conditioners/environmental control units in communication shelters. (600) • Continue Test & Evaluation of HCFC-22 (Class II Ozone-Depleter) in air conditioners/environmental control units in communication shelters. (136) FY 1997 Planned Program • Complete fire safety test enclosure. (320)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	February 1995
6 - Management Support	0605854A Pollution Prevention	
Project MSPP - Acquisition Pollution Prevention Program: 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 1994 Accomplishments: Program Not Funded		
FY 1995 Planned Program: Project funded under Program Element 0605801A		
FY 1996 Planned Program: - Continue to review documentation to identify toxic chemicals. (1379) - Continue to manage and initiate projects to identify, test and evaluate new substitute-alternatives. (2344) - Continue changes to documentation to replace toxic chemicals with validated alternatives. (369) - Support PEO/PM implementation of validated technologies in contracts and technical requirements. (187)		
FY 1997 Planned Program: - Continue to review documentation to identify toxic chemicals. (1382) - Continue to manage and initiate projects to identify, test and evaluate new substitute-alternatives. (1800) - Continue changes to documentation to replace toxic chemicals with validated alternatives. (300) - Support PEO/PM implementation of validated technologies in contracts and technical requirements. (200)		
B. Program Change Summary:		
Previous President's Budget	FY 1994	FY 1995
Appropriated Value		FY 1996
Adjustments to Appropriated Value		FY 1997
Current President's Budget Submit		
		8807
		13005

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE									
6 - Management Support		0605856A Environmental Compliance - RDT&E									
COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	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	46219	50987	66101	48876	45724	40899	39202	33597	Continuing	Continuing	
M0VV Environmental Compliance - AMC Test Ranges	31023	34033	39893	32180	31098	27587	25748	25800	Continuing	Continuing	
M1VV Environmental Compliance - AMC Major Subordinate Commands/Laboratories	12488	14980	21481	10878	10721	10365	10889	5667	Continuing	Continuing	
IA1VV Environmental Compliance - Corps of Engineers	0	1874	0	0	0	0	0	0	0	0	
IA5VV Environmental Compliance - USAKA	0	0	4927	5838	3905	2767	2765	2130	Continuing	Continuing	
IA9VV Environmental Compliance - Landfill Remediation	2708	0	0	0	0	0	0	0	0	2708	

A. 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. Increase in FY 1995 reflects Army requirements to fund Class I and II environmental compliance on Army RDTE installations. 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.

Project M0VV - Environmental Compliance - Army Materiel Command (AMC) Test Ranges: Resources in this project ensure an adequate level of funding for legally mandated environmental compliance requirements, as discussed in paragraph A, 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 mission.

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

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0605856A Environmental Compliance - RDT&E

FY 1994 Accomplishments:

- Funded Class I, Class II, and other "Must Fund" environmental compliance programs such as underground storage tank program, above ground tank testing - repairs and upgrades, sewage system upgrade to correct violation, support of closures and Environmental Impact Statements, base support of asbestos hazards management program and hazardous waste analysis contract. Funded remaining compliance requirements such as Hazardous Waste Management Program and management of the base support environmental program. (31023)

FY 1995 Planned Program:

- 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 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. (33483)
- Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) (550)

FY 1996 Planned Program:

- 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. (39693)

FY 1997 Planned Program:

- 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. (32160)

Project M1VV - Environmental Compliance - Army Materiel Command (AMC) Major Subordinate Commands/Laboratories: Resources in this project ensure an adequate level of funding for legally mandated environmental compliance 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, formerly, Natick Research, Development and Engineering Center (NRDEC), Natick, MA; and Army Research Laboratory Materials Technology Directorate (ARLMTD), Watertown, MA.

FY 1994 Accomplishments:

- Funded Class I, Class II, and other environmental compliance programs such as upgrading of the Climatic Chambers Cooling System at NRDEC; hazardous waste closure and rehabilitation of sanitary sewer west and implementation of a stormwater pollution prevention program at ARDEC; and replacement of PCB transformers and upgrade of underground storage tanks and Stormwater Plan implementation at ARL. Funded remaining compliance requirements such as Hazardous Waste disposal and program management. (12488)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	February 1995	
6 - Management Support	PE NUMBER AND TITLE 0605856A Environmental Compliance - RDT&E	
FY 1995 Planned Program: - 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. (14665) - SBIR/STTR (315) FY 1996 Planned Program: - 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. (21481) FY 1997 Planned Program: - Fund Class I, Class II, and other environmental programs such 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. (10878) 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 at the Construction Engineering Research Laboratory (CERL). FY 1994 Accomplishments: Program not funded FY 1995 Planned Program: - Development of an industry cost-shared demonstration of a 3000 HP low emission natural gas boiler. (1933) - SBIR/STTR (41) FY 1996 Planned Program: Program not funded FY 1997 Planned Program: Program not funded Project M5VV - Environmental Compliance - U.S. Army Kwajalein Atoll: Resources in this project ensure an adequate level of funding for legally mandated environmental compliance requirements, as discussed in paragraph A, at U.S. Army Kwajalein Atoll (USAKA).		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	February 1995	
6 - Management Support	PE NUMBER AND TITLE 0605856A Environmental Compliance - RDT&E	
FY 1994 Accomplishments: Funded under Program Element 0605301A, Project MAC2		
FY 1995 Planned Program: Funded under Program Element 0605301A, Project MAC2.		
FY 1996 Planned Program:		
- Continue contractor environmental compliance oversight program. (700) - Continue testing of materials to determine hazardous characteristics. (120) - Continue shipment of hazardous wastes to disposal. (250) - Continue training of Environmental staff to maintain current knowledge of compliance requirements. (60) - Continue quarterly testing of potable water to ensure protection of public health and Safe Drinking Water Act compliance. (150) - Clean up fuel and oil contamination (remediation). (1000) - USAKA Environmental Standards (UES) documentation. (811) - Provide environmental awareness training. (50) - Kwajalein Fuel Farm Assessment (RJ/FS). (1000) - Continue replacement of equipment containing Polychlorinated Biphenyl (PCB). (476) - Continue identification, removal and off-island disposal of asbestos containing materials. (150) - Conduct influent water quality and wastewater discharge investigations to establish compliance with UES. (100)		
FY 1997 Planned Program:		
- Continue contractor environmental compliance oversight program. (1000) - Continue replacement of equipment containing PCBs. (200) - Continue testing of materials to determine hazardous characteristics. (120) - Continue shipment of hazardous wastes to disposal. (250) - Training of Environmental staff to maintain current knowledge of compliance requirements. (60) - Quarterly testing of potable water to ensure protection of public health and Safe Drinking Water Act compliance. (150) - Periodic testing of wastewater discharges to establish compliance with Clean Water Act requirements. (85) - Clean up fuel and oil contamination (remediation). (1000) - USAKA Environmental Standards (UES) Documentation. (973) - Kwajalein Fuel Farm Assessment (RJ/FS). (1000) - Island soil contamination characterization, USAKA islands. (500)		
Project M6VV - Environmental Compliance - Landfill Remediation: Congress appropriated funds to facilitate the development of new technologies for more effective and expeditious remediation of landfill sites at military installations.		

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BUDGET ACTIVITY		DATE
PE NUMBER AND TITLE		DATE
6 - Management Support		February 1995
FY 1994 Accomplishments:		
• Participate in a cooperative demonstration project at the landfill at Fort Ord, CA. (2708)		
FY 1995 Planned Program: Program not funded		
FY 1996 Planned Program: Program not funded		
FY 1997 Planned Program: Program not funded		
B. Program Change Summary		
Previous President's Budget		
Appropriated Value		
Adjustments to Appropriated Value		
a. SBIR/STTR decrement (-667)		
b. Reprogrammed total (178)		
Current President's Budget Submit		
FY 1994	FY 1995	FY 1996
46708	49907	56467
46708	50987	
-489		
46219	50987	66101
		48876
		37893

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

DATE February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0605876A Minor Construction - (RPM) RDTE

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	2083	5709	5497	4407	4436	4561	4590	4683	Continuing	Continuing
MOWW Minor Construction - Test Ranges	0	2902	3546	2841	2818	2886	2867	3063	Continuing	Continuing
M1WW Minor Construction - AMC Major Subordinate Commands and Laboratories	1630	2261	1305	1062	1119	1198	1069	1097	Continuing	Continuing
M4WW Minor Construction - Corps of Engineers	463	546	644	504	489	467	484	463	Continuing	Continuing

A. 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. The funding increases reflect Army recognition of and intent to rectify severe underfunding in FY 1994. FY 1994 funding constraints caused a skip year in TECOM minor construction at the Army test ranges, and minimum support at the AMC major subordinate commands and laboratories and Corps of Engineers RDTE laboratories. Includes effort directed toward support of installations or operations required for general research and development use and therefore is appropriate to Budget Activity 6.

Project MOWW - Minor Construction - Test Ranges: Finances RDTE minor construction projects (as described in paragraph A) 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 3.6 million acres of land, over 23 million square feet of building space, 3 thousand miles of roads, and 2 thousand miles of utility lines. FY 1994 budget constraints caused a skip year in minor construction at the Army TECOM test ranges. Current funding restores and allows resumption of minor construction support at a minimum level.

FY 1994 Accomplishments: Minor construction projects at U.S. Army Materiel Command test ranges not funded in FY 1994.

FY 1995 Planned Program:

- Fund minor construction projects at Aberdeen Proving Ground, MD. (1523)
- Fund minor construction projects at Dugway Proving Ground, UT. (308)
- Fund minor construction projects at White Sands Missile Range, NM. (691)
- Fund minor construction projects at Yuma Proving Ground, AZ. (319)
- Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) (61)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	February 1995
6 - Management Support	0605876A Minor Construction - (RPM) RDTE	
FY 1996 Planned Program: • Fund minor construction projects at Aberdeen Proving Ground, MD. (1402) • Fund minor construction projects at Dugway Proving Ground, UT. (384) • Fund minor construction projects at White Sands Missile Range, NM. (864) • Fund minor construction projects at Yuma Proving Ground, AZ. (398) • One time minor construction to close English Village containment area at Dugway Proving Grounds. (500) FY 1997 Planned Program: • Fund minor construction projects at Aberdeen Proving Ground, MD. (1523) • Fund minor construction projects at Dugway Proving Ground, UT. (208) • Fund minor construction projects at White Sands Missile Range, NM. (791) • Fund minor construction projects at Yuma Proving Ground, AZ. (319) Project M1WW - Minor Construction - AMC Major Subordinate Commands and Laboratories: This project finances minor construction projects (described in paragraph A) 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 (SSC), 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 increase provides minor construction support at a minimum level. FY 1994 Accomplishments: • Funded minor construction projects at ARDEC, Picatinny Arsenal, NJ. (394) • Funded minor construction projects at ARL, Adelphi, MD. (408) • Funded minor construction projects at SSC, Natick, MA. (228) FY 1995 Planned Program: • Fund minor construction projects at ARDEC, Picatinny Arsenal, NJ. (1766) • Fund minor construction projects at ARL, Adelphi, MD. (320) • Fund minor construction projects at SSC, Natick, MA. (175) FY 1996 Planned Program: • Fund minor construction projects at ARDEC, Picatinny Arsenal, NJ. (1010) • Fund minor construction projects at ARL, Adelphi, MD. (194)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE	
6 - Management Support	0605876A Minor Construction - (RPM) RDTE	
• Fund minor construction projects at SSC, Natick, MA. (101)		
FY 1997 Planned Program: • Fund minor construction projects at ARDEC, Picatinny Arsenal, NJ. (832) • Fund minor construction projects at ARL, Adelphi, MD. (150) • Fund minor construction projects at SSC, Natick, MA. (80)		
Project M4WW - Minor Construction - Corps of Engineers: Project finances those minor construction projects (described in paragraph A) 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; and Construction Engineering Research Laboratory (CERL), Champaign, IL.		
FY 1994 Accomplishments: • Funded minor construction projects at CERL, Champaign, IL. (93) • Funded minor construction projects at CRREL, Hanover, NH. (218) • Funded minor construction projects at WES, Vicksburg, MS. (152)		
FY 1995 Planned Program: • Fund minor construction projects at CERL, Champaign, IL. (109) • Fund minor construction projects at CRREL, Hanover, NH. (244) • Fund minor construction projects at WES, Vicksburg, MS. (181) • SBIR/STTR (12)		
FY 1996 Planned Program: • Fund minor construction projects at CERL, Champaign, IL. (129) • Fund minor construction projects at CRREL, Hanover, NH. (303) • Fund minor construction projects at WES, Vicksburg, MS. (212)		
FY 1997 Planned Program: • Fund minor construction projects at CERL, Champaign, IL. (100) • Fund minor construction projects at CRREL, Hanover, NH. (237) • Fund minor construction projects at WES, Vicksburg, MS. (167)		

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

February 1995

BUDGET ACTIVITY

6 - Management Support

PE NUMBER AND TITLE

0605876A Minor Construction - (RPM) RDTE

B. Program Change Summary

<u>FY 1994</u>	1871	1871	222

FY 1997
5512

FY 1996
5632

FY 1995
5745
5709

Previous President's Budget

Appropriated Value

Adjustments to Appropriated Value

a. SBIR/STTR decrement (-29)

b. Reprogrammed into PE (368)

c. Reprogrammed out of PE (-117)

Current President's Budget Submit

2093

5709

5497

1407

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE									
6 - Management Support		0605878A Maintenance and Repair - (RPM) RDTE									
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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		62729	81080	85698	85530	88020	71395	72481	74082	Continuing	Continuing
M0YY Maintenance and Repair - AMC Test Ranges		48080	61543	72870	49492	51541	54075	55587	58848	Continuing	Continuing
M1YY Maintenance and Repair - AMC Subordinate Command/Laboratories		11862	18534	18140	12659	12834	13335	13790	14167	Continuing	Continuing
M4YY Maintenance and Repair - U.S. Army Corp of Engineers		2977	2983	4888	3379	3545	3885	3084	3079	Continuing	Continuing

A. 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. The current funding increases reflect Army recognition of and intent to rectify severe underfunding in FY 1994. FY 1994 funding constraints caused increased deterioration and delays in critical maintenance and repair projects. This increase will remediate some of the worst deterioration of facility assets, especially at the TECOM test ranges. Includes effort directed toward support of installations or operations required for general research and development use and therefore is appropriate to Budget Activity 6.

Project M0YY - Maintenance and Repair - AMC Test Ranges: Finances functions for maintaining and repairing infrastructure (see paragraph A) 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 3.6 million acres of land, over 23 million square feet of building space, 3 thousand miles of roads, and 2 thousand miles of utility lines. Because of funding shortfalls and tenant BRAC growth at test ranges, backlog of maintenance and repair (BMAR) has grown, resulting in deterioration of facility assets. FY 1994 budget constraints caused a drastically reduced funding level in this program for the TECOM test ranges. The current funding stream will restore funding and allow resumption of maintenance and repair of real property below a minimum level.

FY 1994 Accomplishments:

- Funded maintenance and repair projects at Aberdeen Proving Ground, MD. (25'760)
- Funded maintenance and repair projects at Dugway Proving Ground, UT. (5205)
- Funded maintenance and repair projects at White Sands Missile Range, NM. (11698)
- Funded maintenance and repair projects at Yuma Proving Ground, AZ. (5397)
- BMAR at \$270 million.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE	
6 - Management Support	0605878A Maintenance and Repair - (RPM) RDTE	
FY 1995 Planned Program: • Fund minimum operational maintenance requirement and \$13 million in repair projects at Aberdeen Proving Ground, MD. (34654) • Fund minimum operational maintenance requirement and \$3 million in repair projects at Dugway Proving Ground, UT. (5209) • Fund minimum operational maintenance requirement and \$6 million in repair projects at White Sands Missile Range, NM. (13313) • Fund minimum operational maintenance requirement and \$3 million in repair projects at Yuma Proving Ground, AZ. (7183) • Annual Recurring Requirements (ARR) at \$88 million. • BMAR estimate \$302 million. • SBIR/STTR (1184) FY 1996 Planned Program: • Fund minimum operational maintenance requirement and no resources for repair projects at Aberdeen Proving Ground, MD. (35913) • Fund minimum operational maintenance requirement and no resources for repair projects at Dugway Proving Ground, UT. (6113) • Fund minimum operational maintenance requirement and no resources for repair projects at White Sands Missile Range, NM. (15451) • Fund minimum operational maintenance requirement and no resources for repair projects at Yuma Proving Ground, AZ. (7293) • One time repair to close English Village contourment area at DPG. (7900) • ARR at \$94 million (with new BRAC consolidations) • BMAR estimate \$338 million. FY 1997 Planned Program: • Fund minimum operational maintenance requirements and no resources for repair projects at Aberdeen Proving Ground, MD. (27520) • Fund minimum operational maintenance requirements and no resources for repair projects at Dugway Proving Ground, UT. (4322) • Fund minimum operational maintenance requirements and no resources for repair projects at White Sands Missile Range, NM. (11781) • Fund minimum operational maintenance requirements and no resources for repair projects at Yuma Proving Ground, AZ. (5863) • ARR at \$98 million • BMAR estimate \$379 million. Project M1YY - Maintenance and Repair - AMC Major Subordinate Commands/Laboratories: This project finances those maintenance and repair activities and functions necessary for maintaining and repairing infrastructure (see paragraph A) 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 (SSC), 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 a. es of land and 6.4 million square feet of building space with necessary utilities and road systems.		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		February 1995
6 - Management Support		0605878A Maintenance and Repair - (RPM) RDTE
FY 1994 Accomplishments: • Funded maintenance and repair projects at Picatinny Arsenal, NJ. (3992) • Funded maintenance and repair projects at Army Research Laboratory, Adelphi, MD. (4763) • Funded maintenance and repair projects at Soldier Systems Command, Natick, MA. (2937) • BMAR at \$16.5 million. FY 1995 Planned Program: • Funds maintenance and repair projects at Picatinny Arsenal, NJ. (8390) • Funds maintenance and repair projects at Army Research Laboratory, Adelphi, MD. (5180) • Funds maintenance and repair projects at Soldier Systems Command, Natick, MA. (2616) • BMAR estimate \$18.5 million. • SBIR/STTR (348) FY 1996 Planned Program: • Funds maintenance and repair projects at Picatinny Arsenal, NJ. (10798) • Funds maintenance and repair projects at Army Research Laboratory, Adelphi, MD. (4612) • Funds maintenance and repair projects at Soldier Systems Command, Natick, MA. (2730) • BMAR estimate \$20.7 million. FY 1997 Planned Program: • Funds maintenance and repair projects at Picatinny Arsenal, NJ. (7979) • Funds maintenance and repair projects at Army Research Laboratory, Adelphi, MD. (2980) • Funds maintenance and repair projects at Soldier Systems Support, Natick, MA. (1700) • BMAR estimate \$23.2 million. Project MAYV - Maintenance and Repair - U.S. Army Corps of Engineers (COE): 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), Ft Belvoir, VA. FY 1994 Accomplishments: • Funded maintenance and repair projects at CERL, Champaign, IL. (625) • Funded maintenance and repair projects at CRREL, Hanover, NH. (1280)		

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BUDGET ACTIVITY

PE NUMBER AND TITLE

0605878A Maintenance and Repair - (RPM) RDTE

6 - Management Support

- Funded maintenance and repair projects at TEC, Ft Belvoir, VA. (327)
- Funded maintenance and repair projects at WES, Vicksburg, MS. (745)

FY 1995 Planned Program:

- Fund maintenance and repair projects at CERL, Champaign, IL. (597)
- Fund maintenance and repair projects at CRREL, Hanover, NH. (1432)
- Fund maintenance and repair projects at TEC, Ft Belvoir, VA. (388)
- Fund maintenance and repair projects at WES, Vicksburg, MS. (566)

FY 1996 Planned Program:

- Fund maintenance and repair projects at CERL, Champaign, IL. (977)
- Fund maintenance and repair projects at CRREL, Hanover, NH. (2296)
- Fund maintenance and repair projects at TEC, Ft Belvoir, VA. (635)
- Fund maintenance and repair projects at WES, Vicksburg, MS. (978)

FY 1997 Planned Program:

- Fund maintenance and repair projects at CERL, Champaign, IL. (676)
- Fund maintenance and repair projects at CRREL, Hanover, NH. (1588)
- Fund maintenance and repair projects at TEC, Ft Belvoir, VA. (439)
- Fund maintenance and repair projects at WES, Vicksburg, MS. (676)

B. Program Change Summary

Previous President's Budget

Appropriated Value

Adjustments to Appropriated Value

a. SBIR/STTR decrement (-836)

b. Reprogrammed into PE (+2354)

c. Reprogrammed out of PE (-163)

Current President's Budget Submit

FY 1994	FY 1995	FY 1996	FY 1997
61374	91970	42094	49055
61374	81060		
1355			
62729	81060	95696	65530

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6 - Management Support

PE NUMBER AND TITLE

0605896A Base Operations - RDT&E

COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	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	275768	295891	329978	312963	297472	295581	289681	308024	Continuing	Continuing
M0ZZ Base Operations - Army Materiel Command (AMC) Test Ranges	177987	184784	205090	208624	197361	199271	201190	205412	Continuing	Continuing
M1ZZ Base Operations - AMC Major Subordinate Commands and Laboratories	79272	92137	107054	87511	83510	81304	83158	84987	Continuing	Continuing
M4ZZ Base Operations - Corps of Engineers	18528	18770	17834	16818	16801	15006	15343	15845	Continuing	Continuing

A. 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, and test ranges. 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; Defense Finance and Accounting Service (DFAS) (14) contracting operations; (15) records management and publications; (16) operation of utilities; and (17) other engineering support including fire prevention, refuse collection, and custodial services. 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 funding increase reflects Army recognition of and intent to rectify severe underfunding in FY 1994 and FY 1995 to include a plus-up for DFAS operations (FY '96 and beyond). FY 1994 funding constraints reduced RDTE Base Operations to a barely sustainable level of basic operational support. Increases in funding in the follow-on years restore RDTE Base Operations support at a minimum essential level. Includes effort directed toward support of installations or operations required for general research and development use and therefore is appropriate to Budget Activity 6.

Project M0ZZ Base Operations - Army Materiel Command (AMC) Test Ranges: 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). Tenants include: U.S. Army Chemical Biological Defense Command; Ordnance Center and School; Army Materiel Systems Analysis Activity; and Army Research Laboratory. This project supports a combined population in excess of 38,000 military, civilians, contractors, and military dependents. The Army senior leadership has made a commitment to operate the four major test ranges under the Tri-Service Reliance initiative (ground vehicles and gun munitions at APG/YPG; surface-to-air missiles and nuclear efforts at WSMR; and chemical/biological at DPG). Internal base operations

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BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support**0605896A Base Operations - RDT&E**

functions and services have been reviewed and resulted in consolidation of functions, curtailment of services, and a reduction of civilians consistent with projected downsizing of workload. Fifty percent of the RDTE base operations budget for the Test and Evaluation Command supports organizations other than testing. Consolidation and mission transfers to TECOM R&D installations will result in over 1 million square feet of new tenant facilities and increased population between FY 1994 and FY 1997. Along with these new facilities comes the additional requirements on TECOM R&D installations to provide host services (utilities, engineering services, i.e., refuse; custodial; fire protection; Civilian Personnel Office support; logistics; maintenance, shipping/receiving). Instead of declining, TECOM's base operations support requirements are growing in response to reductions elsewhere in the Army. FY 1996 provides for full funding of the Defense Finance and Accounting Services as an Army cost from the RDTE Appropriation..

FY 1994 Accomplishments:

- Funded BASEOPS activities and functions for TECOM Test Ranges and tenant /satellite activities:
 - Aberdeen Proving Ground Support Activity, MD (89200)
 - Dugway Proving Ground, UT (18997)
 - White Sands Missile Range, NM (49005)
 - Yuma Proving Ground, AZ (18127)
- Funded specific security projects on TECOM RD/TE installations. (627)
- Funded specific security projects at Army Research Laboratory and Chemical Biological Defense Command. (237)
- Absorbed base operations support for 610th Ordnance Battalion, previously located at Ft Belvoir, VA. (1774)

FY 1995 Planned Program:

- This project funds BASEOPS activities and functions for TECOM Test Ranges and tenant/satellite activities. Base Operations infrastructure continues to provide support for technical testing, diverse Army R&D tenants, and a principal training mission at the Ordnance Center and School, as follows:
 - Aberdeen Proving Ground Support Activity, MD (96767)
 - Dugway Proving Ground, UT (18883)
 - White Sands Missile Range, NM (50808)
 - Yuma Proving Ground, AZ (18131)
- Base Operations infrastructure continues to provide support for technical testing, diverse Army R&D tenants, and a principal training mission at the Ordnance Center and School. Funds Civilian Illness and Injury Compensation costs.
- Small Business Innovative Research (SBIR)/Science and Technology Transfer (STTR) (195)

FY 1996 Planned Program:

- This project funds BASEOPS activities and functions for TECOM Test Ranges and tenant/satellite activities. Base Operations infrastructure continues to provide support for technical testing, diverse Army R&D tenants, and a principal training mission at the Ordnance Center and School. Funds Civilian Illness and Injury

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6 - Management Support	0605896A Base Operations - RDTE&E		

Compensation cost:

- Aberdeen Proving Ground Support Activity, MD (108563)
- Dugway Proving Ground, UT (23371)
- White Sands Missile Range, NM (53296)
- Yuma Proving Ground, AZ (19860)

- Base Operations infrastructure continues to provide support for technical testing, diverse Army R&D tenants, and a principal training mission at the Ordnance Center and School. 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 for partial year.

FY 1997 Planned Program:

- This project funds BASEOPS activities and functions for TECOM Test Ranges and tenant/satellite activities. Base Operations Infrastructure continues to provide support for technical testing, diverse Army R&D tenants, and a principal training mission at the Ordnance Center and School, as follows:
 - Aberdeen Proving Ground Support Activity, MD (115318)
 - Dugway Proving Ground, UT (18034)
 - White Sands Missile Range, NM (53628)
 - Yuma Proving Ground, AZ (21644)
- Base Operations infrastructure continues to provide support for technical testing, diverse Army R&D tenants, and a principal training mission at the Ordnance Center and School. Above funding includes specific projects below:
 - Civilian Illness and Injury Compensation Costs.
 - Defense Finance and Accounting Services.
 - Effective FY 97 the main post commonment area of DPG will be closed due to reduction of infrastructure funding in FY 98 and beyond. Dugway Proving Grounds will become a test facility with minimum base operations support.
 - One-time costs for personnel reduction, movement of equipment, and modular furniture for test facility concept.
 - Funds transfer of Materials Technology Laboratory, Watertown, MA to Aberdeen Proving Ground, MD.

Project M1ZZ - Base Operations - AMC Major Subordinate Commands and Laboratories: 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 (previously known as Harry Diamond Laboratories), Armament Research, Development and Engineering Center (ARDEC), Picatinny Arsenal, NJ, and Soldier Systems Command (SSC), 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 1994 funding guidance drastically reduced RDTE Base Operations at the AMC RDTE major subordinate commands and laboratories. FY 1995 funding restores program to minimum essential level.

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6 - Management Support	PE NUMBER AND TITLE 0605896A Base Operations - RDT&E	
FY 1994 Accomplishments: - Continued to fund the BASEOPS activities and functions for the AMC RDTE Major Subordinate Command installations, laboratories and tenant/satellite activities as follows: - ARL, Adelphi, MD (31024) - ARDEC, Picatinny Arsenal, NJ (36567) - SSC, Natick, MA (11681) FY 1995 Planned Program: - 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: - ARL, Adelphi, MD (FY 1995 funding level restores ARL BASEOPS to minimum essential level, including minimal "open door" support costs for the Materials Directorate at Watertown, MA. Watertown facility is scheduled to close 4th Qtr, FY 1995. FY 1995 level funds essential items that were deferred from FY 1994 because of funding shortage.) (33705) - ARDEC, Picatinny Arsenal, NJ (The FY 1994 RDTE funding guidance drastically reduced the RDTE BASEOPS program at ARDEC, Picatinny Arsenal, NJ, below the minimum essential level, as a one-time reduction. The FY 1995 funding level partially restores the ARDEC BASEOPS program to cover minimum essential level requirements and efforts deferred from FY 1994 because of funding shortages). (43954) - SSC, Natick, MA (12793) - SBIR/STTR (1685) 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: - ARL, Adelphi, MD (44605) - ARDEC, Picatinny Arsenal, NJ (44000) - SSC, Natick, MA (18449) FY 1997 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 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: - ARL, Adelphi, MD (28065) - ARDEC, Picatinny Arsenal, NJ (44000) - SSC, Natick, MA (15446)		

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6 - Management Support	0605896A Base Operations - RDT&E	
Project M4ZZ - Base Operations - Corps of Engineers: 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), Ft. Belvoir, VA.		
FY 1994 Accomplishments: • Funded BASEOPS activities and functions for the U.S. Army Corps of Engineers RDTE, A Laboratories, at the following locations: - WES, Vicksburg, MS (4474) - CRREL, Hanover, NH (4728) - CERL, Champaign, IL (4356) - TEC, Ft Belvoir, VA (4971)		
FY 1995 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: - WES, Vicksburg, MS (4556) - CRREL, Hanover, NH (4363) - CERL, Champaign, IL (4577) - TEC, Ft Belvoir, VA (4880) • SBIR/STTR (394)		
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: - WES, Vicksburg, MS (4262) - CRREL, Hanover, NH (4459) - CERL, Champaign, IL (4298) - TEC, Ft Belvoir, VA (4815)		
FY 1997 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: - WES, Vicksburg, MS (4019) - CRREL, Hanover, NH (4205) - CERL, Champaign, IL (4053) - TEC, Ft Belvoir, VA (4541)		

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BUDGET ACTIVITY

PE NUMBER AND TITLE

6 - Management Support

0605898A Management Headquarters (Research and Development)

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	24091	23492	8768	8546	8589	8458	8659	8945	Continuing	Continuing
MM03 Command Headquarters - MRDC	3873	3877	3795	3743	3774	3726	3687	3791	Continuing	Continuing
MM05 Army Research Laboratory	8404	7777	4871	4803	4825	4732	5162	5154	Continuing	Continuing
MM31 AKAMAI	11814	11838	0	0	0	0	0	0	0	0

A. 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 Development Command (USAMRDC), 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.

Project MM03 - Command Headquarters, Medical Research and Development Command (MRDC): This project provides the funding for management headquarters activities at the U.S. Army Medical Research and Development Command (USAMRDC), 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). The program is heavily dependent on civilian salaries and associated support contractor operations.

FY 1994 Accomplishments:

- Funded the operation of the USAMRDC headquarters activities which administers the medical research, development and acquisition program to sustain military medical technological superiority. (3873)

FY 1995 Planned Program:

- Fund the operation of the USAMRDC headquarters activities which administers the medical research, development and acquisition program to sustain military medical technological superiority. (3877)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	February 1995
6 - Management Support	0605898A Management Headquarters (Research and Development)	
FY 1996 Planned Program: • Fund the operation of the USAMRDC headquarters activities which administers the medical research, development and acquisition program to sustain military medical technological superiority. (3795) FY 1997 Planned Program: • Fund the operation of the USAMRDC headquarters activities which administers the medical research, development and acquisition program to sustain military medical technological superiority. (3743) Project MM65 - Army Research Laboratory (ARL): 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). The program is heavily dependent on civilian salaries and associated administrative support. FY 1994 Accomplishments: • Funded the operation of ARL headquarters activities which administers the Army laboratory research and development program to sustain technological superiority. (8404) FY 1995 Planned Program: • Fund the operation of ARL headquarters activities which administers the Army laboratory research and development program to sustain technological superiority. (7741) • Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) (36) FY 1996 Planned Program: • Fund the operation of ARL headquarters activities which administers the Army laboratory research and development program to sustain technological superiority. (4971) FY 1997 Planned Program: • Fund the operation of ARL headquarters activities which administers the Army laboratory research and development program to sustain technological superiority. (4803)		

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BUDGET ACTIVITY	February 1995																																				
6 - Management Support	PE NUMBER AND TITLE 0605898A Management Headquarters (Research and Development)																																				
Project M831 - AKAMAI: 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 1994 Accomplishments: • Awarded equipment technology contract to Loral based on FY 1993 site planning effort. (8000) • Implement full operation for the Korea portion of AKAMAI filmless tele-imaging. (2000) • Implement phase 2 of Georgetown research support effort - technology assessment for critical mass digital capability. (1814) FY 1995 Planned Program: • Expand number of spokes and continue hub infrastructure development. (6632) • Provide additional research planning guidance to Georgetown and develop technology assessment constructs. (4957) • SBIR/STTR (249) FY 1996 Planned Program: No planned program. FY 1997 Planned Program: No planned program. B. Program Change Summary <table border="1"> <thead> <tr> <th></th> <th>FY 1994</th> <th>FY 1995</th> <th>FY 1996</th> <th>FY 1997</th> </tr> </thead> <tbody> <tr> <td>Previous President's Budget</td> <td>23941</td> <td>11679</td> <td>8578</td> <td>8406</td> </tr> <tr> <td>Appropriated Value</td> <td>23941</td> <td>23492</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td>150</td> <td></td> <td></td> <td></td> </tr> <tr> <td>a. SBIR/STTR decrement (-219)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>b. Reprogrammed into PE (369)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Current President's Budget Submit</td> <td>24091</td> <td>23492</td> <td>8766</td> <td>8546</td> </tr> </tbody> </table>				FY 1994	FY 1995	FY 1996	FY 1997	Previous President's Budget	23941	11679	8578	8406	Appropriated Value	23941	23492			Adjustments to Appropriated Value	150				a. SBIR/STTR decrement (-219)					b. Reprogrammed into PE (369)					Current President's Budget Submit	24091	23492	8766	8546
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BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational System Development

0203726A Advanced Field Artillery Tactical Data

System (AFATDS)

COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	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 (PIE) Cost	43162	48080	39422	38785	7296	4689	3497	3492	Continuing	Continuing
D322 AFATDS Development	43162	44997	39422	38463	4686	3069	3497	3492	79783	510010
D2ET AFATDS Operational Test	0	3063	0	2302	2600	1800	0	0	Continuing	Continuing

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 Tactical Command and Control System (ATCCS) 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 TACFIRE and IFSAS systems and are appropriately funded in budget activity 7.

Project D322 - AFATDS Development: The project is composed of a common suite of hardware (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).

AFATDS software will be developed in multiple versions. Under the concept of software "spiral development", development of any version is not dependent on completion of another version. Version 1 will automate 51% of the required tasks including fire support planning, target nomination, order of fire, and meteorological/survey operations. 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 the last version will result in automation of the required tasks 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.

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7 - Operational System Development	0203726A Advanced Field Artillery Tactical Data System (AFATDS)	
FY 1994 Program Accomplishments: - Continued Version 1 Software Development (26855) - Version 2.0 Development (7707) - Conducted Force Development Test and Experimentation (FDTE) of V1 (4600) - ATCCS III Test Support (4000) FY 1995 Planned Program: - Prepare for Initial Operational Test and Evaluation (IOTE) (700) - Complete Version 1 and Support Testing (21100) - Continue Version 2.0 (22270) - Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) (927) FY 1996 Planned Program: - Conduct Army Systems Acquisition Review Council (ASARC) (Milestone III) (300) - Continue Version 2.0 (27208) - Start Version 2.1 development (11914) FY 1997 Planned Program - Complete Version 2.0 and Support Testing (15089) - Prepare for Version 2.0 Operational Testing (800) - Continue Version 2.1 development (20594) 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 (IOTE) in FY 95 and FY 97 for Versions 1.0 and 2.0 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. FY 1994 Program: N/A FY 1995 Planned Program: - Version 1.0 IOTE testing (2049)		

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BUDGET ACTIVITY	PE NUMBER AND TITLE		
7 - Operational System Development	0203726A Advanced Field Artillery Tactical Data System (AFATDS)		
- Version 1.0 IOTE evaluation (642) - Player unit preparation and conduct of Version 1.0 IOTE (327) - SBIR/STTR (65)			
FY 1996 Planned Program: N/A			
FY 1997 Planned Program:			
- Version 2.0 IOTE testing (1573) - Version 2.0 IOTE evaluation (488) - Player unit preparation and conduct of Version 2.0 IOTE (241)			
B. Program Change Summary			
Previous President's Budget	FY 1994	FY 1995	FY 1996
Appropriated Value	43860	48725	31797
Adjustments to Appropriated Value:	43860	48080	
a. SBIR/STTR decrement (-698)	-2698		
b. HQDA reprogramming (-2000)			
Current President's Budget	43162	48080	39422
			38785
Change Summary Explanation (by Project):			
Project D322 - AFATDS Development			
Funding: Funding increased to cover V2.1 Development in FY 96 (\$7.6M) and FY 97 (\$5.0M).			
Schedule: Reschedule of IOTE from July 94 to July 95, ASARC Milestone III from Nov 94 to Nov 95 and other related milestones due to delay in Version 1 software delivery and requirement to change hardware, as identified in the proposed Program Baseline submitted to Department of the Army in July 94.			
Technical: None			
Project D2ET - AFATDS Operational Test (OT)			
Funding: Additional funds (\$2.3M) were added in FY 97 to cover operational testing of Version 2.0.			
Schedule: None			
Technical: None			

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

February 1995

PE NUMBER AND TITLE

D322

0203726A Advanced Field Artillery Tactical Data

System (AFATDS)

	COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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		43162	44597	39422	36463	4656	3069	3497	3492	79783	510010

C. Other Program Funding Summary

OPA - B28600

Spares (BA9708/MA9708/BS9708)

(Total includes prior year sunk)

D. Schedule Profile

Sys Req Rev (V2.0)

VI FDTF

Temporary Stop Work Order (V2.0)**

Resume V2.0

Sys Design Rev (V2.0)

VI IOTÉ

V1 First Unit Equipped (FUE)

Begin V2.1 Dev

ASARC - Mile III

Sys Des Rev (V2.1)

Begin Fldg Total Force

Sys Software Test (V2.0)

Operational Test (V2.0)

Temporary stop work order to allow concentration of all efforts on Version 1. Stop Work Order rescinded Nov 94.

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

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 1995
BUDGET ACTIVITY										PE NUMBER AND TITLE	
7 - Operational System Development										0203726A Advanced Field Artillery Tactical Data System (AFATDS)	
Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Activity			EAC	EAC							
Test and Evaluation Organizations											
OPTEC					1215	4000	606	108	096	400	4000
MISC.						152					2577
Government Furnished Property											
Award or Obligation Date											
Item			Delivery Date		Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Description											
Product Development Property											
LCU, TCU, PSE					20916	2839	3200	1796	1295	5486	35532
Support and Management Property: None											
Test and Evaluation Property											
TEST HARDWARE					14898	3143					18041
Award or Obligation Date											
Subtotal Product Development					Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Support and Management					144777	27261	36785	31897	30240	75968	346928
Subtotal Test and Evaluation					94509	8606	7606	7417	6147	18179	142464
Total Project					16113	7295	606	108	96	400	20618
*SBIR/STTR (927)											
255399											
43162											
*44997											
39422											
36483											
94547											
510010											

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

February 1995

FILE NUMBER AND TITLE

DZET

System (AFATDS)

	COST (In Thousands)	FY 1984 Actual	FY 1985 Estimate	FY 1986 Estimate	FY 1987 Estimate	FY 1988 Estimate	FY 1989 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DZET AFATDS Operational Test		0	3063	0	2302	2600	1600	0	0	Continuing	Continuing

C. Other Program Funding Summary: Not Applicable. There are no other programs or projects with dependent funding streams / profiles

D. Schedule Profile

	FY 1994	FY 1995	FY 1996	FY 1997
1	2 3	4 1 2 3	4 1 2 3	4 1 2 3
		X		
				X

Version 1.0 IOTE
Version 2.0 IOTE

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE					
7 - Operational System Development	0203726A Advanced Field Artillery Tactical Data System (AFATDS)					D2ET
A. Project Cost Breakdown						
Operational Test and Evaluation	FY 1994	FY 1995	FY 1996	FY 1997		
Total	0	3083	0	2302		
B. Budget Acquisition History and Planning Information: Not applicable.						
Performing Organizations						
Contractor or Government	Contract	Method/Type	Award or Obligation	Date	Project Office	Total Prior to FY 1994
Performing Activity	Vehicle	Performing Activity	EAC	EAC	EAC	EAC
Product Development Organizations: None						
Support and Management Organizations: None						
Test and Evaluation Organizations						
OPTEC						
Government Furnished Property: None						
Subtotal Product Development						
Subtotal Support and Management						
Subtotal Test and Evaluation						
Total Project						

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE									
7 - Operational System Development		0203735A Combat Vehicle Improvement Program									

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	107856	109778	197669	170427	82703	39420	0	0	0	1441787
D280 Recovery Vehicle Improvement Program	7411	4653	3085	0	0	0	0	0	0	43489
D330 Abrams Improvement	38880	11674	38807	48702	8785	0	0	0	0	663348
D332 M2/M3 Fighting Vehicle Improvement Program	61465	0	0	0	0	0	0	0	0	250659
D344 Fire Support Team Vehicle	0	18357	23192	20954	3940	0	0	0	0	68443
D371 Bradley Base Sustainment Program	0	75094	11788	91643	68398	39420	0	0	0	392401
D392 AGS Improvements	0	0	14727	9128	1592	0	0	0	0	25447

A. 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 (GEN II FLIR) capability to enhance operations and allow operation in conjunction with the Abrams Tank. The Armored Gun System Improvements include development and integration of the GEN II FLIR technology into vehicle production by FY 98. These projects support development of upgrades to current production vehicles and are appropriate to Budget Activity 7.

Project D280 - Recovery Vehicle Improvement Program: The M88A2 HERCULES Improved Recovery Vehicle (IRV) is an armored, full-tracked, diesel-powered track 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 mounted a .50 caliber machine gun 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 with a MS III decision scheduled for 4Q96.

FY 1994 Accomplishments:

- Award Integrated Logistics Support (ILS) contract modification (3990)
- Award Initial Production Release Technical Data Package (TDP) and Packaging Modification (2184)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE		
7 - Operational System Development	0203735A Combat Vehicle Improvement Program		
• Award Low Rate Initial Production (LRIP) Contracted for TDP efforts (200) • Testing (526) • Program Management (511)			
FY 1995 Planned Program: • Definitize Initial Production Release TDP and Packaging Modification (3196) • Award LRIP Provisioning Spares and Repairs TDP (1259) • Program Management (100) • SBIR/STTR (98)			
FY 1996 Planned Program: • Production Qualification Test (Performance)/Initial Operational Test & Evaluation (1981) • Finalize Logistics Documentation (1004) • Program Management (100)			
Project D330 - Abrams Improvement: Abrams Main Battle Tank (M1A2) incorporated significant advances in crew protection, firepower and mobility and was designed with growth potential in mind. 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 incorporates 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) includes 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 buses. 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 Second Generation Forward Looking Infra-Red (GEN II FLIR) 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 GEN II FLIR will improve the tanks lethality, fightability and survivability by extending the engagement envelopment under all weather conditions and by increasing the situational awareness of the tank crew. The GEN II FLIR will also reduce fratricide due to mis-identification of targets.			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE		
7 - Operational System Development	0203735A Combat Vehicle Improvement Program		
The System Enhancement Package (SEP) was also 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. 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.			
FY 1994 Accomplishments: • Complete M1A2 Tank Integration (16172) • Conduct concept study for SEP (2500) • Testing/Other (2808) • GEN II FLIR (13900), Laser Warning Receiver (1500) & Tank 1080 Concept Studies (2100)			
FY 1995 Planned Program: • Continue concept study for the integration of GEN II FLIR technology into the Abrams Tank and begin EMD Phase (10648) • SEP Program Funded under PE 243758 (FY 95 funded under Digitization PE) • Engineering Support (781) • SBIR/STTR (245)			
FY 1996 Planned Program: • Continue EMD Phase of integration of GEN II FLIR technologies into the Abrams Tank (18123) • Continue detailed design/integration of SEP technologies into the Abrams Tank (12617) • Engineering Support (1609) • Testing (6458)			
FY 1997 Planned Program: • Continue EMD Phase of integration of GEN II FLIR technologies into the Abrams Tank (11699) • Continue detailed design/integration of SEP technologies into the Abrams Tank (3122) • Engineering Support (1656) • Testing (32225)			
Project D332 - M2/M3 Fighting Vehicle Improvement Program: In FY94 and beyond the Bradley M2A3/M3A3 configuration vehicles will be a major upgrade to give the system upgraded electronics, digital command and control compatible with the M1A2 Tank and GEN II FLIR's for enhanced target acquisition. Major improvements			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	
7 - Operational System Development	0203735A Combat Vehicle Improvement Program	February 1995
will include a T553 based database core electronics architecture, digital information displays, software packages for command and control, navigation, communications, autotracking, diagnostics, embedded training and fire control, second generation focal plane array FLIR's for Gunner and Commander as well as full digital integration of all Desert Storm Improvements. Program after FY94 is funded under Project D371.		
FY 1994 Accomplishments:		
• Design Engineering (46575) • Prototype Manufacturing (8055) • In-House Tasks (6835)		
FY 1995 Planned Program: Program Funded under 23735/D371		
FY 1996 Planned Program: Program Funded under 23735/D371		
FY 1997 Planned Program: Program Funded under 23735/D371		
Project D344 - Fire Support Team Vehicle: Operational Systems Development funding provides for material improvements to support conversion of the Bradley Fighting Vehicles to the Bradley Fire Support Vehicle. Fire Support Teams currently equipped with M981's were incompatible with Bradley/Abrams equipped maneuver forces during Operation Desert Storm. This project will integrate a significant portion of the current M981 FIST-V mission equipment into the Bradley Fighting Vehicle System. Mission integration will include North Seeking Gyro, Global Positioning System, Improved Targeting Station Control Display, Ground Vehicular Laser Locator Designator, AN/TAS-4B, Lightweight Computer Unit Maneuver Control System, SINGARS radios, and related command and control hardware. System is a new start.		
FY 1994 Accomplishments: Project not funded in FY 1994		
FY 1995 Planned Program		
• Phase I Design Engineering (15408) • Phase I Prototype Manufacturing (1467) • In House Tasks (1097) • SBIR/STTR (385)		
FY 1996 Planned Program		
• Phase I Design Engineering (19410) • Phase I Prototype Manufacturing (2014) • In House Tasks (1768)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE		
7 - Operational System Development	0203735A Combat Vehicle Improvement Program		
FY 1997 Planned Program • Phase I Design Engineering (13086) • Phase I Prototype Manufacturing (963) • Phase II Design Engineering (2406) • Phase II Prototype Manufacturing (1944) • In House Tasks (2555) Project D371 - Bradley Base Sustainment Program: In FY94 and beyond the Bradley M2A3/M3A3 configuration vehicles will be a major upgrade to give the system upgraded electronics, digital command and control compatible with the M1A2 Tank and GEN II FLIR's for enhanced target acquisition. Major improvements will include a 1553 based database core electronics architecture, digital information displays, software packages for command and control, navigation, communications, autotracking, diagnostics, embedded training and fire control, second generation focal plane array FLIR's for Gunner and Commander as well as full digital integration of all Desert Storm Improvements. Program in FY94 was funded under Project D332. FY 1994 Accomplishments: Program funded under 23735/D332 FY 1995 Planned Program: • Design Engineering (52505) • Prototype Manufacture (12277) • In House Tasks (8773) • SBBR/STTR (1579) FY 1996 Planned Program: • Design Engineering (85837) • Prototype Manufacture (25800) • In House Tasks (6221) FY 1997 Planned Program: • Design Engineering (67286) • Prototype Manufacture (8075) • In House Tasks (16282)			

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

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational System Development

0203735A Combat Vehicle Improvement Program

Project D392 - AGS Improvements: Provide for increased target detection, recognition and identification capabilities at night or through smoke, fog and other battlefield obscuration significantly increasing AGS lethality and survivability. Common component GEN II FLIR's increase force effectiveness with host platforms "Seeing the same Battlefield", enable procurement economies of scale, and result in common training and reduced logistics burden.

FY 1994 Accomplishments: Program unfunded in FY 1994

FY 1995 Planned Program: Program unfunded in FY 1994

FY 1996 Planned Program:

- Begin EMD (14727)

FY 1997 Planned Program:

- Continue EMD (5673)
- Begin Component/System Tests (3455)

B. Program Change Summary

Previous President's Budget

FY 1994
114972FY 1995
111279FY 1996
162962FY 1997
125453

Appropriated Value

Adjustments to Appropriated Value

a. SBIR/STTR/Con Svc (-1809)

b. Reprogrammed out of PE (-5367)

Current Budget Submit/President's Budget

114972
-7116

109778

107856

109778

197669

170427

Change Summary Explanation:

Project D330 - Abrams Improvement

Funding: For FY 96 funds for GEN II FLIR program increase (3959) to support testing, including IOTE. FY 96 funds added (15921) to support Abrams SEP integration, testing and support.

Schedule: None

Technical: None

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

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational System Development

0203735A Combat Vehicle Improvement Program

PROJECT

D280

COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	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	7411	4653	3085	0	0	0	0	0	0	43489

C. Other Program Funding Summary

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl Cont'd	Total Cost Cont'd
GA0570 Improved Recovery Vehicle (M88 Mod)	31200	36880	23492	29860	30405	31384	30572	80351	Cont'd	Cont'd
GE0171 Spares (Initial) M88A1E1		293	445	312	909	1209	1164	1165	Cont'd	Cont'd

The USMC is planning to upgrade M88A1's to the M88A2 HERCULES IRV configuration. Schedule and funding information for this program is unavailable at this time. There is no unnecessary duplication of effort within the Army or Department of Defense.

There are no other related RDTE efforts

D. Schedule Profile

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 1997
1	2	3	4	1	2	3	4	1	2
Low Rate Initial Production (LRIP) IPR	X*								3
Definitize ILS Mod		X*							4
Award LRIP Contract			X*						
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					
PQT (Performance)/IOT&E					X				
Milestone III Decision					X				
First Unit Equipped (FUE)						X			
							X		
								X	

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

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational System Development

r 203735A Combat Vehicle Improvement Program

D280

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Data (TDP)	2384	4455	0	
Logistics Support (ILS)	3990	0	1004	
System Test & Evaluation	526	0	1981	
Program Management Support	511	100	100	
SBIR/STTR		98		
Total	7411	4653	3085	

B. Budget Acquisition History and Planning InformationPerforming Organization

Contract

Government

Method/Type

Award or

Obligation

Performing

Activity

EAC

EAC

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 1995
BUDGET ACTIVITY										PE NUMBER AND TITLE	
7 - Operational System Development										0203735A Combat Vehicle Improvement Program	
Contractor or Government	Method/Type or Funding	Award or Obligation	Performing Activity	Project Office	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Activity	Vehicle	Date	EAC	EAC	278						278
Other Government											
Agencies											
Other							98				98
Test and Evaluation Organizations											
TECOM/CSTA-					5279	335		1981			7595
APG, MD											
TACOM						188					188
Warren, MI											
Other					931	3					934
Government Furnished Property: None											
Subtotal Product Development					21027	6374	4455	1004			32860
Subtotal Support and Management					1103	511	198	100			1912
Subtotal Test and Evaluation					6210	526		1981			8717
Total Project					28340	7411	4653	3085			43489

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY					DATE				
7 - Operational System Development					February 1995				
PROJECT					D330				
PE NUMBER AND TITLE					0203735A Combat Vehicle Improvement Program				
COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete
D330 Abrams Improvement	39980	11674	38807	48702	8785	0	0	0	0
Total Cost 683348									
C. Other Program Funding Summary									
WEAPONS, TRACKED COMBAT VEHICLES									
Abrams Upgrade Program (GA0750)	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To
Abrams Vehicle Modification (GA0700)	106399	172895	473870	468366	548484	622537	624137	629060	Compl
M1A2 Training Devices (GB1302)	48998	36036	77076	53045	43483	24520	5175	38677	cont'd
Training Device Mod (GA5208)	24585	16983	6259	13138	14067	14728	12137	12143	cont'd
Initial Spares (GE0161)	4784	987	3115	3319	6383	2852	0	6195	cont'd
Total - Procurement Programs	1647	10795	16546	21608	21967	24007	24025	24705	cont'd
	186413	237696	376866	559476	634384	688644	665474	710780	cont'd
Supported by Hit Avoidance and Crewmans Associate ATD's pending funding availability.									
D. Schedule Profile									
Program Milestones	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 1997
Live Fire Test - M1A2	1	2	3	4	1	2	3	4	1
IOT&E - M1A2	X*	X*							2
Milestone III - M1A2									3
Milestone I/II - GEN II FLIR									4
PDR - GEN II FLIR									
PDR - SEP									
CDR - GEN II FLIR									
CDR - SEP									
Begin Technical Testing - SEP									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE			
7 - Operational System Development		0203735A Combat Vehicle Improvement Program		February 1995	D330
A. Project Cost Breakdown					
		FY 1994	FY 1995	FY 1996	FY 1997
	Tank Integration - GEN II FLIR	13900	2818	8950	6372
	Sight Integration - GEN II FLIR	0	7830	9173	5327
	Testing - GEN II FLIR			3959	26224
	PM Support - GEN II FLIR		781	804	828
	Tank Integration - Sys Enhancement Package (SEP)	2500	0	12617	3122
	Testing - Sys Enhancement Package (SEP)			2499	6001
	PM Support - System Enhancement Package (SEP)			805	828
	Laser Warning Receiver Demo	1500			
	Tank 1080 Concept Studies	2100			
	Tank Integration - M1A2	16172			
	Testing/OGA - M1A2	2808	245		
	SBRR/STTR				
	Total	38980	11674	38807	48702
B. Budget Acquisition History and Planning Information					
Performing Organizations					
Contractor or Government	Contract Method/Type	Award or Obligation Date	Performing Activity	Total Prior to FY 1994	
Performing Activity	Vehicle		EAC	FY 1994	FY 1995
Product Development Organizations					
GDLS - M1A2	SS-CPIF	Dec 85		458777	16172
Sterling Hgts, MI					
GDLS - GEN II FLIR				13900	2818
Sterling Hgts, MI					
GEN II FLIR Sight SEP				2500	7830
Laser Warning Rec				1500	0
Tank 1080 Concept				2100	5327
					3122
					872
					1717
					19956
					1500
					2100
					474949
					32040
					23202
					19956
					1500
					2100
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE				
7 - Operational System Development		0203735A Combat Vehicle Improvement Program				
Contractor or	Contract	Method/Type	Award or	Performing	Project	Total
Government	or Funding	Obligation	Date	Activity	Office	Prior to
Activity	Vehicle			EAC	EAC	FY 1994
<u>Support and Management Organizations</u>						
PMO						28758
Other						1998
						781
						245
<u>Test and Evaluation Organizations</u>						
Testing - M1A2						28865
Testing - GEN II						810
FLIR						
Testing - SEP						
Government Furnished Property: None						
Subtotal Product Development						458777
Subtotal Support and Management						36172
Subtotal Test and Evaluation						1998
Total Project						810
						38980
						10648
						1026
						1609
						6458
						38807
						11674
						14821
						1656
						32225
						48702
						2589
						1706
						4490
						8785
						553747
						36753
						72848
						663348

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY		PE NUMBER AND TITLE							DATE
7 - Operational System Development		0203735A Combat Vehicle Improvement Program							February 1995
		PROJECT							D332
COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete
D332 M2/M3 Fighting Vehicle Improvement Program	61465	0	0	0	0	0	0	0	0
									250659

Project Cost Breakdown, Budget Acquisition History and Planning Information, and Funding Profile shown under Project D371.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY										PROJECT	
7 - Operational System Development										D344	
PE NUMBER AND TITLE										0203735A Combat Vehicle Improvement Program	
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	0	18357	23192	20854	3840	0	0	0	0	68443	
C. Other Program Funding Summary											
GZ2300 FIST Vehicle (Mod)	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost	
	2	3	4	1	2	26869	33825	39823	cont'd	cont'd	
	1	2	3	4	1	2	3	4	1	2	3
D. Schedule Profile											
Phase I											
Contract Award											
Preliminary Design Review (PDR)											
Critical Design Review (CDR)											
Deliver Prototypes											
PPQT - C/G											
Limited User Test #1											
Phase II											
Contract Award											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	Feb ruary 1995
BUDGET ACTIVITY										PROJECT	
7 - Operational System Development										D371	
PE NUMBER AND TITLE										Combat Vehicle Improvement Program	
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	0	75094	117858	91643	68386	39420	0	0	0	392401	
C. Other Program Funding Summary											
G80716 Bradley Base Sustainment (M2A2)	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost	
G80717 Bradley Base Sustainment (M2A3)	201605	144366	138308	7863	165137	204443	285870	335611	cont'd	616735	
GC0163 Spares (Initial) BFVS		11492		123884						11492	
GE0163 Spares (Initial) BFVS-BBSP			14851	10952	648	1585				28036	
GZ2400 BFVS Series (Mod)	29894	82195	74336	86790	65081	63290	71729	72060	cont'd	8004	
GZ2500 Bradley FVS Training Devices (Mod)	3271	1923	1872	938							
G20900 Bradley FVS Training Devices				597	1493	10150	11262	10580	cont'd		
Supported by Hit Avoidance and Crewmans Associate ATD's pending funding availability											
D. Schedule Profile											
Milestone IV	1										
Contract Award	2										
Software Design Review											
Preliminary Design Review											
Critical Design Review (CDR)											
Software CDR											
PPQT-G											
Limited User Test #1											
LRIP IPR											
LRIP Award											
Limited User Test #2											

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

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE			
7 - Operational System Development		0203735A Combat Vehicle Improvement Program		February 1995 D371	
A. Project Cost Breakdown					
Design Engineering	FY 1994	FY 1995	FY 1996	FY 1997	
Prototype Manufacture	46575	52505	85837	67286	
In House Tasks	8055	12277	25800	8075	
Total	6835	10312	6221	16282	
	61465	75094	117858	91643	
B. Budget Acquisition History and Planning Information					
Performing Organizations					
Contractor or Government	Method/Type or Contract	Award or Obligation	Performing Activity	Total Prior to FY 1994	Budget to Complete
Performing Activity	Vehicle	Date	EAC	FY 1994	FY 1995
Product Development Organizations					
United Defense (LP) San Jose, CA	SS/Letter	May 94		34028	84521
Texas Instruments	SS-CPIF	Feb 94		20500	19050
McKinny, TX				102	8066
Other Contracts				847	2350
Support and Management Organizations				3739	3297
PMO				2249	3612
MICOM					1585
Other					1733
Test and Evaluation Organizations					471
TECOM					1053
Government Furnished Property: None					2432
Subtotal Product Development				54630	64782
Subtotal Support and Management				6835	9259
Subtotal Test and Evaluation					1053
Total Project				61465	75094
					117858
					91643
					75361
					67042
					4106
					36658
					107806
					373452
					26707
					53707
					453866
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

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BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational System Development

0203735A Combat Vehicle Improvement Program

PROJECT

D392

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
1992 AGS Improvements	0	0	14727	9126	1592	0	0	0	0	25447

C. Other Program Funding Summary

	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	To Compl	Total Cost
64710/DL69 HTI 2D GEN FLIR ED	13979	24924	29387	23406	4024					96564
23735/D330 Abrams 2D GEN FLIR		11674	22886	38751	2815					56943
GA0760 AGS (Mod) 2D GEN FLIR					12142	56857	27834			96833
GA0750 Abrams 2D GEN FLIR				5705	62386	61497	58528	57240	cont'd	cont'd
GA0700 Abrams (Mods) 2D GEN FLIR							5175	38677	cont'd	cont'd
G80717 BFVS 2D GEN FLIR B-Kit				20587	22219	29438	44608	31724	cont'd	cont'd

D. Schedule Profile

	FY 1994	FY 1995	FY 1996	FY 1997
GEN II FLIR MS I/II	1 2 3	4 1 2 3	4 1 2 3	4 1 2 3
Award B-Kit Contract	X*			
RFP A-Kit	X*	X		
Award A-Kit Contract Mod			X	
Begin Component/System Test				X

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	February 1995	PROJECT
BUDGET ACTIVITY				PE NUMBER AND TITLE		
7 - Operational System Development				0203735A Combat Vehicle Improvement Program		
A. Project Cost Breakdown				FY 1994	FY 1995	FY 1996
Prototype Design & Fabrication						5173
Testing						3455
Other Government Support					800	500
Total					14727	9128
B. Budget Acquisition History and Planning Information						
Performing Organizations						
Contractor or	Method/Type	Award or	Performing	Total		
Government	or Funding	Obligation	Activity	Prior to		
Performing	Vehicle	Date	EAC	FY 1994	FY 1995	FY 1996
Activity						
Product Development Organizations						
United Defense	CPIF (Mod	Oct 95				
San Jose, CA	to Current	Kr)				
Support and Management Organizations						
Other						
Test and Evaluation Organizations						
TECOM						
Government Furnished Property: None						
Subtotal Product Development						13927
Subtotal Support and Management						800
Subtotal Test and Evaluation						3455
Total Project						14727
Total						19750
Total						1342
Total						4355
Total						25447

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE									
7 - Operational System Development		0203740A Maneuver Control System (MCS)									
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	28664	37158	38327	33991	35113	27142	25980	4988	Continuing	Continuing	
DC49 Standard Theater Army Command and Control System (STACCS)	12753	20073	14271	8143	9470	9263	9992	4988	Continuing	Continuing	
D2HT MCS Operational Test	0	90	4975	0	0	0	0	0	0	5085	
D484 Maneuver Control System	15911	16995	19081	25848	25643	17879	15988	0	20522	410000	

A. 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 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.

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.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		February 1995
PE NUMBER AND TITLE		
7 - Operational System Development		
0203740A Maneuver Control System (MCS)		
Acquisition and Contracting Strategy. A consolidated AGCCS Software Development and Integration Contract was awarded 23 December 1994 to Martin Marietta Management and Data Systems (MM/MDS) for a hybrid (Cost-Plus-Award Fee and Firm-Fixed-Price) contract. The procurement is a fully competitive research and development acquisition. The software integration and development effort will be a 5 year RDT&E incrementally funded completion effort. The base year plus 4 option years will consist of software development, software maintenance, 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, and 9) it will be determined if system upgrades (CPs 4,6,8, and 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. The AWIS Project Management Office (PMO) is the Army's focal point for the development and implementation of AGCCS. Specifically, the PMO develops policies, plans and programs for the integration of Army Command, Control, and Communications (C3) systems to insure compliance with user requirements and interoperability with GCCS. The PMO acts as the technical agent for the DISC4 in the evaluation of Army Command and Control (C2) projects for integration into AGCCS/GCCS. The initial consolidation of AWIS and STACCS, to form the nucleus of the AGCCS project occurred in July 1994. In October 1995, the Combat Service Support System (CSSCS) PMO will also consolidate into the AGCCS project. The new project office name which will be effective at the beginning of FY 96 is to be "Project Manager for Strategic and Theater Command and Control".		
FY 1994 Program Accomplishments: • Systems Engineering (3014) • Prime Mission Software Development - STACCS Version 1.2. (9739)		
FY 1995 Planned Program: • Systems Engineering (2064) • Prime Mission Software Development - Capability Package #3 (12773) • Data Engineering (688) • Systems Test and Evaluation - Capability Package #1 (4127) • Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) (421)		
FY 1996 Planned Program: • Systems Engineering (1835) • Prime Mission Software Development - Capability package #5 (8157) • Data Engineering (612)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE		
7 - Operational System Development	0203740A Maneuver Control System (MCS)		
• Systems Test and Evaluation - Capability Packages #2 and #3 (3667)			
FY 1997 Planned Program: • Systems Engineering (818) • Prime Mission Software Development - nt - Capability Package #7 (5415) • Data Engineering (273) • Systems Test and Evaluation - Capability Package #5 (1637)			
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) I system with Operational Testing and Evaluation in FY 96 via a Limited User Test (LUT), and 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. Project D2HT is restructured from PE 0605712, Support of Operational Test, and is not a new start.			
FY 1994 Program: Program unfunded in FY 1994			
FY 1995 Planned Program: • Analyze data and prepare report on the results of ATCCS III Integrated Interoperability Demo (88) • SBIR/STTR (2)			
FY 1996 Planned Program: • MCS V12 LUT (2000) • MCS V12 LUT evaluation (1000) • Player unit support of V12 LUT (975) • MCS V12 IOT&E preparation (1000)			
FY 1997 Planned Program: Program unfunded in FY 1997			
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			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		February 1995
PE NUMBER AND TITLE		
7 - Operational System Development		
0203740A Maneuver Control System (MCS)		
whenever and wherever it is needed. Since the initial MCS was introduced in Europe in 1981, this program has been and will continue to be, evolutionary development. The MCS capability continues to expand in pre-planned, time-phased steps toward 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 1994 Program Accomplishments: • Implemented replan of MCS program based on Common ATCCS Support Software (CASS) foundation. (400) • Continued MCS V12 software development. (12911) • Conducted MCS Operational Assessment on Common Hardware Software using MCS V12 prototype. (1000) • Continued Brigade and Below Command and Control System (B2C2), Operations Order (OPORD) and Terrain Evaluation Module (TEM) development. (1600)		
FY 1995 Planned Program: • Initial preparation for LUT at Ft. Hood, TX. (1080) • Continue MCS V12 development/integration/prototyping. (14787) • Release RFP for Block IV software development. (200) • Integrate B2C2 and TEM applications into MCS V12. (600) • SBIR/STTR (328)		
FY 1996 Planned Program: • Begin subsystem engineering, integration and test for the Maneuver functional areas. (1200) • Conduct LUT at Ft. Hood, TX (700) • Continue MCS V12 development and integration effort. (9891) • MCS Digitization/Horizontal Integration (1390) • Obtain Army Low Rate Initial Production (LRIP) decision (100) • Initial preparation for IOT&E (500) • Award Block IV software development contract (5300)		
FY 1997 Planned Program: • Continue subsystem engineering, integration and test for the Maneuver functional areas. (2500) • Continue MCS V12 development/integration and prototyping of MCS V12.1 (19948) • Conduct IOT&E (1000)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		February 1995
7 - Operational System Development		
PE NUMBER AND TITLE		
0203740A Maneuver Control System (MCS)		
- MCS Digitization/Horizontal Integration (2000) - Obtain ASARC/DAB Milestone III decision (400)		
B. Program Change Summary		
Previous President's Budget	FY 1994	FY 1997
Appropriated Value	29093	32486
Adjustments to Appropriated Value	29093	21130
a. SBIR/STTR decrement (-429)	-429	
Current President's Budget	28664	33991
Change Summary Explanation (By Project):		
Project DC49 - STACCS Funding: Funding in FY 96 (-4M) realigned to STACCS Other Procurement, Army. Schedule: Not Applicable Technical: The AGCCS Project represents a consolidation of two previously independent Command and Control projects, the Army WWMCCS Information System (AWIS), and the Standard Theater Army Command and Control System (STACCS). The Army-Global Command and Control System (AGCCS) will provide to the joint Global Command and Control Systems (GCCS) the Army's "best of breed" command and control functionality selected from the previous AWIS and STACCS projects.		
Project D2HT - MCS Operational Test Funding: Funding in FY 96 increased (+5M) to support MCS planned operational testing. Schedule: None Technical: None		
Project D484 - MCS Funding: Funding in FY 96 and FY 97 realigned for digitization efforts and to maintain schedule as reflected in the DA approved baseline. (FY96+5M)(FY97+13M) Schedule: Release of MCS Block IV RFP delayed until FY 95. Technical: None		

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

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

0203740A Maneuver Control System (MCS)

PROJECT

DC49

7 - Operational System Development

COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	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)	12753	20073	14271	8143	9470	9283	9982	4888	Continuing	Continuing

C. Other Program Funding Summary

Procurement OPA-2

BA8250 Std Theater Army Cmd & Contr System

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
	5244	12008	14526	15183	15523	19458	10061	8649	CONT	CONT

D. Schedule Profile

Consolidated Contract RFP released
 Merger of A WIS/STACCS Projects
 DA MAISRC IPR
 OSD MAISRC IPR
 Award AGCCS Contract
 AGCCS Capability Package 1 delivered
 AGCCS Block 1 Completed
 AGCCS Capability Package 2 delivered
 AGCCS Capability Package 3 delivered
 AGCCS Capability Package 4 delivered
 AGCCS Capability Package 5 delivered

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 1997	FY 1997
	2	3	4	1	2	3	4	1	2	3
	X*	X*	X*	X*	X	X	X	X	X	X

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

♦Prior year covers only Prime Contractor dollars. FY 95-SBIR/STTR(421)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
7 - Operational System Development		0203740A Maneuver Control System (MCS)								D2HT	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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	0	90	4875	0	0	0	0	0	0	5065
C. <u>Other Program Funding Summary:</u> Not Applicable											
D. <u>Schedule Profile</u>											
		FY 1994	FY 1995	FY 1996	FY 1997						
1		2 3	4 1 2 3	4 1 2 3	4 1 2 3						
MCS V12 LUT											
MCS V12 IOT&E Preparation											
MCS V12 IOT&E											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	February 1995	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT		
7 - Operational System Development		0203740A Maneuver Control System (MCS)			D2HT		
A. Project Cost Breakdown							
Operational Test and Evaluation		FY 1994	FY 1995	FY 1996	FY 1997		
Total		0	90 90	4975 4975	0		
B. Budget Acquisition History and Planning Information							
Performing Organizations							
Contractor or	Contract	Total		Project		Total	
Government	Method/Type	Prior to		Office		Program	
Performing	or Funding	FY 1994		EAC		Complete	
Activity	Vehicle	FY 1994		FY 1994		FY 1997	
Product Development Organizations: None							
Support and Management Organizations: None							
Test and Evaluation Organizations							
MISC	Allot	0	0	90	0	0	90
TECOM	Allot	0	0	0	3000	0	3000
OPTEC	Allot	0	0	0	1000	0	1000
III Corps	MIPR	0	0	0	975	0	975
Government Furnished Property: None							
Subtotal Product Development							
Subtotal Support and Management							
Subtotal Test and Evaluation							
Total Project							
				90	4975		5065
				90	4975		5065

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT	
7 - Operational System Development					0203740A Maneuver Control System (MCS)					D484	
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	15911	16995	19081	25848	25843	17879	15988	0	20522	410000	
C. Other Program Funding Summary											
Other Procurement, Army											
BA9320 Maneuver Control System	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost	
Spares - BS9710	0	0	13818	15893	16902	19887	24856	39775	119079	602200	
										100	
D. Schedule Profile											
V12.0 Integration Completed	1										
ATCCS III Integ Interop Demo											
Acq Prog Baseline Approval											
Test & Eval Master Plan Approval											
MCS LUT											
LRIP Decision											
Awd BLK IV Contr/Begin V12.1 SW Dev											
V12.01 IOT&E											
Begin V12.2 SW Dev											
ASARC											
Milestone III DAB											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)											
BUDGET ACTIVITY		PE NUMBER AND TITLE				DATE	PROJECT				
7 - Operational System Development		0203740A Maneuver Control System (MCS)					February 1995				
A. Project Cost Breakdown											
		FY 1994	FY 1995	FY 1996	FY 1997						
Major Contracts		10115	10636	13474	21950						
Support Contracts		850	517	561	484						
In-House Support		3557	3713	3456	1854						
GFE/Other		1389	2129	1590	1560						
Total		15911	*16995	19081	25848						
*SBIR/STTR (328)											
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	EAC	Project Office EAC	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	Budget to Complete	Total Program
Product Development Organizations											
BL IV	C/CPIF	MAY 96	TBD		72000	0	0	0	4877	50023	72000
TKC	C/CPIF/AF	VARIOUS			34623	10981	7032	9250	5620	0	34623
Other Cntrs	C/Various	VARIOUS				152513	3083	1386	2977	18211	180380
CECOM Matrix						4156	1977	1863	1456	1500	11706
In-House						20213	582	48			20843
Loral	CPIF/CPAF	NOV 87				30769					30769
Support and Management Organizations											
In-House						11291	1580	1850	2000	4034	21855
Other Cntrs	C/Various					13991	850	517	561	774	17177
Test and Evaluation Organizations											
OGA						447	457	881	1060	2890	6795

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE				
7 - Operational System Development		0203740A Maneuver Control System (MCS)				
Government Furnished Property						
Item	Description	Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total	
					Prior to FY 1994	FY 1994
Contract						
Product Development Property						
ATCCS Contr						
Pgm Spt Env						
Support and Management Property: None						
Test and Evaluation Property						
CHS-1 HW						
					FY 1994	FY 1995
					7159	0
					350	1200
					613	0
					9559	1500
					3680	1100
					613	
Subtotal Product Development						
Subtotal Support and Management						
Subtotal Test and Evaluation						
Total Project						
					FY 1994	FY 1995
					225791	13747
					25282	2367
					1060	881
					252133	*16993
					FY 1994	FY 1995
					13024	15460
					2430	2561
					457	1060
					15911	19081
					FY 1994	FY 1995
					23204	23204
					1584	1584
					1060	1060
					25848	25848
					Budget to Complete	Budget to Complete
					72334	72334
					4808	4808
					2890	2890
					80032	80032
					Total Program	Total Program
					363560	363560
					39032	39032
					7408	7408
					410000	410000
*SBIR /STTR (328)						

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

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational System Development

0203744A Acft Mods/Product Improvement Progs

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	9500	5072	2326	199	199	0	0	0	0	30562
DB75 TRACTOR CHECK	4619	1135	0	0	0	0	0	0	0	19020
D179 CH-47 PRODUCT IMPROVEMENT	0	2812	1826	0	0	0	0	0	0	4040
D423 AH-64 PIP	4881	1125	0	0	0	0	0	0	0	6006
D430 IMPROVED CARGO HELICOPTER	0	0	496	199	199	0	0	0	0	698

A. 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 is a new start. 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.

Project DB75 - Tractor Check: This is a classified program.

Project D179 - CH-47 Product Improvement: The CH-47 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 development and subsequent procurement of the tank will result in more rapid deployment of the CH-47D cargo aircraft.

FY 1994 Accomplishments: Project not funded.

FY 1995 Planned Program:

- Develop engineering change proposal for self-deployment system (50)
- Design fuel tank to provide for rapid deployment and extended range (1312)
- Prototype fuel tank (1391)
- SBIR/STIR (59)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	February 1995	
PE NUMBER AND TITLE 0203744A Acft Mods/Product Improvement Progs		
7 - Operational System Development		
FY 1996 Planned Program:		
• Testing of self-deployment system (500) • Complete prototype (30)		
Finalize design for system (1278)		
FY 1997 Planned Program: Project not funded		
Project D423 - AH-64 PIP: 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). Those Line Replaceable Units (LRU) will be replaced by the Longbow Hellfire Launcher Electronics (HLE) and the addition of the Longbow Launchers. Other LRUs to be replaced include the Laser Electronics Unit (LEU) of the Target Acquisition Designation Sight (TADS) and Cockpit Display Unit (CDU). Also included are the software modification to the Fire Control Computer (FCC) and software and hardware modifications to the LEU. Other LRU changes are software in nature. Changes in the multiplex architecture are also expected. 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 aircraft.		
FY 1994 Accomplishments:		
• Began hardware/software design (1621) • Development of test plans (410) • Design Reviews (950) • Began hardware procurement (1100) • LRU/System tests (300)		
FY 1995 Planned Program:		
• First prototype (155) • Aircraft integration and system test (255) • Flight testing (591) • Final data item deliveries (100) • SBIR/STTR (24)		
FY 1996 Planned Program: Project not funded.		
FY 1997 Planned Program: Project not funded.		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	
7 - Operational System Development	0203744A Acft Mods/Product Improvement Progs	February 1995
Project D430 - Improved Cargo Helicopter: This is a new start to develop a program to extend the life of the CH-47D cargo helicopter. This funding will assure a medium 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 13 years with a total of 33 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 medium lift capability, decrease operation and support costs as the fleet ages, improve engine power, and incorporate new electronics as older systems become obsolete. This program will be the basis for establishing an overhaul, modernization, upgrade or retrofit program to meet the readiness needs of the future for medium lift capability.		
FY 1994 Accomplishments: Project not funded.		
FY 1995 Planned Program: Project not funded.		
FY 1996 Planned Program: Cost and operational effectiveness analysis (498)		
FY 1997 Planned Program: Cost & Operational Effectiveness Analysis (199)		
B. Program Change Summary		
Previous President's Budget	FY 1994	FY 1995
Appropriated Value	13710	9564
Adjustments to Appropriated Value	13710	5072
a. SBIR/STTR (211)	-4210	
b. Reprogramming total (3999)		
Current Budget Submit/President's Budget	9500	5072
		2326
		199
	FY 1996	FY 1997
	1837	0

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
7 - Operational System Development		0203744A Acft Mods/Product Improvement Progs								DB75	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DB75 TRACTOR CHECK		4619	1135	0	0	0	0	0	0	0	19020

C. Other Program Funding Summary: Not applicable - This is a Classified Program.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
7 - Operational System Development		0203744A Acft Mods/Product Improvement Progs								D179	
COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	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	2812	1828	0	0	0	0	0	0	4640	
C. Other Program Funding Summary											
APA, BA 2 AA0252 CH-47 Mods		FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Total Cost	
						2000	5000	6500	8700	22200	
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											
1	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 1997		
	2	3	2	3	4	2	3	4	2	3	
			X								
Develop engineering change proposal											
Design fuel tank for rapid deployment											
Prototype fuel tank				X							
Test self-deployment system					X						
Finalize design									X		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY				DATE		PROJECT			
7 - Operational System Development				February 1995		D179			
PE NUMBER AND TITLE				0203744A Acft Mods/Product Improvement Progs					
A. Project Cost Breakdown									
FY 1994				FY 1995		FY 1996		FY 1997	
Contractor Engineering				2550		1600			
Program Management Support				262		228			
Total				2812		1828			
B. Budget Acquisition History and Planning Information									
Performing Organizations									
Contractor or Government		Method/Type or Funding Vehicle		Award or Obligation Date		Performing Activity		Project Office EAC	
Activity		Product Development Organizations		Total Prior to FY 1994		FY 1994		FY 1995	
TBS		C/FP		Jun 95		2550		1600	
SBIR/STTR						59		59	
Support and Management Organizations						203		228	
Army									
Aviation and Troop Command									
Government Furnished Property: Not applicable									
Subtotal Product Development						2609		1600	
Subtotal Support and Management						203		228	
Subtotal Test and Evaluation						2812		1828	
Total Project								4209	
								431	
								4640	

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

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational System Development

0203744A Acft Mods/Product Improvement Progs

PROJECT D423

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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 PIP	4881	1125	0	0	0	0	0	0	0	6008

C. Other Program Funding Summary

	FY 1994	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)			7276	10778	8379	22852	23093	25172	15811	113361

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 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 1997
1	2	3	4	1	2	3	4	1	2
Contract Award	X*								3
Hardware/Software Design					4	1	4	4	2
Hardware Procurement									3
Test Plan Development									4
LRU/System Tests Begin									
Design Review									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	February 1995	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE			0203744A Acft Mods/Product Improvement Progs D423		
7 - Operational System Development							
A. Project Cost Breakdown							
Contractor engineering support		FY 1994	FY 1995	FY 1996	FY 1997		
Testing		2571	155				
Hardware Procurement		1210	846				
SBIR/STTR		1100	100				
Total		4881	24				
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 1994	FY 1994	FY 1995
Product Development Organizations							
McDonnell	SS-FFP	Apr 94	N/A	N/A	0	4881	1101
Douglas Helicopter							
SBIR/STTR						24	
Support and Management Organizations: N/A							
Test and Evaluation Organizations: N/A							
Government Furnished Property - Not Applicable							
Subtotal Product Development						4881	1125
Subtotal Support and Management							
Subtotal Test and Evaluation						4881	1125
Total Project							
C. Funding Profile- Not Applicable							
Contractor engineering support							
Testing							
Hardware Procurement							
SBIR/STTR							
Total							
Contractor engineering support							
Testing							
Hardware Procurement							
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Contractor engineering support							
Testing							
Hardware Procurement							
SBIR/STTR							

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

DATE _____

February 1995

BUDGET ACTIVITY

PROJECT

7 - Operational System Development

0203744A Acft Mods/Product Improvement Progs

COST (in Thousands)	FY 1984 Actual	FY 1985 Estimate	FY 1986 Estimate	FY 1987 Estimate	FY 1988 Estimate	FY 1989 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D-430 IMPROVED CARGO HELICOPTER	0	0	486	199	199	0	0	0	0	898

C. Other Program Funding Summary: There are no other RDT&E or other Appropriation efforts.

D. Schedule Profile

	FY 1994	FY 1995	FY 1996	FY 1997
1	2 3	4 1 2 3	4 1 2 3	4 1 2 3
Cost & Operational Effective Analysis			X	X

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY				PE NUMBER AND TITLE		DATE		PROJECT	
7 - Operational System Development				0203744A Acft Mods/Product Improvement Progs		February 1995		D430	
A. Project Cost Breakdown									
Cost & Operational Effectiveness Analysis									
Total									
B. Budget Acquisition History and Planning Information									
Performing Organizations									
Contractor or	Method/Type	Award or	Performing	Project	Total				
Government	or Funding	Obligation	Activity	Office	Prior to				
Activity	Vehicle	Date		EAC	FY 1994	FY 1995	FY 1996	FY 1997	Total
Product Development Organizations									Program
TBS	SS/FP	Feb 96							
Support and Management Organizations									
Army Aviation & MIPR		Feb 95							
Troop Command									
(ATCOM)									
Test and Evaluation Organizations: N/A									
Government Furnished Property - Not Applicable									
Subtotal Product Development									
Subtotal Support and Management									
Subtotal Test and Evaluation									
Total Project									
C. Funding Profile - Not applicable									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
7 - Operational System Development		0203752A Aircraft Engine Component Improvement Program								D106	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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)	6461	7435	3012	3025	3027	3034	3122	3207	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. The tasks in this project support development of upgrades to current production vehicles and are appropriately funded in budget activity 7. Project D106 - Aircraft Component Improvement Program (CIP): The Aircraft Engine Component Improvement Program (CIP) corrects service revealed problems. CIP investigates, analyzes, develops, tests, and qualifies engine components to improve readiness. 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. FY 1994 Accomplishments: - T700 Engine: Continued update of life limits on engine components utilizing improved analytical and modeling techniques. Completed design of Digital Electronic Control Unit (DECU) improvements to enhance electromagnetic Interference (EMI) capability and operability. Redesigned and tested a more contamination resistant hydromechanical unit to preclude high and low side engine failures. Performed altitude testing of a lowered start fuel/flow fuel control to evaluate impact on engine starting with below minimum required torque. (2937) - T55 Engine: Continued design/development of inlet housing in composite materials. Began bearing improvement program to reduce cost and improve reliability and fatigue life. Began design/development of machined combustor liner for improved durability. Designed cast 4th nozzle to improve durability and survivability and to reduce O&S costs. Began pinned first turbine blade program to preclude turbine blades from shifting into turbine nozzle and resultant catastrophic failure. Began number 1 seal redesign to reduce accessory gearbox pressure and reduce cost. (1872) - T53 Engine: Redesigned accessory gear section to preclude failures resulting in uncommanded engine shutdowns. Redesigned exhaust diffuser to eliminate cracking and extend service life while reducing O&S costs. Designed and improved cooling for stage 1 nozzle to extend engine service life. (352) - GTCP36 Auxiliary Power Unit (APU): Redesigned clutch assembly on GTCP36-55 to preclude failures and fire/destruction of AH-64 Apache aircraft. (1300) FY 1995 Planned Program: - T700 Engine: Continue update of life limits on engine components utilizing improved analytical and modeling techniques. Complete qualification testing of the Blackhawk DECU improvements to enhance electromagnetic Interference (EMI) capability and operability. Initiate program to develop and qualify an advanced fuel boost pump that is much less susceptible to air ingestion and therefore reduce engine flameouts. Complete program to reduce stiction in the torque meter design by utilizing better sealing of the power turbine shaft and reducing the reference shaft stiffness. (1366)											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
7 - Operational System Development	0203752A Aircraft Engine Component Improvement Program	D106	
- T55 Engine: Continue bearing improvement program to reduce cost and improve reliability and fatigue life. Continue machined combustor liner program to improve durability and survivability and reduce O&S costs. Continue pinned first turbine blade program to prevent catastrophic failure. (1112) - GTCP36 APU: Design an erosion resistant turbine wheel for BLACKHAWK APUs. Design a feature to preclude erroneous chiplight warnings. Design improved planetary gears to preclude gear failures; improve reliability and durability of BLACKHAWK APUs. (303) - T53 Engine - Funds to develop a full authority digital electronic control (FADEC) for the T53 engine as directed by Congress. (4500) - SBIR/STTR (154)			
FY 1996 Planned Program:			
- T700 Engine: Continue update of life limits on engine components utilizing improved analytical and modeling techniques. Complete qualification testing of the Apache and Super Cobra 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. (1506) - 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. (1158) - GTCP36 APU: Qualify improved durability/reliability design planetary gears for the GTCP36-150 APU for the UH-60 Black Hawk. (348)			
FY 1997 Planned Program:			
- 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. (1513) - 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. (1163) - 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. (349)			

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

BUDGET ACTIVITY	DATE	PROJECT
7 - Operational System Development	February 1995	D106
PE NUMBER AND TITLE		
0203752A Aircraft Engine Component Improvement Program		

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	6559	3035	3001	3007
Appropriated Value	6559	7435	3012	3025
Adjustments to Appropriated Value	-98			
a. SBIR/STTR (-98)				
Current Budget Submit/President's Budget	6461	7435	3012	3025

C. Other Program Funding Summary: Not Applicable**D. Schedule Profile**

	FY 1994			FY 1995			FY 1996			FY 1997		
	1	2	3	4	1	2	3	4	1	2	3	4
T700 Engine: Qualify o-ring and seal designs; Update component life limits; Redesign ceramic turbine shroud.												
T700 Engine: Complete electronic control redesign and qualify improvements. Design improved film cooled turbine blades.												
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.												
T55 Engine: Redesign turbine components; Design cast 4th nozzle.												
T55 Engine: Complete design and qualify pinned turbine blades.												

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY					DATE				
7 - Operational System Development					February 1995				
PE NUMBER AND TITLE					PROJECT				
0203752A Aircraft Engine Component Improvement Program					D106				

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

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational System Development

0203752A Aircraft Engine Component
Improvement Program

D106

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engineering Support	6001	7300	2861	2868
Program Management Support	195	80	85	90
Miscellaneous	265	55	66	67
Total	6461	7435	3012	3025

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations											
General Electric (T700)	SS/CPFF	Dec 94	--	--	34000	2937	1366	1506	1513	Cont	Cont
Textron/Lycoming (T55)	SS/CPFF	Dec 94	--	--	15000	1872	1112	1158	1163	Cont	Cont
Air Force (APU)	MIPR	Dec 94	--	--	11000	1300	303	348	349	Cont	Cont
Support and Management Organizations											
ATCOM (in-house)	MIPR	Dec 94	N/A	N/A	10000	0	154	0	0	Cont	Cont
T53 Engine						352				Cont	Cont
Test and Evaluation Organizations: N/A										Cont	Cont
Other							4500			Cont	Cont

Government Furnished Property - Not Applicable

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE			
7 - Operational System Development		0203752A Aircraft Engine Component Improvement Program			
		Total			
		Prior to			
		FY 1994	FY 1994	FY 1995	FY 1996
		60000	6109	7281	3012
		10000	352	154	3025
		70000	6461	7435	3012
					3025
Subtotal Product Development					
Subtotal Support and Management					
Subtotal Test and Evaluation					
Total Project					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY		PE NUMBER AND TITLE							DATE
7 - Operational System Development		0203758A Horizontal Battlefield Digitization							February 1995
		PROJECT							D374
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete
D374 Horizontal Battlefield Digitization	19690	82727	88567	80631	0	0	0	0	0
									271615

A. Mission Description and Budget Item Justification: This program element integrates dissimilar weapons systems (tanks, armored vehicles, aircraft, command and control vehicles) with common technology through either new acquisitions, Pre-Planned Product Improvements (P3I), or system-component upgrades. The application of common technologies across multiple systems through an integrated and seamless battlefield architecture improves the capabilities of weapon systems that fight together as units or task forces providing exponential improvement to the force. Battlefield digitization allows the Army's primary weapons systems and others 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 appliqué system to support live experimentation and fielding of a maneuver brigade in FY 1997 and division 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 with and modification of equipment in the Army inventory.

FY 1994 Accomplishments:

- Conducted Advanced Warfighter Demonstration (AWD) at National Training Center (NTC 94-7) (8000)
- Conducted Army Tactical Command and Control System (ATCCS) Operation Test (OT). (8400)
- Studies and analyses to develop Army's Digitization Plan (3290)

FY 1995 Planned Program:

- Develop appliques and integrate on platforms. (23562)
- Develop Brigade and Below Command and Control software. (13627)
- Develop an upgrade to the M1A2 command and control system. (16000)
- Support start-up of Digitization Integration Laboratory (2000)
- Support development of digitization systems architecture (2000)
- Conduct simulation, experimentation and testing. (11295)
- Develop a data distribution system. (4505)
- Procure avionics equipment for Brigade Exercise (8000)
- Small Business Innovative Research (SBIR)/Small Business Technology Transfer Program (STTR) (1738)

FY 1996 Planned Program

- Develop appliques and integrate on platforms (41767)
- Continue development of Brigade and Below Command and Control software (15000)

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

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

D374

7 - Operational System Development

0203758A Horizontal Battlefield Digitization

- Conduct simulation, experimentation and testing. (16200)
- Continue development of a data distribution system. (13600)
- Protocols and standards development (2000)

FY 1997 Planned Program:

- Develop appliques and integrate on platforms (44331)
- Complete development of Brigade and Below Command and Control software. (17000)
- Conduct simulation, experimentation and testing. (16300)
- Complete development of data distribution system. (1000)
- Continue development of standards and protocols (2000)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	20000	75857	25007	13031
Appropriated Value	20000	82727	0	0
Adjustments to Appropriated Value	-310	0	0	0
SBIR/STTR decrement (-310)				

Current Budget Submit/President's Budget

80631

Change Summary Explanation:

Funding: FY 96 and FY 97 program funds were realigned from Other Procurement Army (OPA) Activity 2 to RDTE.A. The purpose of the funds planned for procurement is to provide prototype systems hardware and software for utilization in planned large scale brigade and division size experiments. These prototypes are development models, and as such should be financed in the research, development, test and evaluation appropriation instead of the other procurement appropriation. Accordingly, the Army has realigned the funds from OPA to RDTE.A (no net increase to program funding).

Schedule: None

Technical: None

C. Other Program... Funding Summary:

Other Procurement Army Activity 2, SSN W61900

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	To Cost
	0	0	0	0	63630	61648	0	0	0	125278

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

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE						
7 - Operational System Development	0203758A Horizontal Battlefield Digitization						
D. Schedule Profile							
	FY 1994				FY 1995		
	1 2 3 4 X				1 2 3 4 1 2 3 4 1 2 3 4		
Conduct Adv. Warfare Demo at NTC				X			
Establish Army Digitization Office							
Focus Dispatch Adv. Warfighting Experiment					X		
Warrior Focus Adv. Warfighting Experiment						X	
Brigade Task Force XXI Exercise							X

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	February 1995	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE		D374		
7 - Operational System Development		0203758A Horizontal Battlefield Digitization				
A. Project Cost Breakdown						
Development, Experimentation & Testing		FY 1994	FY 1995	FY 1996	FY 1997	
Program Management Support		16400	77800	83367	75331	
Total		3290	4987	5200	5300	
		19690	82787	88567	80631	
B. Budget Acquisition History and Planning Information						
Performing Organizations						
Contractor or Government	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	EAC	Project Office EAC	Total Prior to FY 1994
Product Development Organizations						
TRW, Inc.	Comp/CPFF	Jan 95	141043	141043	0	0
General Dynamics	CPFF	Jun 95	16000	16000	0	0
PEO AVN	MIPR	Feb 95	8000	8000	0	0
PEO COMMS	Comp/CPFF	Jan 95	19105	19105	0	0
CECOM	MIPR	Mar 95	8000	8000	0	0
USMC	MIPR	Mar 95	3000	3000	0	0
PEO CCS	MIPR	Nov 94	500	500	0	0
Support and Management Organizations						
ADO						
Test Facilities						
TRADOC						
Government Furnished Property: N/A						
Subtotal Product Development						
Subtotal Support and Management						
Subtotal Test and Evaluation & Experimentation						
Total Project						
		FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete
		141043	0	30945	52767	57331
		16000	0	16000		
		8000	0	8000		
		19105	0	4505	13600	1000
		8000	0	4000	2000	2000
		3000	0	1000	1000	1000
		500	0	500		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE									
7 - Operational System Development		0203801A Missile/Air Defense Product Improvement Program									
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	66430	37119	17069	16392	12094	9879	20035	28968	Continuing	Continuing	
D036 PATRIOT Product Improvement Program	38859	24294	12623	12626	9707	6725	6050	5032	0	333665	
D038 AVENGER Product Improvement Program	8177	7892	0	0	0	0	0	0	0	29724	
D303 STINGER Product Improvement Program	19284	4933	4246	3766	2387	2654	12986	19942	Continuing	Continuing	
D633 THAAD P31	0	0	0	0	0	0	0	1996	Continuing	Continuing	
D634 THAAD GBR P31	0	0	0	0	0	0	999	1996	Continuing	Continuing	
A. 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 95 is the last year of funding for AVENGER upgrades. The FY 96 and 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.											
Project D036 - The PATRIOT system is being upgraded through a series of individual materiel changes (MC) culminating in the attainment of the PATRIOT Advanced Capability - 3 (PAC-3) system. The communication upgrades improve PATRIOT's above and below battalion communication equipment. These changes eliminate PATRIOT peculiar communications equipment and improve PATRIOT's interoperability between systems and between the services.											
FY 1994 Accomplishments:											
• P31 Test Program (18838)											
• Communications Upgrades (17630)											
• P31 Test Program Sets (1741)											
• Responsive Threat Analysis (750)											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE		
7 - Operational System Development	0203801A Missile/Air Defense Product Improvement Program		
FY 1995 Planned Program: • P3I Test Program (11898) • Communications Upgrades (9368) • P3I Test Program Sets (1793) • Responsive Threat Analysis (750) • SBIR/STTR (485) FY 1996 Planned Program: • P3I Test Program (6530) • Communications Upgrades (5543) • Responsive Threat Analysis (750) FY 1997 Planned Program: • P3I Test Program (5764) • Communications Upgrades (6112) • Responsive Threat Analysis (750) Project 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/Manual, Fire Control-1, Command and Control/Automatic, and improved Remote Control Unit (RCU) subsystems. These subsystems will increase AVENGER's 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. FY 1994 Accomplishments: • Completed FC-1 Design and Development (890) • Integrated IWCS and Incorporated Test Findings (795) • Conducted Test Programs and Assessed System Performance through Technical Tests (700)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE		
7 - Operational System Development	0203801A Missile/Air Defense Product Improvement Program		
Conducted Testbed Simulation Analysis/Ground Test Evaluations of the AVENGER Complementary Missile, with Flight Test 3Q95 (5792)			
FY 1995 Planned Program: - Conduct Inventory Requirements Assessment of Starstreak/STINGER Block II Missiles (110) - Conduct Life Cycle Cost Analysis and Comparison of Adding Starstreak/STINGER Block II with Launch Platform Modifications to Army Inventory (180) - Conduct Operational Effectiveness of Starstreak vs. STINGER Block II (1800) - Conduct Target Acquisition and Tracking Capabilities Analysis of Starstreak vs. STINGER Block II (3436) - Conduct Performance Evaluations of Starstreak vs. STINGER Block II Utilizing Simulations Considering Battlefield Environments (2200) - SBIR/STTR (166) Project D303 - STINGER Product Improvement Program: This project provides a product evolution of the STINGER-RMP to improve countermeasures capability via externally loaded software, which is downloaded from a reprogrammable module in the gripstock. This concept allows for timely upgrades to correct system deficiencies, rapid reaction to new threats or threat countermeasures, development of specialty software programs where full capability may not be desired, and accommodation of new missions. The Block I upgrade project, which adds a roll sensor and enhanced software, 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 in 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 abbreviated Block II EMD program provides for contractor format technical data package, design qualification of guidance section conducted as part of the production qualification, and platform integration. FY 1994 Accomplishments: - Completed Phase I (Reactive Countermeasures & Low Beta) (4000) - Performed Hardware Integration Testing (2000) - Finalized Block I Hardware Design and Documentation (2519) - Completed Phase II Software Concepts (6775) - Conducted Testing of Phase I Software Design (2500) - Performed Phase II Software Checkout (1500) FY 1995 Planned Program: - Demonstrate the Broad Area Announcement (BAA) 2.75" Infrared (IR) Focal Plane Array (FPA) Seeker Head (2900) - Initiate Miniaturization of the 2.75" IR FPA Electronics Package (1000) - Initiate Target Identification and Countermeasure Algorithms for the 2.75" IR FPA Seeker (929)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE		
7 - Operational System Development	0203801A Missile/Air Defense Product Improvement Program	February 1995	
• SBIR/STTR (104)			
FY 1996 Planned Program:			
• Conduct Testing of Phase II Software (2467)			
• Perform Software CDR and Release ECP (1200)			
• Perform Block I Performance Assessment (579)			
FY 1997 Planned Program:			
• Complete Block I Performance Assessment (721)			
• Develop Unmanned Vehicle-Specific Software (2500)			
• Flight Demonstration (545)			
B. Program Change Summary			
Previous President's Budget		<u>FY 94</u>	<u>FY 97</u>
Appropriated Value	65230		
Adjustments to Appropriated Value (Total PE)	65230	<u>FY 95</u>	<u>FY 96</u>
a. SBIR/STTR (-1000)	1200	24610	17826
b. Reprogrammed into PE (+2200)		37119	
Current President's Budget Submit	66430	37119	17069
			16392

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
7 - Operational System Development		0203801A Missile/Air Defense Product Improvement Program								D036	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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		38959	24294	12623	12626	9707	6725	6050	5032	0	333865
C. Other Program Funding Summary											
Missile Procurement, Army											
Budget Activity 2 - PATRIOT (C49100)		40387	8799	5070	2970	0	0	0	0	0	9637145
Budget Activity 3 - PATRIOT Mod (C50700)		18326	25976	6988	11895	15399	16801	38777	21144	35369	490615
D. Schedule Profile											
Communications Upgrade		FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 1997	
1	2	3	4	1	2	3	4	1	2	3	4
	X*										
Contractor Test & Evaluation											
Development Test & Evaluation											
Initial Operational Test & Evaluation											
*Completed											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	PROJECT
BUDGET ACTIVITY						
7 - Operational System Development						
PE NUMBER AND TITLE						
0203801A Missile/Air Defense Product						D036
Improvement Program						
A. Project Cost Breakdown						
Contract Engineering Support	FY 1994	FY 1995	FY 1996	FY 1997		
Program Management Support	30910	17240	8543	8401		
Developmental Test and Evaluation	3278	2400	1500	1450		
Total	4771	4654	2780	2775		
	38959	24294	12823	12626		
B. Budget Acquisition History and Planning Information						
Performing Organizations						
Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	Budget to Complete FY 1997
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	1463	5463
Raytheon						
DAAH0191C0602	SS/CPFF	22Apr92	20702	20702	9486	20702
DAAH0192C0006	SS/CPAF	27Jan92			35866	103925
Support and Management Organizations						
DAAH0187CA008					2270	2270

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	February 1995
BUDGET ACTIVITY											
PE NUMBER AND TITLE											
7 - Operational System Development											
0203801A Missile/Air Defense Product Improvement Program											
Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
DAAH0190C0487				EAC	6266	2093	1600	1000	1000	2174	6266
DAAH0194C0105	C/CPAF	31Jan94		EAC	8295	1185	800	500	450	1120	7867
IN-HOUSE SPT											12350
Test and Evaluation Organizations											
RDEC/MICOM	1095					2749	2210	1265	1260	Cont'd	Cont'd
WSMR	1095					1000	1000	500	500	Cont'd	Cont'd
OGAs	MIPR					1022	1444	1015	1015	Cont'd	Cont'd
RDEC+OGAs					90606					6039	111625
Government Furnished Property: None											
Subtotal Product Development					110312	30910	17240	8543	8401	18181	193587
Subtotal Support and Management					16831	3278	2400	1500	1450	3294	28753
Subtotal Test and Evaluation					90606	4771	4654	2780	2775	6039	111625
Total Project					217749	38959	24294	12823	12626	27514	333965

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

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational System Development

0203801A Missile/Air Defense Product

D038

Improvement Program

COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	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	5177	7882	0	0	0	0	0	0	0	28724

C. Other Program Funding Summary

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
Missile Procurement, Army										
C14900 AVENGER Sys Sum	135232	13676	31441	6754						925990
CE8710 AVENGER Mods	9318	10801								24236

D. Schedule Profile Last year of funding for Project D038 is FY 94, therefore no milestones or events are provided.

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 1997
Complete Starstreak on Avenger Flight Tests	1 2 3	4	1	2 3 4	1 4	2 3	4	1 2 3	4

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

DATE **February 1995**

BUDGET ACTIVITY

BUDGET ACTIVITY

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

PROJECT
D038

<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>
166	545		
4446	2512		
	2760		
2725	775		
840	1300		
8177	7892		

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date
Product Development Organizations		
Targets Mgt Ofc	1095	3Q95
RDEC	1095	3Q95
RDEC	1095	Various
Dev Contractors	Various	Various
Aggregate	Various	Various
Other Govt Agen	MIPR	Various
Support and Management Organizations: None		
Test and Evaluation Organizations: None		
Government Furnished Property: None		

Subtotal Product Development	13655	8177	7892	29724
Subtotal Support and Management				
Subtotal Test and Evaluation				
Total Project	13655	8177	7892	29724

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY										PROJECT	
7 - Operational System Development										D303	
PE NUMBER AND TITLE											
0203801A Missile/Air Defense Product Improvement Program											
Improvement Program											
COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	19284	4833	4248	3788	2387	2854	12888	18942	Continuing	Continuing	
C. Other Program Funding Summary											
Missile Procurement, Army											
C18500 STINGER-RMP Missile	23754										1136241
C20000 Modifications	9600	4965	10095	10146	10234	10303	15926	17516	Cont'd	Cont'd	
D. Schedule Profile											
Initiate Block I Dev Flight Tests											
Block I Qualification											
Acquisition Tests, IR Imaging Seeker Assy											
Block I CDR Software ECP											
Block I Performance Assessment											
Complete Block I Dev Flight Tests											
Initiate Future Software Development											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY					
7 - Operational System Development					D303
PE NUMBER AND TITLE					
0203801A Missile/Air Defense Product Improvement Program					
A. Project Cost Breakdown					
	FY 1994	FY 1995	FY 1996	FY 1997	
Project Management In-House	412	104	132	118	
Project Management Matrix Support	2445	929	1624	1441	
Major Development Contractor	10524	3900	2382	2111	
Contracted Services	3979		59	53	
Other Government Agencies	1934		49	43	
Total	19294	4933	4246	3766	
B. Budget Acquisition History and Planning Information					
<u>Performing Organizations</u>					
Contractor or Government	Method/Type	Award or Obligation	Performing Activity	Project Office	Total
	Vehicle	Date	EAC	EAC	
<u>Product Development Organizations</u>					
Hughes Msl Sys	SS-CPIF	Apr 92	30310	30310	30310
Targets Mgmt Ofc	MIPR	Apr 94		2100	2100
BSFV Aggregate	Various	Various	7028		7028
Block I Aggregate	Various	Various	1482		13319
Block II Aggregate	Various	TBD		1033	33961
<u>Support and Management Organizations: None</u>					
<u>Test and Evaluation Organizations: None</u>					
<u>Government Furnished Property: None</u>					
Subtotal Product Development			16210	19294	4933
Subtotal Support and Management					
Subtotal Test and Evaluation			16210	19294	4933
Total Project				3766	38269
				4246	86718

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
7 - Operational System Development		0203801A Missile/Air Defense Product Improvement Program								D633	
		FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D633	THAAD P31	0	0	0	0	0	0	0	1998	Continuing	Continuing

Exhibit R-2 not applicable. Funding will not start until FY 00.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1995	
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
7 - Operational System Development		0203801A Missile/Air Defense Product Improvement Program								D634	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D634 THAAD GBR P3I		0	0	0	0	0	0	900	1998	Continuing	Continuing

Exhibit R-2 not applicable. Funding will not start until FY 00.

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

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational System Development

0203802A Other Missile Product Improvement

Program

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	66986	67365	57949	6348	1270	1258	0	0	0	908628
D045 HELLFIRE Product Improvement Program	5081	3945	0	0	0	0	0	0	0	463486
D304 Army TACMS BLK IA	25360	37282	23454	4583	0	0	0	0	0	90879
D2MT OPTEC ATACMS BLK IA Oper Tests	0	0	3582	398	0	0	0	0	0	3980
D336 TOW Product Improvement Program	36565	26138	30913	1367	1270	1258	0	0	0	350483

A. 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 Systems, and BAT Carrier. The HELLFIRE PIP consists of the HELLFIRE II Missile System insensitive munitions development program. Funding was provided for development and qualification of the precursor and main warheads at the component level, and to continue development of the Congressionally directed training missile. 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 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. The ATACMS BLK II transitioned into the BAT PE #0604768A, Project D688 in FY 95 and will continue through the completion of the program. These projects support development of upgrades to current production vehicles and are appropriately funded in this budget activity 7.

PROJECT D045 - HELLFIRE Product Improvement Program:

This project produces warheads that are highly resistant to external stimuli that could cause unsafe detonation. Tri-Service requirements call for weapons that exhibit reactions no more violent than burning when excited by external stimuli.

FY 1994 Accomplishments:

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BUDGET ACTIVITY	PE NUMBER AND TITLE	February 1995
7 - Operational System Development	0203802A Other Missile Product Improvement Program	
- Initiated Phase II Insensitive Precursor Warhead Program. (1132) - Completed warhead qualification testing (OGA) and in-house general support. (1929) - Funding withheld by OSD for Congressionally directed Training Missile Program. (2000)		
FY 1995 Planned Program: - Congress appropriated \$3862 for Hellfire training missile. - SBIR/STTR Decrement. (83)		
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, Manufacturing, and 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.		
FY 1994 Accomplishments: - Initiated GPS Integration/Interface Preliminary Design Support and Technology Demonstration Support for JPSD. (\$900) - Initiated EMD for Block IA (first increment). (16259) - Studies, development, and validation of future improvement program. (201)		
FY 1995 Planned Program: - GPS Integration/Interface Preliminary Support. (1930) - Begin Block IA lab, static, warhead vibration, and road tests. (4384) - Block IA EMD (second increment). (29853) - Studies, development, and validation of future improvement programs. (337) - SBIR/STTR Decrement. (778)		
FY 1996 Planned Program: - Block IA EMD (third increment). (15285) - Initiate and complete Production Prove-Out Test (PPT), Pre-production Qualifications Test (PPQT) and Operational Test (OT), continue vibration		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	February 1995
7 - Operational System Development	0203802A Other Missile Product Improvement Program	
- and road tests. (7913) - Studies, development, and validation of future improvement programs. (256)		
FY 1997 Planned Program: - Block IA EMD (fourth increment). (3014) - Complete testing activities, data analysis and reporting. (150) - Studies, development, and validation of future improvement programs. (1419)		
PROJECT D2MT OPTEC 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 1A 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.		
FY 1996 Planned Program: Conduct Army TACMS Block 1A operational testing. (3582)		
FY 1997 Planned Program: Complete Army TACMS Block 1A operational testing. (398)		
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 is a technology insertion program utilizing 2nd Gen FLIR technology to upgrade the current TOW Target Acquisition and Fire Control subsystems. 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. The ITAS EMD contract effort was competitively awarded to prime contractor Texas Instruments on a cost plus incentive fee/award fee (CPIC/AF) contract. The Government anticipates that the Low Rate Initial Production (LRIP) contract will be awarded sole source to the EMD contractor on a fixed price incentive fee (FPIF) basis. The Full Rate Production (FRP) contract 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 to be procured at that time.		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		February 1995
7 - Operational System Development		
PE NUMBER AND TITLE		
0203802A Other Missile Product Improvement Program		
FY 1994 Accomplishments: • Proceeded with ITAS Engineering and Manufacturing Development (EMD). (19735) • Completed Preliminary Design Review (PDR) for ITAS. (1400) • Completed Critical Design Review (CDR) for ITAS. (2100) • Initiated ITAS Pre-Production test (PPT). (3100) • Initiated planning for ITAS pilot production line. (721) • Procured prototypes for initial system level tests. (3200) • Continued ITAS Training System (ITS). (3376) • Began Software coding and testing. (1745) • Continued warhead tests, and studies on technology insertion. (150) • Tested and certified missile guidance software upgrade for Ground TOW Launchers. (1038) FY 1995 Planned Program: • Continue ITAS EMD. (5284) • Complete ITAS PPT. (3734) • Deliver prototypes for initial system level test. • Procure prototypes for Pre Production Qualification Tests (PPQT). (3815) • Procure prototypes for Initial Operational Test and Evaluation (IOTE). (2879) • Continue ITS. (1593) • Initiate and complete the Limited User Test (LUT). (987) • Initiate ITAS software testing. (2910) • Initiate pilot line. (3555) • Continue missile enhancement efforts against the evolving threat. (839) • SBIR/STTR Decrement. (542) FY 1996 Planned Program: • Continue ITAS EMD. (17392) • Complete ITS. (1294) • Complete pilot line. (960) • Conduct Milestone IIIA Review. (799) • Deliver prototypes for PPQT.		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	February 1995	
7 - Operational System Development	PE NUMBER AND TITLE 0203802A Other Missile Product Improvement Program	
• Conduct PPQT. (7128) • Deliver 3 prototypes for IOTE. • Support IOTE. (2488) • Continue missile enhancement efforts against the evolving threat. (852)		
FY 1997 Planned Program:		
• Review IOTE reports and complete Milestone III. (095) • Continue missile enhancement efforts against the evolving threat. (1272)		
B. Program Change Summary		
Previous President's Budget	FY 1994	FY 1995
Appropriated Value (TOTAL PE)	68438	64266
Adjustments to Appropriated Value	68438	67365
a. SBIR/STTR decrement (-1052)	-1452	
b. Reprogrammed out of PE (-400)		
Current President's Budget Submit	66986	57949
		6348
• In order to properly fund and support the integrated ATACMS/BAT program, the FY 96 RDT&E funding for project D685 (BAT Carrier) was transferred from PE 23802 (Other Missile PIP), and placed in PE 64768 (BAT) in project D688 (ATACMS BLK II). The FY 95 funds were transferred by congressional action. The Army has transferred the FY 96 and later years funding streams through the POM process.		

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

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational System Development

0203802A Other Missile Product Improvement

D045

Program

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	5061	3945	0	0	0	0	0	0	0	463486

C. Other Program Funding Summary

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
MISSILE PROCUREMENT, ARMY C70100 LASER HELLFIRE	66835	90707	11947	18898						1914881

D. Schedule Profile

Precursor Warhead Qual	FY 1994			FY 1995		FY 1996		FY 1997		FY 1997
Precursor Warhead Hardware Delivery	1	2	3	4	1	2	3	4	1	2
Main Warhead Qual				*X						
Main Warhead Hardware Delivery				*X						

* Indicates activity is completed

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

DATE _____

February 1995

BUDGET ACTIVITY

BUDGET ACTIVITY

PE NUMBER AND TITLE

0203802A Other Missile Product Improvement Program

**PROJECT
D045**

A. Project Cost Breakdown

	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>
Primary Contracts	1132			
Program Management Support	1929			
Congressionally Directed Training Missile	2000	3945		
Total	5061	3945		

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Contract

Government	Method/Type	Award of

Performing Activity	or Funding Vehicle	Obligation Date	Activity EAC

Product Development Organizations

Prior yr. contracts

Conventional SS/CPFP Mar 93

Munitions Sys

Tampa, FL

AGMS Proj ofc -

**AGMS Flujolic -
Cong Dir Tna Mel**

CONG DIF I NG MSI
Program Manager

Program Mgmt

Support

Support and Management Organizations

Test 2

Government Furnished Property: N/A

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February 1995

BUDGET ACTIVITY

7 - Operational System Development

PE NUMBER AND TITLE

0203802A Other Missile Product Improvement Program

Total

Prior to

FY 1994
454480

FY 1994

LL27

FY 1995
3945

Budget in

Complete

FY 1997

Total

Program
A62702

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

184

1905

3945

784

463486

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

February 1995

BUDGET ACTIVITY

BUDGET ACTIVITY

PE NUMBER AND TITLE

0203802A Other Missile Product Improvement Program

**PROJECT
D304**

COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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	25380	37282	23454	4583	0	0	0	0	0	90679

C. Other Program Funding: Summary

**Missile Procurement, Army
C598510 ATACMS**

D. Schedule Profile

**JPSD Contract Award
Block 1A Milestone IV
Begin PPT
Block 1A LRIP Decision
Complete PPT
Begin PPQT
Complete PPQT
Begin Operational Testing
Complete Operational Testing
Complete Block 1A EMD
Milestone III ASARC**

<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	To Compl	Total Cost
145559	115044	106971	98746	106221	98150	101591	126496	226700	1'953068
FY 1994		FY 1995			FY 1996			FY 1997	
2	4	1	2	3	4	1	2	3	4

X

X

Block IA LRP Decision

Complete PPT

Begin PPOT

Complete PPOT

Begin Operational Testing

Complete Operational Testing

**Complete Operational Instructions
Complete Block I A EMD**

Complete Block TA ENVIRONMENT III AS ABC

X

22

Y

Y

X

X

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
7 - Operational System Development		0203802A Other Missile Product Improvement Program			D304	
A. Project Cost Breakdown						
	FY 1994	FY 1995	FY 1996	FY 1997		
Contractor Engineering Support	20308	27083	11100	2400		
Developmental Test & Evaluation	1792	4582	7913	1436		
Project Management Support	1531	1983	1636	191		
Project Management Personnel	1729	3634	2805	556		
Total	25360	37282	23454	4583		
B. Budget Acquisition History and Planning Information						
Performing Organizations						
Contractor or Government	Method/Type	Award or Obligation	Performing Activity	Project Office	Total Prior to FY 1994	Budget to Complete
Activity	Vehicle	Date	EAC	EAC	FY 1994	FY 1996
Product Development Organizations						
Loral Vought Sys	SS/CPIF	Nov 93	8041	8041	6548	1493
Loral Vought Sys	SS/CPIF	Mar 94	52850	52850	13760	25590
In-House Spt					989	1615
Support and Management Organizations						
SETA and Program Mgt					542	368
In-House Spt					1729	3634
Test and Evaluation Organizations: N/A						

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	February 1995
BUDGET ACTIVITY					PROJECT	
7 - Operational System Development					D304	
PE NUMBER AND TITLE					0203802A Other Missile Product Improvement Program	
Government Furnished Property Contract						
Item Description	Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1994	FY 1994	FY 1995
Product Development Property: N/A <th>FY 1996</th> <th>FY 1997</th>					FY 1996	FY 1997
Support and Management Property: N/A <th>Budget to Complete</th> <th>Total Program</th>					Budget to Complete	Total Program
WSMR	MIPR			1220	2705	130
Range Support	MIPR			131	4687	1296
RTTC	MIPR			50	521	10
Misc	MIPR			391		
Subtotal Product Development					21297	2591
Subtotal Support and Management					2271	556
Subtotal Test and Evaluation					1792	1436
Total Project					25360	4583
					12432	65018
					3109	9938
					7913	15723
					23454	90679

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

DATE _____

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BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational System Development

0203802A Other Missile Product Improvement

Program

COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D2MT	OPTEC ATACMS BLK I/A Oper Tests	0	0	3582	398	0	0	0	0	0	3690

C. Other Program Funding Summary: There are no other related RDTE or other Appropriation efforts.

D. Schedule Profile

	FY 1994	FY 1995	FY 1996	FY 1997
1	2	4	1	
2	3	2	3	2
3			X	3
4				
Begin Army TACMS Block IA Operational Testing				
Complete Army TACMS Block IA Operational Testing				X

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BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational System Development

0203802A Other Missile Product Improvement

D336

Program

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	36565	26136	30913	1367	1270	1258	0	0	0	350483

C. Other Program Funding Summary

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
Missile Procurement, Army										
C61700 TOW Mods	10750		33358	32117	50928	67045	64708	8161	195400	957373

D. Schedule Profile

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 1997	FY 1997	FY 1997
Completed ITAS PDR											
Completed ITAS CDR											
Initiated ITAS PPT Part 1											
Initiated ITAS Pilot Line											
Initiate ITAS PPT Part 2											
Initiate ITAS LUT											
Initiate ITAS PPQT											
Milestone III A Review											
IOT&E											
ITAS Milestone III Review											
Initiate ITAS PQT											
ITAS FUE											

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

DATE February 1995

BUDGET ACTIVITY

7 - Operational System Development

PE NUMBER AND TITLE

0203802A Other Missile Product Improvement Program

PROJECT

D336

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997	
Primary Hardware Development	23767	11716	15232	763	
Program Management Support	5669	6410	6656	298	
Developmental Test and Evaluation	3753	6419	7731	306	
Training Development	3376	1593	1294		
Total	36565	26138	30913	1367	

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 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
PY Sunk Cost					145427						145427
Texas Instruments, McKinney, TX	C/CPIE/AF	Apr 93	48872	51080	12454	23589	10692	14390			61125
STRICOM, Orlando, FL	MIPR	Sep 93			1120	3376	1593	1294			7383
Misc	TBD	TBD			175	178	1024	842	763	1327	4309
Support and Management Organizations											
PY Sunk Cost					46912						46912
PM CCAWS, RSA, AL	PO				162	827	948	975	150	316	3378
MICOM, RSA, AL	PO				2743	4364	4583	4756	148	352	16946
Misc	TBD				181	478	879	925			2463

Test and Evaluation Organizations

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	February 1995	PROJECT				
BUDGET ACTIVITY					PE NUMBER AND TITLE						
7 - Operational System Development					0203802A Other Missile Product Improvement						
					Program						
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 1994 42221	FY 1994 3102	FY 1995 5520	FY 1996 6897	FY 1997 306	Budget to Complete 533	Total Program 42221
TECOM, APG, MD	PO				1512						17870
Misc	TBD				65	651	899	834			2449
Government Furnished Property: Not Applicable											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project											
					159176	27143	13309	16526	763	1327	218244
					49998	5669	6410	6656	298	668	69699
					43798	3753	6419	7731	306	533	62540
					252972	36565	26138	30913	1367	2528	350483

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY		PE NUMBER AND TITLE		DATE		PROJECT			
7 - Operational System Development		0208010A Joint Tactical Communications Program (TRI-TAC) D107		February 1995					
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate
D107 Echelons Above Corps (EAC) Comm		16191	19206	13368	15232	9710	10811	6695	0
									Continuing

A. Mission Description and Budget Item Justification

DESCRIPTION: 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 spectrum management software has been designated as part of the migration system for DOD use. The work efforts in FY 1994 - FY 1997 support the development of the first three software releases, the fabrication of development prototype, support for an IOT&E, and initiation of work efforts for follow-on software releases. This program element also supports any development required for PM, Joint Tactical Area Communications System (JTACS) Area Common User Systems (ACUS). This program is assigned to Budget Activity 7 since it includes those development projects, in support of development acquisition programs or upgrades, still in engineering and manufacturing development but which have received approval for production through DAB or other action, or production funds have been included in the DOD budget submission for the budget or subsequent fiscal year.

FY94 Accomplishments:

- Completed System Design Review (2740)
- Prepared and delivered Network Management Improvement Plan (800)
- Completed 2nd increment of Spectrum Management Software (2600)
- Developed and delivered draft Software Requirements Specifications (SRS) and Conducted Software Specification Review (SSR) for Phase 0 (P0) Baseline (7566)
- Revised draft SRS for P0 (2485)

FY 95 Planned Program:

- Complete SRS and conduct Preliminary Design Review (PDR) for P0 Baseline (2850)
- Deliver draft SRS and conduct SSR for Phase 2 (P2) Baseline (2500)
- Complete PDR for hardware prototype (200)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
7 - Operational System Development	0208010A Joint Tactical Communications Program (TRI-TAC) D107		
- Complete Detail Design and conduct Critical Design Review (CDR) for P0 Baseline (3566) - Complete SRS and conduct PDR for P2 Baseline (2500) - Code, unit test, release P0 Baseline (3050) - Complete 3rd increment of Spectrum Management Software (2600) - Initiate Systems Design and conduct System Requirements Review (SRR) for Phase 3 (P3) (561) - Detail design of P2 (976) - Small Business Innovative Research (SBIR)/Small Business Technology Transfer Program (STTR) (403)			
FY 96 Planned Program:			
- System test (P0) (500) - Complete Detail Design and conduct CDR for P2 Baseline (2000) - Complete Systems Design and conduct System Design Review (SDR) P3 Baseline (334) - Develop and deliver draft SRS and conduct SSR for P3 Baseline (1200) - Complete 4th increment of Spectrum Management Software (1000) - Complete SRS and conduct PDR for P3 Baseline (2500) - Complete system test (P2) (550) - Code, unit test, formal test P2 Baseline (4000) - Deliver draft training materiel (584) - CDR for hardware prototypes (200) - Develop and deliver tech pubs (500)			
FY 97 Planned Program:			
- Initiate Systems Design for Phase 4 (P4) Baseline (600) - IOT&E spt for P2 Baseline (& follow up actions) (1808) - Complete Detail Design and Conduct CDR for P3 Baseline (3000) - Complete Systems Design and conduct SDR for P4 Baseline (1000) - Develop and deliver draft SRS and conduct SSR for P4 Baseline (1500) - Code, unit test, system test for P3 Baseline (4000) - Complete SRS and conduct PDR for P4 Baseline (3324)			

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

DATE _____

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational System Development

0208010A Joint Tactical Communications

Program (TRI-TAC) D107

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 96.

B. Program Change Summary

Previous President's Budget	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>
Appropriated Value	16446	19542	13434	15308
Adjustments to Appropriated Value	16446	19206	-	-
a. SBIR/STTR decrement (-255)	-255	-	-	-
Current President's Budget Submit	16191	19206	13368	15232

C. Other Program Funding Summary

	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>To</u>	<u>Total</u>
									<u>Compl</u>	<u>Cost</u>
									<u>cont</u>	<u>cont</u>
Other Procurement, Army-2, BX0007	58	0	13178	10228	11848	11848	4971	0		

D. Schedule Profile

P0 Software
SDR
SSR
PDR
CDR
SYS TEST

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE		February 1995		PROJECT			
BUDGET ACTIVITY		PE NUMBER AND TITLE															
7 - Operational System Development		0208010A Joint Tactical Communications Program (TRI-TAC) D107															
		FY 1994				FY 1995				FY 1996				FY 1997			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
P2 Software																	
SDR	*X																
SSR							X										
PDR							X										
CDR										X							
SYS TEST										X							
IOTE														X			
P3 Software																	
SRR							X										
SDR										X							
SSR												X					
PDR													X				
CDR														X			
SYS TEST															X		X
P4 Software																	
SDR																	
SSR															X		
PDR																X	
Acquisition Milestone III																	
P3 USER TEST 1Q98																	
P4 CDR 2Q98																	
															X		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE	PROJECT	
7 - Operational System Development		0208010A Joint Tactical Communications Program (TRI-TAC) D107		
A. <u>Project Cost Breakdown</u>				
		FY 1994	FY 1995	FY 1996
		2015	2400	387
		12187	13474	10020
		124	87	186
		-	106	137
		416	545	557
		1141	2286	1891
		308	308	190
		16191	19206	13368

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

DATE

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BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational System Development

0303140A Information Systems Security

COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	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	6950	7585	3644	3247	1576	1955	5050	4725	Continuing	Continuing
D491 Communications Security Equipment Technology (COMSEC)	6950	5194	2363	2644	970	1346	5050	4725	Continuing	Continuing
D501 Army Key Management System (AKMS)	0	2391	1281	603	606	609	0	0	Continuing	Continuing

A. 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 thrust of Project D491, COMSEC, is to insure total signals and data security of all Army information systems, to include any operational enhancement and specialized Army configurations. The thrust of Project D501, AKMS, is to automate 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 restructuring 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 (NSA) reviews each services RDT&E programs to avoid duplication between and with their own. These projects support development of upgrades to current production vehicles and are appropriate - funded in Budget Activity 7.

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.

FY 1994 Accomplishments:

- Completed Engineering Development Manufacturing (EDM) of Army Key Management System (AKMS), completing critical design review and software coding of workstation (3782)
- Contract review and prototype development of Tactical End-to-end Encryption Device (TEED), element of Army's Multilevel Security Initiative (ASTI) (1946)
- Evaluated of INFOSEC commercial off the shelf (COTS) (677)
- Redesigned STU-III interfaces to other tactical COMSEC (400)
- Funded Army portion of User Authentication by Biometrics Consortium (145)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	February 1995
7 - Operational System Development	0303140A Information Systems Security	
FY 1995 Planned Program:		
• Complete concept development of the Tactical End-to-end Encryption Device (TEED) to include NSA certification (2600) • Initiate prototype development of Trusted Network Base (965) • Procure, evaluate, and integrate platforms performing Guard functions between different classified levels User (619) • Initiate contract to design programmable COMSEC/TRANSEC functions (600) • Design, fabricate and test installation kits for the AIRTERM COMSEC (300) • Small Business Innovative Research (SBIR)/Small Business Technology Transfer (STTR) Program (109)		
FY 1996 Planned Program:		
• Continue development of Trusted Network Base software complete Critical Design Review and initiate software coding. (863) • Continue development of re-programmable COMSEC/TRANSEC using Cypress Module or chips. (600) • Perform in-house evaluation of INFOSEC equipments such as Advanced Key Management Module (AKMM), RADIANT MERCURY Trusted Guard, STICKPIN COMSEC chip, and Cypress re-programmable Module (600) • Demonstrate and insert into the Battle Labs Biometric user authentication systems into Army computer platforms (300)		
FY 1997 Planned Program:		
• Complete concept development of Trusted Network Base software; initiate network testing and integration into Integrated Systems Control (ISYSCON) program. (1100) • Complete fabrication and testing of embedable COMSEC cards. (914) • Perform in-house evaluations and integration of INFOSEC equipments COMSEC. (630)		
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.		
FY 1994 Planned Program: Efforts funded under Project D491		
FY 1995 Planned Program:		
• Continue the software development of the AKMS workstation (2126) • Provide 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 (215) • Small Business Innovative Research (SBIR)/Small Business Technology Transfer (STTR) Program (50)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE	
7 - Operational System Development		0303140A Information Systems Security	
FY 1996 Planned Program:			
• Complete workstation software (800)			
• Develop software upgrade to ANCD software (298)			
• Develop software upgrade to KDD software (183)			
FY 1997 Planned Program:			
• Develop software upgrade to the AKMS workstation (200)			
• Develop software upgrade to ANCD software (249)			
• Develop software upgrade to KDD software (154)			
B. Program Change Summary			
Previous President's Budget		FY 1994	FY 1995
Appropriated Value		7091	7689
Adjustments to Appropriated Value		7091	7585
a. SBIR/STTR (-121) DA reprogramming (-20)		-121	
Current Budget Submit/President's Budget		-20	
		6950	7585
			3644
			3247

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

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational System Development

0303140A Information Systems Security

PROJECT

D491

D-461	COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
											Continuing
D-461	Communications Security Equipment Technology (COMSEC)	6950	5194	2363	2844	970	1346	5050	4725	Continuing	Continuing

C. Other Program Funding Summary

[illegible]

D. Schedule Profile

[illegible]

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE				
7 - Operational System Development		0303140A Information Systems Security				D491
A. Project Cost Breakdown						
		FY 1994	FY 1995	FY 1996	FY 1997	
	Primary Hardware and Software Development	3782	0	0	0	
	Ancillary Hardware and Software Development	1400	3203	1200	1400	
	System Engineering	712	725	0	0	
	Government Engineering Support	890	1106	1053	1134	
	Travel	85	90	60	60	
	Miscellaneous	81	70	50	50	
	Total	6950	5194	2363	2644	
B. Budget Acquisition History and Planning Information:						
Performing Organizations						
Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1994	Budget to Complete
				EAC	FY 1994	FY 1995
Product Development Organizations						
GTC, Tampa, FL	C-CPFF	AUG 91	8687	8687	113435	0
GTE, Waltham, MA	C-CPFF	AUG 93	3857	3857	600	2600
TBD	C-CPFF	JUN 95	2050	2050	0	966
Rome Labs	MIPR	FEB 95	1525	1525	0	600
Alliant Tech Sys., Eatontown, NJ	C-CPFF	OCT 91	1100	1100	600	583
CECOM, RDEC	PO	OCT 95	700	700	0	0
NSA	MIPR	MAR 95	200	200	0	145
TEXCOM, Tinton Falls, NJ	SS-CPFF	FEB 91	900	900	900	300
Totals					6950	5194
Support and Management Organizations: N/A					2363	2644
Test and Evaluation Organizations: N/A						
Government Furnished Property: N/A						
					FY 1997	FY 1996
					122,717	5500
					25146	20000
					8929	6000
					2114	0
					cont'd	cont'd
					590	0
					1600	0

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE			
7 - Operational System Development		0303140A Information Systems Security			
		Total			
		Prior to			
		FY 1994	FY 1994	FY 1995	FY 1996
		115535	6950	5194	2363
			0	0	0
			0	0	0
		115535	6950	5194	2363

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BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
7 - Operational System Development		0303140A Information Systems Security								D501	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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)	0	2391	1261	603	606	609	0	0	Continuing	Continuing

C. Other Program Funding Summary

	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	To Compl	Total Cost
OPA Z16800	17396	13718	13942	17965	0	0	0	0	cont'd	cont'd
OPA TA0600	56880	12985	11105	13065	11321	6413	7458	0	cont'd	cont'd
OPA BB1611	11297	11690	11637	10444	13181	13357	27839	27842	cont'd	cont'd
OPA MA9106	0	3933	0	0	0	0	0	0	end	end
OPA TA0200	0	531	0	0	0	0	0	0	end	end
OPA BL5264	0	0	0	0	0	0	2486	2486	cont'd	cont'd
OPA BS9716			568	870	597	392	994	995		

D. Schedule Profile

	FY 1994		FY 1995		FY 1996		FY 1997	
	1	2	3	4	1	2	3	4
AKMS Decision Brief								
AKMS Award Competitive Follow-on Contract								
AKMS Computer Software Configuration Item Testing								
AKMS Initial Operational Test & Evaluation								
AKMS Milestone III								
AKMS Type Classification								
AKMS Material Release								
AKMS Begin Fielding with Upgraded Software								
AKMS Initial Operational Capability								
AKMS Material Release ANCD								
AKMS Material Release Work Station								

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT	
7 - (Operational System Development		0303140A Information Systems Security		D501	
A. Project Cost Breakdown		FY 1994	FY 1995	FY 1996	FY 1997
Software Engineering (Contractor)		0	2126	768	361
Government Engineering Support		0	190	336	119
Program Management Support		0	75	177	123
Total		0	2391	1281	603
B. Budget Acquisition History and Planning Information:		Not Applicable			

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

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational System Development

0303142A Satcom Ground Environment

COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	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	133757	67282	56355	40622	57336	34265	36137	44165	Continuing	Continuing
D2PT SMART-T OPERATIONAL TEST	0	0	0	199	4975	0	0	0	0	5174
D2RT SCAMP OPERATIONAL TEST	0	0	274	0	0	0	0	0	Continuing	Continuing
D253 DEFENSE SATELLITE COMMUNICATIONS SYSTEMS-DEFENSE COMMUNICATIONS SYSTEMS (DSCS-DCS)(PHASE II)	31804	31861	19055	21313	26789	23881	17686	17658	Continuing	Continuing
D383 GROUND COMMAND POST	724	0	0	0	0	0	0	0	0	1267
D384 SMART-T	56114	26755	21849	10696	13751	209	4696	3891	Continuing	Continuing
D386 SCAMP	33028	99	9863	2871	7362	5602	10759	22646	Continuing	Continuing
D455 MILSTAR EDM TERMINAL (INCLUDES ALL FOUR MAJOR ARMY MILSTAR TERMINAL PROGRAMS THRU FY93)	4526	763	807	876	0	0	0	0	0	300204
D456 TACTICAL SATELLITE COMMUNICATIONS (TACSATCOM) SYSTEM	7780	7804	4487	4465	4449	4373	4896	0	Continuing	Continuing

A. 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 (NCA), Commanders-in-Chief (CINCs), National Security Agency (NSA) and Office of the Secretary of Defense (OSD) 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 1582B/C 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 development, 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.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	February 1995
7 - Operational System Development	0303142A Satcom Ground Environment	
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. FY 1994 Accomplishments: Program unfunded in FY 1994 FY 1995 Planned Program: No Planned Program FY 1996 Planned Program: No Planned Program FY 1997 Planned Program • Planning and preparation for SMART-T IOT&E (199) Acquisition strategy for program D2RT: Not applicable. 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 is an Acquisition Category (ACAT) IC system requiring pre-award equipment demonstrations to evaluate operational suitability of contractor hardware prior to award. 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. In FY 96 and beyond, funding for operational testing of ACAT 1 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. FY 1994 Accomplishments: None FY 1995 Planned Program: No planned program FY 1996 Planned Program • Evaluate Pre-Award Equipment Demonstrations (274)		

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Exhibit R-2

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE		
7 - Operational System Development	0303142A Satcom Ground Environment		
FY 1997 Planned Program: No planned program			
Acquisition Strategy for Program D2RT: Not applicable.			
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.			
FY 1994 Accomplishments			
- Continued Engineering and Manufacturing Development (EMD) on the Universal Modem (UM) (14437) - Continued development for DSCS Training Devices (4900) - Initiated Development of a Testbed for the Replacement Satellite Configuration Control Element (RSCCE) (4252) - Initiated development of DSCS Integrated Management System (DIMS) Interface Software (1593) - Continued support and upgrades to the Integrated Research Facility (IRF) and System Engineering Technical Assistance (SETA) efforts (4222) - Continued development of Signal Characterization and Recognition System (SCARS) and support development of the AN/FSQ-124A (2200)			
FY 1995 Planned Program			
- Complete basic UM development and initiate Very High Data Rate (VHDR) engineering change (9611) - Complete development for DSCS Training Devices (6300) - Complete engineering development for the AN/USC-28 embedded computer and continuation of miscellaneous upgrades (3430) - Continue development of DIMS Interface Software (2348) - Initiate the NDI Adaptation Phase for the RSCCE (6010) - Continue IRF and SETA (3538) - Small Business Innovation Research/Small Business Technology Transfer Program (624)			
FY 1996 Planned Program			
- Continue VHDR UM Program (8100) - Continue DIMS Interface Software (2500) - Continue NDI Adaptation Phase of RSCCE (4800) - Continue IRF and SETA (3655)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		February 1995
7 - Operational System Development		
PE NUMBER AND TITLE		
0303142A Satcom Ground Environment		
FY 1997 Planned Program • Complete VHDR UM Program (4800) • Initiate development of the Integrated Baseband Workstation (2000) • Complete DIMS Interface Software (2900) • Complete the NDI Adaptation Phase for the RSCCE (2000) • Continue IRF and SETA (3813) • Initiate development of the Replacement BATSON (2000) • Initiate the AN/GSC-52 Modification (3800) Acquisition Strategy for Project D253: Both the UM Development and RSCCE NDI Adaptation 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 will be followed by a sole source acquisition of hardware. The DIMS program (software) does not have a follow-on production program. The DSCS Training Device Program will have a limited production program. Project D383 - Ground Command Post: The Ground Command Post (GNDCP) terminals are Air Force developed and procured. They will provide survivable, anti-jam, enduring worldwide communications. GNDCP is a Network Control Terminal which manages Milstar communications resources. These Extremely High Frequency/Ultra High Frequency (EHF/UHF) terminals will replace the AN/GSC-40 equipment. The terminals will be fielded in both a fixed and transportable configuration. RDT&E dollars were utilized to design and develop the tactical mobile variant of the GNDCP. The Army's first terminal has been delivered and fielding is currently in progress. The Army is responsible for Total Package Fielding, identifying and procuring initial spares, procuring Government Furnished Equipment (GFE) and integrating/fielding eight (8) terminals into the Army Force Structure. FY 1994 Accomplishments • Established logistics support for Fort McPherson terminal and future terminals (189) • Terminal mobilized at Tobyhanna Army Depot prior to delivery to FORSCOM at Fort McPherson (50) • Supported fielding of Fort McPherson terminal (200) • Supported Air Force during site survey and design at National Milstar Command Center (NMCC) at Fort Ritchie (70) • Continued support efforts for fielding of GNDCP terminals (215) FY 1995 Planned Program: No RDT&E funded effort FY 1996 Planned Program: No RDT&E funded effort FY 1997 Planned Program: No RDT&E funded effort		

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

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational System Development

0303142A Satcom Ground Environment

Acquisition Strategy for Project D383: The Army provides Level 1 management for the integration and fielding of eight (8) GNDCP terminals coming into the Army Force Structure. The GNDCP terminals are Air Force developed and procured. The Army provided procurement funding to the Air Force who, as the Primary Inventory Control Activity, purchases Army identified initial EHF/UHF spares. The Army is also procuring Government Furnished Equipment and support equipment, scheduling operator/maintainer training and verifying Technical Manuals.

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.

FY 1994 Accomplishments

- Began integration, Contract Technical Test and conducted Modem Verification Test (5289)
- Continued Hardware Engineering and conducted formal design reviews (14988)
- Continued Software Engineering and conducted formal design reviews (7314)
- Continued Major Contract Development Effort of 12 SMART-T's (28523)

FY 1995 Planned Program

- Continue Contractor Technical Test (22281)
- Conduct Payload to Terminal Interface Test (MST-3000)(1789)
- Conduct Terminal Test with Lincoln Lab Medium Data Rate (MDR) Simulator (2685)

FY 1996 Planned Program

- Complete Contractor Technical Test and obtain Low Rate Initial Production (LRIP) Decision (9479)
- Begin development effort for Joint Interoperability Standard, Network Control, and Payload Specification Changes (11919)
- Begin development of training simulator (interactive courseware) (451)

FY 1997 Planned Program

- Continue implementation of Joint Interoperability Standard, Network Control, and Payload Specification Changes (9821)
- Continue development of training simulator (1075)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	February 1995
7 - Operational System Development	0303142A Satcom Ground Environment	
Acquisition Strategy for Project D384: The SMART-T program employs a competitive development strategy. The development phase includes 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) are now being procured under the two contracts. The streamlining features of this phase of the strategy include developing a reliability growth plan to achieve the required Mean Time Between Failure (MTBF) reliability by Follow-On Test and Evaluation (FOT&E). Success in achieving the MTBF value will be maximized through competition between the two contractors. Both Low Rate Initial Production (LRIP) and Full Scale Production (FSP) will be competitively awarded under a single contract (2QFY96) based upon the development contract effort and LRIP/FSP proposals. A SMART-T Milestone III Decision will be required to enter into the FSP Phase. The FSP options will only be exercised after receipt of a favorable Milestone III Decision. The total Army terminal requirement is 209, of which 52 will be procured during LRIP (base year plus one option) to ensure sufficient quantities will be 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. The award of the first FSP quantities is anticipated in 1Q FY99. Additional quantities (i.e., 136) will be procured for the Air Force, Marine Corps, JCSE, Navy, and other DoD Special Users. Project D386 - SCAMP: The Single Channel Anti-Jam Manportable (SCAMP) terminal will provide a manportable, secure, anti-jam, Low Probability of Interception/Low Probability of Detection (LPI/LPD) Extremely High Frequency (EHF) satellite communications capability to Army, Air Force and Joint Communications Support Element (JCSE) units which cannot be served by larger less mobile terminals. The SCAMP will be a handcarried, battery powered EHF satellite communications terminal utilized with the Milstar Low Data Rate (LDR), Milstar I and Milstar Payload II satellites and other EHF waveform satellites. It will communicate at data rates from 75 to 2400 bits per second (BPS). The SCAMP will be compatible with the Milstar waveform, interoperable with other terminals using the Milstar network, and provide the multi-service owner operator with voice and data capability. The development contract was awarded 17 Sep 92 for SCAMP Block I.. The SCAMP program was part of the Milstar DAB Review held Oct 92. On 26 Oct 94, the Army Acquisition Executive (AAE) restructured the SCAMP Block I program. The SCAMP Development contract was Terminated for Convenience. On 15 Nov 94, the Army Acquisition Executive (AAE) approved the Milestone III Competitive Production Strategy. No major milestone schedule changes in the Production phase occurred as a result of the restructure and the Army quantity remains at 150 terminals. An Engineering Feasibility Effort (EFE) to develop the Block II terminal in the range of 12-15 pounds was approved as part of the May 92 Milestone Decision and reapproved at the 15 Nov 94 Decision Review to begin in FY 96. FY 1994 Accomplishments - Continued development of 15 Engineering and Manufacturing Development (EDM) Models (16955) - Continued Software Engineering and conducted formal design reviews (5297) - Conducted Critical Design Review (CDR) and continued Hardware Engineering efforts (9477) - Continued pursuit of Communications Security (COMSEC) certification and began Contractor test efforts (1300) FY 1995 Planned Program (includes Below Threshold Reprogramming of 3071 within PE 0303142A from D456) - Conduct Milestone III Decision Review (507) - Continue acquisition requirements activities (1584)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE		
7 - Operational System Development	0303142A Satcom Ground Environment		
• Begin Pre-award Evaluation/Demonstration (1077) • Small Business Innovation Research (2)			
FY 1996 Planned Program			
• Complete Pre-award Evaluation/Demonstrations/Reviews (2078) • Begin implementation of System Control and Joint Interoperability Requirements (1871) • Begin Block II Engineering Feasibility Efforts (5934)			
FY 1997 Planned Program			
• Continue implementation of System Control and Joint Interoperability Requirements (1044) • Continue Block II Engineering Feasibility Efforts (1827)			
Acquisition Strategy for Project D386: The SCAMP terminal will be developed in a block approach. Block I will be a manportable terminal not to exceed 37.5 pounds using today's technologies to meet communications deficiencies resulting from Desert Storm. 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 on 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. 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 multiservice terminals) was approved on 15 Nov 94. The May 92 ASARC approved SCAMP Block II (maximum 15 lbs.) Engineering Feasibility Efforts (EFE) 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, lightweight composite materials, and development of a paging capability. Project D456 - MILSTAR EDM Terminal: These EHF Milstar Engineering Development Model (EDM) terminals will be utilized as test assets to support satellite payload tests and Milstar interoperability demonstrations. 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.			
FY 1994 Accomplishments			
• Continued contractor efforts to support MET testing with SCAMP and SMART-T to reduce risk (2307) • Conducted Lincoln Lab/Raytheon Interoperability Testing and Medium Power Transmitter efforts (233)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	
7 - Operational System Development	0303142A Satcom Ground Environment	February 1995
• Continued Government Support Effort of MET Testing with SCAMP and SMART-T to reduce risk (1986)		
FY 1995 Planned Program		
• Continue Government and Contractor support of testing with SCAMP and SMART-T to reduce risk (763)		
FY 1996 Planned Program		
• Continue Government and Contractor support of testing with SCAMP and SMART-T to reduce risk (807)		
FY 1997 Planned Program		
• Continue Government and Contractor support of testing with SCAMP and SMART-T to reduce risk (878)		
Acquisition Strategy for Project D455: 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 will be required. The MET will be used for SCAMP and SMART-T contractor risk reduction tests, multi-service interoperability tests, and satellite payload tests.		
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).		
FY 1994 Accomplishments		
• Started First Article Test Evaluation for Ultra High Frequency (UHF) program (3120)		
• Completed Anti-Jam Control Modem (AJCM) T1 data rate study (885)		
• Started Pre-Planned Product Improvement (P3I) on PSC-5 Enhanced Manpack UHF Terminal (EMUT) for Over-The-Air Rekeying (OTAR) & Auto Demand Assigned Multiple Access (DAMA) (1350)		
• Started P3I on PSC-5 EMUT for paging and voice recognition (1403)		
• Initiated Pre-Contractual efforts for Super High Frequency (SHF) Tri-Band Terminals (1002)		
FY 1995 Planned Program		
• Continue P3I on PSC-5 EMUT for OTAR and Auto DAMA and new 5kHz waveform (2312)		
• Continue P3I on PSC-5 EMUT for paging and voice recognition (2275)		

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

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational System Development

0303142A Satcom Ground Environment

- Below Threshold Reprogramming within PE 0303142A to D386 SCAMP (3071)
- SBIR/STTR decrement (146)

FY 1996 Planned Program

- Complete P3I on PSC-5 EMUT for OTAR and Auto DAMA and new 5khz waveform (1939)
- Complete P3I on PSC-5 EMUT for paging and voice recognition (1537)
- Specification development for SHF Tri-Band Advanced Range Extension Terminal (STAR-T) (1011)

FY 1997 Planned Program

- Complete specification development for STAR-T (2238)
- Initiate development of multiplexer for SHF Terminals (1650)
- Initiate improved single channel UHF manpack study (577)

Acquisition Strategy for Project D456: Multiple engineering and development efforts associated with acquisition of satellite communications terminals and control systems. Initial development efforts for OTAR, Auto-DAMA, Paging 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.

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	136077	95191	55347	33223
Appropriated Value	136077	67282		
Adjustments to Appropriated Value	-2320			
a. SBIR/STTR decrement (-2058)				
b. Reprogrammed out of PE (-262)				
Current President's Budget Submit	133757	67282	56355	40622
	FY 1994	FY 1995	FY 1996	FY 1997

Change Summary Explanation (By Project):

PROJECT D2PT SMART-T Operational Test

Funding: None
 Schedule: None
 Technical: None

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	
7 - Operational System Development		
PROJECT D2RT SCAMP Operational Test		
Funding:	None	
Schedule:	None	
Technical:	None	
PROJECT D253 DSCS-DCS		
Funding:	Reprogrammed into Project	(206)
Schedule:	None	
Technical:	None	
PROJECT D383 GNDCTP		
Funding:	Reprogrammed into Project	(200)
Schedule:	None	
Technical:	None	
PROJECT D384 SMART-T		
Funding:	Reprogrammed into Project	(1200)
Schedule:	None	
Technical:	None	
PROJECT D386 SCAMP		
Funding:	Reprogrammed from Project	(-1600)
Schedule:	Approved Block II EFE for FY 96/97/98 (APB dtd 15 Nov 94)	
Technical:	Begin Block II EMD in FY 99	
PROJECT D455 MET		
Funding:	Reprogrammed from Project	(-200)
Schedule:	None	
Technical:	None	
PROJECT D456 TACSATCOM		
Funding:	Reprogrammed from Project	(-68)
Schedule:	None	
Technical:	None	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995		
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT			
7 - Operational System Development		0303142A Satcom Ground Environment								D2PT			
COST (in Thousands)		FY 1994 Actual	FY 1995 Estimate	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	0	199	4975	0	0	0	0	5174		
C. Other Program Funding Summary: Not Applicable													
D. Schedule Profile													
Initiate IOTE planning and preparation		1	2	3	4	1	2	3	4	1	2	3	4
Conduct SMART-T IOT&E		3QFY98		FY 1994		FY 1995		FY 1996		FY 1997		FY 1998	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	February 1995	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
7 - Operational System Development		0303142A Satcom Ground Environment			D2PT	
A. Project Cost Breakdown						
Operational Test and Evaluation						
Total						
B. Budget Acquisition History and Planning Information						
Performing Organizations						
Contractor or	Contract					
Government	Method/Type					
Performing	or Funding					
Activity	Vehicle					
Product Development Organizations Not Applicable						
Support and Management Organizations Not Applicable						
Test and Evaluation Organizations						
OPTEC						
Government Furnished Property: None						
Subtotal Product Development						
Subtotal Support and Management						
Subtotal Test and Evaluation						
Total Project						

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995		
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT			
7 - Operational System Development		0303142A Satcom Ground Environment								D2RT			
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	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	0	0	274	0	0	0	0	0	Continuing		
C. Other Program Funding Summary: Not Applicable													
D. Schedule Profile													
Evaluate Pre-Award Equipment Demonstrations		1	2	3	4	1	2	3	4	1	2	3	4

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

February 1995

PE NUMBER AND TITLE

0303142A Satcom Ground Environment

D2RT

Pre-Award Equipment Demonstration Evaluations

274

Performing Organizations

Government	Method/Type

Activity	Vehicle
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Support and Management Officers

TEST YOUR KNOWLEDGE

Government Furnished Property:

Total Project

Office **Prior to**

EAC FY 1994

SECRET

Total Project

FY 1996

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

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational System Development

0303142A Satcom Ground Environment

D253

COST (in Thousands)	FY 1994 Actual	FY 1995 Estimate	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)	31604	31861	19055	21313	26789	23881	17688	17658	Continuing	Continuing

C. Other Program Funding Summary

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
Other Procurement Army 2 - Communications and Electronics Equipment, SSN: BB 8500	77568	103786	78232	99864	93324	93365	65168	65178	Cont	Cont

D. Schedule Profile

1	FY 1994 2	3	4	1	2	3	4	1	2	3	4
RSCCE Contract Award											
UM Tech/International Test											
RSCCE Test Bed Complete											
DSCS Trainer H/W & S/W Integration											
Test											
RSCCE Testing including Init Oper Test											
Award R-BATSON Contract											
Award AN/GSC-52 Modification Prog											
DIMS Software Testing											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT	
7 - Operational System Development		0303142A Satcom Ground Environment		D253	
A. Project Cost Breakdown					
Development (Prototype, Sys Engr, Test & Eval)		FY 1994	FY 1995	FY 1996	FY 1997
Integrated Research Facility		22514	24182	13193	14292
Contractor Engineering Support		900	800	800	800
Government Engineering Support		2467	2015	1358	1758
Program Management Support		4115	3313	2458	3158
Total		1608	1551	1246	1305
		31604	31861	19055	21313
B. Budget Acquisition History and Planning Information: Not Applicable					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
7 - Operational System Development		0303142A Satcom Ground Environment								D383	
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D383	GROUND COMMAND POST	724	0	0	0	0	0	0	0	0	1267
C. Other Program Funding Summary											
Other Procurement Army 2, SSN: BC 4001		FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
		0	5905	1049	1000	892	269	0	0	0	9115
D. Schedule Profile											
1	Fort McPherson fielding support begins	FY 1994			FY 1995		FY 1996			FY 1997	
		2	3	4	1	2	3	4	1	2	3
				X*							4

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	February 1995	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE			D383		
7 - Operational System Development		0303142A Satcom Ground Environment					
A. Project Cost Breakdown							
Contractor	FY 1994	FY 1995	FY 1996	FY 1997			
In-House Support	0						
Total	724						
	724						
B. Budget Acquisition History and Planning Information							
<u>Performing Organizations</u>							
Contractor or	Contract						
Government	Method/Type	Award or	Performing				
Performing	or Funding	Obligation	Activity				
Activity	Vehicle	Date	EAC				
<u>Product Development Organizations Not Applicable</u>							
<u>Support and Management Organizations</u>							
Other Contracts							
Core Support							
Lab Activities							
<u>Test and Evaluation Organizations Not Applicable</u>							
<u>Government Furnished Property: None</u>							
Subtotal Product Development							
Subtotal Support and Management							
Subtotal Test and Evaluation							
Total Project							

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
7 - Operational System Development		0303142A Satcom Ground Environment								D384	
COST (in Thousands)		FY 1994 Actual	FY 1995 Estimate	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		56114	26755	21849	10996	13751	209	4696	3891	Continuing	Continuing
<u>C. Other Program Funding Summary</u>											
Other Procurement Army 2 - SSN: BC 4002		FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To	Total
Other Procurement Army 3 - SSN: BS 9720		0	0	66714	59425	46252	83605	94303	81045	Cont	Cost
		0	0	0	0	8192	10682	0	15214	Cont	Cont
<u>D. Schedule Profile</u>											
Conduct Modern Verification Test		FY 1994			FY 1995		FY 1996		FY 1997		
Conduct Critical Design Review (CDR)		1	3	1	2	4	2	3	4	1	4
Begin Contractor Technical Test		X*								2	3
Conduct SIM 1 Test			X*	X*							
Conduct MST-3000 Test					X						
Release Solicitation for LRIP/FSP						X					
Complete Contract Technical Test											
Obtain LRIP Decision											
Receive 12 EDM Terminals							X				
Begin Joint Interoperability Standards Development effort											
Complete Contract Technical Test											
Conduct SIM 2 Test										X	

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

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational System Development

0303142A Satcom Ground Environment

Government Furnished Property

Contract

Item	Description	Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
	Product Development Property				149						149
	CDH Chips/Chip Carriers	MIPR	Jul 93								
	Support and Management Property Not Applicable										
	Test and Evaluation Property Not Applicable										
	Subtotal Product Development				35800	49990	25858	16436	7129	Cont	Cont
	Subtotal Support and Management				28537	6124	897	5413	3767	Cont	Cont
	Subtotal Test and Evaluation										
	Total Project				64337	56114	26755	21849	10896	Cont	Cont

CDH Chips/Chip

Carriers

Support and Management Property Not Applicable

Test and Evaluation Property Not Applicable

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

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

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational System Development

0303142A Satcom Ground Environment

PROJECT

D388

COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D366	SCAMP	33029	89	9883	2871	7362	5802	10759	22646	Continuing	Continuing

C. Other Program Funding Summary

Other Procurement Army 2 - SSN: BC 4003

Other Procurement Army 3 - SSN: BS 9718

D. Schedule Profile

Conduct Hardware Critical Design

Review (CDR)

Begin Software (S/W) CDR

Complete S/W CDR

Conduct Contractor Technical Test

Terminated EMD contract for

Convenience

MS III Decision Review

Complete Pre-Award Equipment

Demonstrations

Award Production Contract

Conduct Follow-On Test and Evaluation

(FOT&E)

<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>To</u>	<u>Total</u>
		25816	32474	11007	9958	1119		<u>Compl</u>	<u>Cost</u>
								<u>Cont</u>	<u>Cont</u>
				5456	3977			<u>Cont</u>	<u>Cont</u>

	FY 1994	
1	2	3
	X*	

X*

X*

X*

X*

ix

X

X

X

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

February 1995

BUDGET ACTIVITY

7 - Operational System Development

PE NUMBER AND TITLE

0303142A Satcom Ground Environment

**PROJECT
D386**

A. Project Cost Breakdown

Contractor	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>
	24079	0	0	0
Government Systems Engineering and Project Management	8950	3168	9883	2871
Total	33029	*3168	9883	2871

- Includes Below Threshold Reprogramming of 3071 from D456.

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or

Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	EAC

Product Development Organizations**

Martin Marietta **CPIF** **Sep 92**

Lockheed
CPIF
Sep 92

Govt Support

Support and Management Organizations

Other Contracts

Core Support

Lincoln Labs

Lab Activities

Test and Evaluation Organizations

Lockheed Terminated for Convenience 9/93

Martin Marietta Terminated for Convenience 10/94

Government Furnished Property: None

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

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* Includes Below Threshold Reprogramming of 3071 from D456.

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BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational System Development

0303142A Satcom Ground Environment

PROJECT

D455

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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)	4526	763	807	878	0	0	0	0	0	300204

C. Other Program Funding Summary: Not ApplicableD. Schedule Profile

	FY 1994	FY 1995	FY 1996	FY 1997
1	2	3	4	1
Completed MST-8000 Test with DFS-1	X*			
Multi-Service Interoperability Test		X		X
Participate in MST-3000 Test with DFS-3				X

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

DATE

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BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational System Development

03031424, Satcom Ground Environment

D455

A. Project Cost Breakdown

Contractor
Government Systems Engineering and Project Management
Total

FY 1994	FY 1995	FY 1996	FY 1997
0	0	0	0
4526	763	807	878
4526	763	807	878

B. Budget Acquisition History and Planning InformationPerforming Organizations

Contractor or
Government
Performing
Activity

Contract

Method/Type

Award or

Obligation

Date

Performing

Activity

EAC

Project

Office

EAC

Total

Prior to

FY 1994

FY 1994

FY 1995

FY 1996

FY 1997

Budget to

Complete

Total

Program

Product Development Organizations

Magnavox (D501) FFP Dec 85
Magnavox (E716) CPIX Sep 90
Raytheon (D500) T&M Mar 90
Magnavox (B754) T&M Apr 92

112544
11363
933
1126

952
1068

454
67

441
201

480
219

112544
11363
933
1126
2327

Support and Management Organizations

Other Contracts
SS/MSP JMPO

15057
4373

1068

67

201

219

16612
4373

Crosslink

Statistical

Mitre

Core Support

Lab Activities

Lincoln Labs

Test and Evaluation Organizations

Test Support

3396
1527
118726
4256
16705

262
2244

86
156

165

179

3396
1613
119488
4256
18949

Government Furnished Property: None

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

DATE February 1995

BUDGET ACTIVITY		PE NUMBER AND TITLE						
7 - Operational System Development		0303142A Satcom Ground Environment						
		Total						
	Prior to	FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to	Total
							Complete	
Subtotal Product Development		125966	952	454	441	480		128293
Subtotal Support and Management		164040	3574	309	366	398		168687
Subtotal Test and Evaluation		2966						2966
Total Project		292972	4526	763	807	878		299946

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
7 - Operational System Development		0303142A Satcom Ground Environment								D456	
	COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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 (TACSATCOM) SYSTEM	7760	7804	4487	4465	4449	4373	4986	0	Continuing	Continuing
C. Other Program Funding Summary											
		FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To	Total
Other Procurement Army 2; SSN: K77200		9580	14951	17498	13380	11533	0	0	0	Compl	Cost
Other Procurement Army 2, SSN: BB-8417		19773	6329	4166	5662	7411	7484	12130	12131	Cont	Cont
Other Procurement Army 2, SSN: BA-9350		0	0	0	0	0	0	41360	57475	Cont	Cont
D. Schedule Profile: The efforts funded in this project represent multiple continuing research efforts in engineering and modification associated with satellite communications and control systems. Therefore, no milestones or events are provided.											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
7 - Operational System Development	0303142A Satcom Ground Environment		D456	
A. Project Cost Breakdown				
Development Support Equipment Acquisition	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engineering Support	4324	3056	3043	3041
Government Engineering Support	740	552	301	300
Program Management Support	1826	582	315	328
Reprogramming	870	543	828	796
Total	0	3071	0	0
	7760	7804	4487	4465

B. Budget Acquisition History and Planning Information: Not Applicable

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

DATE

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BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational System Development

0603778A MLRS Product Improvement Program

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	41683	57802	68786	53687	22585	0	0	0	0	244553
D027 Improved Launcher Mechanical System	0	2959	15994	21545	22585	0	0	0	0	63083
D050 Improved Fire Control System	24628	34799	34448	14657	0	0	0	0	0	108830
D054 Extended Range Rocket	17057	20044	18344	17195	0	0	0	0	0	72640

A. 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) 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 MLRS ILMS will decrease the cost 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.

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 cost to aim point timeline, enhance effectiveness in engaging and supporting the force, and increase MLRS platform survivability.

FY 1994 Accomplishments: N/A

FY 1995 Planned Program:

- Develop and Initiate Product Team Design (1000)
- Develop and Initiate Trade Studies (1500)
- Minor Tasks Including In-In-House (397)
- SBIR/STTR Decrement (62)

FY 1996 Planned Program:

- Hardware & Software Design (14121)
- GFE Retrofit Kits (500)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	
7 - Operational System Development	0603778A MLRS Product Improvement Program	February 1995
Minor Tasks Including In-House (1373)		
FY 1997 Planned Program: - Launcher Modifications & Testing (18580) - System Integration (125) - GFE Launcher Modifications (1075) - Minor Tasks Including In-House (1765)		
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.		
FY 1994 Accomplishments: - Launcher Mock-Up Design, PNU and LSPU Design (21833) - Software Development (229) - Minor Tasks Including In-House (2564)		
FY 1995 Planned Program: - System EDT Integration, Subsystem EDT and Final LRU Design Activities (30227) - Software Development (400) - Launcher Pool Maintenance (200) - Minor Tasks Including In-House (3241) - SBIR/STTR Decrement (731)		
FY 1996 Planned Program: - Engineering Design Test of Hardware, System Integration Test & Subsystem Level Qualification Test (27271) - WSMR Test Support (425) - Minor Tasks Including In-House (6752)		
FY 1997 Planned Program: Reliability Qualification Test, Operational Test and System Environmental Testing (10592)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE	
7 - Operational System Development		0603778A MLRS Product Improvement Program	
• White Sands Missile Range (WSMR) Test & Software (480) • Minor Tasks Including In-House (3885)			
Project D054 - Extended Range -MLRS: This project provides for the Engineering and Manufacturing Development (EMD) of an Extended Range (ER-MLRS) rocket for the (MLRS). The rocket will enhance the capability of the existing MLRS by providing improvements in range, accuracy, effectiveness, and maneuver force safe; (improved submunitions with self destruct fuze).			
FY 1994 Accomplishments: • (EMD) Ballistic, V6 and Class Loader Software Design (7496) • SDF Development (700) • Wind Measurement Device (WMD) Development (5691) • Early 12 Flight Tests & Initiate Ballistic Algorithm Tests (1200) • Minor Tasks Including In-House (1970)			
FY 1995 Planned Program: • (EMD) Class Loader SW Code/Test & V6 Software Integrate/Testing (8128) • WMD-Met Sensor SW Code/Test EDT Units (7125) • XM451 Fuze Qualifications (480) • SDF Development (1085) • Ballistic Flight Tests (1967) • Minor Tasks Including In-House and Preparation for ASARC (838) • SBIR/STTR Decrement (421)			
FY 1996 Planned Program: • WMD Testing and Preproduction Qualification Testing (3910) • Complete Ballistic Algorithm Flight Testing (2719) • IFCS SPAP FQT (3760) • (EMD) Software Design Integration (5676) • Minor Tasks Including In-House and ASARC Preparation (2279)			
FY 1997 Planned Program: • WMD Testing (6349) • (EMD) Software Integration/Testing (6900)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		February 1995
7 - Operational System Development		
PE NUMBER AND TITLE 0603778A MLRS Product Improvement Program		
• PPQT (1057) • IFCS Rkt Mgr FQT (1717) • Minor Tasks Including In-House and ASARC Preparation (1172)		
B. Program Change Summary		
Previous President's Budget	FY 1994	FY 1995
Appropriated Value (Total PE)	40915	55699
Adjustments to Appropriated Value	40915	57802
	768	
		FY 1996
		48554
		FY 1997
		32311
Current President's Budget Submit	41683	57802
		68786
		53697
• Increases in the FY 96 and out budgets are due to the acceleration of the Improved Launcher Mechanical System (ILMS) to link it with the Improved Fire Control System (IFCS). This results in a combined IFCS & ILMS modification.		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-2 Exhibit)

DATE

February 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

7 - Operational System Development

0603778A MLRS Product Improvement Program

PROJECT

D027

COST (In Thousands)	FY 1994 Actual	FY 1995 Estimate	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	0	2959	15994	21545	22585	0	0	0	0	63083

C. Other Program Funding Summary

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
Missile Procurement Army BUDGET ACT 2:										
MLRS RKT (C65401)	78422	25917	0	0	0	0	0	0	0	3821532
MLRS LAUNCHER (C66400)	169537	143111	48158	39469	0	0	0	0	0	1746560
ER-MLRS (C65402)	0	0	3086	25362	46290	49813	49769	99526	1700000	1973846
BUDGET ACT 3:										
MLRS MODS (C67500)	28891	29289	17996	5257	43485	71031	125845	168285	CONT	CONT
BUDGET ACT 4:										
MLRS INITIAL SPARES (CA0257)	11508	12066	5228	0	0	0	0	0	0	206957
MLRS MOD SPARES (CA0265)	1205	1269	2112	3197	2431	1847	6046	5829	CONT	CONT

D. Schedule Profile

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 1997
MSII	1	2	3	4	1	2	3	4	1
PDR									
CDR									
EDT									
ROAD TESTS (2Q 98)									
MSIII A (4Q98)									
CONTRACT COMPLETE									

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

February 1995

PEN NUMBER AND TITLE

0603778A MLRS Product Improvement Program

PROJECT

D027

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	February 1995
BUDGET ACTIVITY		PE NUMBER AND TITLE	
7 - Operational System Development		0603778A MLRS Product Improvement Program	
		Total	
		Prior to	
		FY 1994	
		FY 1994	
		FY 1995	
		FY 1996	
		FY 1997	
		Budget to	
		Complete	
		Total	
		Program	
Subtotal Product Development			54024
Subtotal Support and Management			6714
Subtotal Test and Evaluation			2345
Total Project			63083

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

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BUDGET ACTIVITY

7 - Operational System Development

PE NUMBER AND TITLE

0603778A MLRS Product Improvement Program

PROJECT

D050

COST (in Thousands)		FY 1994 Actual	FY 1995 Estimate	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	24626	34798	34448	14657	0	0	0	0	0	106630

C. Other Program Funding Summary

Missile Procurement Army

BUDGET ACT 2:

MLRS RKT (C65401)

MLRS LAUNCHER (C66400)

ER-MLRS (C63402)

BUDGET ACT 3:

MLBS MODS (C67500)

BUDGET ACT:

BUDGET ACT 4:
MIPS INITIAL SPARES (CA0357)

MLRS INITIAL SPARKS (CA02)

D. Schedule Profile

	FY 1994	FY 1995	FY 1996	FY 1997
PDR	1	4	4	1
CDR	2	1	2	2
INTEG LAB OPER	3	3	3	3
DEFINIT CONTRACT	X			
SYS INT TEST			X	
TEST FIRINGS				X
MS III				
OPER TEST				X

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	February 1995	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE				
7 - Operational System Development	0603778A MLRS Product Improvement Program		D050		
<u>A. Project Cost Breakdown</u>					
Contractor Engineering Support	FY 1994	FY 1995	FY 1996	FY 1997	
Program Management Support	21833	30227	27271	10592	
Developmental Test Support	2133	3241	6752	3885	
Miscellaneous	500	600	425	480	
Total	160	731			
	24626	34799	34448	14957	
<u>B. Budget Acquisition History and Planning Information:</u> Not Applicable					
Government Furnished Property: Not Applicable					

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DATE _____

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BUDGET ACTIVITY		PE NUMBER AND TITLE										PROJECT	
7 - Operational System Development		0603778A MLRS Product Improvement Program										D054	
	COS 1 (in Thousands)	FY 1994 Actual	FY 1995 Estimate	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	17057	20044	18344	17195	0	0	0	0	0	72640		

C. Other Program Funding Summary

Missile Procurement Army

BUDGET ACT 2:

MLRS RKT (65401)**MLRS LAUNCHER (66400)**

ER-MLRS (65402)

BUDGET ACT 3:

MLRS MODS (C67500)

BUDGET ACT 4:

MLRS INITIAL SPARES (CA0257)**MLRS MOD SPARES (CA0265)**

D. Schedule Profile

SW PDR/CDR

BEGIN INITIAL FLT TEST

HW CDR

BALLISTIC ALGORITHM TEST

FCS FOT

PROT

MSIII A

HW PCI

IFCS RKT MGR FOT

CONTRACT COMPLETE

00000000

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	February 1995
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
7 - Operational System Development	0603778A MLRS Product Improvement Program	D054		
A. Project Cost Breakdown				
		FY 1994	FY 1995	FY 1996
CONTRACTOR ENGINEERING SUPPORT		13183	15253	13238
PROGRAM MANAGEMENT SUPPORT		2406	2372	2764
DEVELOPMENTAL TEST SUPPORT		1384	2262	2205
MISCELLANEOUS		84	157	137
Total		17057	20044	18344
				FY 1997
				13282
				2784
				939
				190
				17195
B. Budget Acquisition History and Planning Information:	Not Applicable.			

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APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES
MAILING LIST

PRINT

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