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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

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RESEARCH, DEVELOPMENT, TEST AND EVALUATION, Army Appropriation, Budget Activities 4 and 5

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

"READINESS THROUGH MODERNIZATION"

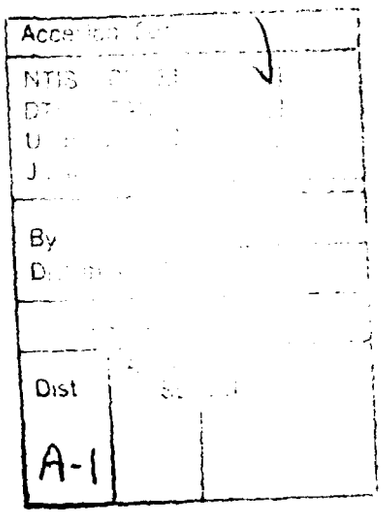
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95-01260

VOLUME II

UNCLASSIFIED

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



VOLUME II

Budget Activities 4 and 5

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 PE/PROJECT	TITLE	NEW PE/PROJECT
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

Program Restructures (Continued)

OLD PE/PROJECT	TITLE	NEW PE/PROJECT
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.

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 *	0203744/D430
Army Missile Defense Systems Integration*	0603308/D990
Advance Missile System, Heavy	0604325/DE18
Kiowa Warrior CSMET *	0604220/D538
Aviation Combat Arms Tactical Trainer (AVCATT)	0604780/D581
Engineer Combat Arms Tactical Trainer (ENCATT)	0604780/D582
Fire Support Combat Arms Tactical Trainer (FSCATT)	0604780/D583
Longbow-Apache TESS *	0604816/DC87
TROJAN Development (TIARA) *	0604270/DL16

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.

PE/PROJECT	TITLE	BRIEF EXPLANATION
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
0203806
0203808
0301359
0602104
0602122
0602601, Project DC83
0602788
0603003, Projects DB38 and D391
0603012
0603014
0603018
0603019
0603020
0603238, Projects D182 and D189
0603322
0603647
0603851
0604018
0604328
0603017

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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3	0601104A	University/Industry Research Centers	51
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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
11	0602601A	Cmbt Veh And Automotive Tech	110
12	0602618A	Ballistics Technology	118
13	0602622A	Chem, Smoke And Equip Defeating Tech	124
14	0602623A	Joint Service Small Arms Program	131
15	0602624A	Weapons & Munitions Technology	133
16	0602705A	Electronics And Electronic Devices	144
17	0602709A	Night Vision Technology	148
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21	0602783A	Computer And Software Technology	173
22	0602784A	Military Engineering Technology	179
23	0602785A	Manpower/Personnel/Trng Technology	189
24	0602786A	Logistics Technology	194
25	0602787A	Medical Technology	204
26	0602789A	Army Artificial Intelligence Technology	217
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28	0603002A	Medical Advanced Technology	237
29	0603003A	Aviation Advanced Technology	249
30	0603004A	Weapons And Munitions Adv Technology	269
31	0603005A	Cmbt Vehicle And Automotive Adv Tech	279
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33	0603007A	Manpower, Personnel And Tng Advanced Technology	301
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35	0603238A	Air Defense/Precision Strike Technology	309
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42	0603734A	Military Engineering Adv Tech	364
43	0603759A	Chem Bio Def And Smoke Adv Tech	370
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51	0603649A	Engineer Mobility Equipment Advanced Development	432
52	0603653A	Advanced Tank Armament System (ATAS)	436
53	0603713A	ADDS-Army Data Distribution System	441
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603308A Army Missile Defense Systems Integration

PROJECT: D990

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
D990 Theater Missile Defense (TMD) System Integration	0	0	2985	2985	2985	2986	2997	2993	Continuing	Continuing

A. Mission Description and Budget Item Justification

Project D990 Theater Missile Defense (TMD) System Integration: Funds initiatives directed by U.S. Army Space and Strategic Defense Command in its capacity as the U.S. Army advocate, integrator, and focal point for TMD operations. USASSDC is empowered by the Department of the Army to serve as the Department level, operational representative for theater missile defense. This program conducts systems analysis, studies, and experimentation designed to validate and integrate the pillars of TMD: active defense, passive defense, attack operations, and battle management/command, control, communications, computers, and intelligence functions. This integration program produces hardware and software solutions, doctrinal and procedural solutions, interfaces, and architectures; these inter-pillar and intra-pillar products, required to accomplish the integrated TMD mission, exceed the scope of other programs. This program supports the milestone decisions for active defense missile and C4I systems, as well as Aviation and Artillery. This Project focuses on efforts associated with advanced technology development used to demonstrate general military utility to include demonstration and validation in the area of TMD and is appropriately funded in Budget Activity 4.

FY 1994 Accomplishments:

- There were no projects for TMD Systems Integration funded in FY94.

FY 1995 Planned Program:

- There were no projects for TMD Systems Integration funded in FY 95.

FY 1996 Planned Program:

- Advance development for an Army theater-level TMD command post designed to perform the battle integration function of TMD (1485).
- Participation in the Joint TMD Experiments and exercises designed to validate and test prototype products identified in the TMD ORD (500).
- Evaluation of the interoperability of existing models and simulations (200).
- Validation of TMD power projection requirements (200).
- Analysis of proposals to construct an Army TMD operator training facility (150).
- Concept development for Defense Support Program TMD options (100).
- Concept development of space applications for integrated TMD (100).
- Simulations and models to validate integrated TMD requirements (100).
- Initiatives to market Army TMD developments (150).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603308A Army Missile Defense Systems Integration PROJECT D990

FY 1997 Planned Program:

- Testing and exercising prototypical hardware and software related to integrated TMD operations, especially TMD command post/cell operations, inter-service operations, combined operations with allies, intra-pillar functions (1985).
- Development of enhan[illegible]to models and simulations (500).
- Leverage Department-level studies/initiatives to provide solutions to TMD integration issues (200).
- Concept development of space applications for integrated TMD (100).
- Upgrades to simulations and models reflecting the Joint TMD environment (100).
- Initiatives to market Army TMD developments (100).

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	0	0	0	0
Appropriated Value	0	0	0	0
Adjustments to Appropriated Value	0	0	0	0
Current Budget Estimate Submission (BES)	0	0	2985	2985

Change Summary Explanation (by Project): N/A

Change Summary Explanation: N/A

Funding: N/A

Schedule: N/A

Technical: N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603308A Army Missile Defense Systems Integration PROJECT D990

C. Other Program Funding Summary

There are no other related RDTE appropriation efforts.

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost

D. Schedule Profile

These efforts are continuous in nature; therefore, no milestone or events are provided.

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

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603308A Army Missile Defense Systems Integration

PROJECT: D990

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Program Management Support	0	0	2985	2985
	0	0	2985	2985

B. Budget Acquisition History and Planning Information: N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY **4 - Demonstration And Validation**	PE NUMBER AND TITLE **0603619A Landmine Warfare & Barrier Advanced 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	21148	23562	32839	17044	10004	7963	9609	11673	Continuing	Continuing
D005 Landmine Advanced Development	5162	0	0	0	2089	2388	2398	0	Continuing	Continuing
D606 Countermine/Barrier Advanced Development	15986	23562	32839	17044	7915	5575	7211	11673	Continuing	Continuing

A. **Mission Description and Budget Item Justification:** This program element provides for advanced development of new mine and countermine systems by prototyping modern munitions technology, advanced development sensors, logic networks, fuzes, power sources, warhead components and modules into complete systems. Development of minefield command and control equipment will provide new capabilities in landmine warfare and will move the future Army toward the intelligent minefield. It provides for initiation of advanced development of the Airborne Stand-off Minefield Detection System (ASTAMIDS), the Close-in Man Portable Mine Detector, Vehicle Mounted Mine Detector (VMMD) and for mine neutralization with Explosive Stand-off Minefield Breacher (SMB), and Anti-personnel Obstacle Breaching System (APOBS).

Project D005 - Landmine Advanced Development: Program to improve the capability of mines used by U.S. Army. This project will provide command and control and on-off-on capabilities for mines.

FY 1994 Accomplishments:
- Conducted component level tests for Wide Area Mine (WAM) Command & Control (1162)
- Set power budget & established intermine communications link for WAM Command and Control (3000)
- Developed Engineering and Manufacturing Development (EMD) plan for WAM Command & Control (1000)

FY 1995 Planned Program: Project not funded in FY 1995

FY 1996 Planned Program: Project not funded in FY 1996

FY 1997 Planned Program: Project not funded in FY 1997

Acquisition Strategy: Command and Control is being developed as a product improvement to Wide Area Mine and will be incorporated into the production design for WAM PIP.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603619A Landmine Warfare & Barrier Advanced Development

(U) **Project D606 - Countermine/Barrier Advanced Development:** This project provides for advanced development of new countermine systems by prototyping advanced sensors evaluation, neutralizing, clearing, breaching and detection concepts which will enhance the U.S. capability in countermine warfare. The program includes the Airborne Stand-off Minefield Detection System (ASTAMIDS), the Close-in Man Portable Mine Detector, Vehicle Mounted Mine Detector (VMMD), Explosive Stand-off Minefield Breacher (SMB), and Anti-personnel Obstacle Breaching System (APOBS). The program provides for proof-of-principle for these systems.

FY 1994 Accomplishments:
- Completed ASTAMIDS system design and conduct review (7500)
- Initiated, developed detailed design & fabrication of ASTAMIDS prototype (7121)
- Conducted Explosive SMB Milestone I IPR and released contract solicitation (365)
- Conducted APOBS Reliability Improvement Program (1000)

FY 1995 Planned Program:
- Conduct APOBS Milestone III IPR (200)
- Complete ASTAMIDS detail hardware design (10300)
- Continue ASTAMIDS prototype development (11575)
- ASTAMIDS test planning & site preparation (1000)
- SBIR/STTR (487)

FY 1996 Planned Program:
- Conduct system design & preliminary design reviews for Explosive SMB (10169)
- Initiate Advanced Development design for Close-in Manportable Mine Detector (7087)
- Complete ASTAMIDS development/fabrication of prototype (11283)
- Initiate/complete development and early user tests of ASTAMIDS (4300)

FY 1997 Planned Program:
- Complete technical test & evaluation for Explosive SMB (9052)
- Conduct Milestone II IPR for Explosive SMB (750)
- Develop Close-in Manportable Mine Detector Prototype (7242)

Acquisition Strategy: Close-in Man Portable Mine Detector - RDTE development with sole source production award to RDTE contractor.
ASTAMIDS - RDTE development with sole source production award to RDTE contractor.
SMB - RDTE development with sole source production award to RDTE contractor.
DE Breecher - RDTE development with sole source production award to RDTE contractor.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603619A Landmine Warfare & Barrier Advanced Development

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	21609	27126	15762	12925
Appropriated Value	21609	23562		
Adjustments to Appropriated Value	461			
a. SBIR/STTR decrements (330)				
b. Reprogramming out of PE (131)				
Current Budget Submit/President's Budget	21148	23562	32839	17044

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603619A Landmine Warfare & Barrier Advanced Development

PROJECT: D005

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
D005 Landmine Advanced Development	5162	0	0	0	2089	2388	2398	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 Compl	Total Cost
RDTE, A Budget Activity 5										
PE 0604808 Project D016 Mine Engring. Dev.	2912	6757	5392	5694						
AMMO, A Appropriation			15000	20000	20000					
E78100, Wide Area Mine						35000	35000	35000		

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
Conduct component level tests for WAM C2				X*												
Set Power Budget and establish intermine communications link for WAM C2				X*												
Develop EMD Plan for WAM C2				X*												

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603619A Landmine Warfare & Barrier Advanced Development PROJECT D005

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	4467			
Test and Evaluation	0			
Govt Engineering Spt	500			
Program Management	195			
Total	5162			

B. Budget Acquisition History and Planning Information: N/A

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603619A Landmine Warfare & Barrier Advanced Development

PROJECT: D606

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
D606 Countermine/Barrier Advanced Development	15986	23562	32639	17044	7915	5575	7211	11673	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
RDTE, A Budget Activity 5										
PE 0604808 Project D415 Mine Neutralization Detection	0	932	1990	14735	20399	38020	20884	17958		114918
OPA 3, A Appropriation										
M80100, Initial VMMD				6755	9942	6667				23364
S11500, ASTAMIDS							11989	11991		23980
R68200, Close-in Manportable Detection								6822		6822
R68000, Standoff Hand Held Detector						3977	3977			7954
M79900, Mine Countermeasures, Electronic								13672		13672

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
Complete ASTAMIDS system design and conduct review			X*													
Initiate, develop detail design and fabrication of ASTAMIDS prototype				X*												
Conduct explosive SMB milestone I IPR & Release contract solicitation																
Conduct APOBS reliability Improvement Program				X*												
Conduct APOBS Milestone III IPR							X									

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603619A Landmine Warfare & Barrier Advanced Development PROJECT D606

D. Schedule Profile (continued):

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Continue ASTAMIDS prototype development						X*										
ASTAMIDS test planning and site preparation							X									
Conduct system design & preliminary design reviews for explosive SMB								X								
Initiate advanced development design for Close-In Man Portable Mine Detector												X				
Complete ASTAMIDS development/fabrication of prototype											X					
Initiate early user tests of ASTAMIDS											X					
Complete technical test & evaluation and conduct Milestone II IPR for Explosive SMB																X
Conduct final design review and initiate technical/operational test & evaluation of DE Breecher																X
Develop close-in Man Portable Mine Detector Prototype																X

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603619A Landmine Warfare & Barrier Advanced Development

PROJECT: D606

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	11066	18924	23295	9892
Test and Evaluation	45	675	2300	4050
Govt Engineering	4151	2745	6644	2502
Govt Program Management	724	731	600	600
Miscellaneous - SBIR/STTR (FY 95)	0	487	0	0
Total	15986	23562	32839	17044

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
Product Development Organizations											
Westinghouse	CPIF	9308	20111	20111	1520	4729	8000	5362	0		19611
Raytheon	CPIF	9308	23475	23475	1520	6337	10924	4194	0		22975
TBD	CPIF	TBD	N/A	N/A	N/A	0	0	8377	4133		12510
TBD	CPIF	TBD	N/A	N/A	N/A	0	0	5362	5759		11121
Support and Management Organizations											
CECOM	1095	Various	N/A	N/A	N/A	4875	3476	7244	3102		18697
Test and Evaluation Organizations											
TECOM	1095	Various	N/A	N/A	N/A	45	675	2300	4050		7070
Miscellaneous	SBIR/STTR	(FY 95)				0	487	0	0		487

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603619A Landmine Warfare & Barrier Advanced Development

PROJECT: D606

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	3040	11066	18924	23295	9892		66217
Subtotal Support and Management		4875	3476	7244	3102		18697
Subtotal Test and Evaluation		45	675	2300	4050		7070
Subtotal Miscellaneous			487				
Total Project	3040	15986	23562	32839	17044		92471

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603627A Smoke, Obscurant & Target Defeating Systems - AD

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	5068	2789	3248	6567	5782	4976	0	0	Continuing	Continuing
DE78 Target Defeating Systems	1	0	0	0	0	0	0	0	0	0
DE79 Smoke, Obscurant-Advanced Development	5067	2789	3248	6567	5782	4976	0	0	Continuing	Continuing

A. Mission Description and Budget Item Justification

U. S. Forces must be able to effectively neutralize and degrade directed energy weapon systems and threat electro-optical systems/smart weapons that operate in the full range of the electromagnetic spectrum. This program element supports the Demonstration/Validation (DEMVAL) of logistically supportable, high performance smoke and obscurant agents, munitions, and devices to improve the survivability of the combined arms force and complement combined weapons systems. Improvements are sought across the entire multi-spectral range from visual through infrared (IR) and millimeter wavelengths (MMW) radar for incorporation into self-protection large area and projected smoke systems. The smoke obscuration technologies supported by this program enhance smoke systems as combat multipliers. This program element focuses on efforts associated with advance technology development used to demonstrate general military utility to include demonstration and validation in the area of Smoke, Obscurant & Equip Systems Engineering and is correctly placed in Budget Activity 4.

Project DE78 Target Defeating Systems: Project provided Demonstration/Validation (DEMVAL) of non-lethal riot control devices. Project funding was terminated in FY94 reflecting decision to concentrate on higher priority projects. Funding was transferred to other NBC programs.

FY 1994 Accomplishments:
- No Planned Program

FY 1995 Planned Program:
- No Planned Program

FY 1996 Planned Program:
- No Planned Program

FY 1997 Planned Program:
- No Planned Program

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603627A Smoke, Obscurant & Target Defeating Systems - AD

Project DE79 Smoke, Obscurant-Advanced Development: This program funds a multi-fuel Materiel Change (MC) for the M157 Smoke Generator System (SGS). Program funding will also support the Light Vehicle Obscuration Screening System (LVOSS) project to provide an on-board screening system for the High Mobility Multi-Purpose Wheeled Vehicle (HMMWV). The LVOSS will maximize the use of standard grenade and launcher components and technology to disseminate smoke/obscurant material and fully obscure the vehicle.

FY 1994 Accomplishments:
- Conducted Pre-Production Qualification Test (PPQT) and complete M157 Smoke Generator System multi-fuel Materiel Change (2780)
- LVOSS-Developed launcher and ammunition concepts (500)
- LVOSS-Conducted Milestone 0 IPR (87)
- LVOSS-Participated in Battle Lab Evaluation (1700)

FY 1995 Planned Program:
- LVOSS-Conduct Milestone I/II IPR (60)
- LVOSS-Evaluate Prototype for further development (1361)
- LVOSS-Select materials and hardware for System Design (1319)
- SBIR/STTR (49)

FY 1996 Planned Program:
- LVOSS-Complete Prototype Design Package (800)
- LVOSS-Fabricate Pre-Production Test (PPT) Hardware (1200)
- LVOSS-Conduct PPT (1248)

FY 1997 Planned Program:
- LVOSS-Fabricate PPQT Hardware (1800)
- LVOSS-Conduct PPQT (3000)
- LVOSS-Systems Engineering, Planning and Documentation (1767)

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603627A Smoke, Obscurant & Target Defeating Systems - AD

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	6039	2821	0	0
Appropriated Value	6039	2789	0	0
Adjustments to Appropriated Value	-971	0	0	0
a. SBIR/STTR decrement	(86)			
b. Reprogrammed out of PE	(885)			
Current Budget Submit/President's Budget	5068	2789	3248	6567

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603627A Smoke, Obscurant & Target Defeating Systems - AD

PROJECT: DE79

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
DE79 Smoke, Obscurant-Advanced Development	5067	2789	3248	6567	5782	4976	0	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 Compl	Total Cost
RDTE,A Budget Activity 5 PE 0604609A Project D200 Smoke/Obscurant	17140	3703	2000	0	0	2798	5196	7482	Cont'd	Cont'd
OPA-3, A Appropriation										
G70700 - LVOSS							2485	3977	4000	10462
M99104 - M157 Smoke Generator			5214	3614						8828

D. **Schedule Profile:**

	FY 1994			FY 1995				FY 1996				FY 1997			
	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
M157A1E1-Conduct PPQT			X*												
M157A1E1-MS III/TC				X*											
LVOSS- System Design Review						X									
LVOSS-Prototype Evaluation						X									
LVOSS-Conduct Milestone I/II IPR							X								
LVOSS-Fabricate PPT Hardware									X						
LVOSS-Conduct PPT											X				
LVOSS-Complete Prototype Design Pkg											X				
LVOSS-Fabrication PPQT Hardware													X		
LVOSS-Conduct PPQT															X
LVOSS-Systems Engineering Planning and Documentation															X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603627A Smoke, Obscurant & Target Defeating Systems - AD	PROJECT DE79

A. Project Cost Breakdown:

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	885	504	385	385
Development Spt Equipment Acquisition	331	65	85	85
Systems Engineering	305	205	205	205
Integrated Logistics Support	165	60	60	60
Quality Assurance	250	85	85	85
Reliability, Maintainability and Availability	58	50	75	75
Configuration Management	135	86	85	175
Technical Data	550	55	200	300
Development Test and Evaluation	482	250	984	2700
Operational Test				1200
Contractor Engineering Support	147	225	95	150
Government Engineering Support	450	500	400	367
Program Management	922	305	209	360
Travel	116	55	45	65
Research	254	275	300	300
Training Development	17	20	35	55
SBIR/STTR		49		
Total	5067	2789	3248	6567

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
Product Development Organizations											
Misc.	C/MIPR		2953	2953		2352	0	0	0	601	2953
ERDEC		Oct 93	21843	21843		2158	2515	2553	3717	10900	21843
Battelle Labs	CPFF, MIPR	Feb 94	900	900		130	225	295	250	0	900

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603627A Smoke, Obscurant & Target Defeating Systems - AD

PROJECT: DE79

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
Support and Management Organizations											
Test and Evaluation Organizations											
Misc.			427	427		427	0	0	0	0	427
TECOM	MIPR	Oct 95	3700	3700				400	2600	0	3000

Government Furnished Property: Non

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development		4640	2740	2848	3967	11501	25696
Subtotal Support and Management							
Subtotal Test and Evaluation		427		400	2600		3427
Total Project		5067	2740	3248	6567	11501	29123

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603640A Artillery Propellent Development

PROJECT: DB91

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
DB91 Unicharge	30060	25588	10946	0	0	0	0	0	0	90571

A. **Mission Description and Budget Item Justification** This program element is a duel faceted program, focused on efforts associated with the technology development of the XM 230 Unicharge, 155MM, Solid Propellant, Combustible Case System (XM230 Unicharge achieves zoning through the use of multiple increments), and the 52 Caliber Solid Propellant Armament System (XM297), used to demonstrate general military utility to include demonstration and validation in the area of artillery propellant and is correctly placed in Budget Activity 4. For XM230, each increment is self-contained with an ignition system, wear additives, flash and blast reducers, and decoppering agent. The XM297 is a one year funded effort to develop a Unicharge-based armament system as a back-up to the AFAS Liquid Propellant armament system. The XM297 effort shall integrate a bolt-in, bolt-out gun mount for Paladin, laser ignition, integral mid-wall cooling gun tube, slide block breech, integral muzzle brake and progressive rifling.)

Project DB91 Artillery Propellant Development:

FY 1994 Accomplishments:

- XM230: Insensitive munitions development, producibility maturation, computer modeling, additive and coating compatibility; XM297: Laser ignition development, design bolt-in/bolt-out gun mount, design and manufacture of second generation integral midwall cooling tube, Paladin system integration feasibility study (28262)
- Project Management support, management engineering services, other services (1088)
- XM230: Low zone testing and loading variability testing; XM297: Complete proof and principle cannon testing, gun mount recoil test, laser ignition testing (710)

FY 1995 Planned Program:

- XM230: Core igniter development, stand alone bottom charge development; XM297: Continued development of XM297 cannon and laser ignitor system, conduct ammunition handling and rate-of-fire/thermal management Paladin mount integration (19701)
- Project Management support and management engineering services (870)
- Initiate cannon pre-fatigue/wear testing and continue engineering development testing, XM297; interior ballistic test and ballistic firings, XM230 (4479)
- SIBR/STTR (538)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603640A Artillery Propellent Development
	PROJECT DB91

FY 1996 Planned Program:

- XM297: Continue development of XM297 cannon and laser ignitor systems, conduct ammunition handling rate-of-fire, thermal management demonstrations; (XM230): Provide Unicharge support for XM297 program (7046)
- Project management support and management engineering services (300)
- Cannon pre-fatigue/wear test completion (3600)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	30533	8137		
Appropriated Value		25588		
SBIR & STTR Decrement	-473			
Current Budget Submit/President's Budget	30060	25588	10946	

Change Summary Explanation:

Funding: None

Schedule: Program will continue development efforts for Unicharge and XM297 through fourth quarter FY 96.

Technical: FY 1996 XM297 cannon program will focus on development of solid propellant cannon only.

C. Other Program Funding Summary: None

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
Acquisition Milestones					X*											
Milestone II IPR (XM230)																
Acquisition Milestones																
Milestone III IPR (XM230)																
Engineering Milestones		X*														
Combustible Case Design Freeze (XM230)																

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603640A Artillery Propellent Development

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Engineering Milestones		X*														
Propellant Design Baseline																
Test Milestones (XM297)		X*														
Monoblock Cannon																
Test Milestones			X*													
83 Round Cannon Test																
Test Milestones				X*												
Integral Midwall Cooling Cannon Design Test																
XM297 Cannon Milestones - Engineering Development Testing		X*														
XM297 Cannon Milestones - Pre-Fatigue & Wear Testing						X										
XM297 Cannon Milestones - Hydraulic Fatigue Testing								X								
Xm297 Cannon Milestones - Interim Safe Service Life													X			

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603640A Artillery Propellent Development PROJECT DB91

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Product Development	28262	19701	7046	
Support and Management	1088	870	300	
Test and Evaluation	710	4479	3600	
SBIR/STTR		538		
Total	30060	25588	10946	

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
Product Development Organizations											
ARMTEC Defense Products, Coachelle, CA	SS/CPIF	Aug 92	3577	3577	856	2388	0				3244
Olin Corp, St. Petersburg, FL	FF	Jul 94	564	564		264	300				564
Olin Corp, Marion, IL (Load, Assembly & Pack)	FF	Sep 94	1269	1269		919	350				1269
DSTI, Greenbelt, MD	FF	May 94	1265	1265		1265					1265
TBD (Ignitor material)	TBD	TBD	500	500			500				500

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603640A Artillery Propellent Development

PROJECT: DB91

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
Radford Army Ammo Plant, Radford, VA	FF	TBD	350	350			350				350
Olin, St. Petersburg, FL (Additive Material)	FF	TBD					300				300
H. Shear, Torrence, CA	FF	TBD					150				150
United Defense - Limited Partnerships, York, PA	FF	TBD					500				500
Other contracts ($100K or less)						400	410	100			910
AMCCOM, Various activities					18384	21902	15731	6946			62963
Radford Army Ammun. Plant (FFP)		Aug 92			2474						2474
Army Research Laboratory, Adelphi, MD					1116	1111	710				2937
US Army Defense Ammo Ctr & Sch, Savanna, IL	PO						200				200
Wright-Paterson AFB, Dayton, OH	PO						115				115
Various Activities Support and Management Organizations						13	85				98

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603640A Artillery Propellent Development

PROJECT: DB91

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
AMCCOM, Various activities					1000	1088	870	300			3258
Test and Evaluation Organizations											
TECOM, Yuma, AZ						710	4029	3600			8339
AMCCOM, Dover, NJ					147	450	450				1047
SBIR/STTR							538				538

Government Furnished Property

Item Description	Contract 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

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	22830	28262	19701	7046			77839
Subtotal Support and Management	1000	1088	870	300			3258
Subtotal Test and Evaluation	147	710	4479	3600			8936
SBIR/STTR			538				538
Total Project	23977	30060	25588	10946			90571

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603645A Armored System Modernization - Adv Dev

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	145624	172390	201513	267885	337594	308359	44964	0	0	1729685
DB82 Systems Engineering Analysis (SEA)	841	0	0	0	0	0	0	0	0	2577
DB87 Combat Vehicle Survivability	13249	15213	0	0	0	0	0	0	0	37520
DB88 Future Armored Resupply Vehicle (FARV) Adv Dev	23864	21563	71054	93543	118603	122952	15987	0	0	486811
DB98 Component Development	31204	22485	0	0	0	0	0	0	0	53689
D409 Advanced Field Artillery System (AFAS)	76466	113129	130459	174342	218991	185407	28977	0	0	1149088

A. **Mission Description and Budget Item Justification** Under PEO ASM management, the Advanced Field Artillery System (AFAS) and the Future Armored Resupply Vehicle (FARV) were the lead PEO ASM systems. The Conventional Systems Committee and the Defense Acquisition Executive concurred in the ASM restructured program and notification was provided to Congress on 1 Jun 92. Subsequently, on 1 Mar 94, PM-AFAS and PM-FARV transitioned to a single (06) Project Manager and management of AFAS/FARV was transferred from PEO ASM to PEO Field Artillery Systems (FAS). On 15 Nov 94, AFAS/FARV was approved by the Defense Acquisition Board to proceed into the Demonstration and Validation phase as a single program. This program element focuses on efforts associated with the technology development of AFAS and FARV used to demonstrate general military utility to include demonstration and validation in the area of field artillery systems and is correctly placed in Budget Activity 4. AFAS and FARV are the Army's next generation indirect fire cannon and artillery resupply systems for the heavy force. Together, these systems will provide an overmatching fire power capability that will support the force commander's goal of dominating the maneuver battle. AFAS and FARV will incorporate advanced technologies to increase accuracy, rate of fire, survivability, mobility and ammunition handling speed, and to decrease crew size. When fielded, these systems will displace the M109A6 Paladin self-propelled Howitzer and M992 Field Artillery Ammunition Supply Vehicle in Force Package I units.

Project DB82 - Systems Engineering Analysis (SEA): SEA is a contract effort in support of the PEO/PM's assisting in the preparation of technical plans for PEO ASM and PEO FAS, coordinating data/information flow between the AFAS and FARV, and ensuring optimum commonality and reduced performance risk.

FY 1994 Accomplishments: Conclude SEA contract support (841)

FY 1995 Planned Program: Program concluded at the end of FY 1994.

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BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603645A Armored System Modernization - Adv Dev

FY 1996 Planned Program: Program concludes at the end of FY 1994.

Project DB87 - Combat Vehicle Survivability: This effort evaluates methods of reducing AFAS and FARV susceptibility to smart/guided top and horizontal attack threats and characterizes methods of reducing system vulnerability to ballistic and non-ballistic threats. Susceptibility reduction efforts consist of: analytical characterization of top and direct fire engagement timelines (the time required for a threat weapon or smart top attack munitions to detect and engage its target), identification of sensor and countermeasure options and performance criteria; and simulation and field tests verifying the operational performance of selected devices. This work, performed in coordination with TACOM Advanced Land Combat efforts, develops close-in self-protection concepts capable of detecting, tracking, and defeating both direct and indirect fire threats. AFAS and FARV vulnerability reduction activities emphasize the following: Development and demonstration of the potential to compartmentalize Liquid Propellant (LP) and 155MM HE projectiles; generation of ballistic shock specifications; definition of interior shielding technologies providing integrated radiation and spill protection for the crew; maturation and demonstration of NBC collective protection technologies; and demonstration of standoff chemical agent detection. This work will provide the basis for development of a performance specification supporting AFAS and FARV.

FY 1994 Accomplishments:
- Product Development - Top attack protection, CATOX/PSA NBC protection, armament compartmentation, NBC Standoff protection (10447)
- Support and Management - System survivability assessment, ARL analytical support (2567)
- Testing and Evaluation - China Lake LP test, APG/Yuma compartment tests (235)

FY 1995 Planned Program:
- Product Development - Top attack protection, LP compartmentation (9496)
- Support and Management - Support to AFAS/FARV Product Development Teams (3683)
- Simulation, Modeling and Test (1715)
- SBIR/STTR (319)

FY 1996 Planned Program: Reprogrammed to D409.

Project DB88 - Future Armored Resupply Vehicle (FARV): The present 155MM artillery system has a lightly protected resupply vehicle with limited payload/mobility and exposed crews during rearm/resupply operations. The Future Armored Resupply Vehicle (FARV) will increase ammunition payload and will provide automated, rapid transfer of ammunition, liquid propellant and fuel to the Advanced Field Artillery System (AFAS). The FARV will support the decentralized and continuous operations of the AFAS thereby increasing AFAS mission effectiveness. Automation and robotics in the FARV will allow crew reduction resulting in life cycle cost benefits over the current system. The FARV will have increased ballistic and non-ballistic survivability features. Mobility improvements feature increased vehicle range (405 km), speed (39 to 48 km) and cross country/position navigation.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603645A Armored System Modernization - Adv Dev

FY 1994 Accomplishments:

- Product Development Team support and management for the Martin Marietta contract for the 155MM Integrated Liquid Propellant Artillery Resupply System (ILPARS) as well as evaluation of critical resupply areas to include robotic handling, ammunition transfer, ammunition upload, and ammunition identification. (9486)
- Product Development Team support and management for efforts for the Liquid Propellant Transfer System and management of matrix support resources required to achieve Milestone I programmatic and technical objectives. Identify and allocate risk to system software architecture/interfaces, C3I survivability enhancements and other related vehicle interfaces (11878)
- Sole Source contracts with United Defense Limited Partnership (UDLP) for efforts associated with pre-contract costs for Development Phases I & II AFAS/FARV. (2500)

FY 1995 Planned Program:

- Initiation of the Requirements and Analysis, Component Maturation (RA/CM) (5808)
- Completion of Martin Marietta, 155MM Integrated Liquid Propellant Resupply efforts. (500)
- Maturation of Critical Resupply Technology in the areas of robotic handling, ammunition upload, identification and continuation of product development team, matrix and core management support efforts for the liquid propellant transfer system. (14831)
- SBIR/STTR (424)

FY 1996 Planned Program:

- Development Phase I/II Contract Efforts (49500)
- Continued Product Development Team support, management of the liquid propellant technology and other management support. (20159)
- Maturation of Critical Resupply Technology in the areas of robotic handling, ammunition transfer, identification and upload. (1395)

FY 1997 Planned Program:

- Completion of Phase I, component maturation/simulation efforts and initiation of Phase II prototype fabrication and demonstration contract. (67600)
- Continued product development team support, management of the liquid propellant technology and other management support as well as initiation of government testing efforts. (25333)
- Completion maturation of critical resupply technologies. (610)

Project DB98 - Component Development: Congress has directed the acceleration of the AFAS and FARV program. This project develops and matures certain mobility technologies specifically required for the AFAS and FARV.

FY 1994 Accomplishments:

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- Product Development (29401)
- Support and Management (1630)
- Test and Evaluation (173)

FY 1995 Planned Program:
- Product Development (18631)
- Support and Management (3303)
- Test and Evaluation (79)
- SBIR/STTR (472)

FY 1996 Planned Program: Program concludes at the end of FY 1995.

Project D409 - Advanced Field Artillery System (AFAS): AFAS is the Army's next generation 155MM self-propelled howitzer system providing high payoff technology capabilities in support of the maneuver force. This project develops AFAS Advanced Technology Demonstrator (ATD); matures the Regenerative Liquid Propellant Gun (RLPG); matures the processing, packaging and formulation of XM46 Liquid Propellant; matures the fire control/artillery accuracy componentry; and, provides funding for the Development Phases I/II efforts. AFAS requirements include leap-ahead capabilities in range, rate-of-fire, sustained fire, time-on-target, accuracy, responsiveness, automated ammunition handling/resupply, reduced crew size and survivability.

FY 1994 Accomplishments:
- Product Development - Continue efforts in support of the Advanced Technology Demonstration and technical maturation of critical components (RLPG, Liquid Propellant, Fire Control). Award Contract Definitization portion of the Development Phases I/II contract. (65330)
- Support and Management - Continue project management efforts, to include scientific and engineering management services. Prepare the Request for Proposal (RFP) for the Development Phases I/II contract. Begin preparation of the Independent Government Cost Estimate (IGCE). (9619)
- Test and Evaluation - Continue Armament/Mount reliability testing, Liquid Propellant testing and Insensitive munition testing/test projectiles. Begin ATD integration. (1517)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603645A Armored System Modernization - Adv Dev

FY 1995 Planned Program:

- Product Development - Award Requirements Analysis and Maturation portion of the Development Phases I/II contract, as well as the balance of the Development Phase I contract efforts. Continue efforts in support of the Advanced Technology Demonstration and technical maturation of critical components (RLPG, Liquid Propellant, Fire Control). (97592)
- Support and Management - Continue project management efforts, to include scientific and engineering management services. Complete both the Independent Government Cost Estimate (IGCE) and the Technical Evaluation for the Development Phases I/II contract. (9634)
- Test and Evaluation - Complete ATD integration. Purchase Liquid Propellant. Continue Armament/Mount reliability testing and Insensitive munition testing. (3555)
- SBIR/STTR (2348)

FY 1996 Planned Program:

- Product Development - Continue developmental efforts under the Development Phases I/II contract. Continue efforts in support of maturation of critical RLPG technologies. (120042)
- Support and Management - Continue project management efforts, to include scientific and engineering analysis and engineering management services. (10154)
- Test and Evaluation - Purchase Liquid Propellant. Begin Contractor DT&E under the Development Phases I/II contract. (263)

FY 1997 Planned Program:

- Product Development - Continue developmental efforts under the Development Phases I/II contract. Continue efforts in support of maturation of critical RLPG technologies. (147636)
- Support and Management - Continue project management efforts, to include scientific and engineering analysis and engineering management services. (9937)
- Test and Evaluation - Purchase Liquid Propellant, ammunition and fuzes required for the initiation of EDT-A testing. Begin EDT-A testing. Conduct Liquid Propellant Proof-of-Principle testing. (16769)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	147876	175476	212598	283148
Appropriated Value	147876	172390		
SBIR/STTR Decrement	-2252			
Current Budget Submit/President's Budget	145624	172390	201513	267885

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603645A Armored System Modernization - Adv Dev

Project D388 - Future Armored Resupply Vehicle (FARV)

Funding: None

Schedule: The AFAS/FARV program is pursuing a three phased streamlined development strategy. Under this approach, the traditional Demonstration/Validation (Dem/Val) phase of the program is replaced with the Simulation and Component Maturation phase (Phase I) and a Prototype Fabrication and Demonstration phase (Phase II).

Technical: None

Project D409 - Advanced Field Artillery System (AFAS)

Funding: None

Schedule: The AFAS/FARV program is pursuing a three phased streamlined development strategy. Under this approach, the traditional Demonstration/Validation (Dem/Val) phase of the program is replaced with the Simulation and Component Maturation phase (Phase I) and a Prototype Fabrication and Demonstration phase (Phase II).

Technical: None

Change Summary Explanation: None

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603645A Armored System Modernization - Adv Dev

PROJECT: DB82

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
DB82 Systems Engineering Analysis (SEA)	841	0	0	0	0	0	0	0	0	2577

C. **Other Program Funding Summary:** None

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
Conclude contract				X*												

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603645A Armored System Modernization - Adv Dev

PROJECT: DB87

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
DB87 Combat Vehicle Survivability	13249	15213	0	0	0	0	0	0	0	37520

C. **Other Program Funding Summary**: None

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
Monitor demo of Top Attack Protection			X*													
Complete PSA/CATOX filtration studies			X*													
Complete Chemical Standoff Detection			X*													
(LSCAD) tech demonstration			X*													
Demonstration of self-protection systems				X*												
Complete Artillery System BDS-D Exper				X*												
Complete NBCCS Materials					X*											
Compatibility Study					X*											

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603645A Armored System Modernization - Adv Dev

PROJECT: DB87

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Product Development	10447	9496		
Support and Management	2567	3683		
Testing and Evaluation	235	1715		
SBIR/STTR		319		
Total	13249	15213		

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
Product Development Organizations					7199	10447	9496				27142
Support and Management Organizations					1703	2567	3683				7953
SBIR/STTR							319				319
Test and Evaluation Organizations					156	235	1715				2106

Government Furnished Property: None

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603645A Armored System Modernization - Adv Dev PROJECT DB87

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	7199	10447	9496				27142
Subtotal Support and Management	1703	2567	4002				8272
Subtotal Test and Evaluation	156	235	1715				2106
Total Project	9058	13249	15213				37520

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603645A Armored System Modernization - Adv Dev

PROJECT: DB88

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
DB88 Future Armored Resupply Vehicle (FARV) Adv Dev	23864	21563	71054	93543	118603	122952	15987	0	0	486811

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
RDTE, A Budget Activity 5 PE 0604645A, Project D418 Armored Family of Vehicles - Engineering Development							129898	186360	Cont'd	Cont'd
RDTE, A Budget Activity 5 PE 0604645A, Project D2KT AFAS Operational Test						3740	1220	100	Cont'd	Cont'd

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
Development Phases I/II Request for Proposal (RFP) Release				X*												
Award Contract Definitization Phase of Development Phases I & II Contract				X*												
Award Requirements Analysis and Maturation Phase of Development Phases I/II Contract					X*											
Milestone I Review					X*											
Award Development Phases I/II Contract							X									
SDR														X		
Development Phase II IPR															X	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603645A Armored System Modernization - Adv Dev PROJECT DB88

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Development RA/CM Phase I & II Contract	2500	5808	49500	67600
Contractor Engineering Support	5027	2353	4800	7100
Government Engineering Support	15628	11696	13054	15043
Program Management Support	709	1282	3700	3800
SBIR/STTR	0	424	0	0
Total	23864	21563	71054	93543

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
Product Development Organizations											
United Defense Limited Partnership	SS/CPIF	Sep 94	TBD	TBD	N/A	2500	5808	49500	67600	Cont'd	Cont'd
Martin Marietta, Burlington, VT	SS/CPFF	Mar 93	5700	5700	2600	2600	500			0	5700
ARDEC, Picatinny Arsenal, NJ	PO						300	3000	3000	Cont'd	Cont'd
Support and Management Organizations											
Dept. of Energy - Oak Ridge Nat'l Labs, Tenn.	MIPR				5225	6903	3100	1395	610	0	17233

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603645A Armored System Modernization - Adv Dev

PROJECT: DB88

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
PM AFAS/FARV, Picatinny Arsenal, NJ					648	709	1282	3700	3800	Cont'd	Cont'd
ARDEC, Picatinny Arsenal, NJ	PO				4448	7066	6330	5515	6447	Cont'd	Cont'd
Other Field Activities	PO				1443	1659	1966	3144	4386	Cont'd	Cont'd
Various other contracts					4881	2427	1853	4800	7100	Cont'd	Cont'd
Test and Evaluation Organizations											
TECOM, Yuma Proving Grds, AZ	PO								600	Cont'd	Cont'd
SBIR/STTR							424				

Government Furnished Property: None

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	2600	5100	6608	52500	70600	Cont'd	Cont'd
Subtotal Support and Management	16645	18764	14531	18554	22343	Cont'd	Cont'd
Subtotal Test and Evaluation	0	0	0	0	600	Cont'd	Cont'd
SBIR/STTR	0	0	424				
Total Project	19245	23864	21563	71054	93543	Cont'd	Cont'd

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603645A Armored System Modernization - Adv Dev

PROJECT: DB98

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
DB98 Component Development	31204	22485	0	0	0	0	0	0	0	53689

C. **Other Program Funding Summary**: None

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
Automotive Test Rig (ATR)			X*													
ATR Testing			X*			X										
Final Software SIL demo				X*												
Milestone I Decision					X*											

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603645A Armored System Modernization - Adv Dev

PROJECT: DB98

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Product Development	29401	18631		
Support to Management	1630	3303		
Test & Evaluation	173	79		
SBIR/STTR		472		
Total	31204	22485		

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
Product Development Organizations						29401	18631				48032
Support and Management Organizations						1630	3303				4933
SBIR/STTR							472				472
Test and Evaluation Organizations						173	79				252

Government Furnished Property: None

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603645A Armored System Modernization - Adv Dev PROJECT DB98

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development		29401	18631				48032
Subtotal Support and Management		1630	3775				5405
Subtotal Test and Evaluation		173	79				252
Total Project		31204	22485				53689

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603645A Armored System Modernization - Adv Dev

PROJECT: D409

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
D409 Advanced Field Artillery System (AFAS)	76466	113129	130459	174342	218991	185407	28977	0	0	1149088

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
RDTE, A Budget Activity 5 PE 0604645A, Project D417 AFAS EMD							202841	332217	Cont'd	Cont'd
RDTE, A Budget Activity 5 PE 0604645A, Project D2KT AFAS EMD						3740	1220	100	Cont'd	Cont'd
RDTE, A Budget Activity 5 PE 0604645A, Project D175 AFAS EMD	7615	6240	6388	6965		4379				31587

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
Weapon Demonstrator Delivery			X*													
Development Phases I/II Request for Proposal (RFP) Release				X*												
Award Contract Definitization Phase of Development Phases I/II Contract				X*												
Award Requirements Analysis and Maturation Phase of Development Phases I/II Contract					X*											
Milestone I Review					X*											
ATD EDT						X										
Award Development Phases I/II Contract							X									
SDR														X		
Development Phase II In-Process Review															X	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603645A Armored System Modernization - Adv Dev PROJECT D409

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Product Development	65330	97592	120042	147636
Support and Management	9619	9634	10154	9937
Test and Evaluation	1517	3555	263	16769
SBIR/STTR		2348		
Total	76466	113129	130459	174342

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
Product Development Organizations											
United Defense, Minneapolis, MN	Comp/CPIF	May 91	76473	76473	61281	14892	300				76473
Martin Marietta, Pittsfield, MA	SS/CPIF/CP FF	Jan 92	TBD	103449	70712	26587	6150				103449
United Defense, Minneapolis, MN	SS/CPIF	Sep 94	TBD	TBD	N/A	5000	68222	101600	134300	Cont'd	309122
AMCCOM, Picatinny Arsenal, NJ, Watervliet Arsenal, NY, Rock Island Arsenal, IL					39239	9888	10657	12883	9535	Cont'd	82202

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603645A Armored System Modernization - Adv Dev

PROJECT: D409

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
ARL, Aberdeen Proving Grd, MD, Watertown, MA					7839	1465	2794	1390	1000	Cont'd	14488
Olin, Charleston, TN	SS/FFP	Sep 93	1988	1988	1988						1988
Grumman, Beth Page, NY		Nov 93	4275	4275	3475	800					4275
Martin Marietta, Pittsfield, MA	Comp/CPFF	Jan 93	4594	4594	2166	2018	410				4594
LB&M, Lawton, OK	Comp/CPFF	Feb 93	1806	1806	1806						1806
Various other OGA's and Contractors					13254	4680	9059	4169	2801	Cont'd	33963
Support and Management Organizations											
PM AFAS/FARV, Picatinny Arsenal, NJ					3866	3035	2595	4895	4895	Cont'd	19286
AMCCOM, Picatinny Arsenal, NJ					4740	4773	6039	3900	3900	Cont'd	23352
TRW, Redondo Beach, CA					2188	1315					3503
Various OGAs and Contractors					916	496	1000	1359	1142	Cont'd	4913
Test and Evaluation Organizations											

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603645A Armored System Modernization - Adv Dev

PROJECT: D409

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
TECOM, Yuma Proving Grds, AZ, CSTA, Aberdeen Proving Grds, MD					1934	1517	2705		3973	Cont'd	10129
Morton Thiokol, Elkton, MD	SS/FPI	May 93	3307	3307	3307						3307
Olin, Charleston, TN	SS/FPI	May 93	3168	3168	3168						3168
TBD-LP Purchase		TBD	TBD	TBD	N/A		850	263	8704	Cont'd	9817
TBD-Ammo Purchase		TBD	TBD	TBD	N/A				4092	Cont'd	4092
SBIR/STTR							2348				2348

Government Furnished Property: None

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	201760	65330	97592	120042	147636		532360
Subtotal Support and Management	11710	9619	9634	10154	9937		51054
Subtotal Test and Evaluation	8409	1517	5903	263	16769		32861
Total Project	221969	76466	113129	130459	174342	Cont'd	Cont'd

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603649A Engineer Mobility Equipment Advanced Development

PROJECT: DG24

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
DG24 M1 Breacher	29070	15726	5615	0	0	0	0	0	0	64794

A. **Mission Description and Budget Item Justification**

The M1 Breacher will be developed around the M1-Abrams tank chassis and will integrate a versatile/survivable full-width mine clearing blade with automatic depth control, a power driven excavating arm, and an armored commander's control station. The M1 Breacher will provide the Combat Engineer with significantly improved mission effectiveness and crew/vehicle survivability while clearing minefields and removing complex natural and man-made obstacles at the forward edge of the battlefield. The M1 Breacher will be capable of moving with, and will be as survivable as, the force it is supporting. This program element/project is correctly placed in Budget Activity 4, focusing on efforts associated with advanced technology development to include demonstration and validation in the areas of mine clearing blade automatic depth control, power bus, vetronics, vehicle drive-by-wire, survivability, and hydraulics. The project transitions to PE #0604649A, DG25, for the Engineering and Manufacturing Development (EMD) phase of the acquisition life cycle in FY 96.

Project DG24 - Breacher Advanced Development: The M1 Breacher will provide the maneuver forces the capability to conduct in-stride breaches of complex obstacles using its full-width mine clearing blade and power driven excavating arm.

FY 1994 Accomplishments:

- Conduct Critical Design Review (7358).
- Complete vehicle design drawings and begin component fabrication (15267).
- Begin prototype fabrication (6445).

FY 1995 Planned Program:

- Complete prototype fabrication (6430).
- Conduct contractor shakedown testing and training (4585).
- Complete Preliminary Draft Equipment Publications (2552).
- Begin government development testing (1847).
- SIBR/STTR (312).

FY 1996 Planned Program:

- Complete government development testing and conduct Early User Testing (2370).
- Refine design, validate logistics functions, and apply engineering changes (3245).

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603649A Engineer Mobility Equipment Advanced Development

PROJECT: DG24

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	29464	11339	0	
Appropriated Value	29464	15726		
Adjustments to Appropriated Value	-394			
a. SIBR/STTR decrement (-474)				
b. Reprogrammed into PE (80)				
Current Budget Submit/President's Budget	29070	15726	5615	

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
RDTE, A Budget Activity 5										
PE 0604649A Project DG25 M1 Breacher Dev			10918	13275	7908	10610				42711
PA, WTCV GZ3200 (Breacher MOD)				74822	93228	96999	120228	130440	Cont'd	Cont'd
PA, WTCV GEO175 Breacher (Spares)					1014	1216	2405	2229	Cont'd	Cont'd

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
Conduct Critical Design Review (CDR)	X*															
Start Development and Early User Testing								X								
Conduct Milestone II Review										X						
Award Engineering and Manufacturing Development (EMD) Contract										X						
Conduct Low Rate Initial Production (LRIP) In-Process Review (IPR)														X		
Award LRIP Contract														X		

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603649A Engineer Mobility Equipment Advanced Development

PROJECT: DG24

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Development Engineering	24791	7345	1150	0
Logistics Support	1867	2552	187	0
System Test & Evaluation	205	2932	3478	0
System Project Management	2207	2585	800	0
SIBR/STTR		312		
Total	29070	15726	5615	

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
Product Development Organizations											
United Defense York, PA	SS-CPIF	9/92 (K Mod)	51936	51936	12282	26503	10660	2511	0	0	51956
Other Contracts	Various	Various				247	247				494
Support and Management Organizations											
TACOM Warren, MI					1405	1686	1968	534	0	0	5593
ANAD Anniston, AL					125	0	0	0	0	0	125
Other Gov't Agencies					370	340	392	200	0	0	1302
Other					0	0	312	0	0	0	312

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE: February 1995
BUDGET ACTIVITY: 4 - Demonstration And Validation				PE NUMBER AND TITLE: 0603649A Engineer Mobility Equipment Advanced Development				PROJECT: DG24
Test and Evaluation Organizations								
TECOM APG, MD				146	190	1547	1570	0	0	3453
Government Furnished Property										
Item Description	Contract 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										
TACOM Warren, MI	Requisitions	Various	Various	55	104	0	0	0	0	159
Support and Management Property: None										
Test and Evaluation Property										
TACOM Warren, MI	Requisitions	Various		0	0	600	800	0	0	1400

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	14383	29070	15126	4815			63394
Subtotal Support and Management							
Subtotal Test and Evaluation			600	800			1400
Total Project	14383	29070	15726	5615			64794

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603653A Advanced Tank Armament System (ATAS)

PROJECT: DB99

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
DB99 Advanced Tank Armament System	0	4940	9955	9979	10015	10058	9992	9977	Continuing	Continuing

A. Mission Description and Budget Item Justification Our success in Desert Storm was due in large part to the superiority of the armament systems of our tanks over those of the Iraqi Army. We were able to see, hit and kill the enemy long before they were even aware of our presence. The goal of the Advanced Tank Armament System (ATAS) program is to maintain that superiority over increasingly more capable future enemy tanks. The ATAS program is one of the principal programs supporting tank lethality improvements. This program is developing and demonstrating a number of key gun and fire control technologies which offer significant payoffs in lethality for the next major upgrade to the Abrams tank after the M1A2. This follow-on to the M1A2 is notionally identified as Tank 1080 based on the original plan to purchase 1079 M1A2.

The ATAS Program has two main phases (ATAS I and ATAS II) and a common work effort (Core Technology). Core Technology develops gun and fire control system components that are applicable to both the current M1A2 1553 Data Bus architecture and a new open distributed digital architecture being developed under this program. Core Technology consists of the XM291 gun with Automatic Muzzle Reference System, Automatic Target Tracker, and Second Generation Thermal Sights for Commander and Gunner. ATAS I integrates the Core Technology components into the size weight and current electronic architecture of the M1A2. ATAS II develops an automatic loader, Combat Protection System, Continuous Muzzle Reference System, Electric Gun/Turret Drive, Digital Adaptive Stabilization and a new turret. These components along with the Core Technology are integrated by ATAS II into a high speed digitized open distributed electronic architecture capable of easily incorporating new components as they are developed.

The ATAS program is appropriately in Budget Activity 4 - Demonstration and Validation. The activities conducted in the ATAS Program fall under the heading of Demonstration and Validation as defined in Part 3, DoDI 5000.2 The ATAS program is conducting prototyping, testing and early operational assessment of critical tank armament systems, subsystems, and components; identifying cost drivers and alternatives using modeling and simulation, and working with the User representative to establish performance objectives and identify cost-schedule-performance trade-offs.

FY 1994 Accomplishments: Program was not appropriated in FY94

FY 1995 Planned Program:

- Core Technology - Design & fabricate the new gun tube and support structure (1900)
- ATAS I - work delayed until FY 98 due to Congressional reduction in funding (0)
- ATAS II - complete Brassboard Demonstration and Brassboard Systems Integration Laboratory (2947)
- SBIR/STTR Reduction (93)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603653A Advanced Tank Armament System (ATAS)

FY 1996 Planned Program:

- Core Technology - test gun tube/support structure (1300)
- Core Technology - design/fabricate circuit board hardware for M1A2/Tank 1080 integration (1555)
- ATAS II - procure objective hardware, integrate software with objective hardware (7100)

FY 1997 Planned Program:

- Core Technology - integrate circuit board hardware with software (1679)
- ATAS II - complete Objective Hardware Systems Integration Demonstration (6300)
- ATAS II - complete turret design (2000)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	0	10075	10002	10026
Appropriated Value	0	4940	9955	9979
Adjustments to Appropriated Value				
Current Budget Submit/President's Budget	0	4940	9955	9979

C. Other Program Funding Summary: N/A

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
Complete design /fabrication of improved gun support structure (Core Technology)								X								
Complete the improved gun stabilization test (Core Technology)										X						
Complete ATAS II Brassboard Demonstration							X									
Complete ATAS II Brassboard Systems Integration Lab								X								

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603653A Advanced Tank Armament System (ATAS)

PROJECT: DB99

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Design processor circuit boards/hardware for M1A2/Tank 1080 integration (Core Technology)									X							
Build processor circuit boards /hardware (Core Technology)												X				
Procure hardware for ATAS II Objective Systems Integration Lab									X							
Integrate ATAS II software with objective hardware											X					
Integrate target tracking and stabilization hardware with software (Core Technology)													X			
Complete ATAS II Objective Hardware Systems Integration Lab & Demonstration														X		
Finish ATAS II Turret Design																X

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603653A Advanced Tank Armament System (ATAS)

PROJECT: DB99

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development/Contractor		2440	7200	6400
Primary Hardware Development/Government		1600	700	2000
Quality Assurance		100	300	300
Developmental Test & Evaluation		100	600	100
Program Management (PM-TMAS/ARDEC)		500	600	600
Miscellaneous		200	555	579
Total	0	4940	9955	9979

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
Product Development Organizations											
Texas	C-CPFF	Sep 90	TBD	49600	*	0	2400	7100	6300	Cont'd	Cont'd
Detroit	OGA				*	0	1400	700	2000	Cont'd	Cont'd
Huntsville	SS-CPFF	Jan 93	TBD	59000	*	0	40	100	100	Cont'd	Cont'd
ARDEC	OGA						200				
* **Under Different PE (0604630A)**											
Support and Management Organization											
PM-TMAS/ ARDEC							600	900	900	Cont'd	Cont'd
Test and Evaluation Organizations											
CSTA							100	600	100	Cont'd	Cont'd
Misc							200	555	579	Cont'd	Cont'd

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603653A Advanced Tank Armament System (ATAS)

Government Furnished Property: Not Applicable

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development			4040	7900	8400	Cont'd	Cont'd
Subtotal Support and Management			600	900	900	Cont'd	Cont'd
Subtotal Test and Evaluation			100	600	100	Cont'd	Cont'd
Other			200	555	579	Cont'd	Cont'd
Total Project			4940	9955	9979	Cont'd	Cont'd

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603713A ADDS-Army Data Distribution System

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	5399	6694	9767	6005	0	0	0	36800	345041
D370 JTIDS/EPLRS (Formally known as PJH-PLRS/JTIDS Hybrid)	0	5399	5997	6006	6005	0	0	0	36800	340563
D2QT EPLRS/JTIDS OPER TEST	0	0	697	3761	0	0	0	0	0	4478

A. **Mission Description and Budget Item Justification:** The Army Data Distribution System (ADDS), which consists of the Enhanced Position Location Reporting System (EPLRS), the Joint Tactical Information Distribution System (JTIDS), and Near Term Digital Radio (NTDR) provides support to the Army's air defense, fire support, maneuver control, intelligence and combat service support automated system. Project D370 is capable of "digitizing data messages" that must be transmitted on the battlefield. It is capable of providing multi-functions: data communications, unit locations and unit identifications. The ADDS network automatically utilizes manpack, surface vehicle and airborne vehicle user units to achieve range extension. It has been designed specifically to meet the data communication requirements of emerging tactical automated data processing and sensor based systems. The ADDS will provide reliable, real-time, secure, jam-resistant data communications and position location capabilities to the soldier and his unit commander. Project D2QT finances the direct costs of planning and conducting operational testing of the Joint Tactical Information Distribution System (JTIDS) by the Operational Test and Evaluation Command (OPTEC). These projects focus on efforts associated with advanced technology development used to demonstrate general military utility to include demonstration and validation in the area of Army Data Distribution and are correctly placed in Budget Activity 4.

Project D370-EPLRS/JTIDS: This project provides data distribution support to the Army's air defense, fire support, maneuver control, intelligence and combat service support automated systems, and is capable of "digitizing data messages" that must be transmitted on the battlefield. The project will provide reliable, real-time, secure, jam-resistant data communications and position location capabilities to the soldier and his unit commander.

FY 1994 Accomplishments:

- Continued JTIDS Development (2839)
- Completed JTIDS Class 2M (CL2M) Reliability Dev Test (227)
- Conducted JTIDS CL2M Limited User Test (LUT) (919)
- Began JTIDS Life Cycle Software Engineering (LCSE) (1000)
- Continued EPLRS Downsized Net Control Station (11271)
- Initiated EPLRS System Improvement Program (3100)

FY 1995 Planned Program:

- Continue JTIDS Development(2576)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603713A ADDS-Army Data Distribution System

- Continue Operational Test (OT) of EPLRS downsized NCS-E (2427)
- Continue JTIDS LCSE (300)
- Small Business Innovative Research (SBIR)/Small Business Technology Transfer Program (STTR) (96)

FY 1996 Planned Program:
- JTIDS Software Development Completion (1200)
- NCS (D) Software Development Completion (1600)
- NTDR Program Hardware and software development (2377)
- Program Management Activities (820)

FY 1997 Planned Program:
- Continue NTDR Program (5096)
- Program Management Activities (910)

ACQUISITION STRATEGY FOR PROJECT D370: The EPLRS System Improvement Program (SIP) is designed to significantly reduce the cost of the radio. A sole source contract was awarded to Hughes Aircraft in Sep 94. The NTDR program will follow a Non-Development Item (NDI) approach with an RDTE contract award scheduled for Nov 95 with an option award scheduled for 1 QTR FY 97.

Project D2QT - EPLRS/JTIDS Operational Test: This project finances the direct costs of planning and conducting operational testing and evaluation of the Enhanced Position Location Reporting System (EPLRS)/Joint Tactical Information Distribution System (JTIDS) by the Operation Test and Evaluation Command (OPTEC). JTIDS is an Acquisition Category (ACAT) I system with an Initial Operational Test and Evaluation (IOTE) beginning in 1 QTR FY 97. 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 D2QT is restructured from within this PE (PE 0603713A) and is not a new start.

FY 1994 Accomplishments: Project not funded

FY 1995 Planned Program: Project not funded

FY 1996 Planned Program:
- JTIDS IOTE testing (517)
- JTIDS IOTE evaluation (150)
- Player unit support of IOTE (30)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603713A ADDS-Army Data Distribution System

FY 1997 Planned Program:

- JTIDS IOTE testing (3220)
- JTIDS IOTE evaluation (341)
- Player unit support of IOTE (220)

B. Program Change Summary	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	19647	5587	0	0
Appropriated Value	19647	5399	-	-
Adjustments to Appropriated Value	-291		-	-
a. SBIR/STTR decrement (-29 l)				
Current President's Budget Submit	19356	5399	6694	9787

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603713A ADDS-Army Data Distribution System

PROJECT: D370

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
JTIDS/EPLRS (Formerly known as PJH-PLRS/JTIDS Hybrid)	19356	5399	5997	6006	6005	0	0	0	36800	

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-2, Army , SSN:BU1400	36978	9490	19968	10331	9843	51704	54683	54691	Cont	Cont

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
Completed CL2M RDT	X*															
EPLRS SIP Award				X*												
Complete CL2M LUT					X*											
LRIP decision for CL2M terminals						X										
NTDR Award									X							
Complete NCS-E(D) OT										X						
NCS (D)										X						
Initiate JTIDS CL2M IOTE												X				
Complete JTIDS CL2M IOTE													X			
NTDR Option Award													X			

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603713A ADDS-Army Data Distribution System

PROJECT: D370

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engineering Support	15587	3442	2377	5096
Program Management Support	2995	1957	820	910
Miscellaneous	774	0	2800	0
Total	19356	5399	5997	6006

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
Product Development Organizations											
Hughes Aircraft Fullerton, CA	SS/CPFF	SEP 92	183364	183364	181500	1864	0	0	0	0	183364
Hughes Aircraft Fullerton, CA	SS/CPIF	SEP 94	17988	17988	0	3100	0	0	0	0	3100
GEC-MARCONI Little Falls, NJ	SS/CPIF	NOV 93	21440	21440	21293	147	0	0	0	0	21440
TOAD Tobyhanna, PA	MIPR	JUN 92	25600	25600	25600	0	0	0	0	0	25600
UNISYS Corp St. Paul, MN	MIPR	MAR 94	3833	3833	1940	1893	0	0	0	0	3833
UNISYS Corp St. Paul, MN	MIPR	MAY 94	1424	1424	0	1424	0	0	0	0	1424
TBD Miscellaneous	C/FFP	NOV 95	TBD	32000	0	0	0	2377	5096	32100	39573
Support and Management Organizations						7251	4667	3620	910	4700	21148
Miscellaneous					9750	1166	732	0	0	0	11648
Test and Evaluation Organizations											
TEXCOM/EPG	MIPR	MAY 94	19539	19539	17802	1737	0	0	0	0	19539

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603713A ADDS-Army Data Distribution System

PROJECT: D370

Government Furnished Property

Item Description	Contract 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										
Miscellaneous	REQN/WR/MIPR			9120	774	0	0	0	0	9894

Support and Management Property: None

Test and Evaluation Property: None

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	239453	16453	4667	5997	6006	36800	309376
Subtotal Support and Management	9750	1166	732				11648
Subtotal Test and Evaluation	17802	1737					19539
Total Project	267005	19356	5399	5997	6006	36800	340563

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603713A ADDS-Army Data Distribution System

PROJECT: D2QT

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
EPLRS/JTIDS OPER TEST	0	0	697	3781	0	0	0	0	0	

C. **Other Program Funding Summary**: N/A

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
Initiate JTIDS IOTE												X				
Complete JTIDS IOTE													X			

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603713A ADDS-Army Data Distribution System

PROJECT: D2QT

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Operational Test and Evaluation			697	3781
Total			697	3781

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
Product Development Organizations: N/A											
Support and Management Organizations: N/A											
Test and Evaluation Organizations											
OPTEC Ft. Bliss, TX	MIPR							697	3781	0	4478
Government Furnished Property: None											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation								697	3781		4478
Total Project								697	3781		4478

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603730A Tactical Surveillance System - Advanced Development (TIARA)

PROJECT: D560

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
D560 Tactical Surveillance System - Adv Dev	15140	11717	0	0	0	0	0	0	0	N/A

A. **Mission Description and Budget Item Justification**: This project supports advanced development work directed at meeting the deep intelligence and targeting needs of tactical commanders, as stated in Field Manual 100-5 and under Airland Battle tactics, to fight out-numbered and win. Specific tactical imagery exploitation advanced development efforts are under the auspices of Army's Tactical Exploitation of National Capabilities (TENCAP) program and include advanced development engineering of Tactical Exploitation System (TES), advanced communication technologies and processing requirements for new National sensors, prototyping efforts for Hybrid Optical Automatic Target Recognition (HOATR) image processing. This Program Element (PE) focuses on efforts associated with advanced technology development used to demonstrate general military utility to include demonstration and validation in the area of TENCAP and is correctly placed in Budget Activity 4.

Project D560 - Tactical Surveillance System Advanced Development: HOATR is being developed to meet the need to rapidly exploit an exponentially increasing volume of imagery while decreasing system size and cost, as well as lowering manning requirements. HOATR is directly applicable to the Enhanced Tactical Radar Correlator (ETRAC) and the Modernized Imagery Exploitation Systems (MIES). The Army's emerging TES will incorporate the standards and protocols dictated by the Common Imagery Ground Surface System (CIGSS) program. TES, as a system, brings all of the existing and emerging Army TENCAP capabilities (EPDS, MIES, and ETRAC) into an integrated common baseline; downsized, modular and scaleable to meet a wide range of contingency requirements. TENCAP Common Baseline (which incorporates HOATR and Secondary Imagery Dissemination (SID)) addresses common subsystems, planned improvements, key activities and ongoing planned initiatives determined to have potential application to multiple TENCAP systems (including MIES and ETRAC that are funded under the Defense Airborne Reconnaissance Program (DARP) (PE 0305154D)). In FY94, this Program Element also provided advanced development efforts to the MIES and the ETRAC, and program support to the Joint Services Imagery Processing System (JSIPS). In FY 95, development efforts for MIES, ETRAC and JSIPS program support were moved to PE 0305154D, (DARP). In a parallel action, the support efforts remaining in this PE were consolidated with Project D907 beginning in FY 96. Further details may be found in the Tactical Intelligence and Related Activities (TIARA) Congressional Justification Book, Volume II, and the TENCAP Master Plan.

FY 1994 Accomplishments:

- Initiated development of the Triband Satellite System (TSS), a multi-band communication terminal supporting tactical imagery dissemination. (1614)
- Continued development of HOATR. (1827)
- Continued development of imagery processing algorithms and DoD Common SAR Processor (CSARP) for ETRAC. (3757)
- Continued joint support within JSIPS program. (1750)
- Continued SID and low volume tactical terminals studies. (643)
- Initiated development of third MIES. (1117)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603730A Tactical Surveillance System - Advanced Development (TIARA)
	PROJECT D560

- Continued support to TENCAP program management and administrative activities (e.g., FFRDC (Aerospace), U.S. Topographic Engineering Center (TEC) support, U.S. Army Space Program Office (ASPO) support and Contractor Systems Engineering and Technology Assistance (SETA) support. The cost identified here also supports development efforts funded under PE 0604740A, D662 in FY94 and PE 0305154D, P531 in FY 95. (4432)

FY 1995 Planned Program:

- Upgrade ETRAC with multi-sensor capability as initial step in development of TES. (Effort funded under PE 0603766 in FY 96.) (2770)
- Complete development of HOATR (Test Prototype). (3000)
- Continue support to TENCAP program management and administrative activities (e.g., FFRDC (Aerospace), TEC support, ASPO support and SETA support. (Effort funded under PE 0603766 in FY 96.) (1373)
- Continue support to efforts being developed (ETRAC and MES) under PE 0305154D (DARP) ((e.g., FFRDC (Aerospace), TEC support, ASPO support and Contractor SETA support. (4338)
- Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR). (236)

FY 1996 Planned Program:

- All effort in this project transferred/consolidated under PE 0603766 (Project D907), Tactical Electronic Surveillance System-Adv Dev

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	15371	11870	11693	10869
Appropriated Value	15371	11717		
Adjustments to Appropriated Value (SBIR/STTR Decrement)	231			
Current Budget Submit/President's Budget	15140	11717	0	0

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603730A Tactical Surveillance System - Advanced Development (TIARA)
	PROJECT D560

Change Summary Explanation:

Funding: IN FY 96, THE ARMY CONSOLIDATED THE REMAINING PEs SUPPORTING THE ARMY TACTICAL EXPLOITATION OF NATIONAL CAPABILITIES (TENCAP) PROGRAM. PE 0603730A/PROJECT D560 WAS CONSOLIDATED WITH PE 0603766A/PROJECT D907 IN FY 96 AND BEYOND. AS A PART OF THIS SAME ACTION, PE 0604740A/PROJECT D662 WAS CONSOLIDATED WITH PE 0604766A/PROJECT D909 IN FY 96 AND BEYOND. These PEs/Projects were consolidated because in FY 95 all funds directly related to the development of MIES and ETRAC, and support to the JSIPS program that were previously funded in Project D560 and D662 in FY94 were moved to OSD PE 0305154D, DARP. Even though the funds have been moved to the Defense Airborne Reconnaissance Office (DARO), the Department of the Army continues to support these development efforts on their behalf. Funding to support these DARO efforts (ASPO salaries and expenses, TEC, FFRDC, Contractor SETA) and advanced development of TES and communications technologies common to all TENCAP systems remain in this PE and are still required.

Schedule: None

Technical: None

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
RDTE, A Budget Activity 4 PE 0603766A Project D907 TENCAP-AdvDev	15069	14815	28369	26913	23935	28057	29377	34319	Cont	Cont
RDTE, A Budget Activity 5 PE 0604740A Project D662 Tact Surv Sys - Eng Dev	37534	2093	0	0	0	0	0	0		
PE 0604766A Project D909 TENCAP - Eng Dev	26456	19214	24699	15302	19012	22016	29577	28533	Cont	Cont

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603730A Tactical Surveillance System - Advanced Development (TIARA) PROJECT D560

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
RDTE, DW Budget Activity 7										
PE 0305154D Project P531										
DARP	0	40017	33833	37216	12390	6328	6328	6328	Cont	Cont
Other Procurement Army, OPA - 2										
BZ 7315 TENCAP	7729	4636	4617	1807	1784	1853	4971	14916	Cont	Cont
BA 0329 DARP	1927	2411	0	0	0	0	0	0	Cont	Cont
Procurement, Defense Wide										
0305154D, DARP	0	0	88700	123400	77900	69100	71400	73300	Cont	Cont

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
Award TSS Contract			X													
Complete Development and Field TSS							X									
Test Prototype ATR							X									
Initiate Adv Dev of TES					X											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603730A Tactical Surveillance System - Advanced Development (TIARA)
	PROJECT D560

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
System Development				
TES	0	2770	See Proj D907	See Proj D907
MIES (*1)	2731	*		
ETRAC(*1)	3757	*		
Common Baseline (*2, *3)	2470	3000	See Proj D907	See Proj D907
Sub-Total Sys Dev	8958	5770		
Program Management				
ASPO In-House (*2)	1207	1207	See Proj D907	See Proj D907
FFRDC (*2)	430	518	See Proj D907	See Proj D907
Systems Engineering (Contractor) (*1, *2, *4)	3995	3222	See Proj D907	See Proj D907
Systems Engineering (Government) (*2)	550	1000	See Proj D907	See Proj D907
Sub-Total Program Management	6182	5947		
Total	15140	11717	0	0

(*1) In FY 95, all development efforts for these systems moved to PE 0305154D (DARP), Project D531

(*2) In FY 96 and beyond, this PE/Project is consolidated under PE 0603766A (TENCAP - Adv Dev), Project D907 (Tactical Electronic Surveillance System - Adv Dev).

(*3) TENCAP Common Baseline addresses common subsystems, planned improvements, key activities and ongoing/planned initiatives determined to have potential application to multiple TENCAP systems, including MIES and ETRAC that are funded under the Defense Airborne Reconnaissance Program (PE 0305154D).

(*4) In FY94, $1.8M of this line funds Army's Share support to JSIPS Program Office (JPO) to support the ongoing JSIPS Program. This effort moved to PE 0305154D (DARP), Project P531 in FY 95.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603730A Tactical Surveillance System - Advanced Development (TIARA) PROJECT D560

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
Product Development Organizations											
TEC (MIES)	MIPR	4Q94	N/A	N/A	N/A	1117	*	*	*		
Classified (ETRAC)	MIPR	3Q93	N/A	N/A	5320	3757	*	*	*		
MICOM(Cmn Bsln)	MIPR	3Q94	N/A	N/A	N/A	1827	3000	**	**		
Classified (Cmn Bsln)	MIPR	1Q94	N/A	N/A	N/A	643	0	0	0		
Classified (TES)	MIPR	2Q95	N/A	N/A	N/A	0	2770	**	**		
Support and Management Organizations											
ESC (JSIPS Sys Eng Cont)	MIPR	4Q94	N/A	N/A	N/A	1750	*	*	*		
Classified (Sys Eng Cont)	MIPR	1Q EA FY	N/A	N/A	N/A	2245	3222	**	**		
USASPO	In-House	N/A	N/A	N/A	N/A	1207	1207	**	**		
SSD/FDEA (FFRDC)	MIPR	1Q EA FY	N/A	N/A	N/A	430	518	**	**		
TEC (Sys Eng Govt)	MIPR	1Q EA FY	N/A	N/A	N/A	550	1000	**	**		

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603730A Tactical Surveillance System - Advanced Development (TIARA)

PROJECT: D560

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
Test and Evaluation Organizations											
Government Furnished Property											
Item Description	Contract 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											
Triband SATCOM Subsystem (TSS) (MIES)	MIPR	3Q94	3Q95		0	1614	0	0	0	0	1614
Subtotal Product Development					N/A	7344	5770	**	**		
Subtotal Support and Management					N/A	6182	5947	**	**		
Subtotal Test and Evaluation					0	0	0	0	0		
Subtotal Government Furnished Property					N/A	1614	0	0	0		
Total Project					N/A	15140	11717	**	**		

* See PE 0305154, P531
** See PE 0603766A, D907

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603745A Tactical Electronic Support Systems - Advanced Development (TIARA)

PROJECT: D535

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
D535 Intelligence Fusion Analysis Demonstration	4296	1695	2937	2096	0	0	0	0	0	17261

A. Mission Description and Budget Item Justification

This Program Element funds application and validation of advanced computer software and hardware technologies to intelligence fusion analysis functions and prototype development, integration and evaluation of improved tactical intelligence fusion capabilities. This project supports the urgent requirement for an automated tactical intelligence processing system through technology insertion into, and development and evaluation of, prototype upgrades to the All Source Analysis System (ASAS), both during development and after fielding and is appropriately funded in Budget Activity 4.

Project D535 - Intelligence Fusion Analysis Demonstration.

FY 1994 Program Accomplishments:

- Completed basic prototypes of high-performance, parallel processor based terrain analysis and data fusion servers; initiated evaluation and configuration of techbase prototypes for terrain analysis, advanced correlation, asset management, situation assessment and templating capabilities for use as/incorporation into ASAS operational prototypes; expanded capabilities of techbase prototypes, to include image processing, support to collection management and Human Interest (HUMINT) analysis. (696)
- Continued to support the general development, integration and evaluation of operational prototypes of functional and performance upgrades to ASAS in accordance with the US Army Inteiligence Center and School/PEO-CCS/USAREUR Joint Prototyping Plan; continued to integrate and evaluate advanced fusion technology applications to ASAS at the Tactical Intelligence Fusion Test Bed. (2000)
- Supported the completion of development, integration and evaluation of operational prototypes to upgrade:
  (1) the selection, transformation and dissemination of ASAS intelligence fusion products to other command and control systems
  (2) the reception and incorporation of other command and control systems' products and information into ASAS intelligence fusion operations. (1600)

FY 1995 Planned Program:

- Continue to expand and improve the capabilities and performance of the techbase prototypes to include dynamic situation change prediction, expanded collection management support/synchronization, matrix generation, advanced image processing, incorporation of terrain and mobility analysis techniques in automated correlation, and tailored support to intelligence analysis in low intensity conflicts and operations other than war. (494)
- Continue to evaluate and configure techbase prototype situation display/assessment, collection management support and HUMINT/Counter-Intelligence analysis support capabilities for employment as/integration into operational prototypes of ASAS functions for user evaluation and feedback. (294)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603745A Tactical Electronic Support Systems - Advanced Development (TIARA)

- Continue to support the development, integration, evaluation and refinement (based on user feedback) of operational prototypes of functional and performance improvements to ASAS per the Joint Prototyping Plan. (871)
- Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) (36)

FY 1996 Planned Program:

- Continue to investigate, develop and apply advanced technologies (neural net software and hardware, large-screen displays, parallel/distributed processing and database techniques, improved storage media) to intelligence fusion techbase prototypes for expanded capabilities and performance in the areas of dynamic situation development, assessment and prediction; intelligence collection planning, management, and evaluation; advanced intelligence analysis and correlation tools for low- and high-intensity conflict situations and operations other than war. (875)
- Continue to evaluate, configure and integrate the above high-performance, expanded techbase prototype capabilities into operational ASAS prototypes. (647)
- Continue to support the development, evaluation and refinement of operational prototypes of functional and performance upgrades/improvements to ASAS and their integration into mainline ASAS development and acquisition per the Joint Prototyping Plan. (1415)

FY 1997 Planned Program:

- Continue to investigate, develop and apply advanced software and hardware processing, storage, display and Input/Output (I/O) technologies to techbase prototypes of high-performance, expanded intelligence fusion capabilities. (546)
- Continue to evaluate, configure and integrate techbase prototype capabilities into operational ASAS prototypes. (552)
- Continue to support the development, evaluation and refinement of ASAS operational prototypes and their integration into mainline ASAS development and acquisition per the Joint Prototyping Plan. (998)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	4363	1718	2952	2106
Appropriated Value	4363	1695		
Adjustments to Appropriated Value	-67			
SBIR/STTR decrement (-67)				
Current President's Budget	4296	1695	2937	2096

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603745A Tactical Electronic Support Systems - Advanced Development (TIARA)
	PROJECT D535

Change Summary Explanation (By Project):

Project D535 - Intelligence Fusion Analysis Demonstration
Funding: None
Schedule: None
Technical: None

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
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
Deliver Basic Terrain Analysis Prototypes			X*													
Deliver Basic Asset Mgmt Techbase Prototypes				X*												
Integrate Asset Mgmt into ASAS BL II Prototypes					X*											
Integrate Adv Sit Assmt into ASAS Operational Prototype							X									
Integrate HUMINT Anal Spt into ASAS Operational Prototype								X								
Incorporate Adv Correlation Techniques into ASAS Operational Prototypes									X							
Apply Adv Processing Tech into Techbase Prototypes												X				

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BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603745A Tactical Electronic Support Systems - Advanced Development (TIARA)

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Integrate Exp Techbase Capabilities into ASAS Operational Prototypes												X				
Apply Adv Tech to Techbase Prototypes																X
Integrate Exp Techbase Capabilities into Operational ASAS Prototypes																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603745A Tactical Electronic Support Systems - Advanced Development (TIARA) PROJECT D535

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Prototype Development Efforts	4296	1695	2937	2096
Total	4296	*1695	2937	2096

*SBIR/STTR (36)

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
Product Development Organizations											
JPL	PWD				6237	4296	1695	2937	2096	0	17261
Support and Management Organizations											
Test and Evaluation Organizations											

Government Furnished Property

Item Description	Contract 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										

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603745A Tactical Electronic Support Systems - Advanced Development (TIARA)

PROJECT: D535

Item Description	Contract 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
Support and Management Property										
Test and Evaluation Property										

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	6237	4296	1695	2937	2096		17261
Subtotal Support and Management							
Subtotal Test and Evaluation							
Total Project	6237	4296	*1695	2937	2096		17261

*SBIR/STTR (36)

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603747A Soldier Support/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	11720	11636	33848	16481	9105	8596	9731	9470	Continuing	Continuing
DC09 Unit/Organizational Equipment	2617	1976	2241	1362	2891	1939	1597	1565	Continuing	Continuing
D603 Enhanced Land Warrior	0	5458	25835	9453	0	0	0	0	0	0
D610 Food Advanced Development	2294	2142	2162	2135	2511	2880	3497	3791	Continuing	Continuing
D669 Clothing and Equipment	6809	2060	3510	3531	3703	3777	4637	4114	Continuing	Continuing

A. Mission Description and Budget Item Justification Provide advanced development for unit/organizational equipment, improved individual clothing and equipment, fabric shelters, food, food and field service equipment which will enhance soldier battlefield effectiveness, survivability, sustainment and quality of life. Program element supports advanced development of a new generation of field service support items and shelters, including collective protection and shelter heaters for unit/organizational use. Program element also supports advanced development of individual clothing and equipment items to lighten the soldier's load and incorporate protection against chemical and biological agents, thermal nuclear flash, ballistic threats, visual and electronic detection and environmental hazards. Enhanced Land Warrior supports advanced development of the first fully integrated and digitized combat soldier system. The projects in this Program Element support research efforts in the Demonstration and Validation phases of the acquisition strategy and are therefore correctly placed in Budget Activity 4.

Project DC09 - Unit/Organizational Equipment Advanced Development:. Develop and field soft shelters, showers, latrines and heaters to improve unit sustainability and combat effectiveness.

FY 1994 Accomplishments:

- Completed advanced development and transitioned the 35k British Thermal Unit-Heat (BTUH) Space Heater Convective (SHC) to Engineering and Manufacturing Development. (440)
- Fabricated developmental prototypes for the 10k BTUH Space Heater Small (SHS) and Space Heater Arctic (SHA). (320)
- Performed market investigation and fabricated Lightweight Maintenance Tent prototypes for field unit evaluation. (164)
- Initiated market investigation and fabricated Modular Ammunition Solar Shade (MASS) test prototypes for evaluation at the Ordinance Missile Munitions School and Center and the National Training Center (NTC). (180)
- Shipped 160 MASS Covers to Somalia for general purpose solar protection and evaluation. (13)
- Completed contractor development of prototype Laundry and Drycleaning System (LADS). (1500)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603747A Soldier Support/Survivability

FY 1995 Planned Program:

- Complete design and initiate testing of Quarter Acre and Ammo Solar Shades. (267)
- Complete redesign of the Lightweight Maintenance Enclosure and procure prototypes. (603)
- Complete market investigation and Integrated Program Summary (IPS) for the Ballistic Protective System. (149)
- Conduct contractor testing and redesign of the Laundry and Dry Cleaning System (LADS). (293)
- Complete Dem/Val of the Space Heater Convective (SHC) and the Space Heater Arctic (SHA) and transition to Engineering and Manufacturing Development. (243)
- Conduct market investigation, build prototypes, test and transition to Engineering and Manufacturing Development the Containerized Self Service Laundry. (379)
- SBIR/STTR Adjustment (42)

FY 1996 Planned Program:

- Complete development and type classify Ammo Solar Shade and procure Quarter Acre Solar Shade prototypes. (371)
- Procure test prototypes for the Ballistic Protective System and transition to Engineering and Manufacturing Development. (220)
- Complete technical testing of the Lightweight Maintenance Enclosure and transition to Engineering and Manufacturing Development. (550)
- Build three second generation LADS for Technical Testing/Operational Testing (TT/OT). (962)
- Complete development of the SHS and transition to Engineering and Manufacturing Development. (138)

FY 1997 Planned Program:

- Complete development and type classify the Quarter Acre Solar Shade. (233)
- Complete LADS prototype systems and initiate TT/OT. (1129)

D603 - Enhanced Land Warrior: The Enhanced Land Warrior (ELW) program strategy is structured for the continuous modernization of all soldiers. Land Warrior (LW) for dismounted combat soldiers is the lead program and the technology carrier for the ELW program. LW is a first generation, integrated soldier system for dismounted combat soldiers. LW program is focused to keep pace with the Army Digitization effort and is critical to the digitization of the soldier system to support the Force XXI Concept and the Chief of Staff of the Army's initiative to field an operational digitized force by the year 2000. LW will incorporate mature technologies demonstrated in the Soldier Integrated Protective Ensemble (SIPE) and other RDT&E capabilities by government and industry. LW will enhance the dismounted infantryman's lethality, command and control, mobility, sustainment and survivability. The program encompasses everything the soldier wears or carries for individual use. The backbone of LW will be the radio/computer/Global Positioning System (GPS) and the head mounted display. The LW program will leverage Nondevelopmental Items (NDI) components, whenever possible, to provide state-of-the-art digitized technology. LW will also incorporate/integrate equipment from ongoing RDA programs, where appropriate. Less mature technologies not available for acquisition in LW will be demonstrated in the 21st Century Land Warrior (21CLW) Top Level Demonstration (TLD) and then transition to 21CLW development.

FY 1994 Accomplishments:

- Project not established until FY 95. Work performed under D669 in FY94

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603747A Soldier Support/Survivability

FY 1995 Planned Program:

- Complete engineering analysis, complete Request for Proposal (RFP), and conduct Source Selection for LW Contract Award. (3694)
- Preliminary Design of Land Warrior System and Land Warrior contract award (1500)
- Support Battlelab Advanced Warfighting Experiment (AWE) - Warrior Focus. (150)
- SBIR/STTR Adjustment (114)

FY 1996 Planned Program:

- Buy prototype components of Helmet Mounted Display, Digital Radio, Voice Soldier Radio and Lightweight Leader Computers and integrate for squad to company size Early User experimentation and conduct EOE testing for LW program. (2800)
- Complete LW system hardware/software design and integration; conduct contractor testing of components and technical reviews. (18750)
- Program management: scheduling, program controls, program documentation, and review of performance, cost and schedule. (1800)
- Buy long lead items for LW Development Test (DT). (300)
- Review of LW contractor's performance, to include system analysis, government configuration management, software verification, and logistics support (matrix support from 12 organizations). (2285)

FY 1997 Planned Program:

- Fabricate LW prototypes for DT. (5000)
- Support Brigade 96 AWE and company size FDTE for LW. (3500)
- Program management and government oversight of effort. (953)

Project D610 - Food Advanced Development: Development of Joint Service Food/Food Service Equipment to improve individual combat effectiveness and reduce logistics burden and O&S costs of subsistence support for servicemen and women. Enhance rations by increasing quality, acceptability and variety. Develop multi-fuel, rapidly deployable field food service equipment to support combat, humanitarian missions and operations-other-than-war. Improve equipment to enhance safety in food service, utilize battlefield fuel and decrease fuel and water requirements. Program is reviewed and validated twice annually by the DoD Food and Nutrition Research and Engineering Board as part of the Joint Service Food Program. Conduct Advanced Development of improved subsistence and subsistence support items to enhance soldier effectiveness and quality of life in all four Services as part of an integrated DOD Food Research, Development, Test, Evaluation and Engineering (RDTE&E) program.

FY 1994 Accomplishments:

- Procurement documents were transitioned to Defense Personnel Supply Center for the Unitized Group Ration (UGR) which simplifies logistics and integrates heat and serve meals, and meals prepared by cooks, that were developed, field tested, and independently validated. (466)
- Initiated design and development of improved field food service refrigeration to eliminate ozone depleting chemicals, and awarded contracts for the development of prototype powered multi-fuel burner for field food preparation that will improve operational efficiency, sustainment capability and safety by replacing gasoline fueled burners. (510)
- Evaluated NDI components of a galley system designed for extended operations aboard Navy P-3 sub-chaser aircraft. (168)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603747A Soldier Support/Survivability

- Conducted market survey and user survey to evaluate capability requirements for Army Field Feeding System - Future for soldiers operating in extreme cold environments. (185)
- Assembled Long Range Patrol prototype with vacuum pack entrees and conducted focus group evaluations with Special Operations Forces troops. (320)
- Developed and tested new recipes for the Armed Forces Recipe Service. Developed a nutritional labeling concept in conjunction with Office of The Surgeon General that complies with current Food and Drug Administration/United States Department of Agriculture labeling regulations and developed a prototype nutrition insert for inclusion in operational rations. (645)

FY 1995 Planned Program:

- Conduct user test/evaluation of prototype powered multi-fuel burners and improved field food service refrigeration, and transition multi-fuel burner to engineering development. (570)
- Complete development and transition Technical Data Package (TDP) for UGR and Joint Service nutritional labeling to the Defense Logistics Agency for procurement and fielding. (160)
- Complete development and transition improved Long Range Patrol Ration, improved Tray Pack Ration and improved Cold Weather Ration to procurement. (651)
- Complete test and evaluation of galley improvements aboard Navy P-3 sub-chaser aircraft and transition to Navy for production. (180)
- Complete preliminary automation requirements to automate the Joint Service Recipe System to eliminate duplication of efforts between Services and provide real time recipe revisions and nutritional analyses to field activities. (475)
- Evaluate new and modified equipment components of the Army Field Feeding System-Future to provide improved food service operations and performance in cold and extreme cold environments. (61)
- SBIR/STTR Adjustment (45)

FY 1996 Planned Program:

- Conduct user evaluation of hardware/software developed to automate the Joint Service Recipe System. (703)
- Complete design and transition TDP for improved field food service refrigeration to procurement. (150)
- Develop, conduct user evaluations, and transition Tray Pack and Meal-Ready-To-Eat improvements to procurement . (609)
- Conduct user tests of new self-heating group ration to increase readiness, ease logistical burden, reduce labor and decrease costs. (312)
- Conduct market and user surveys of biodegradable packaging for operational subsistence. (95)
- Conduct user tests of new self-heating individual ration that will increase convenience, consumption, and field troop quality of life. (293)

FY 1997 Planned Program:

- Transition first generation automated system for the Joint Service Recipe System to the service's field activities. (431)
- Develop, conduct user evaluations, and transition Tray Pack and Meal-Ready-to-Eat improvements to procurement. (657)
- Conduct user tests of self-heating group ration. (250)
- Conduct user evaluations of biodegradable materials for ration packaging. (383)
- Conduct user tests of a new self heating individual ration. (315)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603747A Soldier Support/Survivability

- Initiate design/development of prototype compactor/pulper for field food service use to reduce back-haul and trash burial requirements. (99)

Project D669 - Clothing and Equipment: Uses state-of-the-art technology to develop improved clothing and individual equipment items to enhance the effectiveness, lethality, sustainability, survivability and quality of life of the individual soldier.

FY 1994 Accomplishments:

- Prepared program documentation and achieved Milestone I Program Decision for Land Warrior (1500)
- Completed Concept Formulation Process for Land Warrior. (800)
- Prepare Draft Land Warrior Request for Proposal for FY 95 release. (1538)
- Modified requirements, program management plans, and test plans for the Microclimate Cooling Air Vest (to support PM-Aircrew Life Support Equipment) from cooled air to cooled liquid vest per change in Joint Service requirements). (57)
- Held In-process Review of proponency, requirements, technology and initial design concepts for the Individual Microclimate Cooling System; conducted Red Team survey and analysis of potential Army applications; provided demo to potential users. (642)
- Reviewed data for flechette and fragment protection of the Multiple Threat Body Armor (MTBA); reviewed results of Front End Analysis for a Modular Body Armor (MBA) system; determined that MTBA requirements would be met in a new MBA requirement. (46)
- Procured test items and initiated DT/OT of the Self-Contained, Toxic Environment Protective Outfit (STEPO). Following Phase I of DT/OT, made decision to correct equipment problems before proceeding with Phase II DT/OT. Awarded contract for fixes. (2226)

FY 1995 Planned Program:

- Assist TRADOC in revising requirements documents for the Individual Mircoclimate Cooling System, using Red Team survey and demonstration to potential users. (150)
- Complete modifications of the Self-Contained Toxic Environment Protective Outfit (STEPO) test items, conduct equipment prove-out, conduct New Equipment Training, and complete Phase II DT/OT. (1839)
- PM Aircrew Life Support Equipment is funding Liquid Microclimate Cooling Vest .
- Reprogramming. (28)
- SBIR/STTR Adjustment (43)

FY 1996 Planned Program:

- Conduct market survey, develop initial design concepts, conduct technical and early user evaluations and/or downselect designs/materials/equipment in design review: Individual Microclimate Cooling System (revised requirement), Advanced Personal System for Ground Troops (PASGT) Helmet, Advanced Explosive Ordnance Disposal (EOD) Suit, Special Protective Eyewear Cylindrical System (SPECS) P3I. (3210)
- Complete test assessment reports, type classify, complete Technical Data Package and transition to production: STEPO. (300)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603747A Soldier Support/Survivability

FY 1997 Planned Program:

- Conduct market survey, develop initial design concepts, conduct technical and early user evaluations and/or downselect designs/materials/equipment in design review: Variable Battledress Uniform, Heat Pipe Heating System, Reversible Absorption Microclimate Cooling System, Technologies to support a 21st Century STEPO. (1411)
- Procure test items and initiate and/or complete DT/OT I: Advanced PASGT Helmet, Advanced EOD Suit, SPECS P3I. (2120)

B. Program Change Summary:

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	13176	11795	11869	7508
Appropriated Value	13176	11636		
Adjustments to Appropriated Value	-1456			
a. SBIR/STTR (-204)				
b. Reprogramming total (-1252)				
Current Budget Submit/President's Budget	11720	11636	33848	16481

Funding: Increase in FY 96 and FY 97 to support new Project D603 for the Land Warrior (LW) program. Program was not fully structured until after the completion of Milestone I/II in August 1994, and was then funded during the FY 96-01 POM development cycle. Funding provides for the completion of LW hardware/software design and integration, fabrication/procurement of prototypes and the conduct of Early Operational Experimentation(EOE) and Development Testing.

Schedule: Unchanged, but is contingent upon receipt of FY 96/97 funding.

Technical: Unchanged

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603747A Soldier Support/Survivability

PROJECT: DC09

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
DC09 Unit/Organizational Equipment	2617	1976	2241	1382	2691	1939	1597	1565	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
OPA3 LADS-SSN M86200						4062	4474			8536

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
Completed contractor development of prototype LADS				X*												
Completed advanced development of 35k BTUH Space Heater Convective (SHC)				X*												
Complete demonstration/validation of SHC and Space Heater Arctic (SHA)								X								
Complete redesign of Lightweight Maintenance Tent							X									
Type Classify Solar Shade Ammunition Covers											X					
Type Classify Quarter Acre Solar Shade																X
Complete LADS prototype systems and Initiate TT/OT																X

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603747A Soldier Support/Survivability

PROJECT: DC09

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	2617	1976	2241	1362
Total	2617	1976	2241	1362

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
Product Development Organizations											
Chemfab, Hunter Research Guild Research Lab, Milliken General Services	Mfg, Atlantic Assoc, Army Graniteville, Technical		N/A*	N/A*	10230	2352	1711	1781	1187	Cont	Cont
Support and Management Organizations											
Soldier Systems	Command				1000	250	115	200	100	Cont	Cont
Test and Evaluation Organizations											
TECOM					2000	15	150	260	75	Cont	Cont

* DC09 Program line is ongoing in nature, and is made up of multiple projects which are on separate project schedules, as a result, the EAC, Budget to Complete and Total Program Categories are not applicable to DC09.

Government Furnished Property: N/A

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	10230	2352	1711	1781	1187	Cont	Cont
Subtotal Support and Management	1000	250	115	200	100	Cont	Cont
Subtotal Test and Evaluation	2000	15	150	260	75	Cont	Cont
Total Project		2617	1976	2241	1362	Cont	Cont

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603747A Soldier Support/Survivability

PROJECT: D603

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
D603 Enhanced Land Warrior	0	5458	25835	9453	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	Total Cost
RDTE,A Budget Activity 5 PE 0604713A		496		52239	34761	23610	18129	25496	Cont	Cont
RDTE,A Budget Activity 4 PE 0603747A/D669	3768*									5864
OPA3, M80500 Enhanced Land Warrior						52342	52479	63304	131022	299147
WTCV, GZ2800 Mod Wpn Sys (M16/M203)	2024	639	2842	5767	8081	7559				26912
WTCV, GB3007 Mod Wpn Sys - M4 Carbine Mod			930	2206	2287	2524				7947

*Note: Land Warrior was a portion of Project D669 within PE 0603747A.

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
ORD Approved			X*													
Milestone I/II Decision				X*												
Contract Award							X									
Fabricate Development Test Prototypes													X	X		

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603747A Soldier Support/Survivability

PROJECT: D603

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
System Engineering/Program Management		5194	22835	953
System Test and Evaluation			2800	3500
Prototype Development and Manufacturing		150	300	5000
SBIR/STTR Reductions		114		
Total		5458	25935	9453

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
Product Development Organizations											
To be determined							3694	18750	5000		
Support and Management Organizations											
Soldier Systems	Command						1614	4385	953		
Test and Evaluation Organizations											
To be determined							150	2800	3500		

Government Furnished Property

Item Description	Contract 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										
Thermal Weapons Sight				800	600	60				1360

Support and Management Property: None

Test and Evaluation Property: To be determined

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603747A Soldier Support/Survivability

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	800	600	60				1360
Subtotal Support and Management							
Subtotal Test and Evaluation							
Total Project	800	600	60				1360

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603747A Soldier Support/Survivability

PROJECT: D610

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
D610 Food Advanced Development	2294	2142	2162	2135	2511	2880	3497	3791	Continuing	Continuing

C. **Other Program Funding Summary**: N/A

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
Initiated development of improved field food service refrigeration				X*												
Developed Unitized Group Ration (UGR)				X*												
Complete development of improved Long Range Patrol Ration, Tray Pack Ration and Cold Weather Ration								X								
Automate Joint Service Recipe System								X								
Conduct user tests of self-heating group ration												X				
Transition tray pack and MRE improvements to procurement																X
Conduct user tests of biodegradable materials for ration packaging																X

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603747A Soldier Support/Survivability

PROJECT: D610

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	2294	2142	2162	2135
Total	2294	2142	2162	2135

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
Product Development Organizations											
Natick, G E O Hunter Mfg	Centers,		N/A*	N/A*	7940	2176	1794	1814	1792	Cont	Cont
Support and Management Organizations											
Soldier Systems	Command				456	113	108	108	107		
Test and Evaluation Organizations											
TECOM					730	5	240	240	236		
Government Furnished Property: N/A											
Subtotal Product Development					7940	2176	1794	1814	1792	Cont	Cont
Subtotal Support and Management					456	113	108	108	107		
Subtotal Test and Evaluation					730	5	240	240	236		
Total Project					9126	2294	2142	2162	2135		

* D610 program line is ongoing in nature and is made up of multiple low cost projects which are on separate, staggered project schedules, as a result EAC, Budget to Complete, and Total Program Categories are not applicable

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603747A Soldier Support/Survivability

PROJECT: D669

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
D669 Clothing and Equipment	6809	2060	3510	3531	3703	3777	4637	4114	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 Cont	Total Cost Cont
OMA PROCUREMENT		2890	7050	5960	6130	6130	6020	6020		

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
Complete Phase I DT/OT of STEPO				X*												
Complete Equipment Modifications of STEPO						X										
Complete Phase II of DT/OT and Assessment Reports									X							
Type Classify STEPO										X						
Revise Requirement of Individual Microclimate Cooling (IMC)								X								
Downselect Design of IMC												X				
Complete DT/OT of IMC																X
Complete Early User Evaluation of Advanced EOD Suit											X					
Mod Design and Complete DT/OT of Advanced EOD Suit															X	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603747A Soldier Support/Survivability PROJECT D669

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Clothing and Equipment	6809	2060	3510	
Total	6809	2060	3510	

B. Budget Acquisition History and Planning Information: N/A

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603760A Distributive Interactive Simulations - Advanced Development

PROJECT: DC80

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
DC80 Reconfigurable Simulator Advanced Development	0	8385	0	0	0	0	0	0	0	8385

A. **Mission Description and Budget Item Justification:** This program element (PE) provides for advanced development of an overarching architecture for reconfigurable simulators. Project DC80 is focused on development of both the software and hardware interfaces and specifications required to completely determine a reconfigurable simulator. Emphasis is also placed on defining those software and hardware modules which have broad applicability across a wide range of reconfigurable simulators. Work done on this program will have benefit across the Army and DoD by providing standards for interoperability and software reuse in this emerging domain. This program element focuses on efforts associated with advanced technology development used to demonstrate general military utility to include demonstration and validation in the area of reconfigurable simulators and is correctly placed in Budget Activity 4.

Project DC80 - Reconfigurable Simulators Advanced Development: Initiates advanced development of reconfigurable simulators for use in TRADOC Battle Laboratories. Program provides advanced development of modular software and hardware architectures for reconfigurable simulators. Development will provide a common framework for the development of a new generation of reconfigurable simulators that can be used to explore a wide variety of critical issues for the Force Projection Army. FY 95 efforts will include work on a reconfigurable generic rotary wing aircraft simulator, an armored vehicle simulator which will provide a basis for work on any ground vehicle system, a battle command and control vehicle, a fire support vehicle for use by both the artillery and air defense, and a combat service support module.

FY 1994 Accomplishments: Unfunded in FY 1994

FY 1995 Planned Program

- Develop overarching software architecture for reconfigurable simulators through complete domain analysis (5209)
- Develop and demonstrate modular hardware architecture suitable for reconfiguration (2100)
- Define generic software modules necessary for defining the reconfigurable simulator in the context of its architecture (900)
- SBIR/STTR (176).

FY 1996 Planned Program: Unfunded in FY 1996.

FY 1997 Planned Program: Unfunded in FY 1997.

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603760A Distributive Interactive Simulations - Advanced Development

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget		11787		
Appropriated Value		8385		
Adjustments to Appropriated Value				
Current Budget Estimate Submission (BES)		8385		

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
RDTE, A Budget Activity 5 PE 0604760A, Project DC81 Distributive Interactive Simulation	0	6412	0	0	0	0	0	0	0	6412
RDTE, A Budget Activity 5 PE 0604715A Project DC91, Distributive Interactive Simulation	0	3445	6139	3745	11328	6992	17063	14053	Cont'd	Cont'd

D. Schedule Profile: The efforts funded in this project are non-system specific and represent continuing advanced development in the area of Reconfigurable Simulators; therefore, no milestones are provided.

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Request for Proposal release						X										
Contract Award								X								
Software/Hardware Integration										X						

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603760A Distributive Interactive Simulations - Advanced Development

PROJECT: DC80

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Software Development		5209		
Modular Hardware Development		2100		
Technical Data		900		
SBIR/STTR		176		
Total		8385		

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
Product Development Organizations											
TBD	Best value contract	Aug 95	7534	7534	0	0	7534	0	0	0	7534
Support and Management Organizations											
Miscellaneous	Various	Various	675	675	0	0	675	0	0	0	675
SBIR/STTR			176	176			176				176

Government Furnished Property: Not Applicable

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	0	0	7534	0	0	0	7534
Subtotal Support and Management	0	0	851	0	0	0	851
Subtotal Test and Evaluation	0	0	0	0	0	0	0
Total Project	0	0	8385	0	0	0	8385

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

DATE: February 1995

BUDGET ACTIVITY: 4 - DEMONSTRATION AND VALIDATION

PE NUMBER AND TITLE: 0603766A Tactical Exploitation of National Capabilities (TENCAP) - Advanced Development (TIARA)

PROJECT: D907

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
0D907 Tactical Electronic Surveillance System - Adv Dev	15089	14815	28389	26913	23935	28057	29377	34319	Continuing	Continuing

A. **Mission Description and Budget Item Justification:** Supports the tactical commander's intelligence requirements for contingency force development and deep battle targeting as stated in Field Manual 100-5. Specific developments are managed within the Army's Tactical Exploitation of National Capabilities (TENCAP) program. The scope of the program is to leverage specific data and capabilities available from existing and emerging National and selected theater capabilities that meet stated Army tactical intelligence information and targeting needs to correct deficiencies, and develop concepts, techniques and prototype processors to exploit critical data for near-real time integration into the appropriate tactical echelon. This project supports the advanced development/enhancement of the Electronic Tactical User Terminal (ETUT), Mobile Integrated Tactical Terminal (MITT) (replaces the Tactical High Mobility Terminal (THMT)), Forward Area Support Terminal (FAST), Tactical Exploitation System (TES), and Electronic Processing and Dissemination System (EPDS). The Army's emerging TES will incorporate the standards and protocols dictated by the Common Imagery Ground Surface System (CIGSS) program. TES brings all of the existing and emerging Army TENCAP capabilities (EPDS, MIES, and ETRAC) into an integrated common baseline; downsized modular and scaleable to meet a wide range of contingency requirements. TENCAP Common Baseline addresses common subsystems, planned improvements, key activities and ongoing/planned initiatives determined to have potential application to multiple TENCAP systems, including MIES and ETRAC that are funded under the Defense Airborne Reconnaissance Program (DARP) (PE 0305154D). Specific details are provided in the Tactical Intelligence and Related Activities (TIARA) Congressional Justification Book, Volume II, and in the Army TENCAP Master Plan. This Program Element (PE) focuses on efforts associated with advanced technology development used to demonstrate general military utility to include demonstration and validation in the area of TENCAP and is correctly placed in Budget Activity 4.

FY 1994 Accomplishments:

- Continued to pursue technology for the refinement of the TENCAP Common Baseline for fully exploiting National capabilities to meet emerging worldwide contingency scenarios. (6996)
- Initiated advanced development of five additional MITTs to replace existing THMTs. (2600)
- Continued advanced development to retrofit ETUT with enhanced MITT hardware and software. (1800)
- Continued support to TENCAP program management and administrative activities (e.g. FFRDC (Aerospace), Army Research Laboratory (ARL) support, U.S. Army Space Program Office (ASPO) support and Contractor System Engineering and Technology Assistance (SETA) support. (3673)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - DEMONSTRATION AND VALIDATION	PE NUMBER AND TITLE 0603766A Tactical Exploitation of National Capabilities (TENCAP) - Advanced Development (TIARA)
	PROJECT D907

FY 1995 Planned Program:

- Continue to pursue technology for the refinement of the TENCAP Common Baseline for fully exploiting National capabilities to meet the changing threat environment (to include Demand Assign Multiple Access (DAMA) Appliqué into Common Baseline Synthesized UHF Computer Controlled Sub-System (SUCCESS) radios and support to the Joint Collection Management Tool (JCMT), the follow-on to the Army's Collection Management Support Tools (CMST). (9284)
- Initiate study for concept design of the TES. (1230)
- Continue advanced development efforts to retrofit ETUTs with enhanced MITT hardware and software. (400)
- Continue support to TENCAP program management with administrative activities (e.g. FFRDC (Aerospace)), ARL support, ASPO support and Contractor SETA support. (3605)
- Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR). (296)

FY 1996 Planned Program:

- Continue to pursue technology and refine techniques for fully exploiting National capabilities which are common to all TENCAP systems to meet emerging worldwide contingency scenarios such as upgrades to Communication System Processor (CSP) to incorporate Tactical Packet Network (TPN) and Defense Security Network (DSNET) connectivity, DAMA Appliqué to SUCCESS Radio, and continue support to JCMT. (9478)
- Initiate design concept and prototype development of Tactical Exploitation Systems (TES) with state-of-the-art hardware and software. (10236)
- Complete advanced development of ETUT. (400)
- Continue support to TENCAP program management with administrative activities (e.g., FFRDC (Aerospace), ARL support, ASPO support, Contractor SETA support and TEC. (Part of this effort was funded under PE 0603730A in FY 95). (5275)
- Continue support to efforts being developed under PE 0305154D (DARP) Project P531 (e.g., FFRDC (Aerospace), ASPO, SETA, and TEC. (2980)

FY 1997 Planned Program:

- Continue to pursue technology and refine techniques for fully exploiting National capabilities common to all TENCAP systems to meet emerging worldwide contingency scenarios. (6550)
- Initiate advanced development efforts for ground processing technologies for new National sensors capabilities that will be incorporated into TES. (10899)
- Continue support to TENCAP program management with administrative activities (e.g., FFRDC (Aerospace), ARL support, ASPO support, Contractor SETA support and TEC. (6070)
- Continue support to efforts being developed under PE 0305154D Project P531 (e.g., FFRDC (Aerospace), ASPO, Contractor SETA, and TEC.) (3394)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - DEMONSTRATION AND VALIDATION	PE NUMBER AND TITLE 0603766A Tactical Exploitation of National Capabilities (TENCAP) - Advanced Development (TIARA)
	PROJECT D907

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	15295	15008	22000	12756
Appropriated Value	15295	14815	0	0
Adjustments to Appropriated Value (SBIR/STTR Decrement)	-226	0	0	0
Current Budget Submit/President's Budget	15069	14815	28369	26913

Change Summary Explanation:

Funding: IN FY 96, THE ARMY CONSOLIDATED THE REMAINING PEs SUPPORTING THE ARMY TACTICAL EXPLOITATION OF NATIONAL CAPABILITIES (TENCAP) PROGRAM. ALL EFFORTS FUNDED UNDER PE 0603730A/PROJECT D560 WERE CONSOLIDATED WITH PE 0603766A/PROJECT D907 IN FY 96 AND BEYOND. AS A PART OF THIS SAME ACTION PE 0604740A/PROJECT D662 WAS CONSOLIDATED WITH PE 0604766A/PROJECT D909 IN FY 96 AND BEYOND. These PEs/Projects were consolidated because in FY 95 all funds directly related to the development of IES, JSIPS, and ETRAC programs were moved to OSD PE 0305154D, DARP. Even though the funds have been moved to the Defense Airborne Reconnaissance Office (DARO), the Department of the Army continues to support these development efforts on their behalf. Funding to support these DARO efforts (ASPO salaries and expenses, TEC, FFRDC, Contractor SETA, and certain studies) remain in this PE and are still required. In addition to the DARO support cost, Project D560 also funded the development of TES which was initiated in FY 95. Therefore, the increases to this PE/PROJ in FY 96 and FY 97 is the result of consolidating Proj D560 (which prior to FY 96 funded the TES development effort and support to Army TENCAP systems developed under DARO) with this project.

Schedule: None

Technical: None

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

DATE: February 1995

BUDGET ACTIVITY: 4 - DEMONSTRATION AND VALIDATION

PE NUMBER AND TITLE: 0603766A Tactical Exploitation of National Capabilities (TENCAP) - Advanced Development (TIARA)

PROJECT: D907

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
RDTE, A Budget Activity 4										
PE 0603730A Project D560										
Tact Surv Sys - Adv Dev	15140	11717	0	0	0	0	0	0		
RDTE, A Budget Activity 5										
PE 0604740A Project D662										
Tact Surv Sys - Eng Dev	37534	2093	0	0	0	0	0	0		
PE 0604766A Project D909										
TENCAP - Eng Dev	26456	19214	24699	15302	19012	22016	29577	28333	Cont	Cont
RDTE, D Budget Activity 7										
PE 0305154D Project P531										
DARP	0	40017	33833	37216	12390	6328	6328	6328	Cont	Cont
Other Procurement Army, OPA-2										
BZ 7315 TENCAP	7729	4636	4617	1807	1784	1853	4971	14916	Cont	Cont
BA 0329 DARP	1927	2411	0	0	0	0	0	0	N/A	N/A
Procurement, Defense Wide										
PE 0305154D Project P531		0	88700	123400	77900	69100	71400	73300	Cont	Cont

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
Complete Field Testing of MITT 2-6		X														
Complete Adv Dev ETUT Retrofit								X								
Initiate Dev of Additional 5 MITTs				X												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY **4 - DEMONSTRATION AND VALIDATION**	PE NUMBER AND TITLE **0603766A Tactical Exploitation of National Capabilities (TENCAP) - Advanced Development (TIARA)**

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Initiate Analysis/Design Concept for TES							X									
Test Prototype HOATR							X									
Initiate Prototype Development for TES										X						
Complete Adv Dev of DAMA Appliqué to all TENCAP Common Baseline SUCCESS Radios												X				
Complete Adv Dev of 5 Additional MITTS								X								

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - DEMONSTRATION AND VALIDATION	PE NUMBER AND TITLE 0603766A Tactical Exploitation of National Capabilities (TENCAP) - Advanced Development (TIARA)
	PROJECT D907

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
System Development:				
MITT	2600	0	0	0
ETUT	1800	400	400	0
Common Baseline (*1-*2)	6996	9284	9478	6550
TES	0	1230	10236	10899
Subtotal System Development	11396	10914	20114	17449
Program Management				
ASPO In-House (*4)	1122	1109	2441	2479
FFRDC (*2)	1081	953	75	95
System Engineering (Contractor) (*2)	870	1339	4514	5840
System Engineering (Government) (*2)	600	500	1225	1050
Subtotal Program Management (*3)	3673	3901	8255	9464
Total (*2)	15069	14815	28369	26913

(*1) TENCAP Common Baseline addresses common subsystems, planned improvements, key activities and ongoing/planned initiatives determined to have potential application to multiple TENCAP systems (including MIES and ETRAC that are funded under the DARP (PE 0305154D).
(*2) In FY 96 and beyond, efforts previously funded under 0603730A.D560 are consolidated into this project.
(*3) Approximately 40% of program management cost in FY 96 and FY 97 support efforts being developed under PE 0305154D.P531.
(*4) The ASPO In-House support in this project also supports efforts being developed under PE 0604766A.D909.

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

DATE: February 1995

BUDGET ACTIVITY: 4 - DEMONSTRATION AND VALIDATION

PE NUMBER AND TITLE: 0603766A Tactical Exploitation of National Capabilities (TENCAP) - Advanced Development (TIARA)

PROJECT: D907

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
Product Development Organizations											
ARL (MITT)	MIPR	2Q94	N/A	N/A	N/A	2000	0	0	0		
Classified (ETUT)	MIPR	1Q94	N/A	N/A	N/A	1800	400	400	0		
Classified (Cmn Bsln)	MIPR	N/A	N/A	N/A	N/A	7596	9284	9478	6550	Cont	Cont
TBD (TES)	MIPR	TBD	N/A	N/A	0	0	1230	10236	10899	Cont	Cont
Support and Management Organizations											
USASPO	In-House	N/A	N/A	N/A	N/A	1122	1109	2441	2479	Cont	Cont
SSD/FDEA (FFRDC)	MIPR	1Q EA FY	N/A	N/A	N/A	1081	953	75	95	Cont	Cont
TEC (Sys Eng Govt)	MIPR	1Q EA FY	N/A	N/A	N/A	0	0	1025	1050	Cont	Cont
Classified (Sys Eng Cont)	MIPR	1Q EA FY	N/A	N/A	N/A	870	1339	4514	5840	Cont	Cont
ARL (Sys Eng Govt)	MIPR	1Q EA FY	N/A	N/A	N/A	600	500	200	0	Cont	Cont

Test and Evaluation Organizations: None

Government Furnished Property: None

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

DATE: February 1995

BUDGET ACTIVITY: 4 - DEMONSTRATION AND VALIDATION

PE NUMBER AND TITLE: 0603766A Tactical Exploitation of National Capabilities (TENCAP) - Advanced Development (TIARA)

PROJECT: D907

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	N/A	11396	10914	20114	17449	Cont	Cont
Subtotal Support and Management	N/A	3673	3901	8255	9464	Cont	Cont
Subtotal Test and Evaluation	N/A	0	0	0	0	0	0
Subtotal Government Furnished Property	N/A	0	0	0	0	0	0
Program Total	N/A	15069	14815	28369	26913	Cont	Cont

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603774A Night Vision Systems Advanced Dev

PROJECT: D131

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
D131 Night Vision Systems Advanced Development	4694	2676	2960	2919	3247	3215	3682	3676	Continuing	Continuing

A. **Mission Description and Budget Item Justification** This program element encompasses the advanced development phase of the Army Acquisition cycle for Night Vision and Electro-Optic (NVEO) devices/systems and prepares them for engineering development. The key objective of this program is to provide NVEO devices/systems for acquisition and engagement of enemy targets at maximum weapon system ranges under degraded battlefield/weather conditions and in countermeasure environments. The efforts are centered around development of countermeasure and electro-optic sensors for the individual soldiers and combat vehicles to meet stated Army deficiencies. This project provides the mechanism to transition tech base programs for electro-optical sensors to the engineering manufacturing development (EMD) phase of the acquisition cycle. This project provides the funding necessary to institute advances for product improvement or horizontal integration to upgrade current capabilities. The focus is on efforts associated with advanced technology development and is properly placed in this budget activity.

FY 1994 Accomplishments:

- Continuation of the Standardized Advanced Detector Dewar Assembly (SADA) program. This program developed the Tri-Service Standard High/Mid to High Dewar Assembly for Second Generation Infrared sensors to meet future weapon systems requirements (such as Horizontal Technology Integration). (3195)
- Implemented development of an integrated helmet mounted display program (Mounted Warrior) for the combat vehicle crewman to permit viewing of the vehicle's tactical displays while operating in an "open hatch" mode (1499)

FY 1995 Planned Program:

- Complete the SADA program. Twenty five (25) units will be delivered and integrated into on-going development of Second Generation Infrared (IR) systems such as Improved TOW Acquisition System (ITAS). (1395)
- Implement miniaturization of electronic components and optimal optical design for mounted warrior helmet mounted display (726)
- Begin development of Advanced Second Generation FLIR (SGF) B kit features such as aviation application, digital imagery interface card and improved optical (OI) features. (500)
- Small Business Innovative Research (SBIR)/ Small Business Technology Transfer Program (STTR) (57)

FY 1996 Planned Program:

- Prepare documentation for integration and transition of the helmet mounted display to Program Executive Office, Armored Systems Modernization (PEO ASM) (175)
- Continue Advanced Second Generation FLIR improvement for HTI B kit. Demonstrate through modeling, B kit applications to aviation (Apache) and Long Range Advanced Scout Surveillance System (LRAS3). (2585)
- Prepare acquisition documentation and implement developmental contract for LRAS3 start (200)

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603774A Night Vision Systems Advanced Dev

PROJECT: D131

FY 1997 Planned Program:

- Implement digital imagery interface card into HTI SGF B kit (292)
- Implement in-house prototype of aviation SGF B kit (Apache) (2043)
- Implement Advanced SGF B kit features into M2A3, BFVS and M8 (584)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	4768	2695	2975	2933
Appropriated Value	4768	2678		
Adjustments to Appropriated Value	-74			
SBIR/STTR (74)				
Current Budget Submit/President's Budget	4694	2678	2960	2919

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
PE 0602709A/Night Vision and Electro-Optical Technology RDTE, A Budget Activity 3	18852	19326	17086	17175	18071	19457	19552	20057	Continue	Continue
PE 0603710A/Night Vision Advanced Development RDTE,A Budget Activity 4	33324	33177	37969	37193	31544	41962	43915	42401	Continue	Continue
PE 0604710A Night Vision Devices Engineering Development, Budget Activity 5	41328	42803	39697	39295	22952	21487	18746	30364	Continue	Continue

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
Implement development of integrated helmet mounted display program		X*														
Battle Lab Simulation				X*												
Complete study of display application for aviation				X*												

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603774A Night Vision Systems Advanced Dev

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Miniaturization of electronic components and optical design for helmet mounted display							X									
Coordinate Warfighting experiment planning with mounted battlelab								X								
Advanced B kit features								X								
Transition to HTI B kit																X
Implementation system integration program												X				
Prepare acquisition documentation and implement development contract															X	
Implement In-House prototype														X		

*Complete

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603774A Night Vision Systems Advanced Dev
	PROJECT D131

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	500	700	1800	1800
Ancillary Hardware Development	1400	1063	0	0
Contractor Engineering Support	900	300	260	260
Government Engineering Support	1400	350	400	400
Travel	50	45	50	45
Miscellaneous	444	63	150	114
Development Test & Evaluation	0	100	300	300
SBIR/STTR	0	57	0	0
Total	4694	2678	2960	2919

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603801A Aviation Advanced 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	15480	16647	8430	8666	7898	8324	6551	6698	Continuing	Continuing
DB32 Advanced Maintenance Concepts and Equipment	3572	4440	2371	2303	2944	2906	3409	3487	Continuing	Continuing
DB33 Cargo Handling Equipment	2144	2210	2152	2125	2141	2678	3142	3211	Continuing	Continuing
DB45 Aviation Life Support Equipment (ALSE) - Advanced Development	9764	9997	3907	4238	2813	2740	0	0	0	33459

A. **Mission Description and Budget Item Justification:** This PE provides advanced development aviation support of tactical programs associated with air mobility, advanced maintenance concepts and equipments, and Aviation Life Support Equipment (ALSE). The projects in this Program Element support research efforts in advanced development phase of the acquisition strategy and are correctly placed in Budget Activity 4.

Project DB32 - Advanced Maintenance Concepts and Equipment: This project enhances utilization of current and future aircraft by improving the efficiency of maintenance (primarily in the area of diagnostics/prognostics) and servicing operations by: replacing obsolete, insupportable ground support equipment with new and standardized multi-output equipment compatible with all Army aircraft models; developing rapid battle repair procedures and tools to speed the return of aircraft to combat ready status; and developing new equipment for aerial recovery of damaged aircraft. Included in the project is the Intelligent Fault Locator (IFL), a program to test artificial intelligence-based troubleshooting software on an AH-64 Apache aircraft.

FY 1994 Accomplishments:

- Demonstrated Non-Destructive Inspection/Non-Destructive Test (NDI/NDT) prototype hardware and initiate final design effort (286)
- Completed development, testing and demonstration of Combat Maintenance/Battle Damage Repair (CM/BDR) kit for fiber optic systems (261)
- Completed detailed design, fabricated hardware, and conducted static lift tests of Unit Maintenance Aerial Recovery Kit (UMARK) (200)
- Initiated design, fabrication, and integration of Advanced Boresight Equipment (ABE) pre-production units (2405)
- Complete evaluation and finalized design of the Shop Equipment Contact Maintenance (SECM) (20)
- Interface electronic Apache TM repair procedures with IFL and investigate active bus interface diagnostic methods (400)

FY 1995 Planned Program:

- Conduct development and operational test of the UMARK (230)
- Continue fabrication and integration of ABE pre-production units; and initiate an ILS program in preparation for a milestone III IPR. (3502)
- Automate the NDI/NDT inspection methods and repair procedures through application knowledge based software (617)

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- SBIR/STTR (91)

FY 1996 Planned Program:
- Demonstrate knowledge base automated NDI/NDT inspection and repair procedures for composite components (114)
- Initiate a Dem/Val program for a comprehensive on-board diagnostic system interfaced with an automated maintenance and logistics system (1490)
- Complete the Dem/Val phase of the ABE Program (342)
- Initiate a program to explore high reliability, low maintenance alternatives to nickel cadmium batteries (162)
- Initiate development of an Advanced Portable Maintenance Aid for hand free interface with maintenance procedures and instructions (153)
- Develop/demonstrate environmentally sensitive options for aircraft maintenance (110)

FY 1997 Planned Program:
- Initiate development of a field repair capability for low observable components (200)
- Complete detailed design of the on-board diagnostics system and define the interface with the automated maintenance and logistics system (1317)
- Assemble the advanced Portable Maintenance Aid and initiate a field demonstration (290)
- Conduct field evaluations of nickel cadmium battery alternatives (198)
- Demonstrate environmentally friendly alternatives for aircraft maintenance problems (298)

Project DB33 - Cargo Handling Equipment: This project develops equipment and operational improvements for loading and off-loading helicopter cargo in all-weather, around the clock combat scenarios.

FY 1994 Accomplishments:
- Conducted functional test and completed documentation for improved 30mm Ammo Loader and demonstrate a rapid (15 minutes) turnaround FARP (561)
- Contract award, initiated design of Advanced Aerial Cargo Handling System to enhance cargo helicopter productivity (1533)
- Complete design, fabrication and support testing of Advanced Material External Cargo Sling leg (50)

FY 1995 Planned Program:
- Complete design, fabrication and bench test of a pre-production prototype of the 30mm Ammo Loader compatible with weight goals for both the AH-64A and C/D aircraft (300)
- Complete the detailed design and initiate fabrication of advanced internal and external cargo handling systems (1864)
- SBIR/STTR (46)

FY 1996 Planned Program:
- Initiate definition of a high-mobility transport system for aircraft maintenance units (433)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603801A Aviation Advanced Development

- Complete fabrication and installation of advanced internal and external cargo handling systems and demonstrate their impact on cargo aircraft productivity. (1719)

FY 1997 Planned Program:

- Complete the demonstration of advanced internal and external cargo handling systems (1171)
- Initiate the demonstration of a cargo movement system for heavy (95th percentile) loads (416)
- Continue the aircraft maintenance unit mobility system definition (538)

Project DB45 - Aviation Life Support Equipment (ALSE)/Advanced Development: This project provides advanced development for those systems and items of equipment which are unique and necessary for the sustainment and enhanced survivability of Army aircrews and passengers on the future integrated battlefield and during related training activities. Advanced development programs will focus on the development and evaluation of emerging technologies and the adaptation of commercial and nondevelopmental items (NDI) to military requirements. The Joint Cockpit Airbag System (JCABS) effort will evaluate a variety of supplemental restraint system approaches to improve crew and passenger crash survivability and thereby reduce potential injuries/casualties. The Air Warrior program will provide the aircrew with a systems approach to chemical and biological (CB) protection, noise protection, microclimatic conditioning, crash and post-crash survivability, concealment and environmental protection, ballistic protection, night vision capability, heads-up displays, nuclear flash protection, directed energy eye protection, and flame/heat protection. The AW design will improve overall aircrew mission performance, aircrew comfort, aircrew and aircrew station interface, safety, and survivability. Both joint and service independent efforts will be pursued under the scope of this project.

FY 1994 Accomplishments:

- Continued fabrication and evaluation of Advanced Laser Eye Protection (LEP) (Joint Service) (947)
- Complete evaluation and testing of Inflatable Body and Head Restraint System (IBAHRS) (Joint Service) (699)
- Initiate development of Air Warrior Program definition and concept planning documents (potential joint program) (1858)
- Initiate development of Joint Cockpit Air Bag System (JCABS) (Joint Service) (2246)
- Continue Advance Development of the Agile Laser Eye Protection (LEP) Program (Joint Service) (1414)
- Initiate Aircrew Integrated Common Helmet (AICH) Advanced Development (2600)

FY 1995 Planned Program:

- Continue fabrication and evaluation of the Agile LEP Program (Joint Service) (975)
- Complete Milestone III IPR for IBAHRS (Joint Service) (172)
- Conduct Air Warrior Advanced Development and technology trade-off (5869)
- Continue Advanced Development of the JCABS Program (Joint Service) (1381)
- Continue AICH Advanced Development (1399)
- SBIR/STTR (201)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603801A Aviation Advanced Development

FY 1996 Planned Program:

- Prepare for JCABS Milestone II (Joint Service) (857)
- Continue fabrication and evaluation of the Agile LEP (Joint Service) (550)
- Initiate Air Warrior Advanced Development and evaluate prototype design alternatives (1900)
- Initiate NBC Advanced Initiatives Advanced Development for air vehicle and aircrew (600)

FY 1997 Planned Program:

- Complete Air Warrior Advanced Development and evaluate prototype design alternatives(2232)
- Conduct Air Warrior early user demonstration/test (506)
- Continue fabrication and evaluation of the Agile LEP (Joint Service) (550)
- Continue NBC Advanced Initiatives Demonstration/Validation (950)

B. Program Change Summary:	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	15716	9367	8459	8693
Appropriated Value	15716	16647		
Adjustments to Appropriated Value	236			
a. SBIR/STTR (-236)				
Current Budget Submit/President's Budget	15480	16647	8430	8666

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603801A Aviation Advanced Development

PROJECT: DB32

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
DB32 Advanced Maintenance Concepts and Equipment	3572	4440	2371	2303	2944	2906	3409	3487	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 Cont'g	Total Cost Cont'g
RDTE,A Budget Activity 2 PE 0602211 Project A47A Aeronautical and Aircraft Weapons Tech	23004	16672	17732	23294	25212	27636	27037	29685		

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
Completed development, testing and demonstration of (CM/BDR) Kit			X*													
Completed detailed design, fabricated hardware, and conducted static lift tests of (UMARK)			X*													
Complete evaluation and finalize design of the (SECM)				X*												
Conduct development and operational test of the UMARK							X									
Complete the Dem/Val Phase of the ABE program											X					
Complete detailed design of the on-board diagnostics system and define the interface with the automated maintenance and logistics system																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
4 - Demonstration And Validation	0603801A Aviation Advanced Development	DB32

A. **Project Cost Breakdown**

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	630	565	700	400
Software Development	370	420	223	600
Systems Engineering	1453	264	30	425
Integrated Logistics Support		2100	126	
DT/OT	50	296	398	
Program Management	155	170	150	167
Research Personnel	774	500	594	596
Miscellaneous	140	125	150	115
Total:	3572	4440	2371	2303

B. **Budget Acquisition History and Planning Information**: Not required

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603801A Aviation Advanced Development

PROJECT: DB33

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
DB33 Cargo Handling Equipment	2144	2210	2152	2125	2141	2678	3142	3211	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
RDTE,A Budget Activity 2 PE 0602211 Project A47A Aeronautical and Aircraft Weapons Technology	23004	16672	17732	23294	25212	27636	27037	29685	Cont'g	Cont'g

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
Contract award, initiated design of Advanced Aerial Cargo Handling System			X*													
Complete design, fabrication and support testing of the Advanced Material External Cargo Sling Leg				X*												
Complete design, fabrication and bench test of a pre-production prototype of the 30mm Ammo Loader compatible with weight goals for both the AH-64A and C/D aircraft								X								
Complete the demonstration of advanced internal and external cargo handling systems													X			

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603801A Aviation Advanced Development PROJECT DB33

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	627	1000	1000	770
Systems Engineering	500	316	377	230
DT	62			347
Program Management	150	120	149	164
Research Personnel	705	697	545	533
Miscellaneous	100	77	81	81
Total	2144	2210	2152	2125

B. Budget Acquisition History and Planning Information: Not required

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603801A Aviation Advanced Development

PROJECT: DB45

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
DB45 Aviation Life Support Equipment (ALSE) - Advanced Development	9764	9997	3907	4238	2813	2740	0	0	0	33459

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
RDTE, A Budget Activity 5 PE 0604801A Project DC45 Aviation Life support equipment (ALSE) Engineering Development	8221	4650	5142	6899	7835	7153	2498	2494	Cont	Cont
Aircraft Procurement, Army (APA) SSN AZ3110 ALSE	7192	8809	9732	9577	10281	10958	9954	9953	Cont	Cont

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
Air Warrior	X*															
Technology and Baseline Assessments																
Materiel Need Statement (MNS) Approval						X										
Milestone 0						X										
Demonstration/Validation Phase											X					
Joint Cockpit Air Bags system (JCABS)																
Demonstration/Validation contract award			X*													
Complete Trade Studies					X*											
Component design verification test							X									
Engineering Manufacturing Development													X			

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603801A Aviation Advanced Development

PROJECT: DB45

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contract Engineering Support	8797	6990	174	650
Program Management Support	967	3007	3733	3588
Total	9764	9997	3907	4238

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
Product Development Organizations											
IBAHRS ,Simula, Phoenix, AZ					5712	1000	0	0	0	0	6712
(JCABS) Simula, Inc. Phoenix, AZ	SS-CPFF	May 1994			0	1430	750	174	0	0	2354
Agile Laser											
NAWC	SS-CPFF	Feb 95	6417	6620	4648	700	740	0	0	0	6088
NBC TBD	C-CPFF	Jan 97			0	0	0	950	600	3920	5470
Support and Management Organizations											
Various Organization	MIPR	Various	N/A	N/A	8777	6634	8507	2783	3638	1636	31975
Total Performing Organization					19137	9764	9997	3907	4238	5556	52599

Government Furnished Property -Not applicable

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603801A Aviation Advanced Development

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	10360	3130	1490	1124	600	3920	20624
Subtotal Support and Management	8777	6634	8507	2783	3638	1636	31975
Subtotal Test and Evaluation							
Total Project	19137	9764	9997	3907	4238	5556	52599

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603802A Weapons And Munitions Advanced Dev

PROJECT: XXXB

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
XXXB MK-19 IMPROVEMENTS	752	1246	0	0	0	0	0	0	0	1998

A. Mission Description and Budget Item Justification: This program element covers improvements to the MK19-3 Automatic Grenade Launcher. In addition to investigating soft mounts, this improvement program develops two system-specific training devices: a Gunnery Trainer for the MK19 and a Tactical Engagement Simulator for the MK19-3. The Gunnery Trainer is a video style classroom trainer. It is an adaptation of an existing training device that will provide basic gunnery skills in engaging single and multiple targets with use of the Traverse and Elevation (T&E) Mechanism and free gun engagement. This device will replicate with high accuracy and resolution the aiming, firing, and fire adjustment of the actual weapon to include hits/misses, trajectory, and flight characteristics of the 40mm ammunition. The Tactical Engagement Simulator is an adaptation of the Multiple Integrated Laser Engagement System (MILES), another existing training device. This device will be used as a means to evaluate the performance of the weapon system and crews in force-on-force training exercises. The Soft Mount is designed to provide a firing platform with improved stability. This effort will result in improved accuracy, faster reaction times, unlimited traverse, and a reduction in training costs through reduced ammunition consumption and barrel wear. This project focuses on efforts associated with advanced technology development. It demonstrates general military utility, to include demonstration and validation, of tactical engagement simulation and is correctly placed in budget activity 4.

FY 1994 Accomplishments:
- Concept formulation/Acquisition strategies (183)
- Survey industry for commercially available technology (234)
- Trade-off determination (335)

FY 1995 Planned Program:
- Best Technical Approach for Gunnery Trainer (115)
- Best Technical Approach for Tactical Engagement Simulator (147)
- Preliminary Request for Proposal for Gunnery Trainer (58)
- Performance specification on Gunnery Trainer (94)
- Milestone I/III for Gunnery Trainer (70)
- Preliminary Request for Proposal for Tactical Engagement Simulator (66)
- Milestone I/II for Tactical Engagement Simulator (70)
- Concept Formulation/Acquisition Strategy for Soft Mount (106)
- Market Survey/purchase of commercially available Soft Mounts (76)
- Confidence tests for Soft Mount (43)
- Generate Performance Specification for Soft Mount (375)

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603802A Weapons And Munitions Advanced Dev

PROJECT: XXXB

- SBIR/STTR (26)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	763	663		
Appropriated Value	752	1246		
Current Budget Submit/President's Budget	752	1246		

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
WTCV,A										
GL3200 Items Less Than $2.0M		268	693	1056						2017

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
Concept formulation/Acquisition strategies			X*													
Survey industry for commercially available technology			X*													
Trade-off determinations				X*												
Best Technical Approach for Gunnery Trainer (GT)						X										
Concept formulation/Acquisition Strategy for Soft Mount						X										
Market Survey for Soft Mount						X										
Preliminary Request for Proposal for GT							X									
Performance specification on GT							X									
Milestone I/III for Gunnery Trainer							X									
Preliminary Request for Proposal for Tactical Engagement Simulator (TES)							X									
Milestone I/II for TES							X									
Small Purchases of Soft Mount							X									
Confidence Test for Soft Mount								X								
Performance Specification of Soft Mount									X							

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603802A Weapons And Munitions Advanced Dev

PROJECT: XXXB

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Other Government Agency Support	732	1050		
Program Management Support	20	136		
Contract Support		60		
Total	752	1246		

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
Product Development Organizations											
STRICOM Orlando, FL	MIPR	May 94				732	600				1332
Support and Management Organizations											
PM Small Arms/ TACOM Picatinny Ars, NJ						20	586				606
Contract Support Organizations											
TACOM Picatinny Ars, NJ							60				60
Test and Evaluation Organizations: N/A											
Government Furnished Property: N/A											
Subtotal Product Development						732	600				1332
Subtotal Support and Management						20	586				606
Subtotal Contract Support							60				60
Subtotal Test and Evaluation											
Total Project						752	1246				1998

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

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	13609	14664	7427	7851	7063	5338	5996	6385	Continuing	Continuing
DG01 Combat Engineer Equipment Advanced Development	3801	9174	0	0	0	0	0	0	0	0
DG10 Advanced Tactical Power Sources	186	230	135	133	131	174	200	224	Continuing	Continuing
DG11 Advanced Electrical Energy Concepts Advanced Development	1595	812	227	223	220	218	300	300	Continuing	Continuing
DG14 Logistics Support Equipment Advanced Development	835	516	97	90	91	90	100	100	Continuing	Continuing
DK39 General Support Equipment Advanced Development	984	853	985	900	1497	1462	1799	1970	Continuing	Continuing
DK41 POL Distribution Equipment Advanced Development	799	666	910	920	941	906	999	998	Continuing	Continuing
D266 Airdrop Equipment Advanced Development	4022	1224	1493	1498	1502	1507	1499	1696	Continuing	Continuing
D428 Tactical Rigidwall Shelter Advanced Development	924	806	3580	4089	2681	961	1099	1097	Continuing	Continuing
D526 Marine Orientation Log Equipment Advanced Development	463	383	0	0	0	0	0	0	0	0

A. **Mission Description and Budget Item Justification:** This program supports advanced development of new and improved technologies for combat support and combat service support equipment essential to sustaining combat operations. Advancements in airdrop, rigid wall shelters, marine craft, bridging, electric power generators and batteries, potable water, environmental control and petroleum equipment are necessary to improve safety and increase the tactical mobility, operational capability, lethality and survivability of the first to fight; and to provide for greater sustainment of all combat forces while reducing the logistics support burden.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603804A Logistics And Engineer Equipment - Adv Dev

Project DG01 - Combat Engineer Equipment Advanced Development

FY 1994 Accomplishments:

- Performed theoretical analysis and developed algorithms for Laser Vibration Sensor System (LVSS). (880)
- Completed preliminary design and designed, fabricated and tested an LVSS prototype. (370)
- Conducted Heavy Dry Support Bridge (HDSB) analysis and upgraded prototype. (824)
- Conducted HDSB Truck/Trailer study. (462)
- Evaluated HDSB configuration for use in Multi-Role Bridge company. (126)

FY 1995 Planned Program:

- Complete validation of LVSS sensor and structural models. (978)
- Complete final design and fabricate LVSS. (2940)
- Evaluate Medium Assault Bridge. (3918)
- Demonstrate and test Military Load Class 96 Ton (MLC 96) capability for HDSB. (587)
- Prepare HDSB Milestone II documentation and solicitation package for EMD phase contract. (559)
- SBIR/STTR decrement. (192)

FY 1996 Planned Program:

- Program not funded.

FY 1997 Planned Program:

- Program not funded.

Project DG10 - Advanced Tactical Power Source Advanced Development

FY 1994 Accomplishments:

- Developed prototype BA-6699 High Pulse Battery for Laser Counter Measures Systems, Ground Laser Locator Designator, Modular Universal Laser Equipment, and Laser Target Designator systems. (86)
- Developed Prototype high rate, low cost laser training battery. (50)
- Developed pre-production Nickel Metal Hydride analog of BB-590 with 50% performance improvement for Program Executive Officer Communications System (50)

FY 1995 Planned Program:

- Develop prototype throw away pouch battery for Program Manager, MILSTAR (Army) satellite communications devices. (80)
- Develop second generation Smart Battery for on-line indication of battery life status. (95)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603804A Logistics And Engineer Equipment - Adv Dev

- Develop safe lithium rechargeable battery for communications and Special Operations Forces. (50)
- SBIR/STTR decrements. (5)

FY 1996 Planned Program:
- Develop an improved rechargeable battery and charger based on the lithium ion battery chemistry for use in the Single Channel Ground and Airborne Radio System (SINCGARS). (40)
- Develop techniques for reducing battery related disposal costs. (40)
- Develop a vehicular mounted battery charging station. (55)

FY 1997 Planned Program:
- Conduct field test and evaluation of next generation of primary lithium based batteries. (30)
- Begin development of high power battery chemistry with no toxic/hazardous materials. (60)
- Develop High Energy/High Power throwaway battery for 21st Century Land Warrior. (43)

Project DG11- Advanced Electrical Energy Concepts Advanced Development: Provides advanced development for electrical energy devices to improve soldier mobility, sustainability and survivability. This project is scheduled to produce proof-of-principle prototypes supporting tactical electric power procurement, and to reduce weight and size with reduced signature for diesel powered generators and Power Units/Power Plants rated at 3, 5, 10, 15, 30 and 60 kilowatts (kW).

FY 1994 Accomplishments:
- Identified critical issues as to cost, Integrated Logistics Support (ILS) and user concerns of solid state controls and composites. (100)
- Initiated development of a lightweight, emerging technology 10 kW APU module. (1225)
- Evaluated commercial state-of-art variable speed, constant frequency systems. (295)

FY 1995 Planned Program:
- Demonstrate and test new lightweight 5 kW, 10 kW and 15 kW generator sets. (362)
- Test variable speed constant frequency components in generator sets. (433)
- SBIR/STTR Adjustment (17)

FY 1996 Planned Program:
- Evaluate bread-board models of advanced engine technologies. (227)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603804A Logistics And Engineer Equipment - Adv Dev

FY 1997 Planned Program:
- Test commercial, state-of-the-art technologies for insertion to FY 99 buy (223)

Project DG14 - Logistics Support Equipment Advanced Development
FY 1994 Accomplishments:
- Completed fabrication and took delivery of two 40-foot container unstuffing Container Cargo Retriever (CCR) prototypes (393)
- Initiated testing of CCRs at Aberdeen (189)
- Initiated preparation of program documentation for CCR Milestone II (148)
- Developed CCR stereo vision enhancement. (105)

FY 1995 Planned Program:
- Complete testing of CCR prototypes (386)
- Complete development of CCR stereo vision enhancement. (30)
- Conduct CCR Milestone II (89)
- SBIR/STTR decrement. (11)

FY 1996 Planned Program:
- Award contract for Visibility Improvements for forklift Carriages (VIC) (67)
- Prepare program documentation for VIC (20)
- Initiate testing of VIC prototypes (10)

FY 1997 Planned Program:
- Complete testing of VIC prototypes (45)
- Complete materiel change management documentation for VIC (25)
- Complete production contract package for VIC (20)

Acquisition Strategy: Develop engineering prototype and award competitive contract for production or select NDI equipment based on Market Investigation and RFPs from industry.

Project DK39 - General Support Equipment Advanced Development
FY 1994 Accomplishments:
- Investigated alternative refrigerants and developed 36K British Thermal Units per Hour Environmental Control Unit (BTUH ECU). (161)
- Modified and tested units with selected refrigerants. (120)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603804A Logistics And Engineer Equipment - Adv Dev

- Completed market investigation of innovative pre-treatment technologies. Initiated evaluation of candidate pretreatment systems under the water purification components. (425)
- Completed evaluation of biocides for preservation of reverse osmosis elements. Recommended new biocide for incorporation into water purification equipment. (161)
- Continued high turbidity clarifier evaluation. (28)
- Initiated study of cleaning solutions for reverse osmosis elements. (89)

FY 1995 Planned Program:
- Fabricate two ECU prototypes, incorporating technology and components developed in previous year. (181)
- Conduct active noise abatement demonstration on current ECU unit. (100)
- Continue test and evaluation of water treatment technologies including pre-treatment, pumps, controls, and reverse osmosis elements. (484)
- Complete technical data package for high turbidity clarifier. (70)
- SBIR/STTR decrement. (18)

FY 1996 Planned Program:
- Investigate commercial technology applicable to 9K BTUH ECU unit. (181)
- Complete evaluation of water treatment technologies. Integrate into High Capacity Purifier. (804)

FY 1997 Planned Program:
- Select components and complete initial ECU system design. (178)
- Conduct Milestone I In Process Review for Radiological Water Monitor. (100)
- Perform trade off analysis to determine best technical approach for Radiological Water Monitor. (222)
- Conduct Market Investigation of Radiological Water Monitor. (150)
- Hold Milestone II In-Process Review for the Water Individual Purification System. (75)
- Conduct Milestone I In-Process Review for Mobile Water Lab. (75)
- Initiate contract package for design and fabrication of Mobile Water Lab. (100)

DK41 - POL Distribution Equipment Advanced Development.
FY 1994 Accomplishments:
- Completed Standard Army Refueling System (SARS) qualification prototypes and conducted system test (538)
- Completed SARS design handbook. (61)
- Conducted Milestone I In-Process Review for the Petroleum Quality Analysis System (PQAS). (100)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603804A Logistics And Engineer Equipment - Adv Dev

- Prepared solicitation package for PQAS Demonstration/Validation Phase. (100)

FY 1995 Planned Program:
- Design PQAS technology demonstration model. (456)
- Implement/design SARS as part of a demonstration vehicle. (100)
- Prepare Milestone I IPR package for Tactical Fuel Storage and Distribution System (TFSDS), family of pumps and filter separators. (96)
- SBIR/STTR decrement. (14)

FY 1996 Planned Program:
- Fabricate and initiate testing of PQAS technology demonstration model. (610)
- Prepare solicitation package for PQAS EMD Phase. (100)
- Conduct Milestone I IPR for TFSDS family of pumps/filter separators. (100)
- Prepare solicitation package for TFSDS family of pumps/filter separators. (100)

FY 1997 Planned Program:
- Complete PQAS technology demonstration model testing. (400)
- Conduct Milestone II IPR for PQAS. (100)
- Design TFSDS integrated pump-filter separator. (420)

Acquisition Strategy:
RDT&E followed by Competitive Procurement for all programs covered by DK39 & DK41.

Project D266 - Airdrop Equipment Advanced Development: Conduct accelerated demonstration and validation of airdrop systems and equipment that will provide advanced airdrop capabilities over a range of altitudes as well as offset distances with emphasis on improved safety and greater precision, balanced with reduced vulnerability of personnel, aircraft, aircrew and equipment.

FY 1994 Accomplishments:
- Concluded Advanced Development and terminated Low Altitude Retrorocket System (LARRS) which was intended to reduced aircraft vulnerability. (3015)
- Completed level II technical drawings for LARRS. (1007)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603804A Logistics And Engineer Equipment - Adv Dev

FY 1995 Planned Program:

- Design, fabricate and begin testing prototype Enhanced Container Delivery System (ECDS) to improve accuracy, enhance load survivability and expand range of operations from high to low altitudes. (1199)
- SBIR/STTR decrement. (25)

FY 1996 Planned Program:

- Conduct combined technical/user testing of the Enhanced Container Delivery System and conclude Advanced Development effort. (1493)

FY 1997 Planned Program:

- Design, fabricate and begin technical testing of prototype Advanced Tactical Parachute System (ATPS) to improve the safety and lethality of 21st Century airborne assault operations. (1496)

Project D428 - Tactical Rigid Wall Shelter Advanced: Develop a family of tactical rigid wall shelters to enhance soldier survivability and sustainability of command, control and communications. These shelters provide highly mobile, joint service platforms for the digitization of the battlefield, medical critical care in a Chemical/Biological (C/B) environment and high tech maintenance.

FY 1994 Accomplishments:

- Completed design and fabrication of prototype HMMWV and 2-1/2 ton cargo bed covers and completed design of prototype M105 trailer cargo bed cover to improve safety, security and standardization of field-built "hooches". (759)
- Completed fabrication of the 80 decibel (dB) end-wall removable International Standardization Organization (ISO) shelter prototype to increase Electo-Magnetic Interference (EMI) protection and integration capabilities for strategic Command and Control (C2). (70)
- Completed fabrication of Large Standard Integrated Command Post System (SICPS) shelter for mobile division systems and corps C2 systems. (95)

FY 1995 Planned Program:

- Complete fabrication and begin testing of M105 cargo bed cover and complete testing of HMMWV and 2-1/2 ton cargo bed covers. (695)
- Conduct Large SICPS tests: PPQT at Aberdeen Proving Ground and FDTE at Ft. Hood. (94)
- SBIR/STTR decrement. (17)

FY 1996 Planned Program:

- Complete final design and fabrication of HMMWV and 2-1/2 ton cargo bed cover prototypes and complete testing and redesign of M105 cargo bed cover. (855)
- Develop concepts for rigid/soft hybrid shelter for enhanced deployability and habitability for soldiers and equipment. (50)
- Build and evaluate 5th wheel mounted SICPS Rigid Wall Shelter (RWS). (775)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603804A Logistics And Engineer Equipment - Adv Dev

- Complete technical testing of large SICPS shelter, refurbish shelter, prepare manuals, beg'n operational test. (1900)

FY 1997 Planned Program:
- Complete final testing of HMMWV and 2-1/2 ton cargo bed cover and complete fabrication and begin retest of final design of prototype cargo bed cover for the M105 trailer. (500)
- Complete operational test, conduct Milestone I/III and type classify the Large SICPS Shelter. (900)
- Prepare contract scope of work for the rigid/soft hybrid shelter and award first phase. (482)
- Award contract for the design and development of next generation survivable SICPS RWS. (2207)

D526 - Marine Orientation Log Equipment Advanced Development
FY 1994 Accomplishments:
- Developed communication, electronics, and navigation (CEN) suites for watercraft (185)
- Developed Lighter Amphibian Resupply Cargo 60 Ton LARC XL / Roll On Roll Off Interface (278)

FY 1995 Planned Program:
- Concept development of a Containerized Machine Shop (CMS) (210)
- Proof of concept design of a transportable ocean dredge (165)
- SBIR/STTR decrement. (8)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	15926	5581	7924	8353
Appropriated Value	15926			
Adjustments to Appropriated Value	-2317			
a. SBIR/STTR (-244)				
b. Reprogrammed (-2073)				
Current Budget Estimate Submission	13609	14664	7427	7851

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: DG01

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
DG01 Combat Engineer Equipment Advanced Development	3801	9174	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	Total Cost
RDTE, A Budget Activity 5	4623	2460	9691	10089	7999	4788	100	100	Cont	Cont
PE 0604804A, Project DH01, Combat Engineer Equipment Engineering Development										
G82400 Heavy Dry Support Bridge							10264	10551	117112	

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
LVSS analysis and algorithms				X*												
LVSS design and prototype				X*												
HDSB analysis and upgraded prototype				X*												
HDSB Truck and Trailer study				X*												
HDSB configurations in Bridge Company				X*												
LVSS sensor and structure models								X								
LVSS final design and fabrication												X				
Demonstrate and test MLC 96 capability for HDSB								X								
HDSB Milestone II and EMD phase contract preparation								X								
Evaluate Medium Assault Bridge								X								

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603804A Logistics And Engineer Equipment - Adv Dev PROJECT DG01

A. Project Cost Breakdown:

	FY 1994	FY 1995	FY 1996	FY 1997
Hardware Development	2671	3364		
Evaluate Medium Assault Bridge	0	3918		
Test and Evaluation	205	728		
Government Engineering and Support	695	650		
Government Program Support	120	250		
Miscellaneous	110	264		
Total	3801	9174		

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
Product Development Organizations											
TARDEC, TACOM	In-House	Various				2000	4591	0	0	0	6591
West Virginia University	CPFF	9502				1000	3500	0	0	0	4500

Support and Management Organizations - None

Test and Evaluation Organizations - None

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: DG01

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
Miscellaneous											
VITRO, Inc	CPFF	9403				574	0	0	0	0	574
TECOM	MIPR	9507				0	598	0	0	0	598
ARL	MIPR	9401				94	150	0	0	0	244
BRTRC, Inc	CPFF	Various				100	98	0	0	0	198
Various	CPFF	Various				33	45	0	0	0	78
Contractors											
SBIR/STTR						0	192	0	0	0	192
Total Misc						801	1083	0	0	0	1884

Government Furnished Property: N/A

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development		3000	8091				
Subtotal Support and Management - NONE							
Subtotal Test and Evaluation - NONE							
Subtotal Miscellaneous		801	1083				
Total Project		3801	9174				

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DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: DG10

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
DG10 Advanced Tactical Power Sources	186	230	135	133	131	174	200	224	Continuing	Continuing

C. **Other Program Funding Summary**: N/A

D. **Schedule Profile**: Project provides scientific test and evaluation to USACECOM RDEC in battery programs. Level of effort program necessitates fourth quarter milestones/reviews.

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Prototype BA-6699 H.P. Battery				X*												
Develop Laser Training Battery				X*												
Develop Nickel Metal Hydride Battery				X*												
Prototype disposable Pouch Battery						X										
Develop Second Gen. Smart Battery							X									
Develop Safe Lithium Recharge Battery								X								
Develop Rechargeable Battery & Recharger for SINCGARS												X				
Investigate reduction of battery related disposal costs												X				
Develop charging station for vehicular batteries													X			
Field test & eval. of next gen. Lithium batteries													X			
Develop High Energy/High power battery for 21CLW																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603804A Logistics And Engineer Equipment - Adv Dev PROJECT DG10

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Hardware Development	186	225	135	103
Test and Evaluation				30
SBIR/STTR Adjustment		5		
Total	186	230	135	133

B. Budget Acquisition History and Planning Information: N/A

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: DG11

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
DG11 Advanced Electrical Energy Concepts Advanced Development	1595	812	227	223	220	218	300	300	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
RDT&E: PE 064804/D194	1506	1989	833	299	270	286	719	723	Cont	6625
OPA BA 3: Generators and Associated Equipment (MA9800)	24797	25206	13761	15715	15865	16493	38200	65205	Cont	215242

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
Identify critical issues as to cost, ILS and user concerns of solid state controls and composites				X*												
Initiate development of a lightweight, emerging technology 10kW APU module		X*														
Evaluate commercial state-of-art variable speed, constant frequency systems				X*												
Demonstrate & test new lightweight 5kW, 10kW & 15kW generator sets							X									
Test variable speed constant frequency components in generator sets								X								
Evaluate bread-board models of advanced engine technologies											X					
Test commercial, state-of-art technologies for insertion to FY 99 buy															X	

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: DG11

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Hardware Development	1200	105	110	
Test and Evaluation	90	445		100
Government Engineering and Support	105	95	50	73
Government Program Support	100	75	42	25
Miscellaneous	100	75	25	25
SBIR/STTR Adjustment		17		
Total	1595	812	227	223

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
Product Development Organizations											
	CPFF/TBD	2Q95	200	200		1595	812	227	223		
Support and Management Organizations - None											
Test and Evaluation Organizations - None											

Government Furnished Property: None

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: DG14

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
DG14 Logistics Support Equipment Advanced Development	835	516	97	90	91	90	100	100	Continuing	Continuing

C. Other Program Funding Summary

OPA, BA 3	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
M41200 All Terrain Lifting Articulating System			14403	16589						30992
ML5365 Items Less Than $2.0M	5816	4694	2843	2772	1827	1826	1988	1989	Cont	Cont

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
Delivery of 40-foot CCR prototypes			X*													
Initiate testing of CCRs			X*													
Initiate preparation of PMD for CCR Milestone II				X*												
Complete testing of CCR prototypes						X										
Conduct CCR Milestone II							X									
Contract for Visibility Improvements for forklift Carriages (VIC)									X							
Prepare program documentation for VIC										X				X		
Initiate testing of VIC prototypes														X		
Complete testing of VIC prototypes														X		
Complete materiel change management documentation for VIC																X
Complete production contract package for VIC																X

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: DG14

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Hardware Development	503	330		
Test and Evaluation	189	70		
Government Engineering and Support				
Government Program Support	105	105	97	90
Miscellaneous	38	11		
Total	835	516	97	90

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
Product Development Organizations - None											
Support and Management Organizations - None											
Test and Evaluation Organizations - None											
Miscellaneous											
TARDEC	In-House	Various				498	435	97	90		
Caterpillar, Inc	CPFF	0193				45	0	0	0		
Ingersoll-Rand, Inc	CPFF	0293				65	0	0	0		
TECOM	MIPR	Various				189	70	0	0		
Minor Adjustments						38	0	0	0		
SBIR/STTR						0	11	0	0		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603804A Logistics And Engineer Equipment - Adv Dev PROJECT DG14

Government Furnished Property: None

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development - None							
Subtotal Support and Management - None							
Subtotal Test and Evaluation - None							
Subtotal Miscellaneous		835	516	97	90	Cont	Cont
Total Project		835	516	97	90		

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: DK39

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
DK39 General Support Equipment Advanced Development	984	853	985	900	1497	1482	1799	1970	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
RDTE, A BA 5 PE 604804A										
DL39 General Support Equip Eng Dev	2682	1587	1649	1734	2205	2442	2199	2219	Cont.	Cont.

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
Investigate alternative refrigerants & develop 36K BTUH ECU.		X*														
Modify and test units with selected refrigerants.				X*												
Complete market investigation of innovative pre-treatment technologies. Initiate evaluation of candidate pretreatment systems under the water purification components.				X*												
Complete evaluation of biocides for preservation of reverse osmosis elements and recommend new biocide into water purification equipment.				X*												

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DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: DK39

D. Schedule Profile (continued):

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Continue high turbidity clarifier evaluation.				X*												
Initiate cleaning solutions study for RO elements.			X*													
Fabricate two ECU prototypes, incorporating technology and components developed in previous year.								X								
Conduct active noise abatement demonstration on current ECU.						X										
Continue T&E of water treatment technologies including pre-treatment, pumps, controls, and reverse osmosis elements.								X								
Complete TDP for high turbidity clarifier.							X									
Investigate commercial technology for 9K BTUH ECU unit.												X				
Complete evaluation of water treatment technologies & integrate into High Capacity Purifier.												X				
Select components & complete initial ECU system design.																X
Conduct MS I IPR for Radiological Water Monitor.														X		
Perform trade off analysis to determine BTA for Radiological Water Monitor.																X
Conduct MI of Radiological Water Monitor														X		
Conduct MSI IPR for Mobile Water Lab.														X		
Initiate contract package for design and fabrication of Mobile Water Lab.														X		

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: DK39

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Hardware Development	550	500	600	628
Test and Evaluation	250	202	129	130
Government Engineering and Support	155	125	145	17
Government Program Support	29	26	111	125
Total	984	853	985	900

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
Product Development Organizations - NONE											
Support and Management Organizations - NONE											
Test and Evaluation Organizations - NONE											
Miscellaneous											
TARDEC, CECOM	In-House	Various				264	373	385	250		
Contractors (TBD)	CPFF	9312				151	80	200	477		
NFESC	MIPR	9402				569	400	400	173		

Government Furnished Property: N/A

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BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603804A Logistics And Engineer Equipment - Adv Dev PROJECT DK39

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development - NONE							
Subtotal Support and Management - NONE							
Subtotal Test and Evaluation - NONE							
Subtotal Miscellaneous		984	853	985	900	Cont	Cont
Total Project							

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DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: DK41

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
DK41 POL Distribution Equipment Advanced Development	799	666	910	920	941	906	999	998	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
RDTE, A BA 5 PE 64804										
DL41 POL Distribution Equip Eng Dev	1424	1457	1220	1070	1193	1220	1199	1197	Cont.	Cont.

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
Complete SARS qualification prototypes and conduct system test.			X*													
Complete SARS design handbook.				X*												
Conduct MS I IPR for PQAS.				X*												
Prepare solicitation package for PQAS				X*												
Demonstration/Validation Phase.																
Design PQAS technology demo model.								X								
Implement/design SARS for demo vehicle.							X									
Prepare MS I IPR package for TFSDS.								X								
Fabricate/initiate testing of PQAS tech demo model.											X					
Prepare solicitation pkg for PQAS EMD Phase.												X				
Conduct MS I IPR for TFSDS family of pumps/filter separators.												X				
Prepare solicitation pkg for TFSDS family of pumps/filter separators.												X				
Complete PQAS technology demonstration model testing.															X	
Conduct MS II IPR for PQAS.																X
Design TFSDS integrated pump-filter separator.																X

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

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PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: DK41

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Hardware Development	387	530	715	725
Test and Evaluation	50	20	50	50
Government Engineering and Support	279	91	95	95
Government Program Support	50	25	50	50
Miscellaneous	0	0	0	0
Minor Adjustment	33			
Total	799	666	910	920

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
Product Development Organizations	NONE										
Support and Management Organizations	NONE										
Test and Evaluation Organizations	NONE										
Miscellaneous											
TARDEC	In-House	Various				329	111	135	135	cont	cont
Contractors (TBD)	CPFF	9312				433	550	765	725	cont	cont
TECOM	MIPR										
TEXCOM	MIPR										
ARL	MIPR	9404				37	5	10	60	cont	cont

Government Furnished Property: N/A

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

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PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: DK41

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development - NONE							
Subtotal Support and Management - NONE							
Subtotal Test and Evaluation - NONE							
Subtotal Miscellaneous		799	666	910	920		
Total Project		799	666	910	920		

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DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: D266

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
D266 Airdrop Equipment Advanced Development	4022	1224	1493	1496	1502	1507	1499	1696	Continuing	Continuing

C. **Other Program Funding Summary**: N/A

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
Concluded LARRS Advanced Development				X*												
Design and fabricate Enhanced Container Delivery System								X								
Conclude advanced development of the Enhanced Container Delivery System												X				
Design, fabricate and start testing of Advanced Tactical Parachute System																X

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

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BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: D266

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	4022	1224	1493	1496
Total	4022	1224	1493	1496

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
Product Development Organizations											
Natick, AAI Corp, Pioneer Aerospace, Ver-Val Inc.			N/A	N/A	19,438	3,420	943	1,313	1,316	Cont	Cont
Support and Management Organizations											
Natick, GTS, GEO Centers			N/A	N/A	428	162	53	73	73	Cont	Cont
Test and Evaluation Organizations											
YPG, APG, EGLIN AFB, ABSOTD, TECOM			N/A	N/A	1,323	440	228	107	107	Cont	Cont

Government Furnished Property: N/A

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	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	19438	3420	943	1313	1316	Cont	Cont
Subtotal Support and Management	428	162	53	73	73	Cont	Cont
Subtotal Test and Evaluation	1323	440	228	107	107	Cont	Cont
Total Project	21189	4022	1224	1493	1496	Cont	Cont

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DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: D428

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
D428 Tactical Rigidwall Shelter Advanced Development	924	806	3580	4089	2681	961	1099	1097	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
OPA BA 2: Standard Integrated Command Post (BZ9962)		9531	28914	27360	27638	24760	19884	14916	Cont	Cont
OPA BA 3: Standard Integrated Command Post (MX1010)	20250									

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
Complete design and fabrication of prototype HMMWV and 2-1/2 ton cargo bed cover				X*												
Begin testing of M105 cargo bed cover							X									
Complete TT of large SICPS shelter										X						
Complete testing and redesign of M105 cargo bed cover												X				
Complete testing of HMMWV and 2-1/2 ton cargo bed cover																X
Milestone I/III and TC large SICPS shelter																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603804A Logistics And Engineer Equipment - Adv Dev PROJECT D428

A. Project Cost Breakdown:

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	747	357	1661	2565
Test and Evaluation	0	300	1500	925
Program Management Support	177	132	419	599
SBIR/STTR Adjustment		17		
Total	924	806	3580	4089

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
Product Development Organizations											
Natick, Gichner, Plastics Research Corp, Brunswick, DBA, Chemfab					13494	747	374	1661	2565	Cont	Cont
Support and Management Organizations											
Natick, GTS, GEO Centers					3374	177	132	419	599	Cont	Cont
Test and Evaluation Organizations											
YPG, TECOM, CSTA, TEXCOM					7229	0	300	1500	925	Cont	Cont

Government Furnished Property: N/A

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

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BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: D428

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	13494	747	374	1661	2565	Cont	Cont
Subtotal Support and Management	3374	177	132	419	599	Cont	Cont
Subtotal Test and Evaluation	7229	0	300	1500	925	Cont	Cont
Total Project	24097	924	806	3580	4089	Cont	Cont

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: D526

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
D526 Marine Orientation Log Equipment Advanced Development	463	383	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	Total Cost
OPA BA 3										
RO9800 Roll On/Roll Off Discharge Platform		993								993
MA0900 LARC-XL SLEP							6959	6959		13918

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
CMS Contract Award (option)						X										
In-process Review								X								
Concept Acceptance									X							
Dredge Contract Award (option)							X									
In-process Review									X							
Concept Acceptance										X						

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603804A Logistics And Engineer Equipment - Adv Dev

PROJECT: D526

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engineering and Support	417	343		
Government Program Support	46	40		
Total	463	383		

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
Product Development Organizations											
Miscellaneous	SS-FP					224	218				474
Support and Management Organizations											
Naval Surface Warfare Ctr						193	125				350
Test and Evaluation Organizations											

Government Furnished Property: N/A

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development		417	343				760
Subtotal Support and Management		46	40				86
Subtotal Test and Evaluation							
Total Project		463	383				846

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603805A Cmbt Svc Spt Comp Sys Eval And Anal

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	21525	18635	13969	13581	8083	8151	0	0	Continuing	Continuing
D091 Combat Service Support Control System	20601	18096	12404	11489	6135	6157	0	0	0	138539
D246 Tactical Communications System-Advanced Development	924	448	1565	2092	1948	1994	0	0	Continuing	Continuing
D2GT CSSCS Operational Test	0	91	0	0	0	0	0	0	0	91

A. **Mission Description and Budget Item Justification:** Project D091, the Combat Service Support Control System, is a computer software system designed to assist the Combat Service Support (CSS) Commander and his staff to rapidly collect, store, analyze, and disseminate CSS information to support the functions of command, control and resource management. CSS control centers must provide a rapid decision support capability and supportive information to commanders more quickly than is possible with the present manual systems. This program develops the CSS battlefield functional area (BFA) node of the Army Tactical Command and Control System (ATCCS). Project D246, Tactical Communications System - Advanced Development, provides for insertion of proven communications technology from program element 0602782A, project AH92 exploratory development into advanced development. Examples of these potential programs are the Multiband, Multimode Radio, high power solid state amplifiers and couplers, and packet appliqués used to increase network efficiency. Project D2GT, CSSCS Operational Test supports planned Initial Operational Test & Evaluation (IOT&E) of CSSCS. The projects in this program element include research efforts that support the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

Project D091, Combat Service Support Control System. The CSSCS is a computer software system designed to assist the Combat Service Support (CSS) Commander and his staff to rapidly collect, store, analyze, and disseminate CSS information to support the functions of command, control and resource management. CSS control centers must provide a rapid decision support capability and supportive information to commanders more quickly than is possible with the present manual systems. This program develops the CSS battlefield functional area (BFA) node of the Army Tactical Command and Control System (ATCCS). Acquisition strategy is to develop the system in five versions, of which two have been completed and the third completed IOT&E in September 1994. Versions 4 and 5 will be developed and fielded as annual capability packages. Versions 4 and 5 will be developed under the Army Global Command and Control System (AGCCS) contract awarded in December 1994.

FY 1994 Program Accomplishments:

- Concluded Limited User Test (LUT) (1500)
- Continued full-scale development of Version 3 (12600)
- Conducted IOT&E (3000)
- Continued prototyping Version 4 (1501)
- ATCCS III Testing Support (2000)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603805A Cmbt Svc Spt Comp Sys Eval And Anal

FY 1995 Planned Program

- Complete development of Version 3 software (12930)
- Begin development of Version 4 (2400)
- Prepare documentation and conduct ASARC III & C3I Committee Review (1000)
- Prepare and conduct Version 4 PDR and CDR (1405)
- Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) (361)

FY 1996 Planned Program

- Complete Version 3 software (4500)
- Continue Version 4 software development (5944)
- Conduct Version 4 Technical and Customer Tests (1000)
- Prepare and conduct PEO IPR on Version 4 (960)

FY 1997 Planned Program

- Begin development of Version 5 (8266)
- Conduct Version 5 Technical and Customer Tests (750)
- Prepare and conduct Version 5 PDR and CDR (1500)
- Prepare and conduct Version 5 PEO IPR (973)

Project D246 - Tactical Communications System - Advanced Development: The project is a smart, highly efficient, agile antenna coupler and power amplifier which is required for the Army's high frequency (HF) communications system. It permits the use of state-of-the-art automatic link establishment and electronic counter-countermeasures (ECCM) systems. Current barriers include availability, distortion and efficient linearity. All of the barriers must be overcome while maintaining reasonable size, weight, and cost. The improved coupler/power amplifier will improve communicability and enable the forces to be more mobile. This phase of the frequency agile solid state power amplifier and antenna coupler (FSHPAC) effort is an advanced development follow-on to a previously completed exploratory development effort. The Global Positioning System (GPS)-derived position location information will be integrated into ATCCS using Common Hardware/Software and Single Channel Ground Airborne Radio System (SINCGARS) hardware to permit soldier/vehicle position relationships to be determined automatically.

FY 1994 Program Accomplishments:

- Delivered for Advanced Concepts Technology Frequency Agile Solid State Tuner (ACTFAST) to US Army and Air Force (400)
- Initiated procurement of second unit for performance testing (524)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603805A Cmbt Svc Spt Comp Sys Eval And Anal

FY 1995 Planned Program

- Procure Commercial off the shelf (COTS) Adaptive High Frequency (HF) Appliqué for field evaluation (300)
- Transition ACTFAST (139)
- SBIR/STTR (9)

FY 1996 Planned Program

- Develop Conformal Antenna (800)
- Evaluate COTS future data radio and non-development item (NDI/COTS) multi-band, multi-mode radio (765)

FY 1997 Planned Program

- Fabricate Advanced Development Models of Conformal Antennas - Very High Frequency (VHF) & possibly HF (1490)
- Develop higher data rate communication (602)

Project D2GT - CSSCS Operational Test, provides funding for the analysis of the PM CSSCS IOT&E test results during the first two quarters of FY 95. The final test report is required for the scheduled CSSCS ASARC III in April 95.

FY 1995 Planned Program

- Analyze CSSCS IOT&E test Results/Publish Report (89)
- SBIR/STTR (2)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	24118	18876	14017	13620
Appropriated Value	24,118	18635		
Adjustments to Appropriated Value	-2593			
a. SBIR/STTR(-360)				
b. Reprogramming from PE (-2233)				
Current President's Budget	21525	18635	13969	13581

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603805A Cmbt Svc Spt Comp Sys Eval And Anal

PROJECT: D091

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
D091 Combat Service Support Control System	20601	18096	12404	11489	6135	6157	0	0	0	138539

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
Procurement, OPA 2 (W34600)	0	5977	5915	6046	6095	6142	14914	14916	64886	124918
Spares (MA9706/BS9706)	0	1402	1360	931	317	203	199	199	1415	6026

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
IOT&E				X*												
ASARC III						X										
C3I Committee Review						X										
FUE V3						X										
IOC V3								X								
V4 PDR								X								
V4 CDR								X								
V4 TT											X					
V4 FOT&E												X				
V4 PEO IPR												X				
V5 PDR													X			
V5 CDR														X		
V5 TT															X	
V5 FOT&E																X
V5 PEO IPR																X

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603805A Cmbt Svc Spt Comp Sys Eval And Anal

PROJECT: D091

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Software Development	11109	11000	8300	7720
Program Management Support	2634	3003	1881	1803
CASS/CHS/Common Support	3113	2900	1092	1216
Operational Test and Evaluation	3745	1193	1131	750
Total	20601	*18096	12404	11489

*SBIR/STTR (361)

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
Product Development Organizations											
TRW	C/CPFF	7/87	15731	15731	15731	0	0	0	0	0	15731
TRW	C/CPAF	2/91	57990	58000	32823	11109	9500	4500	0	0	57932
Martin Marietta	C/CPAF	12/94	TBD	25395	0	0	1500	3800	7720	8980	22000
CASS/Com Spt	MIPR				389	1156	2000	342	666	903	5456
Support and Management Organizations											
PM CSSCS					9804	2092	2336	1575	1426	1888	19121
CECOM	MIPR				540	166	204	94	115	86	1205
EER/VITRO	MIPR				1225	376	463	212	262	196	2734
Test and Evaluation Organizations											
GOVT	MIPR				262	1677	1118	1061	695	0	4813
EPG/CAC	MIPR				170	68	75	70	55		438
OPTEC						2000					2000

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603805A Cmbt Svc Spt Comp Sys Eval And Anal

Government Furnished Property

Item Description	Contract 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										
CHS - TRW	MIPR			1444	757	900	750	550	300	4701
Support and Management Property: None										
Test and Evaluation Property										
CHS-1Cav&2AD	MIPR			1208	1200	0	0	0	0	2408

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	50387	13022	13900	9392	8936	10183	105820
Subtotal Support and Management	11569	2634	3003	1881	1803	2170	23060
Subtotal Test and Evaluation	1640	4945	1193	1131	750	0	9659
Total Project	63596	20601	*18096	12404	11489	12353	138539

*SBIR/STTR (361)

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603805A Cmbt Svc Spt Comp Sys Eval And Anal

PROJECT: D246

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
D246 Tactical Communications System-Advanced Development	924	448	1565	2092	1948	1994	0	0	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
AEL ACTFAST Award			X*													
AEL ACTFAST Test				X*												
Simulator Award				X*												
ADHF Award					X*											
ADHF Test								X								
Phase I Conformal Antenna Award (VHF)									X							
COTS/NDI MBMR Award									X							
Phase I Conformal Antenna Test												X				
COTS/NDI MBMR Test												X				
FDR/NDI Award													X			
Phase II Conformal Antenna Award														X		
FDR/NDI Test																X
Phase II Conformal Antenna Test																X

RDT&E PROGRAM ELEMENT: ROJECT COST BREAKDOWN (R-3)	DATE: February 1995
BUDGET ACTIVITY: 4 - Demonstration And Validation	PE NUMBER AND TITLE: 0603805A Cmbt Svc Spt Comp Sys Eval And Anal — PROJECT: D246

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development				900
Development Support Equipment Acquisition	331	100		
Ancillary Hardware Development	385	75	787	386
Government Engineering Support	185	23	173	165
Travel	23	8	94	55
Miscellaneous	0	13	196	155
Technical Data		19		
Developmental Test & Evaluation		30	315	331
Operational Test & Evaluation				100
Program Management Support		85		
Contract Engineering Support		95		
Total	924	*448	1565	2092

*SBIR/STTR (9)

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
Product Development Organizations											
AEL	Task Order	NA	NA	NA	0	600	0	0	0	Cont	Cont
Adaptive HF	Task Order	NA	NA	NA	0	0	95	0	0	Cont	Cont
Conformal Ant	Task Order	NA	NA	NA	0	0	0	343	0	Cont	Cont
COTS.NDI MBMR		NA	NA	NA	0	0	0	344	0	Cont	Cont
FDR NDI	Base Ops	NA	NA	NA	0	0	0	0	900	Cont	Cont
Conformal Ant-HF	Task Order	NA	NA	NA	0	0	0	0	386	Cont	Cont

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603805A Cmbt Svc Spt Comp Sys Eval And Anal

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
Support and Management Organizations											
Lincoln Labs	MIPR	NA	NA	NA	NA	0	100	0	0	Cont	Cont
S&T Comm	MIPR	NA	NA	NA	NA	324	253	878	806	Cont	Cont

Test and Evaluation Organizations: None

Government Furnished Property Not Applicable

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development		600	95	687	1286	Cont	Cont
Subtotal Support and Management		324	353	878	806	Cont	Cont
Subtotal Test and Evaluation							
Total Project		924	*448	1565	2092	Cont	Cont

*SBIR/STTR (9)

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603805A Cmbt Svc Spt Comp Sys Eval And Anal

PROJECT: D2GT

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 2011 Estimate	Cost to Complete	Total Cost
D2GT CSSCS Operational Test	0	91	0	0	0	0	0	0	0	91

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
Perform Analysis - PM CSSCS IOT&E Data					X*	X										

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603805A Cmbt Svc Spt Comp Sys Eval And Anal

PROJECT: D2GT

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Analysis of PM CSSCS IOT&E Test Data	0	91	0	0

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations None											
Support and Management Organizations None											
Test and Evaluation Organizations											
OPTEC	NA	NA	0	0	0	0	91	0	0	0	91

Government Furnished Property: None

Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation							91				91
Total Project							91				91

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603806A NBC Defense Systems - Advance 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	36131	15072	0	0	0	0	0	0	Continuing	Continuing
DE80 NBC Individual Protection	5536	0	0	0	0	0	0	0	Continuing	Continuing
DE81 NBC Decontamination Systems	3000	4969	0	0	0	0	0	0	Continuing	Continuing
D601 NBC Contamination Avoidance Systems	21277	8623	0	0	0	0	0	0	Continuing	Continuing
D604 NBC Protection Systems	6318	1480	0	0	0	0	0	0	Continuing	Continuing

A. Mission Description and Budget Item Justification: The NBC weapons threat to U.S. Forces has shifted from a bi-polar confrontation with the former Soviet Union to contingencies involving Third World Nations. The House Armed Services Committee Report Countering the Chemical and Biological Weapons Threat in the Post-Soviet World, dated January 1993, concluded that effective NBC defense measures, to include detection and protective equipment, provide a deterrent to enemy CB weapons use. Projects support development and demonstration testing of radiological and chemical/biological/toxin agent detection and warning systems; individual and collective protection systems; decontamination solutions and equipment, and addresses various shortcomings identified in Conduct of the Persian Gulf War: Final Report to Congress, April 1992. This program element focuses on efforts associated with advanced technology development used to demonstrate general military utility to include demonstration and validation in the area of chemical/biological defense equipment advance development and is correctly placed in Budget Activity 4.

This program was transferred to a Defense Program Element (PE 0604384BP) starting in FY 96 pursuant to Congressional direction in Public Law 103-160, Title XVII.

DE80 NBC Individual Protection: Provides for Demonstration/Validation (DEMVAL) for the XM45 Aircrew Protective Mask (ACPM). The ACPM will replace the M43 Type II and M43A1 Type II aviators mask and will eliminate air crew dependency on forced air while providing compatibility with aircraft and night vision systems.

FY 1994 Accomplishments:

- ACPM - Conducted Milestone II In Process Review (IPR) (100)
- ACPM - Designed and Fabricated of test articles (4429)
- ACPM - Technical Data Package Prepared (1007)

FY 1995 Planned Program:

- No Planned Program

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603806A NBC Defense Systems - Advance Development

FY 1996 Planned Program:
- Program transferred to PE 0603884BP/DE80.

FY 1997 Planned Program:
- Program transferred to PE 0603884BP/DE80.

DE81 NBC Decontamination System: Funding supports the Modular Decontaminating System (MDS), a more transportable, less labor intensive, and more effective system for applying decontaminating solutions to vehicle and equipment surfaces. Lessons learned from Desert Storm validated the need for a deployable and efficient decontamination system. The MDS reduces water usage and equipment processing time with increased water pressure and variable water temperature. The MDS consists of the XM21 Decontaminate Pumper Module and the XM22 High Pressure Washer Module. A Milestone I/II Decision was approved in Dec 93. Funding also supports the Sorbent Technology program which provides a reactive Sorbent for immediate decontamination. It will replace the M295 Kit, for personal wipedown procedures and Decontaminating Solution 2 (DS-2) in operator spraydown procedures. The Sorbent will be more reactive towards Chemical Warfare (CW) agents than the M295 Kit, therefore, the hazard associated with the spent decontaminate will be reduced. The Sorbent will be more compatible with Mission Oriented Protective Posture (MOPP) and other materials that currently use DS2.

FY 1994 Accomplishments:
- MDS - Conducted MS I/II IPR (40)
- MDS - Completed early Engineering Design Test on XM21 (947)
- MDS - Initiated Engineering Design Tests (1160)
- MDS - Awarded Integrated Logistics Support (ILS) Contract for XM22 (853)

FY 1995 Planned Program:
- MDS - Complete Engineering Tests (1691)
- MDS - Fabricate Test Hardware (1274)
- MDS - Conduct Pre-Production Qualification Test (PPQT) (900)
- MDS - Conduct Critical Design Review (1000)
- SBIR/STTR (104)

FY 1996 Planned Program:
- Program transferred to PE 0603884BP/DE81.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603806A NBC Defense Systems - Advance Development

FY 1997 Planned Program:
- Program transferred to PE 0603884BP/DE81.

D601 NBC Contamination Avoidance Systems: This project provides Demonstration Validation (DEMVAL) of Reconnaissance, Detection, and Identification (RDI) equipment. Items of equipment included in this project are: (1) Lightweight Standoff Chemical Agent Detector (LSCAD) which provides chemical agent detection and mapping for chemical agent clouds; (2) Chemical Biological Mass Spectrometer (CBMS) which identifies all chemical and biological agents collected and is a component of the Nuclear, Biological and Chemical Reconnaissance System (NBCRS) and the Biological Integrated Detection System (BIDS); and (3) Biological Detector (BD), a point detector for threat biological agents which is also a component of the BIDS and is under management of the Joint Program Office for Biological Defense (JPO-BIO). All of these systems increase existing chemical and biological war fighting capabilities by providing more complete, accurate, and current battlefield data.

FY 1994 Accomplishments:
- CBMS - Initiated Bioprofiling (2000)
- CBMS - Initiated Design Modifications (Software, Aerosol Sampler Interface) (4000)
- CBMS - Fabricated Prototype Hardware (2487)
- Marine Corps-Transferred Funding to meet Congressional Intent (5959)
- JPO-BIO - Completed feasibility test and evaluation for Biological Detector (6831)

FY 1995 Planned Program:
- CBMS - Complete Bioprofiling (300)
- CBMS - Initiate Chemical Profiling (500)
- CBMS/BIDS - Complete Design Modifications (3882)
- CBMS - Conduct Engineering Test (1200)
- CBMS - Fabricate Technical Feasibility Test/Limited User Test (TFT/LUT) Hardware (2560)
- SBIR/STTR (181)

FY 1996 Planned Program:
- Program transferred to PE 0603884BP/D601.

FY 1997 Planned Program:
- Program transferred to PE 0603884BP/D601.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY **4 - Demonstration And Validation**	PE NUMBER AND TITLE **0603806A NBC Defense Systems - Advance Development**

D604 NBC Protection Systems: The project provides for development of the Advanced Integrated Collective Protective System (AICPS). The AICPS will integrate NBC filtration environmental controls and power source components for tactical and combat systems and exploit new filtration technology (regenerable filtration, catalytic oxidation or deep bed chromium-free carbon). The effort extends vehicular collective protection applications providing for reductions in system size, weight, energy and in filter change logistics burden. The AICPS can be integrated into multiple configurations to provide protection to different tactical systems. Additionally, the effort provides a system solution for countering future threat agents and alleviating the disposal problems associated with hazardous material chromium impregnated carbon filters.

FY 1994 Accomplishments:
- AICPS - Awarded Development Contract for improved collective protective systems for multi-tactical systems (3775)
- AICPS - Developed Design Concepts for integration (1546)
- AICPS - Conducted User Interface and System Integration evaluation for different platforms (997)

FY 1995 Planned Program:
- AICPS - Conduct prototype filter testing (140)
- AICPS - Initiate Engineer Design Filter Test (140)
- AICPS - Continue Engineering Support (1169)
- SBIR/STTR (31)

FY 1997 Planned Program:
- Program transferred to PE 0603884BP/D604.

FY 1997 Planned Program:
- Program transferred to PE 0603884BP/D604

B. Program Change Summary:

	FY 1994	FY 1995
Previous President's Budget	40903	13778
Appropriated Value	40903	15072
Adjustments to Appropriated Value	-4772	
a. SBIR/STTR decrement	(633)	
b. Reprogrammed out of PE	(4139)	
Current Budget Submit/President's Budget	36131	15072

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603806A NBC Defense Systems - Advance Development

PROJECT: DE80

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
DE80 NBC Individual Protection	5536	0	0	0	0	0	0	0	Continuing	Continuing

C. **Other Program Funding Summary:**

	FY 1994	FY 1995	To Compl	Total Cost
RDTE,A Budget Activity 5 PE 0604806 Project D017 NBC Protection Systems	170	9050	Cont'd	Cont'd

D. **Schedule Profile:**

	FY 1994				FY 1995			
	1	2	3	4	1	2	3	4
ACPM - Design and Fabrication	X*							
ACPM - TDP Preparation		X*						
ACPM - Milestone II IPR				X*				

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603806A NBC Defense Systems - Advance Development PROJECT DE80

A. **Project Cost Breakdown:**

	FY 1994	FY 1995
Government Engineering Support	1905	
Hardware Development	2600	
Integrated Logistics Support	175	
Quality Assurance	150	
Technical Data	100	
Testing	100	
Design	325	
Documentation	181	
Total	5536	0

B. **Budget Acquisition History and Planning Information:** Not Applicable.

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603806A NBC Defense Systems - Advance Development

PROJECT: DE81

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
DE81 NBC Decontamination Systems	3000	4969	0	0	0	0	0	0	Continuing	Continuing

C. **Other Program Funding Summary:** Not Applicable.

D. **Schedule Profile:**

	FY 1994				FY 1995			
	1	2	3	4	1	2	3	4
MDS Conduct Milestone I/II	X*							
MDS Design Test		X*						
MDS Award XM22 Contract				X*				
MDS Start EDT				X*				
MDS Complete EDT							X	
MDS Start PPQT								X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603806A NBC Defense Systems - Advance Development PROJECT DE81

A. **Project Cost Breakdown:**

	FY 1994	FY 1995
MDS Development Engineering	1293	1403
MDS Producability Engineering	308	353
MDS Prototype Manufacturing	370	243
MDS Systems Test & Evaluation	314	1298
MDS Training	25	41
MDS Technical Data Package	690	527
MDS Critical Design Review		1000
SBIR/STTR		104
Total	3000	4969

B. **Budget Acquisition History and Planning Information:** Not Applicable

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603806A NBC Defense Systems - Advance Development

PROJECT: D601

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
D601 NBC Contamination Avoidance Systems	21277	8623	0	0	0	0	0	0	Continuing	Continuing

C. Other Program Funding Summary

	FY 1994	FY 1995	To Compl	Total Cost
RDTE,A Budget Activity 2, PE 0602622A, Project A553 CB Defense & General Investigation	35529	29614	Cont'd	Cont'd
RDTE,A Budget Activity 5 PE 0604806A, Project D020 NBC Contamination Avoidance	42285	9469	Cont'd	Cont'd
RDTE, D Budget Activity 7, PE 06073724D, Joint Biological Defense Program		52895		52895
Other Procurement, Army, OPA-3 M93000, BIDS		14583		14583

D. Schedule Profile

	FY 1994			FY 1995			
CBMS Award Contract	X*						
CBMS Bioprofiling			X*				
CBMS Engineering Design Test							X
CBMS Fabrication for TFT/LUT							X
Bio Detector (BD) Feasibility Test		X*					

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603806A NBC Defense Systems - Advance Development PROJECT D601

A. Project Cost Breakdown:

	FY 1994	FY 1995
CBMS Design	4000	3882
CBMS Fabrication	2487	1060
CBMS Test (including Bioprofiling)	2000	2000
CBMS Documentation		1500
BD Engineering Design	2696	
BD Technical Data/Documentation	2265	
BD Fabrication	1725	
BD Test and Evaluation	145	
Marine Corps (MC)	5959	
SBIR/STTR		
Total	21277	8623

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	Budget to Complete	Total Program
Product Development Organizations									
Bruker	C/CPFF	Nov 93	7800	7800		2600	4901	299	7800
ETG	SS/CPFF	Mar 94	1800	1800		1800			1800
STC	C/FP	Apr 94	145	145		145			145
Others		Nov 93				1534			1534
Support and Management Organizations									
Govt CBDCOM		Oct 93	10172	10172		7318	1741	1113	10172
Marine Corps	MIPR	Mar 94				5959			5959
Test and Evaluation Organizations									
TECOM	MIPR	Jan 94	2300	2300		500	1800		2300
WSMR	MIPR	Oct 93	78	78		78			78

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603806A NBC Defense Systems - Advance Development

PROJECT: D601

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	Budget to Complete	Total Program
DPG	MIPR	Mar 94	390	390		390			390
Dahlgren	MIPR	Jan 94	50	50		50			50
MICOM	MIPR	Feb 94	745	745		745			745
USACMLS	MIPR	Apr 94	40	40		40			40
BRDEC	MIPR	Dec 93	10	10		40			40
ARL	MIPR	Oct 93	78	78		78			78

Government Furnished Property: None.

	Total Prior to FY 1994	FY 1994	FY 1995	Budget to Complete	Total Program
Subtotal Product Development		6079	4901	299	11279
Subtotal Support and Management		13277	1741	1113	16131
Subtotal Test and Evaluation		1921	1800	0	3721
Total Project		21277	8442*	1412	31131

*Does not include SBIR/STTR (181)

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603806A NBC Defense Systems - Advance Development

PROJECT: D604

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
D604 NBC Protection Systems	6318	1480	0	0	0	0	0	0	Continuing	Continuing

C. Other Program Funding Summary:

	FY 1994	FY 1995	To Compl	Total Cost
RDTE,A Budget Activity 5 PE 0604806A Project D017 NBC Protection Systems	170	9050	Cont'd	Cont'd

D. Schedule Profile:

	FY 1994				FY 1995			
	1	2	3	4	1	2	3	4
AICPS Awarded Development Contract			X*					
AICPS Developed Design Concept				X*				
AICPS Initiate Prototype Fabrication						X		
AICPS Prototype Filter Testing							X	
AICPS Test Engineering Design Filter Test								X
AICPS Engineering Support								X
AICPS Initiate Engineering Design Test (EDT)								X

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603806A NBC Defense Systems - Advance Development

PROJECT: D604

A. Project Cost Breakdown:

	FY 1994	FY 1995
Hardware Development	1546	
Producability	300	
System Engineering	3275	1169
Training Development	50	
Integrated Logistics Support	300	
Quality Assurance	300	
Reliability, Maintainability, and Availability	50	
Configuration Management	497	
Technical Data		
EDT		280
PPQT		
SBIR/STTR		31
Total	6318	1480

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	Budget to Complete	Total Program
Product Development Organizations									
Loral Librascope	C/CPFF	Jun 94	3775	3775		3775			3775
Support and Management Organizations									
Govt CBDCOM	PO	Oct 94	3992	3992		2543	1449		3992

Government Furnished Property: None.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603806A NBC Defense Systems - Advance Development PROJECT D604

	Total Prior to FY 1994	FY 1994	FY 1995	Budget to Complete	Total Program
Subtotal Product Development		3775	0	0	3775
Subtotal Support and Management		2543	1449	0	3992
Subtotal Test and Evaluation		0	0	0	0
Total Project		6318	1449*	0	7767

*Does not include SBIR/STTR (31)

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603807A Medical Systems Advanced 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	21480	16439	10576	10571	9778	9268	9824	9810	Continuing	Continuing
D808 DoD Drug and Vaccine-Advanced Development	7745	7254	3953	3970	3918	3887	3864	3858	Continuing	Continuing
D809 Medical Biodefense Drug/Vaccine	5525	0	0	0	0	0	0	0	0	5525
D811 Military HIV Vaccine and Drug-Advanced Development	1836	191	2671	2729	2011	1516	2114	2111	Continuing	Continuing
D836 Combat Medical Materiel-Advanced Development	920	2923	2734	3008	2992	2976	2963	2959	Continuing	Continuing
D837 Soldier System Protection-Advanced Development	0	0	1218	864	857	889	883	882	Continuing	Continuing
D993 Medical Defense Against Chemical Threats *	5454	6071	0	0	0	0	0	0	0	11525

* Starting in FY 1996, funding has been consolidated into PE 0604384BP in accordance with P.L. 103-160.

A. **Mission Description and Budget Item Justification**: This program element (PE) funds the advanced development of medical materiel necessary to field an effective capability for medical defense against chemical warfare agents and infectious diseases. Starting in FY 1996, funding for chemical and biological defense medical research and development efforts (project D993) have been consolidated into PE 0604384BP in accordance with P.L. 103-160. Products developed will provide for maximum soldier survivability and enhanced sustainability of performance in an environment contaminated with chemical and biological threat. The PE funds Advanced Development (AD) of systems for medical protection against naturally occurring diseases and Human Immunodeficiency Virus (HIV). This includes development and initial human testing of vaccines, arthropod vector repellents, prophylactic and therapeutic drugs, rapid identification and diagnostic systems for disease/biological agents. Additionally, the PE supports AD of field medical equipment and drugs essential for combat casualty care on a high intensity battlefield while reducing logistical support requirements. The PE also funds AD systems which provide measurement of or protection against physiological and psychological factors affecting cognitive and physical performance imposed by military systems, combat operations or the environment. This includes AD of vision corrective devices, environmental health monitoring and medical water quality monitoring equipment. Systems include resuscitators, blood substitutes, field x-ray, and field production of medical grade oxygen. This program is primarily managed by the U.S. Army Medical Research and Materiel Command. This PE focuses on efforts associated with advanced technology development used to demonstrate general military utility to include demonstration and validation in the area of medical materiel and is properly placed in Budget Activity 4.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY **4 - Demonstration And Validation**	PE NUMBER AND TITLE **0603807A Medical Systems Advanced Development**

Project D808-DoD Drug and Vaccine-Advanced Development: This project funds demonstration and validation of candidate medical countermeasures such as vaccines and drugs through safety, immunogenicity, and small scale efficacy testing in volunteers against naturally occurring infectious diseases of mission aborting potential. Work performed in laboratories and among troop populations is directed to prevention, diagnosis and treatment of viral, bacterial and parasitic disease, so as to prevent casualties, sustain operational performance and minimize deaths and disability of armed forces during military operations. Some major contractors are The Salk Institute, Swiftwater, PA, University of Illinois, Chicago, IL, South Florida Research Institute, Miami, FL, and Kenya Medical Research Institute, Nairobi, Kenya.

FY 1994 Accomplishments:
- Conducted Phase 1/2 trials of malaria blood stage vaccine. (2304)
- Conducted Phase 1 trial of recombinant hemorrhagic fever with renal syndrome (Hantaan) vaccine. (1327)
- Conducted Phase 1 dosing studies of Rift Valley Fever live vaccine. (1131)
- Conducted toxicity testing and field trials with candidate repellents. (1159)
- Evaluated human safety and efficacy for antimalarial drugs Halofantrine and WR238605. (1824)

FY 1995 Planned Program:
- Conduct Phase 1/2 trials of malaria vaccine Spf66. (1023)
- Conduct Phase 1 safety trials with Rift Valley Fever live vaccine. (206)
- Evaluate human safety and efficacy of antimalarial drugs Halofantrine, WR238605, and azithromycin. (2240)
- Complete Phase 2 trials of Shigella flexneri 2a-2 vaccine. (447)
- Conduct Phase 2 trials of recombinant hemorrhagic fever with renal syndrome (Hantaan) vaccine. (344)
- Conduct Phase 1/2 trials of Campylobacter vaccine. (663)
- Continue Phase 2 clinical study of antileischmanial drug WR 6026. (245)
- Initiate pilot production and testing of vaccines for clinical studies. (1601)
- Demonstrate and validate off the shelf technologies to develop telemedicine hardware and concepts in the prevention, diagnosis and treatment of infectious diseases. (333
- Funds will be reprogrammed for SBIR/STTR programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992. (152)

FY 1996 Planned Program:
- Continue safety and efficacy trials of antimalarial drugs, azithromycin, Halofantrine, WR238605 and antileischmanial drug WR6026. (2105)
- Conduct expanded Phase 2 trials of a malaria blood stage vaccine. (1083)
- Complete Phase 2 testing of the recombinant Hantaan vaccine. (144)
- Complete Phase 1/2 trials of the campylobacter vaccine. (566)
- Demonstrate and validate off the shelf technologies to develop telemedicine hardware and concepts in the prevention, diagnosis and treatment of infectious diseases. (55)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603807A Medical Systems Advanced Development

FY 1997 Planned Program:

- Continue to evaluate safety and efficacy of antimalarial drugs WR238605 and halofantrine. (2177)
- Conduct Phase 2 testing of the Group B meningococcal vaccine. (1153)
- Conduct Phase 1/2 testing of a recombinant vaccine against hemorrhagic fever renal syndrome caused by puumala virus. (480)
- Demonstrate and validate off the shelf technologies to develop telemedicine hardware and concepts in the prevention, diagnosis and treatment of infectious diseases. (160

Project D809-Medical Biological Defense Drug and Vaccine-Advanced Development: This project funds exploratory research on the development of vaccines and drugs to provide an effective medical defense against validated threat agents including bacteria, viruses and other agents of biological origin. By employing biotechnology, medical systems will be designated to rapidly identify, diagnose, prevent, and treat casualties resulting from exposure to biological threat agents.

FY 1994 Accomplishments:

- Conducted trials of cell culture derived smallpox vaccine (2787)
- Conducted Phase I trials of Type F Botulinum toxoid (1974)
- Conducted Phase I safety trial of Botulism Immune Globulin (Human) (409)
- Conducted non-cGMP Botulinum toxoid Type G production (355)

FY 1995 Planned Program: Program restructured to PE 0208051A, Joint Biological Defense Program

FY 1996 Planned Program: Project not funded

FY 1997 Planned Program: Project not funded

Project D811-Military HIV Vaccine and Drug-Advanced Development: This project funds the Congressionally-mandated, militarily relevant HIV research for demonstration and validation of candidate vaccines and drugs through safety, immunogenicity and small scale efficacy testing and behavioral intervention in volunteers. Efforts are directed to answer militarily unique needs affecting manning, mobilization and deployment.

FY 1994 Accomplishments:

- Evaluated vaccines to protect against and treat HIV. (1836)

FY 1995 Planned Program:

- Evaluate vaccines to protect against and treat HIV. (187)
- Funds will be reprogrammed for SBIR/STTR programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992. (4)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603807A Medical Systems Advanced Development

FY 1996 Planned Program:

- Transition a vaccine to advanced development to prevent the progression of Acquired Immune Deficiency Syndrome in individuals infected with Human Immunodeficiency Virus. (2671)

FY 1997 Planned Program:

- Conduct Phase 1 studies of the vaccine for the prevention of progression of Acquired Immune Deficiency syndrome in individuals infected with Human Immunodeficiency Virus. (2401)
- Transition to advanced development a vaccine for the prevention of infection with the Human Immunodeficiency Virus. (328)

Project D836-Combat Medical Materiel-Advanced Development: The project supports advanced development of new and improved systems essential for battlefield casualty care, patient transport and evacuation, and return to duty in support of special contingency and conventional force operations. Primary civilian contractors are University of Illinois, Chicago, IL and Ohemda Corp., Chicago, IL.

FY 1994 Accomplishments:

- Conducted non-clinical efficacy studies of microencapsulated antibiotic, ampicillin. (74)
- Fabricated three prototype armored ambulance medical interiors incorporating advanced commercial lifesaving equipment. (397)
- Prepared contract for the upgrade of the Field Anesthesia Machine to meet FDA requirements. (174)
- Evaluated concepts for development of an automated system to reconstitute frozen blood. (97)
- Modified military and commercial medical equipment to facilitate patient examination and diagnosis. (178)

FY 1995 Planned Program:

- Conclude ongoing pre-clinical studies and terminate microencapsulated antibiotic ampicillin. (215)
- Develop an automated system to deglycerolize frozen blood. (81)
- Conduct air-worthiness certification of self-contained ventilator. (117)
- Initiate market investigation for intraosseous infusion device. (49)
- Conduct technical evaluation of the medical-dental filmless imaging system (277)
- Demonstrate and validate off the shelf technologies to develop telemedicine hardware and concepts for the treatment of combat casualties. (2123)
- Funds will be reprogrammed for SBIR/STTR programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992. (61)

FY 1996 Planned Program:

- Evaluate silver nylon burn dressing for treatment of combat casualties. (106)
- Complete prototype electrochemical sterilization system. (287)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603807A Medical Systems Advanced Development

- Complete evaluation of dental filmless imaging system. (316)
- Evaluate concepts for development of expert medical systems for trauma management. (58)
- Initiate market investigation for far forward suction device. (67)
- Modify US and allied military and commercial medical equipment used for patient examination, diagnosis and treatment in the field; incorporate technological advances into field medical equipment as they come on-line. (483)
- Demonstrate and validate off the shelf technologies to develop telemedicine hardware and concepts for the treatment of combat casualties. (1417)

FY 1997 Planned Program:
- Conduct human safety studies of a microencapsulated antibiotic (cephalosporin) and a silver nylon burn dressing for treatment of combat casualties. (737)
- Conduct user and technical testing of a system for life support and trauma transport. (367)
- Evaluate alternative concepts of a combat stress analysis system (285)
- Modify US and allied military and commercial medical equipment used for patient examination, diagnosis and treatment in the field; incorporate technological advances into field medical equipment as they come on-line. (928)
- Demonstrate and validate off the shelf technologies to develop telemedicine hardware and concepts for the treatment of combat casualties. (691)

Project D837-Soldier System Protection-Advanced Development: This project supports demonstration and validation of preventive medicine materiel, including devices, pharmacologicals and other tools, to provide protection, sustainment, and enhancement of the physiological and psychological capabilities of soldiers in the face of combat operations under all environmental conditions. Focus is on reduction in the incidence of personnel losses due to preventable disease and non-battle injuries through development of environmental and physiological performance monitors and other preventive medicine countermeasures.

FY 1994 Accomplishments: Project not funded

FY 1995 Planned Program: Project not funded

FY 1996 Planned Program:
- Develop coupling attachments for feasibility study on M-40 protective mask blower as an improved air circulation source for chemical warfare agent protective patient wrap; develop alternative air sources using non-developmental item acquisition strategy. (1218)

FY 1997 Planned Program:
- Conduct physiological testing of candidate air circulation source for chemical warfare agent protective patient wrap. (864)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603807A Medical Systems Advanced Development

Project D993-Medical Defense Against Chemical Threats: This project funds advanced development of countermeasures for chemical agents including life support equipment, pretreatment and therapeutic drugs, and individual/casualty decontamination compounds. A system of medical defense against chemical agents is required to provide individual soldiers protection, to sustain their performance in a chemical environment, and to provide for self-aid and medical treatment of chemical casualties. Major contractors include Battelle Memorial Institute, Columbus, OH, SRI International, Menlo Park, CA, and University of Illinois, Chicago, IL.

FY 1994 Accomplishments:
- Completed pre-clinical studies of the nerve agent antidote system, HI-6. (2413)
- Conducted testing for the prototype multichambered autoinjector. (1248)
- Conducted human safety studies of the topical skin protectant. (1221)
- Evaluated commercial products for use within the chemical protective patient wrap for improved air circulation. (572)

FY 1995 Planned Program:
- Conduct human safety studies of the nerve agent antidote, HI-6. (1970)
- Conduct human safety studies of topical skin protectant. (1658)
- Conduct technical testing of the multichambered autoinjector. (1183)
- Test commercial products for use in the chemical protective patient wrap. (1193)
- Funds will be reprogrammed for SBIR/STTR programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992. (67)

FY 1996 Planned Program: Project moved to DoD PE 0604384BP.

FY 1997 Planned Program: Project moved to DoD PE 0604384BP.

B. Program Change Summary	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	21628	17495	15614	15582
Appropriated Value	21628	16439		
Adjustments to Appropriated Value	-148			
a. SBIR/STTR (-310)				
b. Reprogramming total (162)				
Current President's Budget Submit	21480	16439	10576	10571

Changes to FY 1996/FY 1997: Funding for chemical and biological defense efforts (project D993) has been consolidated into PE 0604384BP in accordance with P.L. 103-160.

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603807A Medical Systems Advanced Development

PROJECT: D808

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
D808 DoD Drug and Vaccine-Advanced Development	7745	7254	3953	3970	3918	3887	3864	3858	Continuing	Continuing

C. **Other Program Funding Summary**: Not Applicable

D. **Schedule Profile**: Multiple medical developmental products will advance through various events throughout the FY.

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Malaria Spf66 MLST 2								X								
Campylobacter MLST 1						X										
MLST 2 IPR													X			
Puumala MLST 1 IPR										X						
Hantaan MLST 2 IPR										X						
Rift Valley MLST1		X														
MLST 2										X						
Shigella Flerneri 2a-2 MLST 2						X										
Shigella sonnei MLST 1						X										
Antimalarial Drug WR238605 MLST 2												X				
Antimalarial Drug WR6026 MLST 2										X						
Antimalarial Drug Azthromycin MLST 0/1, MLST 2		X							X							
Antimalarial Drug Halofantrine MLST 1, MLST 2			X											x		

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603807A Medical Systems Advanced Development

PROJECT: D808

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Test & Evaluation	5644	4633	3212	2970
Product Development	1788	2634	232	653
Project Management	623	611	529	367
Total	8055	7878	3973	3990

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
Product Development Organizations											
Contracts	NA	NA	NA	NA	NA	639	333	0	0	Cont	Cont
Salk Institute	CPFF	APR 1988	50556	50556	42176	1149	2301	232	653	Cont	Cont
Support and Management Organizations											
USAMMDA	NA	NA	NA	NA	NA	453	384	343	235	Cont	Cont
Contracts	NA	NA	NA	NA	NA	170	227	186	132	Cont	Cont
Test and Evaluation Organizations											
Walter Reed Army Inst of Research	NA	NA	NA	NA	NA	2324	2018	1990	950	Cont	Cont
Army Laboratories	NA	NA	NA	NA	NA	360	582	374	100	Cont	Cont
Navy Laboratories	NA	NA	NA	NA	NA	370	0	500	0	Cont	Cont
Government Furnished Property: None											
Subtotal Product Development					NA	1788	2634	232	653	Cont	Cont
Subtotal Support and Management					NA	623	611	529	367	Cont	Cont
Subtotal Test and Evaluation					NA	5644	4633	3212	2970	Cont	Cont
Total Project					NA	8055	7878	3973	3990	Cont	Cont

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603807A Medical Systems Advanced Development

PROJECT: D809

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
D809 Medical Biodefense Drug/Vaccine	5525	0	0	0	0	0	0	0	0	0

C. **Other Program Funding Summary**: Not Applicable

D. **Schedule Profile**: Multiple medical developmental products will advance through various events throughout the FY.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603807A Medical Systems Advanced Development PROJECT D809

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Test & Evaluation	5940	0	0	0
Product Development	4901	0	0	0
Project Management	421	0	0	0
Total	5916	0	0	0

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations											
Salk Institute	CPFF	Apr 88	50556	50556	42176	1409	0	0	0	0	0
Contracts	NA	NA	NA	NA	NA	3492	0	0	0	0	0
Support and Management Organizations											
USAMMDA	NA	NA	NA	NA	NA	286	0	0	0	0	0
Contracts	NA	NA	NA	NA	NA	135	0	0	0	0	0
Test and Evaluation Organizations											
Army Laboratories	NA	NA	NA	NA	NA	417	0	0	0	0	0
Contracts	NA	NA	NA	NA	NA	177	0	0	0	0	0
Government Furnished Property: None											
Subtotal Product Development					NA	4901	0	0	0	0	0
Subtotal Support and Management					NA	421	0	0	0	0	0
Subtotal Test and Evaluation					NA	594	0	0	0	0	0
Total Project					NA	5916	0	0	0	0	0

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603807A Medical Systems Advanced Development

PROJECT: D811

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
D811 Military HIV Vaccine and Drug-Advanced Development	1836	191	2671	2729	2011	1516	2114	2111	Continuing	Continuing

C. **Other Program Funding Summary**: Not Applicable

D. **Schedule Profile**: Multiple medical developmental products will advance through various events throughout the FY.

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603807A Medical Systems Advanced Development

PROJECT: D811

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Test & Evaluation	1821	193	2684	2743
Product Development	0	0	0	0
Project Management	15	0	0	0
Total	1836	193	2684	2743

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
Product Development Organizations: None											
Support and Management Organizations											
Contract	NA	NA	NA	NA	NA	15	0	0	0	0	0
Test and Evaluation Organizations											
Army Laboratories	NA	NA	NA	NA	NA	250	0	0	0	0	0
Contracts	NA	NA	NA	NA	NA	1571	193	2684	2743	Cont	Cont
Government Furnished Property: None											
Subtotal Product Development					NA	0	0	0	0	0	0
Subtotal Support and Management					NA	15	0	0	0	0	0
Subtotal Test and Evaluation					NA	1821	193	2684	2743	Cont	Cont
Total Project					NA	1836	193	2684	2743	Cont	Cont

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603807A Medical Systems Advanced Development

PROJECT: D836

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
D836 Combat Medical Materiel-Advanced Development	920	2923	2734	3008	2992	2976	2963	2959	Continuing	Continuing

C. **Other Program Funding Summary**: Not Applicable

D. **Schedule Profile**: Multiple medical developmental products will advance through various events throughout the FY.

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Silver Nylon Burn Dressing MLST 1									X							
Microencapsulated Antibiotic Cephalosporin MLST 0/1										X				X		
Self-Contained Ventilator MLST 1 IPR								X								
Medical-Dental Filmless Imaging System MLST 2 IPR												X				
Intraosseous Infusion Device MLST 2 IPR											X					

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603807A Medical Systems Advanced Development

PROJECT: D836

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Test and Evaluation	146	249	195	300
Product Development	178	2019	1158	1720
Project Management	527	695	795	303
Total	851	2963	2148	2323

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
Product Development Organizations											
Contracts	NA	NA	NA	NA	NA	2	1384	850	1340	Cont	Cont
USAMMDA	NA	NA	NA	NA	NA	176	635	308	380	Cont	Cont
Support and Management Organizations											
USAMMDA	NA	NA	NA	NA	NA	527	695	795	303	Cont	Cont
Contracts	NA	NA	NA	NA	NA	200	211	145	77	Cont	Cont
Test and Evaluation Organizations											
Army Laboratories	NA	NA	NA	NA	NA	146	249	195	300	Cont	Cont
Government Furnished Property: None											
Subtotal Product Development					NA	178	2019	1158	1720	Cont	Cont
Subtotal Support and Management					NA	527	695	795	303	Cont	Cont
Subtotal Test and Evaluation					NA	146	249	195	300	Cont	Cont
Total Project					NA	851	2963	2148	2323	Cont	Cont

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603807A Medical Systems Advanced Development

PROJECT: D837

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
D837 Soldier System Protection-Advanced Development	0	0	1218	864	857	889	883	882	Continuing	Continuing

C. **Other Program Funding Summary**: Not Applicable

D. **Schedule Profile**: Multiple medical developmental products will advance through various events throughout the FY.

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603807A Medical Systems Advanced Development

PROJECT: D837

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Test & Evaluation	0	0	0	0
Product Development	0	0	1172	848
Project Management	0	0	52	20
Total	0	0	1224	868

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
Product Development Organizations											
Contracts	NA	NA	NA	NA	NA	0	0	1172	848	Cont	Cont
Support and Management Organizations											
USAMMDA	NA	NA	NA	NA	NA	0	0	52	868	Cont	Cont
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development					NA	0	0	1172	848	Cont	Cont
Subtotal Support and Management					NA	0	0	52	20	Cont	Cont
Subtotal Test and Evaluation											
Total Project					NA	0	0	1224	868	Cont	Cont

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 4 - Demonstration And Validation	PE NUMBER AND TITLE 0603807A Medical Systems Advanced Development PROJECT D993

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
D993 Medical Defense Against Chemical Threats	5454	6071	0	0	0	0	0	0	0	0

C. **Other Program Funding Summary**: Not Applicable

D. **Schedule Profile**: Multiple medical developmental products will advance through various events throughout the FY.

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

DATE: February 1995

BUDGET ACTIVITY: 4 - Demonstration And Validation

PE NUMBER AND TITLE: 0603807A Medical Systems Advanced Development

PROJECT: D993

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Test & Evaluation	2516	3620	0	0
Product Development	1583	638	0	0
Project Management	1355	1813	0	0
Total	5454	6071	0	0

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations											
Contracts	NA	NA	NA	NA	NA	1583	638	0	0	Cont	Cont
Support and Management Organizations											
USAMMDA	NA	NA	NA	NA	NA	1305	1328	0	0	Cont	Cont
Contracts	NA	NA	NA	NA	NA	50	485	0	0	Cont	Cont
Test and Evaluation Organizations											
Army Laboratories	NA	NA	NA	NA	NA	311	345	0	0	Cont	Cont
Contracts	NA	NA	NA	NA	NA	875	1555	0	0	Cont	Cont
Battelle Mem Lab	CPFF	Jan 89	44549	44549	31706	1330	1720	0	0	Cont	Cont
Government Furnished Property: None											
Subtotal Product Development					NA	1583	638	0	0	Cont	Cont
Subtotal Support and Management					NA	1355	1813	0	0	Cont	Cont
Subtotal Test and Evaluation					NA	2516	3620	0	0	Cont	Cont
Total Project					NA	5454	6071	0	0	Cont	Cont

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604201A Aircraft Avionics

PROJECT: DC97

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
DC97 Aircraft Avionics	7358	14238	22044	2037	1369	1384	0	0	0	48430

A. Mission Description and Budget Item Justification: This PE funds the development of avionics systems required to horizontally and vertically integrate the battlefield (commonly referred to as "digitization of the battlefield"). The following tasks in this Program Element support research efforts in the engineering and manufacturing development phases of these digitization of the battlefield systems and are therefore correctly placed in Budget Activity 5.

Project DC97 - Aircraft Avionics:

- The Global Positioning System (GPS) provides Army aviation with extremely accurate and secure location and velocity information critical to navigation, target acquisition, fire support, assessment of enemy deployments, and logistical support. It also provides Global Time settings for communication systems and assists in situational awareness and prevention of fratricide. The RDT&E efforts address the Army aircraft weight, space and power limitations by embedding a GPS circuit card into existing onboard avionics systems and the Embedded Inertial Navigation System (EGI) (Air Force lead) for attack and scout aircraft.
- The AN/ARC-220 NOE Communications High Frequency (HF) radio provides a long-range (300 kilometers) nap-of-earth (NOE), non-line-of-sight digital and voice communication capability which is reliable, secure, easy to operate, with automatic link establishment and electronic counter-countermeasures. The AN/ARC-220 will be form/fit interchangeable with the AN/ARC-199 HF radio, meet military standards for compatibility with the 1553 data bus, night vision lighting, data transmission, and shipboard operations.
- The Army Airborne Command And Control System (A2C2S) functions as a highly mobile command post. When mounted in the UH-60 helicopter with auxiliary equipment, it provides tactical voice, data, and imagery digitized battlefield communications both in secure and nonsecure modes for corps, division, and brigade commanders. The system provides battle commanders access to critical situational awareness and off-board national asset intelligence information via satellite communications. It also provides digitized battlefield communications links with Army combined arms team members, joint service and combined force elements, channel scanning, and intercommunications facilities for up to six operators, and joint interoperability as well as maritime and air traffic control communications. The A2C2S is in response to real world needs of combat maneuver commanders to perform highly mobile and responsive digital, voice, and imagery command and control (C2) functions in the UH-60 helicopter. The UH-60 A2C2S system will enable the commander and essential staff to remain highly mobile with the capability to interject critical C2 across the designated battle area without sacrificing access to information products or jeopardizing continuity of operations due to command post relocation. Interoperability is enhanced with this system by providing the capability to communicate digitally with Navy or Air Force close air support as well as relaying target information. This system will allow Army aviation forces access to C2 and situational awareness information for conduct of close, deep, rear, and security operations. The A2C2S is used to provide C2 for disaster relief, peacekeeping, drug interdiction, and both low and high intensity conflict missions. The A2C2S will play a major role in eliminating costly fratricide incidents via the capability to closely monitor and control operations. Satellite communications provide access to tactical communication systems and enables communication with the force and command structure from JCS down to battalion when required.

FY 1994 Accomplishments:

- Initiated Engineering and Manufacturing Development (EMD) of the AN/ARC-220 NOE Communications HF Radio (2108)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604201A Aircraft Avionics PROJECT DC97

- Initiated the following for A2C2S:
  - Enhanced Communications Interface Technology (ECIT) / Work Station Design: Prototype and demonstrate (1652)
  - Command, Control and Communication Risk Reduction Study (1100)
  - Antenna Study and Antenna Prototypes (800)
  - Program Management (906)
  - Procure Multi-Application Tactical Terminal and Commander's Situational Awareness Workstation (580)
  - Aircraft System Integration Demonstration Support (212)

FY 1995 Planned Program:

- Continue AN/ARC-220 NOE Communications HF Radio EMD Effort (4858)
- Initiate Preproduction Qualification and continue Project Management Support for AN/ARC-220 NOE Communications HF Radio (885)
- Conduct Non-Recurring Engineering for EGI AH-64C/D (300)
- Complete AH-64C/D Engineering Change Proposal EGI Integration (3400)
- Continue A2C2S ECIT/Work Station Design: Prototype and Demonstration (4600)
- SBIR/STTR (195)

FY 1996 Planned Program:

- Complete AN/ARC-220 NOE Communications HF Radio EMD Effort (2706)
- Initiate Integration Contract for Design of A Kit and Testing for AN/ARC-220 NOE Communications HF Radio (2101)
- Continue Program Management support for the AN/ARC-220 (507)
- Initiate development of Enhanced ECIT: 6 A2C2S prototypes (6250)
- Continue Design and Develop A2C2S Workstation Consoles (3450)
- Develop Technical Documentation: Test & Integration procedures for A2C2S Engineering Development Model (EDM) (700)
- Develop A2C2S Workstation Software (3175)
- Continue development of A2C2S Antenna System - Phase II (400)
- Initiate Test and Demonstration - A2C2S EDM (880)
- Continue Program Management support for the A2C2S (1875)

FY 1997 Planned Program:

- Continue A2C2S Development, Test and Demonstration of Enhanced ECIT (1790)
- Continue Program Management Support for the A2C2S Program (247)

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604201A Aircraft Avionics

PROJECT: DC97

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	5061	14433	6768	1047
Appropriated Value	5061	14238		
Adjustments to Appropriated Value (Total PE)	2297			
a. SBIR/STTR (-79)				
b. Reprogramming total (2376)				
Current Budget Submit/President's Budget	7358	14238	22044	2037

C. Other Program Funding Summary

Aircraft Procurement, Army (APA):

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Complete	Total Cost
Airborne Avionics - AA0700 –BLIN 1025	8664	18853	30424	35732	35373	35550	35187	35433	Cont'd	Cont'd
Airborne Communications -AA0705 BL 1037	7397	5674	25597	50084	50484	49814	49768	0	0	238818
Airborne Command and Control Console AA0710 BLIN 1030	0	0	3981	20277	30172	30212	29861	29859	Cont'd	Cont'd

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
Develop ECIT/Workstation Prototype				X*												
Define C3I Architecture				X*												
Award ARC-220 NDI EMD Contract				X*												
Complete EGI Non-recurring Engr AH/64							X									
EGI Integration on AH-64D/C (ECP)							X									
Continue AN/ARC-220 NDI EMD Effort					X											
Conduct Preproduction Qualifications/ AN/ARC-220 HF radio							X									
Develop Enhanced ECIT (A2C2S)																
A2C2S Prototype Integration										X						
A2C2S Workstation Software Dev									X							
A2C2S Tests and Demonstrations									X							
Complete Enhanced ECIT (A2C2S)													X			

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604201A Aircraft Avionics

PROJECT: DC97

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Product Development	5344	13353	19662	1790
Program Management Support:				
Government In-House Support	2014	885	1732	102
PATS Contracts	0	0	650	145
Total	7358	14238	22044	2037

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
Product Development Organizations											
Rockwell International Corporation Cedar Rapids, IA	FFP/OPT	Aug 94	N/A	N/A	0	1000	5052	4807			10665
McDonnell Douglas (EGI)	SS/CPIF	Oct 94	N/A	N/A	0		3400				3400
Honeywell (EGI)	FFP/OPT	Mar 95	N/A	N/A	0		300				300
Naval Research Laboratory	MIPR	Sep 94				4344	4601	14855	1790	Cont'd	Cont'd
Support and Management Organizations											
PM Aviation								1107		Cont'd	Cont'd
Electronic Combat Communications and Electronics Command						2014	412	900	165	Cont'd	Cont'd

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604201A Aircraft Avionics

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
US Aviation and Troop Command							473	375	82	Cont'd	Cont'd
Test and Evaluation Organizations: N/A											
Government Furnished Property: - Not Applicable											
Subtotal Product Development						5344	13353	19662	1790	Con't	Con't
Subtotal Support and Management						2014	885	2382	247	Con't	Con't
Subtotal Test and Evaluation						0	0	0	0	0	0
Total Project						7358	14238	22044	2037	Con't	Con't

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604220A Kiowa Warrior

PROJECT: D538

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
D538 Crew Station Mission Equipment Trainer (CSMET)	0	0	726	1194	0	0	0	0	0	1920

A. Mission Description and Budget Item Justification The Crew Station Mission Equipment Trainer (CSMET) is a desktop simulation training device that will be designed to support training requirements for the OH-58D Kiowa Warrior flight crew. The CSMET effort responds to the lack of Training Devices, Simulators or Simulations (TDSS) available to fielded Kiowa Warrior units. Currently, the aircraft itself provides the only primary sustainment training device. Training provided through the use of the actual aircraft is at best limited due to the inability to employ total system capabilities under combat conditions (i.e. weapon systems, etc.). When the actual aircraft are not available the aviator cannot continue to practice crew skills and as such the aircrew skills continue to decay rapidly. Maintaining a high level of aircrew skill has direct impact on combat readiness and proficiency. The CSMET is a New Start. The project in this Program Element supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and is, therefore, correctly placed in Budget Activity 5

Project D538 - Crew Station Mission Equipment Trainer (CSMET): The Crew Station Mission Equipment Trainer (CSMET) will train crew members in the operation and employment of the Kiowa Warrior mission equipment package. Simulations systems will include the weapons systems, aviation survivability equipment, automatic target handover system, communication and navigation equipment, mast mounted sight cockpit controls, and the pilot display unit. The CSMET will network with other simulation devices for collective training.

FY 1994 Accomplishments: Project not funded

FY 1995 Planned Program: Project not funded

FY 1996 Planned Program:
- Award Development Contract (726)
  - Initiate Development of Prototype Device

FY 1997 Planned Program:
- Complete Prototype Build/System Integration (748)
- Conduct Joint Preliminary Developmental Testing (148)
- Conduct Final Developmental/Operational Testing (298)

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604220A Kiowa Warrior

PROJECT: D538

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	0	0	0	0
Appropriated Value				
Adjustments to Appropriated Value				
Current Budget Submit/President's Budget	0	0	726	1194

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

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
APA Budget Activity 2										
AZ2200 Kiowa Warrior (CSMET)				430	2840	7130	3950	2370	N/A	16720

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
Award Development Contract										X						
Initiate Development of Prototype Device											X					
Complete Qualification Testing													X			
Begin Prototype Build/System Integration														X		
Conduct Preliminary Joint Developmental Testing														X		
Complete Final Developmental Testing/Operational Testing															X	
Prototype Delivery																X
Ready for Training																X

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604220A Kiowa Warrior

PROJECT: D538

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Engineering Development				
Prototype Build/System Integration			726	748
Developmental Testing				119
Government Support of Developmental Testing				29
Operational Testing				199
Government Support of Operational Testing				99
Total			726	1194

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
Product Development Organizations											
STRICOM	MIPR	JAN 96	726	726	0	0	0	726	0	0	726
Orlando, FL	MIPR	JAN 97	1194	1194	0	0	0	0	1194	0	1194
(Contractor TBD)											
Support and Management Organizations: N/A											
Test and Evaluation Organizations: N/A											
Government Furnished Property - Not Applicable											
Subtotal Product Development								726	1194		1920
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project								726	1194		1920

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604223A Comanche

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	365185	488567	199103	298609	298270	398349	424774	533138	Continuing	Continuing
DC72 T800 Engine Engineering Development (LH)	45249	80162	36835	36840	36827	36834	36971	36913	Continuing	Continuing
D327 Comanche	319936	408405	162268	261769	261443	361515	387803	496225	Continuing	Continuing

A. Mission Description and Budget Item Justification: This program element provides for the development and operational testing and evaluation of the RAH-66 Comanche and the T800 growth engine. The Comanche is a multi-mission aircraft optimized for the critical battlefield mission of tactical armed reconnaissance. It provides a globally self-deployable attack platform for light/contingency forces. Comanche is the solution to the reconnaissance deficiencies (no night/adverse weather/high/hot/stand-off capability) and is a key component on the digitized battlefield in winning the information war. The Comanche will replace the obsolescent Vietnam era fleet (AH-1, OH-6, and OH-58A/C). Project DC 72 provides for development and qualification of the T800 and growth engines and air vehicle support for integration of the same into the Comanche aircraft. Project D327 provides for development of the airframe, mission equipment package, and integration of the whole system to include training and logistic support. The projects in this program element support research efforts that complete Demonstration/Validation (Dem/Val) prototype efforts and transition into the engineering and manufacturing development phase of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

Project DC72 - T800 Engine Engineering Development (LH): This project includes tasks to design, develop and qualify an advanced technology engine. The project is for the development of a growth T800 engine, utilizing the technology developed and qualified on the 1200 SHP class baseline T800 engine. The growth engine is for the Army's new RAH-66 Comanche and other applications.

FY94 Accomplishments:

- Continued growth engine engineering development/First Engine to Test (38925)
  - Completed delivery of basic flight test engines
- Continued basic engine air vehicle support (6324)

FY 95 Planned Program

- Continue growth engine development (57854)
  - Conduct growth engine Critical Design Review (CDR)
- Continue basic engine air vehicle support (10700)
- Continue engine development testing (9941)
- SBIR/STTR (1667)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604223A Comanche

FY 96 Planned Program
- Continue basic engine air vehicle support (8900)
- Continue growth engine development (18357)
- Continue engine development testing (9578)

FY 97 Planned Program
- Continue basic engine air vehicle support (8600)
- Continue growth engine development (15343)
- Continue engine development testing (12897)

Project D327 - Comanche: The Comanche helicopter is a highly sustainable and operationally flexible air cavalry system, incorporating significant reductions in personnel and support equipment, capturing the latest combat technologies and capable of accepting upgrades to meet ever-changing threats. It will dominate the battlefield in the close, deep and rear operations; provide a decisive air cavalry capability in day, night, and adverse weather. It will be operationally tailorable to regional conflicts and provide the battle commander with timely, detailed reconnaissance information and an unprecedented level of lethality.

FY 94 Accomplishments
- Continued Demonstration/Validation (Dem/Val) prototype engineering development (200586)
- Continued contractor development test (71320)
- Continued air vehicle manufacturing (48030)

FY 95 Planned Program
- Continue Dem/Val prototype engineering development (276210)
- Continue contractor development test (85999)
- Continue air vehicle construction (37708)
- SBIR/STTR (8488)

FY 96 Planned Program
- Begin digitization effort (16232)
- Continue Dem/Val prototype engineering development (98972)
- Conduct first flight, prototype # 1 (38258)
- Continue manufacturing of prototype # 2 (8806)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604223A Comanche

FY 97 Planned Program

- Continue digitization effort (26028)
- Continue Dem/Val prototype engineering development (175901)
- Continue flight test program for prototype # 1 (57387)
- Complete manufacturing of prototype # 2 (2453)

B. Program Change Summary	FY 1994	FY 1995	FY 1996	FY1997
Previous President's Budget	366728	525182	373977	499242
Appropriated Value	366728	488567	199103	298609
Adjustments to Appropriated Value (Total PE)	(1543)			
a. SBIR/STTR decrement (-5542)				
b. Reprogrammed into PE (3999)				
Current Budget Submit/President's Budget	365185	488567	199103	298609

Change Summary Explanation:

Funding: FY 96 ($-174M) and FY 97 ($-199M) funding has been reduced from the previous submittal IAW Department of Defense (DoD) decision to restructure the program.

Schedule: The current schedule is presently being reviewed. Schedule may be revised after senior level approval of the program.

Technical: None

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604223A Comanche

PROJECT: DC72

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
DC72 T800 Engine Engineering Development (LH)	45249	80162	36835	36840	36827	36834	36971	36913	Continuing	Continuing

C. **Other Program Funding Summary:** There are no other related 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	4
First engine to test			X*													
Completed delivery of basic flight test engines		X*														
Continued basic engine air vehicle support				X												
Continue growth engine development					X											
Continue engine development testing					X											
Conduct growth engine CDR							X									
Award change order to accommodate DoD direction								X								
Continue basic engine air vehicle support									X							
Continue growth engine development									X							
Continue engine development testing									X							
Continue basic engine air vehicle support													X			
Continue growth engine development													X			
Continue engine development testing													X			

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604223A Comanche

PROJECT: DC72

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Product Development	44898	79917	36635	36640
Program Management Support	351	245	200	200
Government Furnished Personnel/Equipment/Facilities	0	0	0	0
Test & Evaluation	0	0	0	0
Total	45249	80162	36835	36840

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
Product Development Organizations											
LHTEC (0453)	C/CPFF	April 92	TBD	TBD	46451	44086	79217	36635	36640	Cont	Cont
LHTEC (B017)	C/FFP	Jul 85	TBD	TBD	275884	812	700	0	0	0	Cont
AVCO (B019)	C/FFP	Nov 84	128526	128526	128526	0	0	0	0	0	128526
Support and Management Organizations											
Comanche PMO & Gov't Agencies	MIPR				12042	117	191	150	150	Cont	Cont
PATS contracts	C/FFP		TBD	TBD		54	54	50	50	Cont	Cont
Rail	C/FFP	Sep 87	TBD	TBD	2626	180	0	0	0	Cont	Cont
Test and Evaluation Organizations											
Gov't Agencies	MIPR				9613	0	0	0	0	Cont	Cont

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604223A Comanche

Government Furnished Property

Item Description	Contract 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: None										
Support and Management Property										
Gov't Agencies	MIPR			13129	0	0	0	0	Cont	Cont
Test and Evaluation Property: None										

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	450861	44898	79917	36635	36640	Cont	Cont
Subtotal Support and Management	27797	351	245	200	200	Cont	Cont
Subtotal Test and Evaluation	9613	0	0	0	0	Cont	Cont
Total Project	488271	45249	80162	36835	36840	Cont	Cont

NOTE: A Defense Acquisition Board review of the program is scheduled for March 1995.

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604223A Comanche

PROJECT: D327

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
D327 Comanche	319936	406405	162268	261769	261443	361515	387803	496225	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	Tota Cos
APA										
A08300 Comanche						0	0	0	Cont	Con
0604816A Longbow Engineering Development										
Project DC13, Hellfire Seeker	105314	34522								384022
Project DC27 Longbow Engineering Dev	79839	22479								761795

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
Critical Design Review	X*															
Continued Dem/Val prototype engineering development				X*												
Continued contractor development test				X*												
Continue air vehicle manufacturing					X											
Continue Dem/Val prototype engineering development					X											
Award change order to accommodate DoD direction								X								
Update TEMP								X								
Continue Dem/Val prototype engineering development									X							
Begin digitization effort									X							
Conduct First Flight, Prototype # 1									X							
Continue digitization efforts												X				
Continue Dem/Val prototype engineering development												X				
Continue flight test program												X				

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604223A Comanche

PROJECT: D327

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Product Development	302764	376822	142268	241769
Program Management Support	16836	29673	17000	17000
Government Furnished Personnel/Equipment/Facilities	89	400	1000	1000
Test and Evaluation	247	1510	2000	2000
Total	319936	408405	162268	261769

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
Product Development Organizations											
Boeing Sikorsky JPO A004	C/CPIF	April 91	TBD	TBD	1040080	302764	376822	142268	241769	Cont	Cont
Other Completed Contracts					370288	0	0	0	0	0	370288
Support and Manager Organizations											
Rail	C/FFP	Sep 87	TBD	TBD	21736	5358	5454	3000	3000	Cont	Cont
HSI	C/FFP	Oct 91	12236	12236	6164	2972	3100	0	0	0	12236
PATS contracts	C/FFP		TBD	TBD	0	0	0	0	0	Cont	Cont
Other Contracts	C/FFP		TBD	TBD	5547	1823	1535	1000	1000	Cont	Cont
PMO/Gov't Agencies	MIPR				50632	6683	19584	13000	13000	Cont	Cont
Test and Evaluation Organizations											
Gov't Agencies	MIPR				6032	247	1510	2000	2000	Cont	Cont

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604223A Comanche

Government Furnished Property

Item Description	Contract 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: None										
Support and Management Property										
Other Gov't Agencies				9729	89	400	1000	1000	Cont	Cont
Test and Evaluation Property: None										

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	1410368	302764	376822	142268	241769	Cont	Cont
Subtotal Support and Management	93808	16925	30073	18000	18000	Cont	Cont
Subtotal Test and Evaluation	6032	247	1510	2000	2000	Cont	Cont
Total Project	1510208	319936	408405	162268	261769	Cont	Cont

NOTE: A Defense Acquisition Board review of the program is scheduled for March 1995.

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604270A Electronic Warfare 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	83070	91914	65222	72379	48344	27457	18628	1868	Continuing	Continuing
DL12 Electronic Warfare Development:	42304	50652	14077	16972	16746	10220	10410	11971	Continuing	Continuing
DL15 Army Reprogramming and Analysis Team	0	3948	2985	3980	4477	3732	0	0	0	19122
DL16 TROJAN Development (TIARA)	0	0	545	1333	1410	1484	0	0	0	4772
DL18 High Value Asset Defense System	2838	4991	7698	10249	0	0	0	0	0	25776
D611 Tactical Deception-Army Wide	1947	0	0	0	0	0	0	0	0	1947
D685 A/C Surv Equip Dev	35981	32323	39917	39845	25711	12021	8218	6711	0	200726

A. **Mission Description and Budget Item Justification**: This program element encompasses engineering and manufacturing development for tactical electronic warfare (EW), signals warfare (SW), aircraft survivability equipment (ASE), battlefield deception, rapid software reprogramming and protection of personnel and equipment from hostile artillery. EW encompasses the development of tactical EW equipment and systems mounted in both ground and air vehicles. The systems under this program provide the Army with the capability to degrade or deny hostile forces the effective use of their communications, countermortar/counterbattery radars, surveillance radars, infrared/optical battlefield surveillance systems and electronically fused munitions. Existing Army EW systems must be replaced or upgraded to maintain their capability in the face of threat technical advancements. This program element satisfies requirements for brigade, division, corps and higher commanders to conduct electronic warfare to meet tactical and Special Electronic Mission Aircraft (SEMA) requirements, attach/scout, and assault/cargo mission requirements. Signals Warfare Development provides for an integrated ground-based and hellebore Intelligence and Electronic Warfare Common Sensor (IEWCS) System. The High Value Asset System will provide effective protection of personnel and equipment from electronically fused munitions. TROJAN developments will complete Proof-of-Principle R&D for specific TROJAN applications in advanced threat signals processing and prototype software upgrades; high frequency (HF) algorithms for compact antenna array technology (CAT) configured into small aperture antenna arrays; search and acquisition capabilities for unattended signal collectors; and new digital intelligence collection, processing and dissemination technology. The projects in this PE are in the Engineering and Manufacturing Development phase of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

Project DL12 - Electronic Warfare Development:

1. This project provides for Engineering and Manufacturing Development (E&MD) and testing of Intelligence and Electronic Warfare Common Sensor (IEWCS) Subsystems and Systems leading to Milestone III. The Subsystems are:

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a. The TACJAM-A will enhance the Division Commander's ability to outmaneuver and kill the enemy by isolating and suppressing enemy fire control and command and control (C^2) nets at critical points in the battle; provide electromagnetic overmatch of the threat C^2 spectrum inclusive of both conventional and modern frequency hopping modulations, freeze the enemy in place by jamming C^2; and eliminate enemy counterfire by locating High Value Targets (HVT's) for targeting. TACJAM-A consists of state-of-the-art modular and scaleable Electronic Support Measures (ESM) and Electronic Counternieasures (ECM) subsystems configured for use on a variety of air and ground prime movers (tracked, wheeled and heliborne).

o. The CHALS-X provides the targeting capability required to support the Division Commander's requirement to locate and kill the enemy by providing location of high value targets. Airborne systems mixed with ground based systems will be capable of precisely locating enemy weapon systems and units (regardless of whether the enemy uses conventional or modern radios) producing target locations sufficiently accurate for first round fire for effect by organic artillery.

c. The CMES (Common Modular ELINT System) provides search, intercept, Direction Finding (DF), precision location and analysis of the primary non-communication (radar) battlefield threat emitters. While operating in a fully automatic mode it will enhance the Division Commander's ability to out maneuver and kill the enemy by specifically identifying HVTs such as enemy counter/mortar, counter/battery ground surveillance radars at critical points in the battle and will provide precise emitter locations with targeting accuracy.

2. This project also provides for the integration of Common Sensor subsystems into 3 Army Systems, for the development of platform unique items (i.e. antennas), and for the modification of standard Army vehicles to meet intelligence and electronic warfare requirements. The Army systems are:

a. Ground Based Common Sensor-Light (GBCS-L). The GBCS-L provides support to the Commanders of Airborne, Air Assault, and Light Infantry Divisions with an organic capability to listen to, precisely locate for hard-kill or order-of-battle resolution, or render ineffective through electronic attack, threat command and control and fire control communications nets and identify and precisely locate threat countermortar and counterbattery ground surveillance radar emissions. The system is specifically designed to ensure transportability, prime mover maintainability, and mobility equal to, or greater than, that of the supported divisions and regiments, while exploiting or eliminating - at the Commander's discretion - the latest, most modern types of hostile modulations and transmission techniques at the key time and place on the battlefield. GBCS-L is configured on High Mobility Multipurpose Wheeled Vehicle (HMMWV).

b. Ground Based Common Sensor-Heavy (GBCS-H). The GBCS-H provides support to the Commanders of Armored and Mechanized Infantry Divisions and Armored Cavalry Regiments (ACR) the same capability as the above GBCS-L. The GBCS-H, however, is the Army's only on-the-move, on-the-ground, all weather, all terrain, self-contained, fully integrated, 24-hour-a-day signals intelligence and electronic attack asset. The GBCS-H is configured on a derivative of the Bradley Fighting Vehicle, the Electronic Fighting Vehicle System (EFVS) which is being developed in concert with the Command and Control Vehicle (C^2V).

c. Advanced Quickfix (AQF). The AQF provides for a material change to the existing heliborne QUICKFIX communications intercept, collection, processing, direction finding, and jamming system and will be deployed to Army Divisions and ACR. Configured in a BLACKHAWK Helicopter (EH-60A), it provides the moving platform necessary to provide for location accuracies sufficient for "steel on target" requirements, as well as for extension of radio Line of Sight (LOS) against target emitters.

3. The United States Marine Corps is utilizing the same subsystems as the GBCS and configuring them in a Light Armored Vehicle as a part of the Mobile Electronic Warfare Support System (MEWSS) improvement program.

4. This project is joint with the National Security Agency's Defense Cryptologic Program (DCP), Program Element #030885G, which provides a portion of the funds required for the development of the precision location subsystem and system integration of GBCS-L and GBCS-H.

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BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604270A Electronic Warfare Development

FY 1994 Accomplishments:

- Resumed TACJAM-A ECM E&MD program to include System CDR (21344)
- Completed development of TACJAM-A ESM E&MD subsystem (2080)
- Code and tested CHALS-X frequency hopper software (3440)
- Continued GBCS/AQF Integration effort to include conducting Special In-Process Review and Contractor Test (15440)

FY 1995 Planned Program:

- Conduct Low Rate Initial Production (LRIP) Special In-process Review (SIPR) (87)
- Continue TACJAM-A ECM Development (21618)
- Complete, integrate and test CHALS-X frequency hopper software (2995)
- Continue GBCS/AQF Integration effort (20900)
- Conduct Block I operational capabilities expansion for GBCS/AQF:
  - Incorporate TACJAM-A ECM
  - Incorporate CHALS-X frequency hopper software
  - Onboard ELINT/COMINT Correlation
  - Provide for generation of automatic reporting and tasking messages
  - Additional Embedded Training
  - Improve Disc Management capability
  - Add a maintenance log capability
  - Sensor cross cueing capability
- Field RDT&E Models of GBCS-L E&MD Systems to XVIII Airborne Corps
- Conduct consolidated operational readiness, customer, and development test (OCDT)and Limited User Test (LUT)on GBCS/AQF
- Begin integration of TACJAM-A ECM into GBCS/AQF
- Build AD/EXJAM models in support of testing and demonstration (4000)
- Small Business Innovative Research (SBIR)/ Small Business Technology Transfer Program (STTR) (1052)

FY 1996 Planned Program:

- Conduct Milestone III (92)
- Continue TACJAM-A ECM Development (IPR) (241)
- Continue Block I improvements to include (7113):
  - Maintenance/Operator Trainer
  - Database leveling and content analysis capability
  - Interface with TROJAN
  - QUICKFIRE capability
- Incorporate appropriate TST projects, i.e.: Multipath Effects Reduction; Co-channel Interference Reduction
- Conduct Preliminary Design Review and Critical Design Review on Block Upgrades (2216)
- High level software design and Initiate hardware development (4330)

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- Conduct OCDT and IOT&E on GBCS/AQF (85)

FY 1997 Planned Program:

- Initiate Block II improvements by (16972)
  - Incorporation of algorithms from TST projects:
  - Special Mobile Communications; Automated Map Based Intelligence Support System
  - Digital Data Communications; Code Division Multiple Access (CDMA) Collection
  - Use results of TST projects with ability to collect against modern HF communications including collection of facsimile signals
  - Automated processing and display of PROFORMA signals will be incorporated from the "Generic PROFORMA Processing and Display"
  - Continue improvements to training devices and embedded training capability.

Project DL15 - Army Reprogramming and Analysis Team (ARAT): Army Reprogramming and Analysis Team (ARAT) for Target Sensing Systems (TSS): The ARAT project will develop, test and equip an Army wide infrastructure capable of rapid reprogramming electronic combat software embedded in offensive and defensive weapon systems. Systems supported by this project include but are not limited to: radar warning receiver and jammer sub-systems of attack, scout, utility and SEMA aircraft; aircraft survivability equipment; automated intelligence collection systems; and advanced threat sensors for air defense, artillery and missile applications. The project focuses on advanced information management technologies to: automate the threat recognition process; evaluate the operational impact of threat changes on inventoried sensors; develop, test and evaluate software to counter the change; and to develop tactical loading devices for deploying or deployed forces.

FY 1995 Planned Program:

- Establish testbed capability to evaluate tactical memory loading devices (600)
- Conduct technical training on ARAT and threat databases (200)
- Initiate technical evaluation of threat analysis databases and database management tools (995)
- Complete connectivity of secure Wide Area Network (WAN) with all reprogramming centers/activities, and initiate DISNET connection (1520)
- Investigate and develop flagging models for filtering threat emitter information (300)
- Develop and maintain threat parameter libraries for regional threat systems (250)
- Small Business Innovation Research (SBIR)/Small Business Technology Transfer Program (STTR) (83)

FY 1996 Planned Program:

- Test and evaluate off-the-shelf and developmental memory loading devices for aviation electronic combat (AEC) equipment (985)
- Modify or develop as required database management tools for AEC equipment (800)
- Initiate study on the feasibility of electronic broadcast reprogramming (400)
- Evaluate, procure hardware/software and develop measurement and signature intelligence (MASINT) on-line database access capability (500).
- Maintain and improve/upgrade ARAT communications systems (300).

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FY 1997 Planned Program:

- Modify or develop database management tools for ADA, IEW, Fire Support and Armor TSS (1480).
- Test and evaluate off-the-shelf and developmental loading devices for ADA, IEW, Fire Support and Armor TSS (700).
- Conduct a demonstration and validation of broadcast reprogramming (800).
- Improve or modify ARAT flagging capability (500).
- Maintain MASINT database on-line capability (500).

Project DL16 - Trojan Development: New start for Project TROJAN in FY 96. This project is Tactical Intelligence and Related Activities (TIARA) program. A key factor in modern warfare is the ability to collect, process, and use information about your adversary while preventing him from obtaining similar information. Project TROJAN is a combined operational and readiness mission system which uses advanced networking technology to provide seamless rapid radio relay, secure communications to include voice, data, facsimile, and electronic reconnaissance support to U.S. forces throughout the world. Project TROJAN operations may be easily tailored to fit military intelligence unit training schedules and surged during specific events to involve every aspect of the tactical intelligence collection, processing, analysis and reporting systems. This program tests and evaluates new digital intelligence collection, processing and dissemination technology using the fielded TROJAN systems, prior to the acquisition of those technologies. The process that will enable us to win the battlefield information war is referred to as digitization. This capability will allow us to process and disseminate real-time intelligence data from various sources; it forms the intelligence needed to issue orders inside the threat decision cycle. To that end, it is imperative the TROJAN system keep pace with Digitization initiatives in order to respond aggressively to the emerging intelligence communication threats.

FY 1994 Planned Program: Project established FY 96.

FY 1995 Planned Program: Project established FY 96.

FY 1996 Planned Program:

- Apply proof-of-principle for video compression/processing technologies to the TROJAN intelligence processing workstation (145)
- Perform proof-of-principle for specific TROJAN applications for non-standard modulations using digital signal processing technologies (400)

FY 1997 Planned Program:

- Continue proof-of-principle efforts for specific TROJAN applications for non-standard modulations techniques using digital processing technologies (400)
- Proof-of-principle for video compression/processing technologies (353)
- Develop specialized software for classified pre-processing (493)
- Develop enhanced signal processing algorithms for multiple antennas (87)

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Project DL18 - High Value Asset Defense System: This is the continuation of the SHORTSTOP program which was initiated as a Quick Reaction Program (QRP) to a CENTCOM Statement of Need (SON) developed in the early part of Operation Desert Shield/Desert Storm. The SHORTSTOP Electronic Protection System is a fully integrated Radio Frequency Countermeasure system which is designed to provide protection for personnel and other high value assets against proximity fuzzed munitions. The SHORTSTOP Operational Requirements Document (ORD), approved Apr 94, calls for a system with a lightweight autonomous configuration which shall be quickly and easily deployed via vehicles or manpack. In order to maximize tactical utility, it further requires that the set be capable of operation from either a battery or suitable external power source. There shall be three (3) configurations of the SHORTSTOP Electronic Protection System: a manpack system, a stand alone system, and a vehicle mounted system. SHORTSTOP will be used by Infantry, Engineering, Armored, Field Artillery, and Intelligence units to enhance survivability. Initial Operational Capability (IOC) for the lightweight versions is FY 99.

FY 1994 Accomplishments:
- Conducted a Milestone II (MS II) In-Process Review (IPR) (75)
- Completed upgrade of LPU units to a multiband configuration (555)
- Continued threat analysis for development of Electronic Counter Measure (ECM) techniques (358)
- Awarded a competitive Engineering and Manufacturing Development (EMD) contract for development of a lightweight militarized system (1850)

FY 1995 Planned Program:
- Conduct testing of LPU units upgraded to a multiband configuration (257)
- Continue development of a lightweight militarized system (4554)
- Continue threat analysis for development of ECM techniques (75)
- Small Business Innovation Research (SBIR)/Small Business Technology Transfer Program (STTR (105)

FY 1996 Planned Program
- Complete fabrication of nine (9) prototypes (6598)
- Conduct Technical Test on nine (9) prototypes (925)
- Conduct IPR for approval to procure units for Initial Operational Test and Evaluation (IOTE) (175)

FY 1997 Planned Program
- Award contract modification to procure twenty (20) additional units to support IOTE (75)
- Fabricate and deliver twenty (20) units (8603)
- Conduct IOTE (1571)

Project D611 - Tactical Deception-Army Wide: Upgrade design of the Multispectral Close Combat Decoy (MCCD), prepare for the procurement of the Log Base Critical Node (LBCN) and for interface with Battlelab simulations.

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FY 1994 Accomplishments:

- Completed Log Base Critical Node (LBCN) tech data package (200)
- Modified and upgraded Multispectral Close Combat Decoy (MCCD) design and heating system (500)
- Used MCCD IOTE data to create decoy algorithms in Battlelab simulation (150)
- Initiated and coordinated renovation program of decoys at New Cumberland Army Depot (114)
- Established Wide Area Network (WAN) secure connectivity between the threat analysis and reprogramming centers and conducted a proof of principle demonstration (300)
- Implemented tested and provided operating procedures for a rapid reprogramming Bulletin Board System (BBS) (200)
- Demonstrated the utility of message format standardization for transmitting technical reprogramming data (200)
- Developed threat parameter libraries for regional threat systems (283)

Project D665 - Aircraft Survivability Equipment Development: Provides for the development and system integration of Aircraft Survivability Equipment (ASE) to achieve survivability, reduce vulnerability, and enhance combat effectiveness required to fulfill Special Electronic Mission Aircraft (SEMA), attack/scout, and assault/cargo mission requirements. Equipment developed will increase combat effectiveness and potential for mission accomplishment by reducing or eliminating the ability of threat air defense systems to detect, hit, damage, or destroy Army aircraft. Developments respond to the approved requirements documents, test, and type classification for production and fielding of ASE systems to address infrared, radar, laser, and optical/electro-optical directed air defense threats. Projects in development include new or upgraded systems to counter monopulse, millimeter wave, frequency agile, pulse doppler, and continuous wave radars; passive infrared missile seekers; and laser directed weapon systems. Continual adjustments are made to this program to meet the changing and evolutionary nature of technology and threat. This program has joint service applications that are coordinated through the Joint Technical Coordinating Group for Aircraft Survivability (JTCG/AS), as well as NATO applications coordinated through OSD. This project also provides the technical base for electronic warfare equipment for Comanche and Special Operations Aircraft

FY 1994 Accomplishments:

- Completed DEM/VAL of the Advanced Threat Infrared Countermeasure (ATIRCM) (9143)
- Continued effectiveness evaluations (2751)
- Continued software support (441)
- Continued DEM/VAL of Infrared (IR) Expendables (3150)
- Completed DEM/VAL and initiated Engineering & Manufacturing Development (EMD) of the Advanced Threat Radar Jammer (ATRJ) (11464)
- Continued EMD of the AN/APR-39A(XE-2) Radar Signal Detecting Set (RSDS) (700)
- Completed EMD of AN/APR-48A Radar Frequency Interferometer (RFI) (606)
- Continued integration efforts of ASE systems (492)
- Continued development of Passive IR features for reduction of aircraft signature in all IR bands relative to heat seeking missiles (3391)
- Continued in-house program management administration (3843)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604270A Electronic Warfare Development

FY 1995 Planned Program:

- Initiate EMD of ATIRCM (7372)
- Complete DEM/VAL and initiate EMD of the IR Expendables (4350)
- Continue EMD of the ATRJ (13567)
- Continue development of Passive IR features for reduction of aircraft signature in all IR bands relative to heat seeking missiles (1586)
- Continue effectiveness evaluations (683)
- Continue software support (3)
- Continue integration efforts of ASE systems (337)
- Complete EMD of the AN/APR-39A(XE-2) Radar Signal Detecting Set (RSDS) (50)
- Continue in-house and program management administration (3760)
- Small Business Innovation Research (SBIR)/Small Business Technology Transfer Program (STTR (615)

FY 1996 Planned Program:

- Continue EMD of ATIRCM (16904)
- Continue EMD of the IR Expendables (1529)
- Continue EMD of the ATRJ (16401)
- Continue development of Passive IR features for reduction of aircraft signature in all IR bands relative to heat seeking missiles (1286)
- Continue effectiveness evaluations (406)
- Continue integration efforts of ASE systems (50)
- Continue software support (100)
- Continue in-house and program management administration (3241)

FY 1997 Planned Program:

- Continue EMD of ATIRCM (17012)
- Continue EMD of the IR Expendables (3030)
- Continue EMD of the ATRJ (14489)
- Continue development of Passive IR features for reduction of aircraft signature in all IR bands relative to heat seeking missiles (1302)
- Continue effectiveness evaluations (536)
- Continue integration efforts of ASE systems (50)
- Continue software support (100)
- Continue in-house and program management administration (3326)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604270A Electronic Warfare Development

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	83825	89122	65466	59194
Appropriated Value	83825	91914		
Adjustments to Appropriated Value (Total PE)	-765			
a. SBIR/STTR decrement (-1245)				
b. Reprogramming into PE (490)				
Current Budget Submit/President's Budget	83070	91914	65222	72379

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604270A Electronic Warfare Development

PROJECT: DL12

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
DL12 Electronic Warfare Development:	42304	50852	14077	16972	16746	10220	10410	11971	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
OPA (SSN BZ7326)	0	58405	46937	46581	45243	47256	47425	59364	Cont'd	Cont'd
OPA (SSN BZ9752)	6629	10626	14884	12263	0	0	6704	6755	Cont'd	Cont'd
APA (SSN AB3000)	490	38889	38049	37188	39205	42201	51966	66089	Cont'd	Cont'd
RDTE Budget Activity 7 DCP PE 030885G, GBCS	15492	15722	18949	19824	19324	19624	19724	20893	Cont'd	Cont'd
RDTE Budget Activity 7 DCP PE 030885G, CHALS-X	6030	5013	3038	2998	4165	5515	6049	6828	Cont'd	Cont'd

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
Acquisition Milestones																
Award Contract for GBCS-L LPU					X*											
Award Upgrade for AQF Engine						X										
Conduct IPR for LRIP								X								
Award Contract GBCS/AQF LRIP									X							
Milestone III on GBCS/AQF												X				
Engineering Milestones																
Resume/Continue ECM E&MD	X*				X*											
Complete TACJAM-A ECM EM&D				X*												
Conduct Block I Improvements					X*				X				X			
Conduct Block II Improvements													X			
T&E Milestones																
Conduct Block 0 OCDT						X										
Conduct LUT							X									
Conduct Block I OCDT on GBCS/AQF										X						

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604270A Electronic Warfare Development

PROJECT: DL12

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Conduct IOT&E on GBCS/AQF											X					
Contract Milestones																
Conduct Special IPR on GBCS-L LPU				X*												
Field RDT&E Models GBCS-L								X								
IOC for GBCS-L LPU												X				

*Denotes completed effort

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604270A Electronic Warfare Development

PROJECT: DL12

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	15655	20536	3716	6004
Software Development	11132	12673	2782	4270
Systems Engineering	1739	2010	438	672
Integrated Logistics Support	3479	4019	875	1343
Quality Assurance	1044	1206	262	403
Reliability, Maintainability & Availability	1739	2009	437	671
Developmental Test & Evaluation	1220	815	815	485
Government Engineering Support	3719	3823	2398	984
Program Management Support	625	645	630	625
Program Management Personnel	1952	1864	1724	1515
SIBR/STTR	0	1052	0	0
Total	42304	50652	14077	16972

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
Product Development Organizations											
Sanders/AEL	C-CPIF	JUN 89	198584	207027	164517	20566	19968	1976	0	0	207027
IBM/Loral	SS-CPFF	JUN 90	54259	57829	43535	2169	1919	0	0	0	47623
ESI	C-CPAF	SEPT 91	151595	)469	79330	10040	16394	2104	0	0	107868
FMC	SS-CPFF	SEPT 90	12104	13977	8192	2013	2172	1600	0	0	13977
Loral	SS-TBD	MAR 95			0	0	2000	0	0	0	2000
TBS	C-TBD	OCT 95			0	0	0	2830	13363	57732	74050
CECOM Ft Monmouth NJ	MIPR					2418	2486	1559	640	Cont'd	Cont'd
Misc						1301	1337	839	344	Cont'd	Cont'd

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604270A Electronic Warfare Development

PROJECT: DL12

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
Support and Management Organizations											
Vitro	FFP	OCT 95				625	645	630	625	Cont'd	Cont'd
In-House	Direct					1952	1864	1724	1515	Cont'd	Cont'd
SBIR/STTR							1052				
Test and Evaluation Organizations											
In-House	MIPR					1220	815	815	485	Cont'd	Cont'd
Government Furnished Property	None.										
Subtotal Product Development					295574	38507	46276	10908	14347	57732	463412
Subtotal Support and Management					0	2577	3561	2354	2140	0	10632
Subtotal Test and Evaluation					0	1220	815	815	485	0	3335
Total Project					295574	42304	50652	14077	16972	57732	477379

*Total Program includes funding from other sources.

**Project Office EAC includes Marine Corps and National Security Agency funds which are not included in the Total Program (Army budget).

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604270A Electronic Warfare Development

PROJECT: DL15

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
DL15 Army Reprogramming and Analysis Team	0	3948	2985	3980	4477	3732	0	0	0	19122

C. **Other Program Funding Summary**: There are no other related RDTE 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	4
Establish a testbed capability to evaluate memory loading devices								X								
Initiate technical evaluation of database management tools								X								
Complete connectivity of secure WAN with all reprogramming centers/activities								X								
Test and evaluate off-the-shelf and developmental loading devices for aviation combat equipment										X						
Modify or develop database management tools for aviation combat equipment											X					
Initiate study on the feasibility of electronic broadcast reprogramming												X				
Modify or develop database management tools for air defense and other non-aviation electronic combat systems														X		
Test and evaluate off-the-shelf and developmental loading devices for non-aviation electronic combat systems														X		
Conduct a demonstration/validation of broadcast reprogramming																X

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604270A Electronic Warfare Development

PROJECT: DL15

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Government Engineering Support		276	275	90
Contract Engineering Support		2252	2000	2400
Development Support Equipment Acquisition		40	0	200
Software Development		510	180	500
Systems Engineering		50	0	100
Training Development		270	70	100
PM Support		300	300	300
PM Management Personnel		167	160	190
SBIR/STTR		83	0	0
Developmental Test and Evaluation		0	0	100
Total		3948	2985	3980

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
Product Development Organizations											
ILEX	FFP	1Q95	6162	6162	0	0	1162	1000	1200	2800	6162
CECOM	MIPR	1Q95			0	0	1056	525	690	1500	3771
Various					0	0	1140	1000	1300	2200	5640
Support and Management Organizations											
CECOM					0	0	340	300	500	950	2090
Various					0	0	250	160	190	459	1059
Test and Evaluation Organizations											
TBS		1Q97			0	0	0	0	100	300	400

Government Furnished Property None.

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604270A Electronic Warfare Development

PROJECT: DL15

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development			3358	2525	3190	6500	15573
Subtotal Support and Management			590	460	690	1409	3149
Subtotal Test and Evaluation					100	300	400
Total Project			3948	2985	3980	8209	19122

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604270A Electronic Warfare Development

PROJECT: DL16

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
DL16 TROJAN Development (TIARA)	0	0	545	1333	1410	1484	0	0	0	4772

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
OPA BA0326	11602	22159	19313	3707	4066	4425	4872	5071	Cont'd	Cont'd

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
Acquisition Milestones																
Contract Awd for Video Compression/Processing										X						
Contract Awd for Non-Standard Mod using Digital										X						
Contract Awd for Spec Software														X		
Contract Awd for Sig Proc Algorithms														X		
Engineering Milestones																
Prototype Insertion															X	X

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604270A Electronic Warfare Development

PROJECT: DL16

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Hardware Development			326	765
Software Development			219	493
Prototype Insertion				75
Total			545	1333

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
Product Development Organizations: N/A											
Support and Management Organizations: N/A											
Test and Evaluation Organizations:											
Misc	C/CPFF	Jan 97	545	545	0	0	0	545	0	0	545
	MIPR	Jan 98	1333	1333					1333	2894	4227
Government Furnished Property None.											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation					0	0	0	545	1333	0	0
Total Project					0	0	0	545	1333	2894	4772

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604270A Electronic Warfare Development

PROJECT: DL18

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
DL18 High Value Asset Defense System	2838	4991	7698	10249	0	0	0	0	0	25776

C. **Other Program Funding Summary:**

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
Other Procurement, Army Budget Activity 2				13454	13418	14516	14518	Continue	Continue
SSN: VA8000 SHORTSTOP									

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
Approve ORD for lightweight system			X*													
Conduct MS II IPR			X*													
Award a competitive EMD contract				X*												
Conduct PDR					X*											
Conduct CDR						X										
Begin fabrication of prototypes						X										
Complete fabrication of prototypes								X								
Conduct contractor qualification testing										X						
Deliver EMD prototypes												X				
Conduct Technical Test of nine (9) prototypes												X				
Conduct IPR to procure additional units												X				
Award Contract for IOT&E Units													X			
Deliver IOT&E Units															X	
Complete IOT&E																X

*Denotes completed efforts

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604270A Electronic Warfare Development

PROJECT: DL18

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	1595	3973	5711	6940
Development Test and Evaluation	340	257	925	
Operational Test and Evaluation				1571
Government Engineering Support	599	308	501	907
Program Management Support	304	348	561	831
SBIR/STTR		105		
Total	2838	4991	7698	10249

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
Product Development Organizations											
Whittaker Elect	C/CPIF	Jul 94	10942	10942	0	1300	3931	5711		0	10942
Whittaker Elect	SS/CPIF	Nov 96							6940	0	6940
CECOM	MIPR					599	308	501	907	0	2315
Misc	PWD					295	42			0	337
Support and Management Organizations											
SBIR/STTR							105			0	105
Misc	PWD/MIPR					304	348	561	831	0	2044
Test and Evaluation Organizations											
TECOM	MIPR					138		600	1246	0	1984
	MIPR					202	257	325	325		1109
Government Furnished Property: None											
Subtotal Product Development						2194	4281	6212	7847		20534
Subtotal Support and Management						304	453	561	831		2149
Subtotal Test and Evaluation						340	257	925	1571		3093
Total Project						2838	4991	7698	10249		25776

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604270A Electronic Warfare Development	PROJECT D611

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
D611 Tactical Deception-Army Wide	1947	0	0	0	0	0	0	0	0	1947

C. **Other Program Funding Summary**: None

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
Complete LBCN tech data package	X															

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604270A Electronic Warfare Development PROJECT D611

A. **Project Cost Breakdown**

	FY 1994	FY 1995	FY 1996	FY 1997
Miscellaneous	25			
Development Test and Evaluation	300			
Operational Test and Evaluation	200			
Contractor Engineering Support	406			
Government Engineering Support	992			
Travel	24			
Total	1947			

B. **Program Change Summary**: Not applicable

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604270A Electronic Warfare Development

PROJECT: D665

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
D665 A/C Surv Equip Dev	35961	32323	39917	39845	25711	12021	8218	6710	0	200726

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
APA, BA 4										
AZ3504 ASE	28005	44270	22304	0	25023	68726	60719	60714	Cont'd	Cont'd
APA, Budget Activity 2										
AA0720 ASE Modifications	2490	8114	4215	5454	4915	3101	2986	9953	Cont'd	Cont'd

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
Continue development of Passive IR Features						X										
Initiate EMD contract of ATRJ				X*												
Continue EMD contract of ATRJ					X											
Complete DEM/VAL of ATIRCM				X*												
Initiate EMD contract of ATIRCM								X								
Complete DEM/VAL of IR Expendables						X										
Continue EMD contract of ATIRCM										X						
Initiate EMD of IR Expendables							X									

*Denotes completed effort

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE: 0604270A Electronic Warfare Development — PROJECT: D665

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
R&D Contracts	21767	20440	31928	30407
Test and Evaluation	3145	880	684	1499
Contractor Engineering Support	919	2940	995	1290
Government Engineering Support	1455	1898	838	623
Program Management Support/Matrix Support	8695	5550	5472	6026
SBIR/STTR		615		
Total	**35981**	**32323**	**39917**	**39845**

B. Budget Acquisition History and Planning Information: - Not applicable (does not meet reporting criteria).

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604315A Tri Service Standoff Attack Missile

PROJECT: DF08

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
DF08 Tri Service Standoff Attack Missile	38330	19421	0	0	0	0	0	0	0	839074

A. **Mission Description and Budget Item Justification:** TSSAM was a joint program with the Air Force as the executive service. The program was congressionally directed for the development of a large cruise missile to meet the requirements of all three services. The program objective was to develop a family of affordable, highly survivable, conventional, stealthy cruise missiles which would satisfy tri-service requirements to effectively engage a variety of high-value and sea targets.

The FY94 Authorization and Appropriation Congressional Language directed the Army to terminate its participation in the TSSAM program. Based on this direction, and with limited funding, the Army (with OSD concurrence) has begun an orderly termination at minimum expense. The U.S. Air Force Joint Systems Program Office issued a partial Termination for Convenience contract modification to Northrop Aircraft Division on 25 Feb 94 for the Army's portion of the Tri-Service development. The Army issued Termination for Convenience to the integration contractor, Loral Vought Systems Corporation, Dallas, TX and support contractor CAS, Inc., Huntsville, AL. The Army Acquisition Executive approved the Army TSSAM termination plan on 13 May 94. Receipt date of Termination Proposals from both contractors is FY 95 (third quarter). This project supports research efforts in engineering and manufacturing development phases of the acquisition strategy and is therefore correctly placed in Budget Activity 5.

FY 1994 Accomplishments

- Funded EMD Activities through Jan 94 (5941)
- Began Withdrawal/Termination Activities (24191)
- Supported PEO Tactical Missile Mission (8198)

FY 1995 Planned Program

- Negotiate Withdrawal/Termination Contracts (10441)
- Complete other Withdrawal/Termination Activities (494)
- Support PEO Tactical Missiles Mission (8100)
- SBIR/STTR (386)

FY 1996 Planned Program: No Planned Program

FY 1997 Planned Program: No Planned Program

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604315A Tri Service Standoff Attack Missile

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	43182	82458	0	0
Appropriated Value	43182	19421		
Adjustments to Appropriated Value	-4852			
a. SBIR/STTR decrement (-653)				
b. Reprogrammed out of PE (-4199)				
Current Budget Submit/President's Budget	38330	19421	0	0

C. Other Program Funding Summary: N/A

D. Schedule Profile

	FY 1994				FY 1995				FY 1996				FY 1997		
	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Begin Withdrawal/Termination Contracts		X													
Support PEO Tactical Missiles Mission				X											
Begin Other Termination Activities	X														
Negotiate/Complete Termination							X								
Complete Other Termination Activities							X								

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604315A Tri Service Standoff Attack Missile

PROJECT: DF08

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engineering Support	24191	10827		
Program Management Personnel Support	8198	8100		
Test & Evaluation/Other (GFE/OGA's)	5941	494		
Total	38330	19421		

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
Product Development Organizations											
NORTHROP AIRCRAFT DIV	C/FPIF	APR 86	N/A	N/A	518487	21113	10619				550219
LORAL VOUGHT SYSTEMS	SS/CPIF	SEP 86	69501	66828	65509	1598					67107
CAS, INC.	SS/CPFF	DEC 86	N/A	N/A	16341	1210					17551
MISC CONTRACTS	N/A	N/A	N/A	N/A	11662	270	208				12140
Support and Management Organizations											
IN-HOUSE SUPPORT	PO	OCT	N/A	N/A	46301	7399	7403				61103
MISC. OGA'S	PO	OCT	N/A	N/A	8711	795	701				10207
Test and Evaluation Organizations											
	PO	OCT	N/A	N/A	39825	4809	494				45128
	PO	OCT	N/A	N/A	12787	1132					13919

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604315A Tri Service Standoff Attack Missile

PROJECT: DF08

Government Furnished Property

Item Description	Contract 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										
NORTHROP	SS/CPAF SS/CPFF	JUN 91	N/A	61700						61700

Support and Management Property: None

Test and Evaluation Property: None

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	673699	24191	10827				708717
Subtotal Support and Management	55012	8198	8100				71310
Subtotal Test and Evaluation	52612	5941	494				59047
Total Project	781323	38330	19421				839074

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: February 1995
BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE: 0604321A All Source Analysis System (TIARA)

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	8417	42049	52698	37428	24942	27363	23781	33422	Continuing	Continuing
DB19 ASAS Evolutionary Acquisition	8417	39094	51205	35438	21559	26865	23781	33422	Continuing	Continuing
D2FT ASAS Operational Test	0	2955	1493	1990	3383	498	0	0	0	0

A. Mission Description and Budget Item Justification: This program element, All Source Analysis System, funds the All Source Analysis System (ASAS) Evolutionary Acquisition (EA) system as well as the operational testing for the ASAS. ASAS is the automated support system for the intelligence and electronic warfare (IEW) functional area of the Army Command and Control System (ACCS). It is a tactically deployable ADP system designed to support management of IEW operations and target development and armored cavalry regiment (ACR), separate brigade, division, corps , and echelons above corps (EAC). The projects in this program element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in budget activity 5.

Project DB19 - ASAS Evolutionary Acquisition: This project funds the development of the Army's only tactical intelligence fusion project, the ASAS Block II Evolutionary Acquisition, within the Intelligence Fusion Project Office. The successful execution of military operations requires a flexible and modular intelligence and targeting system that will provide tactical commanders a common view of the battlefield and a means for gaining a timely and comprehensive understanding of enemy force deployments, capabilities, and potential courses of action. The ASAS is a ground based, mobile, command and control, and intelligence processing system. The ASAS system provides automated support to the combat commander in the areas of intelligence and collection management, all-source target and situation analysis, single and multi-source processing, intelligence reporting, electronic warfare, and operational security as well as automation support to battlefield commander's command and control. The ASAS Block II development program will build upon and expand the capabilities and functionalities developed and produced in the ASAS Block I System including conversion to the Army Command and Control System (ACCS) Common Hardware/Software Open architecture. Additional software capabilities include enhanced intelligence and command and control functionality, jump and degraded mode operations, enhanced communications, and improved reliability and supportability. ASAS Block II strategy maximizes the use of Government Furnished Equipment (GFE), government and commercial Non-Developmental Item (NDI) software, reuse of proven Office of Secretary of Defense (OSD) and ACCS Command, Control, Communications and Intelligence (C3I) software, multiple prototype deliveries and continuous user test and evaluation opportunities. This strategy provides early user capabilities and streamlines acquisition. Building upon experience and feedback gained from the fielded ASAS and other tactical fusion prototypes, ASAS Block II will undergo a Defense Acquisition (DAB) Milestone III review in FY 99. The Army's intent is to keep fielded ASAS technology as current as possible by initiating value engineering/technology insertion to position the ASAS Block I Tactical Operation Center Support Element (TSE) to receive ASAS Block II products, and by packaging some of the ASAS Block II advances into capability packages and inserting them into the fielded ASAS. Twenty-eight ASAS Block II systems will be fielded to Army active and reserve armored cavalry regiments, separate brigades, divisions, corps, and echelons-above corps.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604321A All Source Analysis System (TIARA)

FY 1994 Program Accomplishments:
- Continued SSP-S Effort (3481)
- Continued Joint Prototyping (971)
- Provided ATCCS III Testing Support (3965)

FY 1995 Planned Program:
- Continue Block II Engineering & Manufacturing Development (EMD) (32880)
- Provide GFE to Block II Contractor (1567)
- Conduct Development/Operational/Assessment Testing (3871)
- Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) (756)

FY 1996 Planned Program:
- Continue ASAS Block II Evolutionary E&MD Capability Packages (38990)
  - -Develop/integrate ASAS Common Applications
  - -Host Collection Management Support Tools
  - -Incorporate ASAS-Single Source (ASAS-SS) Security Features
- Conduct Development/Operational/Assessment Testing (5343)
- Procure and provide GFE for Product Development & Test (6872)

FY 1997 Planned Program:
- Continue ASAS Block II Evolutionary Acquisition E&MD Capability Packages (31866)
  - -Implement CASS-Compliant System Services and Common Applications
  - -Complete Unified Database Schema
  - -Delivery of CHS VI HCUs for 6 workstations and 1 Communications Support Processor
  - -Develop Operational Diagnostic Capability
- Conduct Development/Operational/Assessment Testing (3572)

Project D2FT - ASAS Operational Test: This project finances the direct costs of planning and conducting operational testing and evaluation of the ASAS by the Operational Test and Evaluation Command (OPTEC). ASAS is an Acquisition Category (ACAT) I system with several dedicated iterations of Initial Operational Test and Evaluation (IOTE) / Operational Assessments (OA) between FY 95 and FY 99. Operational testing/assessment 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 D2FT is restructured from PE 0605712A, Support of Operational Testing, and is not a new start.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604321A All Source Analysis System (TIARA)

FY 1995 Planned Program:

- Plan and prepare for ASAS Block II operational testing (2646)
- Plan and prepare for ASAS Block II operational testing evaluation (247)
- SBIR/STTR (62)

FY 96 Planned Program:

- Conduct ASAS Block II IOTE/Operational Assessment Testing (593)
- Conduct ASAS Block II IOTE/Operational Assessment Evaluation (500)
- Provide Player unit support of IOTE (400)

FY 97 Planned Program:

- Conduct ASAS Limited User Test (LUT) testing (1395)
- Conduct ASAS LUT Evaluation (397)
- Provide Player unit support of LUT (198)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	4471	42891	56978	46421
Appropriated Value	4471	42049		
Adjustments to Appropriated Value	3946			
a. SBIR/STRR decrement (-19)				
b. HQDA reprogramming (3965)				
Current President's Budget	8417	42049	52698	37428

Change Summary Explanation:

DB19: Funding: FY94 (+3M) funding added for operational testing of ASAS. Funds were realigned to OPA to allow for fielding of ASAS-Extended , FY 96 (-5.5M) and FY 97 (-4.9M). FY 97 (-6M) realigned for higher priorities.
Schedule: None
Technical: None

D2FT: Funding: Additional funding provided in FY 96 (1.5M) and FY 97 (2M) for Operational Testing of ASAS.
Schedule: None
Technical: None

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604321A All Source Analysis System (TIARA)

PROJECT: DB19

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
DB19 ASAS Evolutionary Acquisition	8417	39094	51205	35438	21559	26865	23781	33422	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
OPA (K28801) ASAS Modules	33933	23410	9886	7891	9052	34773	64925	74777	Cont	Cont
Spares (BA9704/MS9704)	4825	0	100	0	0	0	2089	6266	Cont	Cont
Spares (MA9106)		999								

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
BL RDTE Contract Award	X*															
BL I IOTE II				X*												
Phase 2 (TSE Functionality) Prototype Delivery										X						
Phase 3 (EAC Functionality) Prototype Delivery												X				
Preliminary Design Review												X				
Critical Design Review														X		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604321A All Source Analysis System (TIARA) — PROJECT DB19

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Systems Development	3846	29798	35162	29044
SETA	275	1786	1402	1034
Project Management	331	1126	1326	1003
Matrix Management	0	926	1100	785
Test	3965	3871	5343	3572
GFE	0	1587	6872	0
Total	8417	*39094	51205	35438

*SBIR/STTR (756)

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
Product Development Organizations											
Martin Marietta (BL II)(MMC)	CPAF	Oct 93	116679	116679	12923	971	29798	35162	29044	Cont	Cont
Electronic Warfare Assoc (SSP-S)	CPFF	Sep 94	2555	2555	0	2555					2555
Sterling SW (SSP-S)	T&M	May 94	320	320		320					320
Support and Management Organizations											
SYTEX	CPFF	Oct 93	TBD	TBD	0	275	1786	1402	1034	Cont	Cont
ASAS In-House					0	331	1126	1326	1003	Cont	Cont
Matrix CECOM					0	0	926	1100	785	Cont	Cont
Test and Evaluation Organizations											
OPTEC					0	3965	0	0	0	0	3965
MMC					0	0	3871	5343	3572	Cont	Cont

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604321A All Source Analysis System (TIARA)

Government Furnished Property

Item Description	Contract 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										
CHS	MIPR	N/A	TBD	0	0	1587	1100	0	0	2687
Support and Management Property: None										
Test and Evaluation Property										
Test sets (MMC)	CPAF	Oct 93		0	0	0	5772	0	0	5772

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	12923	3846	31385	36262	29044	CONT	CONT
Subtotal Support and Management		606	3838	3828	2822	CONT	CONT
Subtotal Test and Evaluation		3965	3871	11115	3572	CONT	CONT
Total Project		8417	*39094	51205	35438	CONT	CONT

*SBIR/STTR (756)

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604321A All Source Analysis System (TIARA)

PROJECT: D2FT

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
D2FT ASAS Operational Test	0	2955	1493	1990	3383	498	0	0	0	0

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
ASAS Operational Testing/Assessment					X*				X							X

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604321A All Source Analysis System (TIARA)

PROJECT: D2FT

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Operational Test , Evaluation , Assessment	0	2955	1493	1990
Total		2955	1493	1990

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
Product Development Organizations: N/A											
Support and Management Organizations: N/A											
Test and Evaluation Organizations											
OPTEC	MIPR						2955	1493	1990	3881	10319
Government Furnished Property: None											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation							2955	1493	1990	3881	10319
Total Project							2955	1493	1990	3881	10319

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604325A Advanced Missile System Heavy

PROJECT: DE18

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
DE18 Advanced Missile System Heavy	0	0	995	1493	15919	51251	56756	50681	218507	395602

A. Mission Description and Budget Item Justification

Provides for Engineering Manufacturing Development for Advance Missile System Heavy, (AMS-H), a vehicle mounted, crew served Heavy Anti-tank Missile System which will replace/supplement the TOW missile family. It will be integrated onto and fired from the High Mobility Multi-purpose Wheeled Vehicle (HMMWV) with Improved Target Acquisition System (ITAS) and on the Bradley Fighting Vehicle (BFV) with Improved Bradley Acquisition Sub-system (IBAS) platforms. The AMS-H will be capable of operating out to the maximum range required in the Heavy Anti-armored Weapon (HAW) Systems Qualitative Materiel Requirements (QMR) and will perform under day/night adverse weather conditions and obscurants. The AMS-H will be countermeasures hardened and will increase crew survivability. The AMS-H will be a competitive EMD program based on performance specifications. Projects within this element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in this budget activity 5.

FY 1996 Planned Program:

- EMD Preparation. (995)
  - Initiate Program Milestone II Documentation
  - Prepare Request for Proposal for missile and platform integration.
  - Conduct system and technical analysis

FY 1997 Planned Program:

- EMD Preparation. (1493)
  - Complete development of Program Milestone II Documentation
  - Conduct Source Selection
  - Complete Milestone II Review

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget				
Appropriated Value				
Adjustments to Appropriated Value				
Current Budget Submit/President's Budget			995	1493

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604325A Advanced Missile System Heavy

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										
TOW 2 C59300	67782	37245	7378	9543				1592		2267603

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
Release RFP												X				
Complete Source Selection																X
Milestone II Review																X

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604325A Advanced Missile System Heavy

PROJECT: DE18

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development				
Training Development				
Program Management Support			935	1403
Developmental Test and Evaluation			60	90
Total			995	1493

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
Product Development Organizations											
PRIME	TBD	TBD	TBD	TBD						312022	312022
Platform Integration	TBD	TBD	TBD	TBD						4769	4769
Support and Management Organizations											
PM CCAWS, RSA, AL	PO							297	445	12662	13404
MICOM, RSA,AL	PO							493	739	21619	22851
MISC	PO							145	219	8177	8541
Test and Evaluation Organizations											
TECOM,APG,MD	PO							60	90	33865	34015
Government Furnished Property: N/A											
Subtotal Product Development										316791	316791
Subtotal Support and Management								935	1403	42458	44796
Subtotal Test and Evaluation								60	90	33865	34015
Total Project								995	1493	393114	395602

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604604A Medium Tactical Vehicles

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	8736	6452	0	0	0	0	0	1696	Continuing	Continuing
DH07 Family of Medium Tactical Vehicles (FMTV)	6929	6452	0	0	0	0	0	1696	Continuing	Continuing
DH08 Extended Service Program (ESP)	1761	0	0	0	0	0	0	0	0	0
DH10 Cab Over Engine - Heavy HMMWV (COHHV)	46	0	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

This program element (PE) supports modernization of the Army's medium truck fleet. The Family of Medium Tactical Vehicles (FMTV) and Extended Service Program (ESP) will replace/remanufacture existing and aging M44 Series 2 1/2 ton trucks, M39 and M809 Series 5 ton trucks which are beyond their average useful life of 20-22 years. FMTV will also provide a follow-on to the current M939/A2 Series 5 ton truck. Body styles currently under development under Project DH07 were deferred from the first 5 year multi-year contract due to budget constraints. Bringing these vehicles on line as soon as possible supports the pure fleeting of FMTV to reduce the logistics impact and operating and support costs. Project DH08 is a Congressional interest program which provides upgrade to selected 2 1/2 ton truck assets through the addition of a new engine which meets the EPA emission standards and includes current technology power train components. ESP allows the total Army (Active, Reserve, and National Guard) to enhance its readiness in a time of declining defense spending. Project DH10 is also a Congressionally directed program which funds test and evaluation of the Cab Over Engine Heavy HMMWV (COHHV). The projects in this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

Project DH07 - This project supports the development of the FMTV Special Body Variants (MTV Tanker, MTV Expandable Van, LMTV Trailer and MTV Trailer). FMTV is required to fill the 2 1/2 ton (LMTV) and 5 ton truck (MTV) requirements, resolve operational deficiencies and operate throughout the theater as multi-purpose transportation vehicles used by combat, combat support and combat service support units. This system is designed to be rapidly deployable worldwide and operate on primary and secondary roads, trails, and cross-country terrain. Vehicles operate in all climatic conditions.

FY94 Accomplishments

- Continuation of Special Body Variant Prototype contract (4455)
- Developmental Testing (2408)
- Government Engineering Support (66)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604604A Medium Tactical Vehicles

FY 95 Planned Program

- Finalize Special Body Variant Prototype contract and Develop Technical Data Package (2683)
- Developmental Testing (1414)
- Government Engineering Support (20)
- Reprog/Payback PM, TMDE (2200)
- SIBR/STTR (135)

FY 96 Planned Program: Program not funded in FY 96

FY 97 Planned Program Program not funded in FY 97

Project DH08 - Medium Truck Extended Service Program (ESP) is a remanufacturing program for the M44A2 series 2 1/2 ton cargo truck in CONUS. ESP provides a vehicle that meets current emission standards and includes numerous safety improvements. ESP vehicles will be equipped with a Central Tire Inflation System (CTIS) for enhanced mobility, automatic transmission and power steering. The new vehicles will have much lower operating and support costs as compared to the current fleet.

FY94 Accomplishments

- Technical Data Package (TDP) (1268)
- Parking brake analysis and paper study for armoring of 2 1/2 ton vehicles (115)
- Government Engineering and Testing of Technology Insertion (378)

FY 95 Planned Program: Program not funded in FY 95

FY 96 Planned Program: Program not funded in FY 96

FY 97 Planned Program: Program not funded in FY 97

Project DH10 - The Cab Over Engine Heavy HMMWV (COHHV) was designed and developed by AM General and is a variant of the HMMWV family of vehicles, with the added capability of a 5,000 lb. payload and a three person cab. The COHHV provides roll-on/roll-off capability on a C-130, which coupled with an increase in payload may be utilized in various command and control missions. FY94 funding completes Airdrop and External Air Transport Certification of the COHHV.

FY94 Accomplishments

- Airdrop and External Air Transport Certification (46)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604604A Medium Tactical Vehicles

FY 95 Planned Program: Program not funded in FY 95

FY 96 Planned Program: Program not funded in FY 96

FY 97 Planned Program: Program not funded in FY 97

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	6548	6541	1821	1785
Appropriated Value	6447	6452		
Adjustments to Appropriated Value	2289			
Reprogrammed into PE (2289)				
Current Budget Submit/President's Budget	8736	6452	0	0

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604604A Medium Tactical Vehicles

PROJECT: DH07

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
DH07 Family of Medium Tactical Vehicles (FMTV)	6929	6452	0	0	0	0	0	1696	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
OPA1 Family of Medium Tactical Vehicles (MYP) D15500	28984	386035	39692	0	14315	154192	301134	365594	Cont	Cont

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
Develop Prototypes	X*															
Develop SSP					X*											
Developmental Testing					X*											
Finalize Drawings								X								

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604604A Medium Tactical Vehicles

PROJECT: DH07

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Product Development	4521	2703		
Developmental Testing	2408	1549		
Reprogramming		2200		
Total	6929	6452		

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
Product Development Organizations											
Teledyne (Prototype)	C-FFP	Oct 88	13515	13515	13515						13515
Tactical Truck (Prototype)	C-FFP	Oct 88	14500	14500	14500						14500
Stewart Stevenson (Prototype)	C-FFP	Oct 88	17204	17204	17204						17204
Stewart Stevenson (Tech Data Pkg)	C-FFP	Oct 91	10100	10100	10100						10100
Stewart Stevenson (Tech Data Pkg update)	SS-FFP	Jun 92	1916	1916	1916						1916
Stewart Stevenson (Special Bodies Prototype)	SS-CPFF	Sep 92	12750	12750	6819	4455	1476				12750
Stewart Stevenson (Special Bodies TDP)		Jun 95					1207				1207

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604604A Medium Tactical Vehicles

PROJECT: DH07

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
In-House/Fng					1651	66	20				1737
TACOM, MI											
Govt Eng (all other fld activities)					1024						1024
Support and Management Organizations											
N/A											
Test and Management Organizations											
TECOM (APG)					6600	49	1025				7674
TECOM (YPG)					3000						3000
TEXCOM (OPTEC)					636	2359	524				3519
PM, TMDE							2200				2200

Government Furnished Property: N/A

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	66729	4521	2703			Cont	Cont
Subtotal Support and Management							
Subtotal Test and Evaluation	10236	2408	3749				
Total Project	76965	6929	6452				

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604604A Medium Tactical Vehicles

PROJECT: DH08

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
DH08 Extended Service Program (ESP)	1761	0	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	Total Cost
OPA1 Extended Service Program (DV0009)	17615									17615

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
Award Contract - Tech Data Package	X*															
Production Contract Award	X*															
Enhanced System Component Testing			X*													
Type Classification Standard								X								
First Unit Equipped (FUE)										X						

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604604A Medium Tactical Vehicles PROJECT DH08

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Product Development	1383			
Developmental Testing	378			
Total	1761			

B. Budget Acquisition History and Planning Information: Not Applicable

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604604A Medium Tactical Vehicles

PROJECT: DH10

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
DH10 Cab Over Engine - Heavy HMMWV (COHHV)	46	0	0	0	0	0	0	0	0	0

C. **Other Program Funding Summary**: Not Applicable

D. **Schedule Profile**: Not Applicable

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604609A Smoke, Obscurant & Target Defeating Systems - ED

PROJECT: D200

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
D200 Smoke/Obscurant Systems	17140	3703	2000	0	0	2798	5196	7482	Continuing	Continuing

A. Mission Description and Budget Item Justification:

This program element supports the conduct of Engineering and Manufacturing Development (EMD) in smoke and obscurant agents, munitions, and devices to improve survivability of the combined arms force, complement combined weapons systems, and enhance force effectiveness and combat power. Funding supports (1) Motorized Dual Purpose Mechanical Smoke Generator, XM56 mounted on the High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) to provide large area visual, infrared (IR) and millimeter wavelength (MMW)-radar obscuration; (2) Generator, Smoke, Mechanical; Mechanized Smoke Obscurant System, XM58, consists of components of the XM56 mounted on a M113A3 carrier. The XM58 will equip smoke units in heavy units resulting in improved vehicle maneuverability and survivability; (3) XM81 MMW/IR Smoke Grenades which support the Vehicle Integrated Defense System. The XM81 provides IR and MMW screening from smart Anti-Tank Guided Missiles (ATGM) and top attack weapons; and (4) also provides funds to close out the XM1101 Mechanized Projected Smoke. The projects in this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

Project D200 -Smoke/Obscurant: The XM58 Smoke System will provide maneuver commanders the capability of generating large area screens to shield forces from visual and infrared reconnaissance intelligence surveillance and target acquisition threats in support of mechanized forces. The XM56 Motorized Large Area Screening System provides visual and infrared obscuration and increases survivability of light motorized forces by defeating or degrading threat surveillance and weapon system sights operating in the visual through far-infrared regions of the electromagnetic spectrum.

FY 1994 Accomplishments:

- XM56-Completed Pre-Production Qualification Test (PPQT) and conducted Initial Operational Test and Evaluation (IOT&E) (6616)
- XM56-Completed engineering and manufacturing development (EMD) and conducted MSIII and Type Classification (2224)
- XM58-Conducted engineering and manufacturing development and initiated PPQT (4900)
- XM1101-Closed-out (400)
- XM81-Initiated PPQT MMW/IR Grenade (1740)
- XM81-Completed System Engineering (1260)

FY 1995 Planned Program:

- XM58-Conduct PPQT and Milestone III/Type classification (1754)
- XM81-Complete MMW/IR Grenade System Engineering and incorporate changes resulting from PPQT (1771)
- XM81-Conduct MSIII TC IPR MMW/IR Grenade (100)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604609A Smoke, Obscurant & Target Defeating Systems - ED

- SBIR/STTR (78)

FY 1996 Planned Program:

- XM56-P3I Modularity Complete design (drawings/tech data), (1600)
- XM56-P3I Modularity Conduct technical/user testing (300)
- XM56-P3I Modularity Conduct Milestone III In-Process Review (100)

FY 1997 Planned Program: No Planned Program

B. Program Change Summary:

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	17096	3754	4001	5013
Appropriated Value	17096	3703		
Adjustments to Appropriated Value	+44			
a. SBIR/STTR decrement (-265)				
b. Reprogram into PE (309)				
Current Budget Submit/President's Budget	17140	3703	2000	0

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
RDTE,A Budget Activity 2, PE 0602622A, Project A552 Smoke/Novel Effects Munitions	4025	2032	1891	1990	2316	2984	3484	3575	Cont'd	Cont'd
RDTE,A Budget Activity 4, PE 0603627A, Project DE79 Smoke, Obscurant and Equipment Defeating Systems	5067	2789	3248	6567	5782	4976	0	0	Cont'd	Cont'd
OPA-1, A Appropriation										
D15402, M1097 Heavy HMMWV	0	0	56227*	0	0	0	0	0	0	12480
OPA-3, A Appropriation										
M99103, XM56 Smoke Generator	4900	12410	0	13014	13309	0	0	0	10003	53636

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604609A Smoke, Obscurant & Target Defeating Systems - ED PROJECT D200

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
M99107, XM58 Smoke Generator	0	0	12698	12050	9704	0	0	0	7464	41916
M99104, M157A1E1 Smoke Generator	0	0	5214	3614	0	0	0	0	0	8828
Modification Kits, M157A1E1 Smoke Generator	0	0	2787	0	0	0	0	0	0	2787
Ammo, A Appropriation										
E82200, XM81 Smoke Grenade	0	0	4000	4000	4000	4000	0	0	0	16000

* Appropriation supports Heavy HMMWV for XM56 SGS (12480)

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
XM58-Initiate PPQT				X*												
XM58-Conduct PPQT						X										
XM58-Initiate IOT&E							X									
XM58-Complete IOT&E							X									
XM58-Conduct MS III/TC								X								
XM56-Complete PPQT		X*														
XM56-Conduct IOT&E			X*													
XM56-Conduct MSIII/TC				X*												
XM56-Complete P3I Modularity Design										X						
XM56-Complete P3I Mod Tech/User Test											X					
XM56-Conduct P3I Modularity MS III												X				
XM81-PPQT Hardware Fabrication			X*													
XM81-Initiate PPQT				X*												
XM81-Complete PPQT						X										
XM81-Milestone III								X								

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604609A Smoke, Obscurant & Target Defeating Systems - ED PROJECT D200

A. Project Cost Breakdown:

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	616		300	
Systems Engineering	1902	1281	200	
Integrated Logistics Support	1291	111	200	
Quality Assurance	382	111	100	
Reliability, Maintainability and Availability	195	111	10	
Configuration Management	232	117	50	
Technical Data	871		100	
Test and Evaluation	3045	500	300	
Contractor Engineering Support	4673		0	
Government Engineering Support	600		200	
Program Management Support	637	420	100	
Program Management Personnel	868	568	150	
Travel	174		50	
Miscellaneous	1111	106	240	
Hardware	543	300		
SBIR/STTR		78		
Total	17140	3703	2000	

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
Product Development Organizations											
Chamberlain MRC	C/CPFF	Sep 87	36787	36787	32215	4572					36787
UDLP	MIPR	Mar 94	1342	1342		1342					1342
Misc.	MIPR		54846	54846	41075	6617	1754	2000		3400	54846
ITT Research			2801	2801	2801						2801
MICOM			2022	2022	2022						2022

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604609A Smoke, Obscurant & Target Defeating Systems - ED

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
ERDEC (XM81)	PO	Sep 94		15071	10200	3000	1871				15071
Support and Management Organizations											
SoBran, Inc.	SS/CPFF	Oct 93	236	236		236					236
Test and Evaluation Organizations											
Misc.	MIPR		6407	6407	5034	1373					6407

Government Furnished Property: None

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	88313	15531	3625	2000		3400	112869
Subtotal Support and Management		236					236
Subtotal Test and Evaluation	5034	1373					6407
Total Project	93347	17140	3625*	2000		3400	119512

* Does not include SBIR/STTR (78)

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604611A JAVELIN (AAWS-M)

PROJECT: D499

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
D499 JAVELIN	47205	34268	0	0	0	0	0	0	0	614295

A. Mission Description and Budget Item Justification

This Program Element (PE) provides for the continuation of Engineering and Manufacturing Development (EMD) of a manportable antitank weapon system for the combined arms team employment. The infantry must have the capability to defeat numerically superior armored forces. The present medium infantry antitank weapon is DRAGON. The system developed within this PE will replace the DRAGON to provide enhanced lethality for the early entry force. It will have a high kill rate against all known armor threats at extended ranges under day/night, adverse weather conditions and in the presence of battlefield obscurants. This system will be hardened against countermeasures and will not require extensive training for effective employment. Active protection system developments will be considered and modifications studied to defeat these devices if necessary. EMD/Technical Support will conclude in FY 1995. This project supports research efforts in the engineering and manufacturing development phase of the acquisition strategy and therefore is appropriate to Budget Activity 5.

FY 1994 Accomplishments:

- EMD Contract/EPP Contract/FTT Upgrade/Advanced Warhead Major Contracts (32791)
- Complete IOTE/PPQT System Testing (2515)
- In-House Support (10712)
- Support Contract (1187)

FY 1995 Planned Program:

- EMD Contract/EPP Contract/FTT Upgrade/Advanced Warhead Major Contracts (22726)
- In-House Support (6967)
- Other Government Agency (3856)
- SBIR/STTR (719)

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604611A JAVELIN (AAWS-M)

PROJECT: D499

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	47437	31337		
Appropriated Value	47437	34268		
Adjustments to Appropriated Value	-232			
a. SBIR/STTR decrement (-732)				
b. Reprogrammed to PE (+500)				
Current President's Budget Submit	47205	34268		

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	207268	212583	171428	168200	154022	151303	202463	293499	1251227	2830298
CC0007 JAVELIN										

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
Complete PPQT System Tests	X*															
Award Long Lead Time Items Contract	X*															
Conduct IOTE	X*															
LRIP Decision			X*													
Award LRIP I Contract			X*													
Award LRIP II Contract						X										
Conduct Physical Configuration Audit									X							
Initiate Production Verification Test									X							
Award LRIP III Contract											X					
Conduct System Level Live Fire Tests											X					
First Unit Equipped											X					
Milestone III															X	
Award FRP Multiyear															X	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604611A JAVELIN (AAWS-M)
	PROJECT D499

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Major Contract Support	32791	22726		
Support Contractor	1187			
Program Management Support	4834	3901		
Research and Development Center Support	3964	3066		
Test Support	2515	2768		
Miscellaneous (OGA)	1914	1088		
SBIR/STTR		719		
Total	47205	34268		

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
Product Development Organizations											
TI/MM JV EMD	C/CPIF	06/21/89	462700	465500	439415	32791	22726				494932
Support and Management Organizations											
Support Contractor	8(a)/CPFF		N/A	N/A	5560	1187					6747
In-House Support (Core, Collocated, Labs, OGAs)					65073	10712	8055				83840

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE: February 1995
BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE: 0604611A JAVELIN (AAWS-M)	PROJECT: D499

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
Test and Evaluation Organizations											
RTTC					16203	2227	2703				21133
Other					6571	288	65				6924

Government Furnished Property

Item Description	Contract 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										
Support and Management Property										
Test and Evaluation Property										

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	439415	32791	22726				494932
Subtotal Support and Management	70633	11899	8055				90587
Subtotal Test and Evaluation	22774	2515	2768				28057
SBIR/STTR			719				719
Total Project	532822	47205	34268				614295

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604619A Landmine Warfare

PROJECT: D088

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
D088 Wide Area Mine	23272	33356	31028	18253	18092	19745	22283	22248	25400	313978

A. **Mission Description and Budget Item Justification** The Wide Area Mine (WAM) provides unique control and offensive capability for a variety of missions. WAM will significantly reduce blue force warpower losses by using advanced smart technology on the battlefield. This program provides for Engineering Development and Validation of wide area mine system concepts which will enhance the U.S. capability in mine warfare. The program provides for Engineering and Manufacturing Development (EMD) of the Basic WAM deployed by hand emplacement with one way communications. The pre-planned product improvement Basic WAM with 2-way command and control and redeployable capabilities will use advanced sensors, computer technology, and warhead technology to extend the range and lethality of present scatterable mines. The project in this Program Element supports the EMD phase of the acquisition strategy for the Wide Area Mine and is, therefore, appropriately placed in Budget Activity 5.

Project D088 - Wide Area Mine

FY 1994 Accomplishments

- Procure qualification hardware and fabricate WAM Hand Emplaced Prototype (16877)
- Complete Systems Qualification Test (2500)
- Complete System Components Critical Design Review (3895)

FY 1995 Planned Program

- Complete System Critical Design Review (450)
- Complete Contractor Prototype Qualification Review (11022)
- Procure and fabricate Basic WAM Technical Tests/User Tests (TT/UT) hardware (19963)
- Conduct Basic WAM Milestone IIIa (1240)
- Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) decrement (681)

FY 1996 Planned Program

- Complete Live Test (2500)
- Complete TT/UT Testing (8462)
- Complete Functional Configuration Audit (3666)
- Complete initial WAM PIP EMD Trade-Off studies (16400)

FY 1997 Planned Program

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604619A Landmine Warfare

- Complete WAM PIP Ground Platform Preliminary Design Review (6400)
- Complete WAM PIP Air Sensor Preliminary Design Review (7800)
- Procure Initial Contractor Systems Component Hardware (4053)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	21186	33843	31177	18339
Appropriated Value	21186			
Adjustments to Appropriated Value	2086			
a. SBIR/STTR decrease (-315)				
b. Reprogramming into PE (+2401)				
Current Budget Submit/President's Budget	23272	33356	31028	18253

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
Appropriation: Procurement of Ammunition, Army										
Wide Area Mine, SSN E78100			15000	20000	20000	35000	35000	35000	105000	265000
WAM Individual Trainer, SSN E78103			1517	850						
WAM Collective Trainer, SSN E78104			336	1150						

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
Fabricate HE WAM Prototype Qualification hardware				X*												
Complete Systems Demonstration Test				X*												
Complete System Components Critical Design Reviews				X*												
Complete System Critical Design Review						X										
Complete Contractor Prototype Qualification Tests							X									
Fabricate Basic WAM Technical Test/ User Test (JT) hardware								X								
Conduct WAM Milestone IIIa								X								

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604619A Landmine Warfare

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
Complete Live Test *									X							
Complete TT/UT Testing												X				
Complete Functional Configuration Audit												X				
Complete Basic WAM Milestone III												X				
Complete initial WAM PIP Trade-Off studies												X				
Complete WAM PIP Ground Platform Preliminary Design Review															X	
Complete PIP Air Sensor Preliminary Design Review															X	
Procure initial contractor system component test hardware																X

WAM PIP Milestone III - 9/99
DOME Milestone III - 9/02

* Denotes completed

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604619A Landmine Warfare PROJECT D088

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	19446	27096	25261	14861
Test and Evaluation	357	584	538	317
Gov't Engineering Support	2252	3685	3394	1997
Gov't Program Management	528	864	796	468
GFM	45	74	68	40
MISC	644	1053	971	570
Total	23272	33356	31028	18253

B. Budget Acquisition History and Planning Information: N/A

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604633A Air Traffic Control

PROJECT: D586

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
D586 Air Traffic Control	1965	7766	1813	1838	1880	1922	2271	2341	Continuing	Continuing

A. **Mission Description and Budget Item Justification:** This program element funds continuously evolving efforts for the development of Air Traffic Control (ATC) systems for both tactical and fixed base applications. It funds the integration and qualification of an Air Traffic Navigation, Integration, and Coordination System (ATNAVICS) and Tactical Airspace Integration System (TAIS). These systems provide urgently needed communications and precision/non-precision approach and flight following capability in support of Army tactical airfields, remote landing zones, drop zones, pickup zones and temporary helicopter operating areas worldwide. These are non-developmental item (NDI) programs. Fixed base ATC efforts funded by this line include Precision Approach Radar (PAR), Navigation Air Systems Modernization (NAVAID), Communication System Modernization and digitization of the ATC structure. The tasks in this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and is therefore correctly placed in Budget Activity 5.

Project D586 - Air Traffic Control

FY 1994 Accomplishments:

Air Traffic Navigation, Integration, Coordination, Systems (ATNAVICS)/Precision Approach Radar (PAR)

- Evaluation and suitability study and cost saving data (580)
- Plan developmental test and operational testing (100)

Tactical Airspace Integration System (TAIS)

- Market analysis for state-of-the-art system (483)
- Design definition/integration analysis (802)

FY 1995 Planned Program:

ATNAVICS/PAR

- Procure prototype system for Developmental testing/initial operational test evaluation (IOTE) (6700)
- Initial Operational Test Evaluation (IOTE) (200)
- Design, fabricate, test prototype system (233)
- Plan test under operational conditions (100)
- SBIR/STTR (162)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604633A Air Traffic Control
	PROJECT D586

TAIS

- Design/system integration with Army communication hardware/softw re digitization integration analysis (88)
- Hardware/software demonstration (83)
- Evaluation and suitability study and cost saving data (200)

FY 1996 Planned Program:

ATNAVICS/PAR

- Fixed base PAR Performance Test (100)
- ATNAVICS/PAR System Performance (900)

TAIS

- System concept design defination (692)
- Suitability study and cost saving data (121)

FY 1997 Planned Program:

TAIS

- Procure prototype system for Developmental Testing/Initial Operational Test Evaluation (IOTE) (1100)
- Design, fabricate, test prototype system (738)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	5600	7873	1821	1846
Appropriated Value	5600	7766		
Adjustments to Appropriated Value	-3635			
a. Reprogramming (-3548)				
b. SBIR/STTR (-87)				
Current Budget Submit/President's Budget	1965	7766	1813	1838

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604633A Air Traffic Control

C. Other Program Funding Summary

APA AAOO5O - Air Traffic Control

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Complete	Total Cost
	10761	8708	8187	6449	6172	6269	9954	43794	Cont'd	Cont'd

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
ATNAVICS/PAR Suitability Study		X*														
TAIS Market Survey		X*														
TAIS Design Definition Analysis			X*													
Procure prototype for ATNAVICS/PAR							X									
ATNAVICS Design and Fabricate							X									
Evaluation and suitability study for TAIS						X										
ATNAVICS/PAR System Performance											X					
PAR On Site Operational Demonstration												X				
TAIS System Design Definition										X						
Procure prototype for TAIS														X		
TAIS Design and Fabricate															X	
TAIS Developmental Testing																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604633A Air Traffic Control	PROJECT D58(

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engineering Support	997		1021	396
Primary Hardware Development	165	7111	100	150
Program Management Support	803	655	692	642
Development Test and Evaluation				650
Total	1965	7766	1813	1838

B. Budget Acquisition History and Planning Information: Not Applicable

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604640A Future Command And Control Vehicle (FC2V)

PROJECT: DG27

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
DG27 Future Command and Control Vehicle	10525	31676	18238	6886	6965	0	0	0	0	74270

A. Mission Description and Budget Item Justification

The Command and Control Vehicle (C2V) will provide a fully tracked, armored vehicle that will ensure a mobile, responsive and survivable command and control capability for the heavy force. The C2V will be capable of command and control during mobile operations. The C2V supports the Army Digitization effort and will be capable of incorporating communications and electronic systems compatible with Army Tactical Command and Control Systems. This program is a Desert Storm Initiative. Program is currently in Engineering and Manufacturing Development Phase.

FY 1994 Accomplishments

- Continue Design Effort (4900)
- Fabrication of Pre-Production Vehicles (3200)
- Government test development (200)
- Project Management (2225)

FY 1995 Planned Program

- Fabricate Pre Production Vehicles (15900)
- Design Logistics Effort (3700)
- Continue Design Engineering (6651)
- Begin PPQT and Live Fire (2700)
- Project Management (2086)
- SBBR/STTR (639)

FY 1996 Planned Program

- Develop TDP (4769)
- Logistics Effort (2800)
- Continue Design Engineering (4462)
- Prototype Manufacture (700)
- Conduct Live Fire (2700)
- Project Management (2807)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604640A Future Command And Control Vehicle (FC2V)
	PROJECT DG27

FY 1997 Planned Program

- Complete Technical Data Package (800)
- Logistics Effort (1100)
- Complete Prototype (1000)
- Complete Live Fire (2500)
- Award LRIP Contract (100)
- Project Management (1366)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	10654	32159	17515	9122
Appropriated Value (Total PE)	10654			
Adjustments to Appropriated Value	-129			
SBIR/STTR (-147)+ Reprogramming from D332 (+18)				
Current President's Budget (FY 96/97)	10525	31676	18238	6866

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
GA84200 Command & Control Vehicle				30158	35936	70555	89338	129191	Cont.	Cont.
GC0173 Spares (Initial) C2V					1027	1015			Cont.	Cont.
Total PAA Funding				30158	36963	71570	89338	129191	Cont.	Cont.

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
MS I/II	x *															

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604640A Future Command And Control Vehicle (FC2V)

PROJECT: DG27

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Award EMD Contract				x*												
Complete Design Effort						x										
Complete Facility Vehicle Testing						x										
Start Developmental Testing								x								
Complete Pre-Production Vehicles									x							
Start Live Fire Testing										x						
LRIP IPR											x	x				
Award LRIP Contracts													x			
Complete Developmental Tests													x			
Complete Live Fire																x

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604640A Future Command And Control Vehicle (FC2V)
	PROJECT DG27

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Design Engineering	4900	10351	12031	1900
Prototype Manufacture	3200	15900	700	1000
Test	200	2700	2700	2500
In House Tasks	2225	2725	2807	1466
Total	10525	31676	18238	6866

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
Product Development Organizations											
United Defense (LP) San Jose, CA	SS/CPIF		28000	28000			13500	11600	2900		28000
Other Contracts				20200		8100	12751	1131		2000	23982
Support and Management Organizations											
TACOM						1125	1390	1432	1077	35	5059
CECOM						1100	1335	1375	389	30	4229
Test and Evaluation Organizations											
APG,YPG, White Sands						200	2700	2700	2500	4900	13000

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604640A Future Command And Control Vehicle (FC2V)
	PROJECT DG27

Government Furnished Property: None

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development		8100	26251	12731	2900	2000	51982
Subtotal Support and Management		2225	2725	2807	1466	65	9288
Subtotal Test and Evaluation		200	2700	2700	2500	4900	13000
Total Project		10525	31676	18238	6866	6965	74270

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604641A Tactical Unmanned Ground Vehicle (TUGV)

PROJECT: DE47

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
DE47 TACTICAL UNMANNED GROUND VEHICLE	0	0	0	2985	2985	2986	2997	2993	0	14946

A. Mission Description and Budget Item Justification This is a Joint Service Program. This robotic system provides battalion Commanders and below with the ability to see and shape the battlefield from a remote location utilizing Reconnaissance, Surveillance and Target Acquisition (RSTA), greatly extending the survivability of combined forces by extending the control radius of human presence on the battlefield. The current Joint Army/Marine Corps Operational Requirements Document (JORD) states a need for "combat-expendable" organic unmanned vehicles capable of providing relevant RSTA, chemical vapor detection, patrolling, and hazard/obstacle detection for the maneuver forces, battalion and below. The project is OSD funded through Milestone II (3rd quarter FY 97), at which point Army and Marine Corps funding begins. This PE supports research efforts in the engineering, manufacturing and design phase of the acquisition cycle and is therefore placed in Budget Activity 5. This is an ACAT III Program.

FY 1994 Accomplishments:
- Prepared Milestone I Documentation
- Scheduled Change to Split Combined Milestone I/II
- Staffed Joint Operational Requirements Document (JORD)

FY 1995 Planned Program:
- Obtain Milestone I Decision
- B Specification Development
- Begin Technical Testing on Demonstration and Validation Test Assets
- Initiate User Appraisals

FY 1996 Planned Program:
- Continue Technical Testing/User Appraisals
- Test/Resolve Critical Issues
- Develop and Release Engineering and Manufacturing Development (EMD) Request for Proposal

FY 1997 Planned Program:
- Obtain Milestone II Decision (1492)
- EMD Contractor Source Selection/Contract Award (1493)

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604641A Tactical Unmanned Ground Vehicle (TUGV)

PROJECT: DE47

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget				1492
Appropriated Value				
Adjustments to Appropriated Value				
Current Budget Submit/President's Budget				1493

C. Other Program Funding Summary This program is OSD funded through Milestone II which is scheduled for 3rd quarter FY 97. Service funding , Army and Marine Corps, begins 4th quarter FY 97. Army and Marine Corps Procurement funding will be addressed during the POM 98 submission.

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
USMC Mission Need Statement																
Complete TUGV Baseline Cost Estimate			X*													
Update TUGV Best Technical Approach			X*													
Complete Cost and Oper. Effect. Analysis					X*											
Approved JORD						X										
Milestone I						X										
Initiate User Appraisals								X								
Begin Developmental Test & Evaluation									X							
Develop EMD Request for Proposal (RFP)											X					
Release EMD RFP												X				
Initiate EMD Source Selection													X			
Milestone II																X

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604641A Tactical Unmanned Ground Vehicle (TUGV)

PROJECT: DE47

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Government Engineering Support				1492
Program Management Support				1493
Total				2985

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
Product Development Organizations											
MICOM RDEC									1492	C	C
RSA, AL											
Support and Management Organizations											
UGV/S JPO									1493	C	C
RSA, AL											
Test and Evaluation Organizations											

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604642A Light Tactical Wheeled Vehicles

PROJECT: DE41

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
DE41 Armored Security Vehicle (ASV)	0	0	2187	896	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

This PE supports all Light Tactical Wheeled Vehicles such as the High Mobility Multi-purpose Wheeled Vehicle (HMMWV), Commercial Utility Cargo Vehicle (CUCV) and the Armored Security Vehicle (ASV). Currently DE41 (ASV) is the only project in development.

Project DE41 - Armored Security Vehicle (ASV). The ASV is a turreted, lightly armored all-wheel drive combat support vehicle which will provide essential protection to selected Military Police units in highly exposed threat environments. The Military Police (MP) currently use the High Mobility Multipurpose Wheeled Vehicle. The ASV is required to provide improved ballistics protection, increased payload and NBC protection to the MP teams. The need for such a wheeled vehicle was highlighted by recen. humanitarian missions such as Operation Restore Hope in Somalia and conflict in Bosnia. There is no other comparable system in the inventory which offers the ballistic protection, transportability and mobility of the ASV. This project supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and is therefore placed in Budget Activity 5.

FY94 Accomplishments: Program not funded in FY 94

FY 95 Planned Program

- Program not funded under this PE
- Funded under PE 064328D
- Funded by OSD - Initiate Source Selection Evaluation Board (350)
- Funded by OSD - Award contract(s) for hardware demonstration vehicles (3111)

FY 96 Planned Program

- Pre-Production Qualification Test (PPQT) (1789)
- Government Engineering Support (200)
- Technical and Logistics Data (198)

FY 97 Planned Program

- Governmen Engineering Support (200)
- Technical a id Logistics Data (696)

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604642A Light Tactical Wheeled Vehicles

PROJECT: DE41

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	0	3479	910	0
Appropriated Value	0			
Adjustments to Appropriated Value				
Current Budget Submit/President's Budget	0	0	2187	896

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
OPA1 Armored Security Vehicle (D02800)				9609	10361	9670	7691			37331
OPA4 Initial Spares (PEO Other) (DS1030)				99	111	101	85			396

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
Release Draft Specification			X*													
Release Draft RFP				X*												
Release RFP						X										
Source Selection Evaluation							X									
R&D Contract Award								X								
PPQT Testing												X				
Release Production RFP															X	
Production Contract Award																X
Milestone III Decision																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604642A Light Tactical Wheeled Vehicles PROJECT DE41

A. **Project Cost Breakdown**

	FY 1994	FY 1995	FY 1996	FY 1997
Product Development			198	696
Test and Evaluation			1789	
In-House/Govt Engineering			200	200
Total			2187	896

B. **Budget Acquisition History and Planning Information**: Not Applicable

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604645A Armored Systems Modernization (ASM)-Engr Dev

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	89489	62267	38465	20744	14872	8119	333959	518677	Continuing	Continuing
D175	Advanced Field Artillery System Mullt Option Fuse	7615	6240	6388	6965	0	4379	0	0	0	41546
D2AT	AGS Operational Test	0	2909	0	0	0	0	0	0	0	2909
D2KT	Advanced Field Artillery System Operational Test	0	0	0	0	0	3740	1220	100	Continuing	Continuing
D413	Armored Gun System	81874	53118	32077	13779	14872	0	0	0	0	305060
D417	Advanced Field Artillery System - Engineering Development	0	0	0	0	0	0	202841	332217	Continuing	Continuing
D418	Field Artillery Resupply Vehicle - Engineering Development	0	0	0	0	0	0	129898	186360	Continuing	Continuing

A. Mission Description and Budget Item Justification: This Program Element supports the Engineering and Manufacturing Development and Operational Testing efforts for the Armored Gun System, the Advanced Field Artillery System (AFAS), Field Artillery Resupply Vehicle and the Advanced field Artillery System Multi-Option Fuse for Artillery (MOFA). The projects in this program element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

Project D175 - Advanced Field Artillery System Multi-Option Fuse: The Advanced Field Artillery System (AFAS) is the Army's next generation 155mm self-propelled howitzer system that will provide a significant increase in artillery survivability, lethality, mobility and operational capability and effectiveness through utilization and integration of advanced technology in its subsystems and combat components. This project finances the Engineering and Manufacturing Development phase of MOFA. MOFA will provide proximity, time delay and point detonation functions for 105mm, 155mm and 8 inch bursting projectiles. MOFA will be inductively (or manually) set contributing to AFAS's critical automated ammunition handling capability, allowing AFAS to meet extended range (40-50km), rate of fire (12 rounds/min.), and autonomous operations requirements.

FY94 Accomplishments:

- Electronics Manufacturing Development & Fuze Setting Verification (6600)
- Program Management, Management Engineering Services (763)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604645A Armored Systems Modernization (ASM)-Engr Dev

- Full Function System Test, High "G" Survivability Test (252)

FY 95 Planned Program:
- Baseline Design, Producibility Maturation, Electronics Prove-Out (4679)
- Program Management, Management Engineering Services (830)
- Subsystem testing(600)
- SBIR/STTR (131)

FY 96 Planned Program:
- End of Development Review, System Integration Prove-out (4667)
- Program Management, Management Engineering Services (608)
- Qualification Testing/Developmental and Operational Testing (1113)

FY 97 Planned Program:
- Critical Design Review, Production Readiness Review (4865)
- Program Management, Management Engineering Services (600)
- Developmental and Operational Testing, Completion Qualification Testing (1500)

Project D2AT - AGS Operational Test: The AGS is an Acquisition Category II system with a dedicated Early User Test and Experimentation (EUTE) to support an LRIP decision in FY 95. This project finances the direct costs of planning and conducting operational testing and evaluation of the AGS by the Operational Test and Evaluation Command (OPTEC). 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 the effectiveness and suitability of the system. Project D2AT is not a new start; it represents test funds previously budgeted in PE 0605712, Support of Operational Testing, Project D001, OPTEC Initial Operational Test and Evaluation (IOTE).

FY 94 Planned Program: Program is unfunded for FY 1994

FY 95 Planned Program:
- Early User Test (2909)

FY 96 Planned Program: Program is unfunded for FY 1996

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604645A Armored Systems Modernization (ASM)-Engr Dev

FY 97 Planned Program: Program is unfunded for FY 1997

Project D413 - AGS: The Armored Gun System (AGS) is a strategically deployable, tactically transportable, lightly armored, highly mobil, direct fire weapon system. The AGS will support light infantry forces in (nsive and defensive operations, low and mid intensity conflicts. The AGS will be employed during contingency force operations; therefore it must be capable of insertion via low velocity air drop (LVAD) and execute forced entry operations. Its role is to support infantry units in direct fire mode for point fire target destruction, generally against bunkers, threat medium armor systems, buildings, and in Military Operations in Urban Terrain. System capabilities include C-130 LVAD (Level I Armor), Roll-on/Roll-off C130/C141 (Level II Armor), Roll-on/Roll-off C-17 (Level III Armor), 105mm main gun (XM35) with autoloader, 3 man crew, fire control equivalent to M1 and mobility with Level III armor greater than the M551 Sheridan. The AGS program was restructured in response to Congressional concern regarding concurrency between test and production. The restructured strategy virtually eliminates any overlap between these efforts.

FY94 Accomplishments:
- Continued EMD (73171)
- Completed BSS Testing (329)
- Initiated Vulnerability Testing (350)
- Continued Technical T :sting (2424)
- Project Management (5(00)

FY 95 Planned Program:
- Continue EMD (41037)
- Complete Vulnerability Testing (2000)
- Continue Technical Testing (4576)
- Project Management (4422)
- SBIR/STTR (1083)

FY 96 Planned Program:
- Continue EMD (22316)
- Continue Technical Testing (2090)
- Begin Live Fire Testing (4800)
- Project Management (2871)

FY 97 Planned Program:
- Continue EMD (8405)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604645A Armored Systems Modernization (ASM)-Engr Dev

- Complete Technical Testing (109)
- Continue Live Fire Testing (200)
- Project Management (1154)
- Begin ESLRF/DTV Development (3911)

B. Program Change Summary	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	89504	51097	20948	23069
Appropriated Value	89504	62267		
Adjustments to Appropriated Value	-15			
a. SBIR Decrease (-1964)				
b. Reprogram from D330 (+771)				
c. Reprogram from D280 (+1178)				
Current Budget Submit/President's Budget	89489	62267	38465	20744

Change Summary Explanation:

Project D413 - AGS

Funding: The change in FY 96 funding is due to restructuring of the program as indicated in the schedule comments below. The significant difference is f funding for Operational Testing and Live Fire Testing in FY 96 vs. FY 97.

Schedule: LRIP delayed from FY 95 until FY 96. Three year LRIP compressed into one, MS III accelerated from Apr 99 to Mar 97. Production contract award moved up to April 97. IOTE and Live Fire tests accelerated from FY 97 into FY 96.

Technical: None.

Project D175 - MOFA EMD

Funding: Reprogramming from PE 634645/D409 in FY 96 and FY 97 required to maintain continuity between MOFA development and production phases and support AFAS/FARV Development Phases I & II test requirements.

Schedule: One year push-out of MSIII IPR and Type Classification from 2QFY96 to 2QFY97.

Technical: None

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604645A Armored Systems Modernization (ASM)- Engr Dev

PROJECT: D175

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
D175 Advanced Field Artillery System Mulit Option Fuse	7615	6240	6388	6965	0	4379	0	0	0	41546

C. Other Program Funding Summary	FY1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Comp	Ttl Cost
RDTE, A Budget Activity 4	76466	113129	130459	174342	218991	185407	28977			1149650
PE 6034645, Project D409 - AFAS Ammo, A Appropriation ER8017 MOFA Production						2000	33100	63700	265100	363900

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
Acquisition Milestones (AM) Milestone III IPR/Type Classification														X		
AM - Hardware Delivery														X		
Engineering Milestones (EM)- Initiated Task III			X*													
T&E Milestones - Ballistic Testing			X*	X*												
EM - Task IV Start							X									
EM - Complete Task III						X										
T&E Miletsones - Start of Development and Operational Test										X						
T&E Milestones - Hardware Prove-out Testing						X	X									
T&E Milestones - Baseline Design Testing								X		X						
T&E Milestones - Pre-Qualification Test												X	X			
EM - Complete Task IV											X					
EM - Start Task V												X				
EM - Contract Completion														X		
T&E Miletsones - Completion of Development and Operational Test										X						

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604645A Armored Systems Modernization (ASM)- Engr Dev

PROJECT: D175

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Product Development	6600	4679	4667	4865
Support and Management	763	830	608	600
Test and Evaluation	252	600	1113	1500
SIBR/STTR	0	131	0	0
Total	7615	6240	6388	6965

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
Product Development Organizations											
Alliant TechSystems, Hopkins, MN	CPIF	May 92	18210	19816	5773	4941	3000	3002	3000		19716
Raytheon/TI Joint Ventures, Twesbury, MA	SS-CPFF				1192	596					1788
AMCCOM, ARDEC, Dover, NJ & Adelphi, MD					1749	1063	1679	1665	1865	4000	12021
Support and Management Organizations											
AMCCOM, ARDEC, Dover, NJ & Adelphi, MD					984	763	830	608	600	379	4164
Test and Evaluation Organizations											
TECOM, Yuma, AZ					94	252	600	1113	1500		3559
SBIR/STTR							131				131

Government Furnished Property: None

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604645A Armored Systems Modernization (ASM)-Engr Dev

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	8714	6600	4679	4667	4865	4000	33525
Subtotal Support and Management	984	763	830	608	600	379	4164
Subtotal Test and Evaluation	94	252	731	1113	1500		3690
Total Project	9792	7615	6240	6388	6965	4379	41379

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604645A Armored Systems Modernization (ASM)- Engr Dev

PROJECT: D2AT

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
D2AT AGS Operational Test	0	2909	0	0	0	0	0	0	0	2909

C. **Other Program Funding Summary**: None

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
Early User Test and Evaluation						X	X									

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604645A Armored Systems Modernization (ASM)- Engr Dev

PROJECT: D2KT

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
D2KT Advanced Field Artillery System Operational Test	0	0	0	0	0	3740	1220	100	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
RDTE, A Budget Activity 4 PE 0603645, Project D409 AFAS	76466	113129	130459	174342	218991	185407	28977	0	0	1149088

D. Schedule Profile: Not Applicable

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604645A Armored Systems Modernization (ASM)- Engr Dev

PROJECT: D413

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
D413 Armored Gun System	81874	53118	32077	13779	14872	0	0	0	0	305060

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
WTCV,A Appropriation										
GZ2755 AGS Training Devices					22786	8459	11640			42885
G82800 Armored Gun System	8218		141551	182222	154638	187733	186038	167211	214030	1233423
GA0760 AGS Mods					14331	66012	33080	5076	15600	134099

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
Critical Design Review	X*															
Prototype delivery		X*														
Complete BSS Testing				X*												
EUT&E						X	X									
Complete Vulnerability Testing							X									
IPR (LRIP Decision)								X								
Begin IOT&E									X							
Begin Live Fire Test											X					
Complete IOT&E											X					
Complete Live Fire Test													X			
Milestone III (Full Production Decision)														X		

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604645A Armored Systems Modernization (ASM)- Engr Dev

PROJECT: D413

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Prototype Design, Manuf, & Support	71568	31819	19719	9655
XM35 Gun Design, Manuf & Support	2544	3788	1321	231
Government Testing	3703	7606	7810	417
Training Devices	1040	4168	125	689
Program Management	2803	4180	2707	842
SIBR/STTR		1083		
Other Govt Support	216	474	395	1945
Total	81874	53118	32077	13779

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
Product Development Organizations											
United Defense LP San Jose, CA	SS/CPIF	June 92	213480	213480	84827	71514	31679	19188	6272	0	213480
SAAB Trning Sys Huskvarna, Swed	FFP	Sep 94	5000	5000	0	1000	4000	0	0	0	5000
Unknown	TBD	FY 98	N/A	9575	0	0	0	0	0	9575	9575
Misc Govt Agcy	MIPR				4294	2106	4530	2855	803	570	15158
United Defense LP San Jose, CA	TBD	FY 97		5638					3911	1727	5638
Red River AD Texarkarkana, TX	MIPR	FY 97		4481					1481	3000	4481
SBIR/STTR	TBD	FY 95					1083			0	1083
Support and Management Organizations											
PM AGS Warren, MI	MIPR				4121	2023	2407	1800	800	0	11151
Miscellaneous	MIPR				1345	201	377	112	95	0	2130

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604645A Armored Systems Modernization (ASM)-Engr Dev

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
Test and Evaluation Organizations											
CSTA APG, MD	MIPR				700	2871	5635	5748	200	0	15154
Misc Govt Agcy	MIPR				386	802	1971	2062	217	0	5438

Government Furnished Property

Item Description	Contract 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										
XM35 Gun	MIPR	Aug 91	Nov 92	10943	125					11068
Support and Management Property										
XM35 Gun	MIPR			1671	626	744	72			3113
Test and Evaluation Property										
XM35 Gun	MIPR			1053	606	692	240			2591

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	100064	74745	41292	22043	12467	14872	265483
Subtotal Support and Management	7137	2850	3528	1984	895		16394
Subtotal Test and Evaluation	2139	4279	8298	8050	417		23183
Total Project	109340	81874	53118	32077	13779	14872	305060

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604645A Armored Systems Modernization (ASM)- Engr Dev

PROJECT: D417

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
D417 Advanced Field Artillery System - Engineering Development	0	0	0	0	0	0	202841	332217	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
RDTE, A Budget Activity 4 PE 0603645A, Project D409 AFAS	76466	113129	130459	174342	218991	185407	28977	0	0	1149088

D. Schedule Profile: Not Applicable

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604645A Armored Systems Modernization (ASM)- Engr Dev

PROJECT: D418

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
D418 Field Artillery Resupply Vehicle - Engineering Development	0	0	0	0	0	0	129698	186360	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
RDTE A, Budget Activity 4 PE 0603645A, Project DB88 FARV	23864	21563	71054	93543	118603	122952	15987	0	0	486811

D. Schedule Profile: Not Applicable

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604649A Engineer Mobility Equipment 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	16240	12106	21389	14384	18350	10610	0	0	0	103090
DG25 M1 Breacher	0	0	10918	13275	7908	10610	0	0	0	42711
DG26 Heavy Assault Bridge (HAB)	16240	12106	10471	1109	10442	0	0	0	0	60379

A. Mission Description and Budget Item Justification

This Program Element (PE) supports the development of new, advanced combat engineer systems that will have mobility characteristics comparable to the maneuver forces supported. Two projects are included in the PE; both are Operation Desert Storm initiatives. The two projects are the M1 Breacher and the Heavy Assault Bridge (HAB). The base for both vehicles is an M1 Abrams Tank chassis. The M1 Breacher will integrate on the chassis a versatile/survivable full-width mine clearing blade with automatic depth control, a power driven excavating arm, and an armored commander's control station. The HAB will integrate a bridge capable of supporting Military Load Class (MLC) 70 ton loads and a launching mechanism. Both projects in this PE support research efforts in the Engineering and Manufacturing Development (EMD) phase of the life cycle acquisition strategy, and are correctly located in Budget Activity #5.

Project DG25 - M1 Breacher: The M1 Breacher will provide the Combat Engineer with significantly improved mission effectiveness and crew/vehicle survivability while clearing minefields and removing complex natural and man-made obstacles at the forward edge of the battlefield. The M1 Breacher will be capable of moving with, and be as survivable as, the force it is supporting. It will provide the maneuver force with the freedom required to successfully execute assigned ground combat mission requirements.

FY 1996 Planned Program:

- Award Breacher EMD contract (600).
- Provide government management oversight (983).
- Finish design refinement and continue with logistics development efforts (7836).
- Begin Pre-Production Qualification Test (PPQT) (1499).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604649A Engineer Mobility Equipment Development

FY 1997 Planned Program:
- Complete PPQT 1/conduct Limited User Test (908).
- Begin validation of manufacturing facilities, processes and procedures; prototype repair and modification (10551).
- Begin PPQT II (1816).

Project DG26 - Heavy Assault Bridge: The HAB will provide Military Load Class (MLC) 70 vehicles the capability to cross 24-meter gaps (26-meter bridge). The HAB will have mobility characteristics comparable to the maneuver forces it will support. The launch time for the bridge will be five minutes or less; the retrieve time will be a total of ten minutes or less which includes five minutes to engage plus five minutes to place the vehicle in a travel mode. The base for the HAB is an M1 Abrams Tank chassis.

FY 1994 Accomplishments:
- Award EMD Phase II contract: conduct System Requirement Review (SRR) and Preliminary Design Review (PDR), buy test hardware and GFE (14043).
- Program Management; complete source selection, review SRR and PDR, matrix support (2097).
- Systems Engineering Analysis Award (100).

FY 1995 Planned Program:
- EMD Phase II contract; conduct CDR, start/complete integration and prototype build, start contract checkout testing and buy GFE (9258).
- Program Management; review CDR, program review, matrix support and prepare Request For Proposal (RFP) for 4 test vehicles (2588).
- SBIR/STTR (260)

FY 1996 Planned Program:
- EMD Phase II contract; complete contract testing and support Government testing (6327).
- Award of Environmental Study (250).
- Program Management; conduct LD, start PPQT/EUTE (3894).

FY 1997 Planned Program:
- Program Management; complete PPQT/EUTE (384).
- Completion of EMD II contract (725).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604649A Engineer Mobility Equipment Development

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	13304	16865	25239	10944
Appropriated Value	16404	12106		
Adjustments to Appropriated Value	-164			
a. SIBR/STTR/Consulting Serv decrement/Other	-254			
b. Reprogrammed into PE	90			
Current Budget Submit/President's Budget	16240	12106	21389	14384

Change Summary Explanation:

Project DG25 - M1 Breacher Development
Funding: None.
Schedule: Schedule slip in Advanced Development has delayed start of EMD into FY 96.
Technical: None

Project DG26 - Heavy Assault Bridge
Funding: None.
Schedule: None
Technical: None

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604649A Engineer Mobility Equipment Development

PROJECT: DG25

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
DG25 M1 Breacher	0	0	10918	13275	7908	10610	0	0	0	42711

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
RDTE, A Budget Activity 4 PE 0603649A Project DG24 M1 Breacher AD	29070	15726	5615							64794
PA, WTCV GZ3200 (Breacher MOD)				74822	93228	96999	120228	130440	Cont'd	Cont'd
PA, WTCV GEO175 Breacher (Spares)					1014	1216	2405	2229	Cont'd	Cont'd

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
Conduct Critical Design Review (CDR)	X*															
Begin Development and Early User Testing								X								
Conduct Milestone II Review										X						
Award Engineering and Manufacturing Development (EMD) Contract										X						
Conduct Low Rate Initial Production (LRIP) In-Process Review (IPR)														X		
Award LRIP Contract														X		

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604649A Engineer Mobility Equioment Development

PROJECT: DG25

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Development Engineering			6127	7734
Logistics Support			1709	2578
System Test & Evaluation			1499	2724
System Project Management			1583	239
Total			10918	13275

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
Product Development Organizations											
United Defense York, PA	SS-CPIF	Mar 96	NA	26762	0	0	0	6836	10312	9614	26762
Support and Management Organizations											
TACOM Warren, MI								1312	239	529	2080
ANAD Anniston, AL										2909	2909
Other Gov't Agencies								271			271
Test and Evaluation Organizations											
TECOM APG, MD								1499	2724	5466	9689

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604649A Engineer Mobility Equipment Development PROJECT DG25

Government Furnished Property

Item Description	Contract 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										
Hardware - Armor	1095	Mar 96	Jun 97				1000			1000
Support and Management Property										
Test and Evaluation Property										

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development				7836	10312	9614	27762
Subtotal Support and Management				1583	239	3438	5260
Subtotal Test and Evaluation				1499	2724	5466	9689
Total Project				10918	13275	18518	42711

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604649A Engineer Mobility Equipment Development

PROJECT: DG26

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
DG26 Heavy Assault Bridge (HAB)	16240	12106	10471	1109	10442	0	0	0	0	60379

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
PA, WTCV GZ3250 (HAB MOD)			15095	47018	42071	63913	83935	117685	Cont'd	Cont'd
PA, WTCV GE0177 HAB (Spares)					1014	1021	1655	1757	Cont'd	Cont'd

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
Contract Selection IPR		X*														
EMD Contract Award		X*														
Begin PPQT/EUTE testing											X					
Award of 3 LRIP Test Vehicles											X					
End PPQT/EUTE Testing													X			
LRIP Contract Award															X	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604649A Engineer Mobility Equipment Development	PROJECT DG26

A. **Project Cost Breakdown**

	FY 1994	FY 1995	FY 1996	FY 1997
Development Engineering	13168	8616	6134	674
Logistics Support	975	642	443	51
System Test & Evaluation			1542	384
System Project Management	2097	2588	2352	
SIBR/STTR		260		
Total	16240	12106	10471	1109

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604649A Engineer Mobility Equipment Development	PROJECT DG26

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
Product Development Organizations											
Gen Dyn Land Sys Sterling Hgts, MI	C-CPAF	Jan 94	NA	32103	0	13932	9166	6577	725		30400
Gen Dyn Land Sys Sterling Hgts, MI	SS-CPFF	Jan 98	NA	NA						4622	4622
SMS Corp St. Louis, MO	SS-FFP	May 92	NA	NA	5798						5798
Other Contracts	Various	NA	NA	NA	432	100					532
Support and Management Organizations											
					2190	1404	2061	2107			7762
ANAD Anniston, AL					360	21	30			1542	1953
Other Gov't Agencies					586	593	210	245			1634
Other							260				260
Test and Evaluation Organizations											
TECOM APG, MD					488	80	82	1492	384	4278	6804
WSMR White Sands, NM							205				205

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604649A Engineer Mobility Equipment Development

PROJECT: DG26

Government Furnished Property

Item Description	Contract 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										
Various Gov't Sources	MIPR	Various	Various	157	110	92				359
Support and Management Property										
Test and Evaluation Property										
To Be Determined	MIPR	Apr 96	Jun 96				50			50

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	6387	14142	9258	6577	725	4622	41711
Subtotal Support and Management	3136	2018	2561	2352		1542	11609
Subtotal Test and Evaluation	488	80	287	1542	384	4278	7059
Total Project	10011	16240	12106	10471	1109	10442	60379

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604710A Night Vision Systems Engr Dev

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	41328	42803	39697	39295	22952	21487	18746	30364	Continuing	Continuing
DL69 Horizontal Technology Integration Second Generation FLIR (HTI SGF)	13979	24924	29387	23406	4024	0	0	0	0	95720
DL70 Night Vision Devices Engineering Development	27349	17879	10310	12904	11665	16844	18746	30364	Continuing	Continuing
DL74 Long Range Advanced Scout Surveillance System (LRAS3)	0	0	0	2985	7263	4643	0	0	0	14891

A. Mission Description and Budget Item Justification This program element provides night vision technologies required for US defense forces to engage enemy forces twenty four hours a day under conditions with degraded visibility due to darkness, adverse weather and battlefield obscurants. Developments and improvements to high performance night vision electro-optics, laser and thermal systems and systems integration of related multi sensor suites will enable near to long range target identification, acquisition and engagement as well as improve battlefield command and control in "around the clock" combat operations. Project DL69 is focused on inserting key thermal sensor technology into common battle groups. Project DL70 focuses on a variety of night vision electro-optical equipment for use by individual soldiers. Project DL74 focuses on a long range multi sensor system utilizing Horizontal Technology Integration Second Generation FLIR (HTI SGF) thermal sensors and other technologies, for use by US Army scouts. These projects in PE 0604710A support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

Project DL69 - Horizontal Technology Integration Second Generation FLIR (HTI SGF) will enable the Army to insert key thermal sensor technology into the highest priority forces (the M8 Armored Gun System, the M2A3 Bradley Fighting Vehicle System and the M1 Abrams). The HTI SGF will allow all vehicles in a common battle group to see the same thermal image. The HTI SGF development is in two parts, an "A" kit, which is specific to the vehicle, and includes integration and installation, and a "B" kit, which includes the common Forward Looking Infrared (FLIR) sensor and display. Funds in this project will develop the "B" kit.

FY 1994 Accomplishments:

- Prepared and conducted Source Selection for HTI SGF (2738)
- Milestone I/II ASARC (250)
- Awarded Producibility Contracts for key components and critical technologies (1973)
- Awarded E&MD contract for platform integration efforts (953)
- Awarded E&MD contracts for FLIR systems (8065)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE Feoruary 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604710A Night Vision Systems Engr Dev

FY 1995 Planned Program:

- Develop and Fabricate E&MD B kit prototypes and pilot line for HTI SGF (23201)
- Develop and test prototypes from producibility contracts (950)
- Initiate integration of prototype from producibility contracts into "B" kits (250)
- Small Business Innovative Research (SBIR)/Small Business Technology Transfer (STTR) Program (523)

FY 1996 Planned Program:

- Continue development, fabrication of B kit, integration kits and pilot line (25710)
- Complete integration of prototypes from producibility contracts (1700)
- Begin technical testing of E&MD prototypes for HTI SGF (810)
- Qualification testing of E&MD B kit prototypes (1167)

FY 1997 Planned Program:

- Complete development and fabrication of "B" kit (22870)
- Complete technical and user tests (286)
- LRIP Decision for BFVA3 (250)

Project DL70 - Night Vision Devices Engineering Development: This project develops and improves high performance night vision electro-optics, thermal and laser systems, and systems integration of related multi sensor suites to enable near to long range target acquisition and engagement as well as improve battlefield command and control in "around the clock" combat operations. Near term systems in development are: Thermal Weapon Sight, (TWS) - a forward looking infrared (FLIR) used for surveillance and fire control with individual and crew served weapons. Laser Countermeasure System (LCMS) - a laser device for individual soldiers to stand off armored and aircraft optics. Compass/Vertical Angle Measure (C/VAM) for the Mini Eyesafe Laser Infrared Observation Set (MELIOS) - a system enhancement for scouts to accurately gather elevation and azimuth data in addition to MELIOS range data. Driver's Vision Enhancer (DVE) - a thermal imaging device used for driving Combat, Combat Service, and Combat Service Support vehicles and allows drivers to see obstacles through fog and battlefield obscurants. Lightweight Laser Designator/Rangefinder (LLD/R) - a day/night manportable laser designator/rangefinder capable of designating vehicle targets out to 5km and ranging targets out to 9995 meters and will process target location data for export through a digital interface. Objective Laser Countermeasure System (OLCMS) - a laser device that meets user's long range requirements for lighter weight, longer range and multi-spectral countermeasure capability.

FY 1994 Accomplishments:

- Started and completed testing of TWS (6982)
- Started testing of LCMS (7274)
- Developed E&MD prototypes for DVE (11608)
- Completed C/VAM testing (100)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604710A Night Vision Systems Engr Dev

- Provided support to Land Warrior program (1385)

FY 1995 Planned Program:
- Complete testing of LCMS (2310)
- Fabricate E&MD prototypes for DVE; begin and complete testing (8924)
- Fund in-house E&MD effort for LLD/R (1556)
- Develop P3I Laser Rangefinder (LRF) for TWS (3364)
- Provide support to Land Warrior program (1362)
- SBIR/STTR (363)

FY 1996 Planned Program:
- Develop E&MD prototypes for Objective LCMS (7389)
- Fabricate E&MD prototype for TWS P3I LRF for TWS (2424)
- Provide support to Land Warrior program (497)

FY 1997 Planned Program:
- Complete development and fabricate E&MD prototypes for Objective LCMS (9144)
- Begin and complete testing of TWS P3I LRF (3318)
- Provide support to Land Warrior program (442)

Project DL74 - Long Range Advanced Scout Surveillance System (LRAS3): This project is a new start. It will develop the Long Range Advanced Scout Surveillance System (LRAS3), which is a long range multi sensor system for US Army scouts which will provide the capability to detect, recognize, identify, range and designate potential targets. Currently, US Army scouts do not have the necessary equipment to perform these functions "around the clock". LRAS3 will utilize the HTI SGF thermal sensor and will enable scouts to function "around the clock" in adverse weather and through battlefield obscurants.

FY 1994 Accomplishments: Not Applicable

FY 1995 Planned Program: Not Applicable

FY 1996 Planned Program: Not Applicable

FY 1997 Planned Program:
- Milestone I/II IPR (100)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604710A Night Vision Systems Engr Dev

- Conduct Source Selection Evaluation Board for LRAS3 (335)
- Award E&MD contract for LRAS3 (2550)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	41361	43379	39951	40077
Appropriated Value	41361	42803		
Adjustments to Appropriated Value	-33			
a. SIBR/STTR (-633)				
b. Reprogrammed into DL70 (600)				
Current Budget Submit/President's Budget	41328	42803	39697	39295

Change Summary Explanation:

Project DL69 - Horizontal Technology Initiative Second Generation FLIR (HTI SGF)
Funding: FY 1994 SBIR/STTR -220
Schedule: None
Technical: None

Project DL70 - Night Vision Devices Engineering Development
Funding: Increased FY 1994 by 600, FY 1994 SBIR/STTR -413
Schedule: Delay start of Objective Laser Countermeasure System (OLCMS) by one year.
Technical: None

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

DATE: February, 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604710A Night Vision Systems Engr Dev

PROJECT: DL69

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
DL69 Horizontal Technology Integration Second Generation FLIR (HTI SGF)	13979	24924	29387	23406	4024	0	0	0	0	95720

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
6.7 RDTE 0203735A, A Kit (related activity)	0	47393	37613	47879	4407					137292
WTCV G80717 M2A3 Bradley A and B Kit	0	0	0	20587	22219	29438	44608	31724	723228	871804
WTCV GA0700 M1 Abrams A and B Kit	0	0	0	0	0	0	5175	38677	0	43852
WTCV GA0750 Abrams Upgrade A and B Kit	0	0	0	5705	62386	61497	58528	57240	1533431	1778787
WTCV GA0760 M8 AGS A and B Kit	0	0	0	0	12142	56857	27608	0	0	96607

The 0203735A program element funds the "A" kit portion of the HTI SGF development, and is broken out to three distinct projects: the M2A3 Bradley Fighting Vehicle System, the M1 Abrams Tank, and the M8 Armored Gun System. WTCV funds the production tails for A and B kit production for all three platforms.

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
Milestone I/II ASARC				X*												
B Kit E&MD Award				X*												
Preliminary Design Review (PDR)					X*											
Critical Design Review (CDR)							X									
Initiate Technical Testing										X						
Initiate Operational Testing														X		
Special In-Process Review (SIPR)															X	
Low Rate Initial Production M2A3															X	

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

DATE: February, 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604710A Night Vision Systems Engr Dev

PROJECT: DL69

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	7856	20268	25687	21406
Contractor Engineering Support	250			
Government Engineering Support	2496	2819	1543	1539
Project Management Support	451	364	457	461
Systems Engineering and Producibility	2026	950	1700	
SBIR/STTR		523		
Total	13979	24924	29387	23406

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
Product Development Organizations											
Producibility Contracts	Various	March 1994	5576	5576	0	2926	950	1700	0	0	5576
Texas Instruments, McKinney, TX	C/CPAF	7 July 1994	77741	77741	0	7856	20268	25687	21406	2524	77741
Support and Management Organizations											
Project Mgmt					0	451	364	457	461	465	2198
ASARC Support					0	250	0	0	0	0	250
CECOM NVESD					0	2496	2819	1543	1539	1035	9432
SBIR/STTR					0		523				523
Test and Evaluation Organizations											

* All DT and OT are funded by PEO ASM in the platform funding line. All tests are at the vehicle level.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February, 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604710A Night Vision Systems Engr Dev PROJECT DL69

Government Furnished Property

Item Description	Contract 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										
None										
Support and Management Property										
None										
Test and Evaluation Property										
None										

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development		10782	21218	27387	21406	2524	83317
Subtotal Support and Management		3197	3706	2000	2000	1500	12403
Subtotal Test and Evaluation							
Total Project		13979	24914	29387	23406	4024	95720

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

DATE: February, 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604710A Night Vision Systems Engr Dev

PROJECT: DL70

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
DL70 Night Vision Devices Engineering Development	27349	17879	10310	12904	11665	16844	18746	30364	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
Night Vision Devices KA3500 OPA2	87926	80034	77132	81750	52887	12799	96408	121303	Continue	Continue

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
Initiated TWS technical test		X*														
Initiated TWS limited user test (LUT)				X*												
TWS Low Rate Initial Production decision						X										
TWS Low Rate Initial Production award						X										
Initiate TWS user test (IOTE)											X					
TWS Milestone III Production decision													X			
TWS Production award														X		
Initiated LCMS technical test		X*														
Initiated LCMS user test				X*												
LCMS Milestone III Pdn decision							X									
LCMS Production Award							X									
Special IPR C/VAM for MELIOS		X*														
Initiate DVE technical test						X										
Initiate DVE user test						X										
DVE Low Rate Initial Production decision for BFVS version								X								
DVE Low Rate Initial Production award (BFVS version)								X								
Objective LCMS Milestone II Decision									X							
Objective LCMS E&MD Award											X					

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February, 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604710A Night Vision Systems Engr Dev PROJECT DL70

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	18350	11803	5129	7748
Contractor Engineering Support	1341	1352	1331	1319
Government Engineering Support	3726	2223	2218	2172
Project Management Support	1163	1168	1152	1075
Testing	2769	970	480	590
SBIR/STTR		363		
Total	27349	17879	10310	12904

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
Product Development Organizations											
Hughes Aircraft Co., El Segundo, CA	C/CPIF	Dec 90	42490	42490	37498	3152	1840	0	0	0	42490
Lockheed-Sanders, Nashua, NH	C/CPIF	Feb 92	18769	18769	12509	4558	1702	0	0	0	18769
Magnavox, Mahwah, NJ	C/CPIF	Aug 93	7571	7571	500	4071	3000	0	0	0	7571
Texas Instruments, McKinney, TX	C/CPIF	Aug 93	10774	10774	500	6569	3705	0	0	0	10774
TBS (OLCMS)	C/CPIF	3Q96				0	0	5129	7748	Continue	Continue
TBS (LLDR)	MIPR					0	1556	0	0	0	1556

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

DATE: February, 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604710A Night Vision Systems Engr Dev

PROJECT: DL70

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
Support and Management Organizations											
Project Mgmt						1163	1168	1152	1075	Continue	Continue
CECOM NVESD	MIPR					3726	2223	2218	2172	Continue	Continue
Other Support	MIPR					1341	1352	1331	1319	Continue	Continue
SBIR/STTR							363				363
Test and Evaluation Organizations											
OPTEC	MIPR					2769	970	480	590	Continue	Continue

Government Furnished Property

Item Description	Contract 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										
None										
Support and Management Property										
None										
Test and Evaluation Property										
None										

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	51007	18350	11803	5129	7748	Continue	Continue
Subtotal Support and Management		6230	5106	4701	4566	Continue	Continue
Subtotal Test and Evaluation		2769	970	480	590	Continue	Continue
Total Project	51007	27349	17879	10310	12904	Continue	Continue

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

DATE: February, 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604710A Night Vision Systems Engr Dev

PROJECT: DL74

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
DL74 Long Range Advanced Scout Surveillance System (LRAS3)	0	0	0	2985	7263	4643	0	0	0	14891

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
0603774A D131 Budget Activity 4	4694	2678	2960	2919	3247	3215	3682	3676	Continue	Continue
LRAS-3 K38300 OPA2	0	0	0	0	0	19312	37761	49450	40791	147314

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
Milestone I/II IPR														X		
E&MD Contract Award															X	

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

DATE: February, 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604710A Night Vision Systems Engr Dev

PROJECT: DL74

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Project Management				100
Source Selection				335
Hardware Development				2550
Total				2985

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
Product Development Organizations											
TBS	C/CPIF	3Q97				0	0	0	2550	9167	11717
Support and Management Organizations											
Project Mgmt						0	0	0	335	664	999
CECOM NVESD	MIPR					0	0	0	100	1425	1525
Test and Evaluation Organizations											
OPTEC	MIPR					0	0	0	0	650	650

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

DATE: February, 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604710A Night Vision Systems Engr Dev

PROJECT: DL74

Government Furnished Property

Item Description	Contract 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										
None										
Support and Management Property										
None										
Test and Evaluation Property										
None										

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development					2550	9167	11717
Subtotal Support and Management					435	2089	2524
Subtotal Test and Evaluation						650	650
Total Project					2985	11906	14891

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604713A Combat Feeding,Clothing and Equipment

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	27008	24719	17959	67971	52561	42743	39032	48670	Continuing	Continuing
DC40 Unit/Organizational Equipment	4085	1422	4220	848	1988	2022	1596	1469	Continuing	Continuing
DL40 Clothing and Equipment	5507	6050	2205	3726	4091	4860	4052	5071	Continuing	Continuing
D548 Military Subsistence System	1266	864	844	837	969	1440	1848	1996	Continuing	Continuing
D667 Enhanced Land Warrior	0	498	0	52239	34761	23610	18129	25496	Continuing	Continuing
D668 Soldier Enhance Program	16170	15887	10690	10321	10752	10811	13407	14638	Continuing	Continuing

A. Mission Description and Budget Item Justification: Supports Engineering and Manufacturing Development (EMD) and Non-Developmental Item (NDI) evaluation of unit/organizational equipment, weapons/munitions, clothing and individual equipment, fabric shelters, field service equipment, food and food service equipment to enhance soldier efficiency, effectiveness, lethality, sustainability and survivability. New food items and food service equipment will be developed to reduce food service logistics requirements for all four Services. The organizational equipment program supports development of a new generation of field device support items: small, large and collective protective shelters; decontamination items; and improved space heaters to shelter and sustain the soldiers in the field and improve quality of life. The Land Warrior program will produce the first fully integrated fighting system for combat soldiers. The projects in this Program Element support research efforts in the engineering manufacturing development and NDI phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

Project DC40 - Unit/Organizational Equipment: Develop and field soft shelters, showers, latrines and heaters to improve unit sustainability and combat effectiveness. The Force Provider package of tents, laundries, showers, and latrines support improved soldier quality of life as well as humanitarian aid and disaster relief. Improved maintenance tents will ensure continuous operation and combat readiness of helicopters and vehicles. The Family of Space Heaters fuel efficiently replaces dangerous tent heaters.

FY 1994 Accomplishments:

- Initiated EMD of the 35k BTU Space Heater Convective (SHC). (370)
- Conducted Force Provider Operational Test (OT), refurbished test unit and fielded the first module (supports 550 soldiers). (1000)
- Type classified the Force Provider System. (500)
- Awarded Contracts for Force Provider pre-planned product improvements for latrine, laundry and winter operation. (1000)
- Fabricated and tested air beam concepts and down selected to best technology for the Transportable Helicopter Enclosure. (THE). (650)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604713A Combat Feeding,Clothing and Equipment

- Completed next generation design for the Modular General Purpose Tent System (MGPTS) and the Tactical Air Shelter (TAS). (545)

FY 1995 Planned Program:
- Complete redesign of the MGPTS and conduct combined Preproduction Qualification Test/Operational Test (PPQT/OT). (602)
- Complete comparison testing of the Frame and Airbeam versions of the Transportable Helicopter Enclosure. (216)
- Complete Pre-Production Qualification Test (PPQT) of the Space Heater Convective (SHC) and initiate EMD of the Space Heater Small (SHS) and the Space Heater Arctic (SHA). (575)
- SBIR/STTR Adjustment (29)

FY 1996 Planned Program:
- Complete testing and Type Classify Force Provider pre-planned product improvements (P3I). (2000)
- Complete PPQT of the SHS and SHA and Type Classify the SHC. (650)
- Complete Technical Test/Operational Test (TT/OT) and Type Classify the Containerized Self Service Laundry. (471)
- Complete development and Type Classify the MGPTS. (200)
- Complete development and Type Classify the Transportable Helicopter Enclosure (THE). (379)
- Complete development and Type Classify the Lightweight Maintenance Enclosure. (329)
- Initiate testing of the Ballistic Protective System. (191)

FY 1997 Planned Program:
- Complete development and Type Classify the SHS and SHA. (288)
- Complete TT/OT of the Laundry and Dry Cleaning System. (560)

Project DL40 - Clothing and Equipment: Develop state-of-the-art individual clothing and equipment to improve the effectiveness, sustainability and quality of life of the individual soldier. Funding shown in FY 1996-FY 1998 reflects transfer of funds from DL40 to OSD PE 0604384BP to support the Chemical/Biological Defense program in accordance with Public Law 103-60 Title XVII.

FY 1994 Accomplishments:
- Defined specifics of requirements (based upon trade-off analyses of performance, producibility and costs) and developed Program Management Plans and Test Plans: Sun, Wind and Dust Goggle, Advanced Combat Vehicular Crewman Helmet, Body Armor Set Individual Countermine Preplanned Product Improvement (P3I), Modular Load Bearing Equipment, and Firefighters Suit - Combat. (593)
- Conducted market survey, developed initial design concepts, conducted technical and early user evaluations and downselected designs/materials/equipment in design review: Joint Service Lightweight Suit Technology (JSLIST) I Ensemble (chemical protective suits, boots and gloves), Improved Toxicological Agent Protective Suit,

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604713A Combat Feeding,Clothing and Equipment

Personal Ice Cooling System, and Desert Camouflage Fabric Improvement. In addition, conducted early prototype development, design review and evaluations of Women's dress uniform components (shirts, overblouse, slacks, skirts, necktab and belt). (4289)

- Completed Development Test/Operational Test (DT/OT) assessment reports and type classified: Intermediate Cold Wet Glove P3I, Aircrew Clothing System Cold Weather, Body Armor Set, Individual Countermine (limited procurement, urgent), Women's Oxford Shoe. (525)
- Provided support for Somalia action. (100)

FY 1995 Planned Program:

- Conduct market survey, develop initial design concepts, conduct technical and early user evaluations and/or downselect designs/materials/equipment in design review: Joint Service Lightweight Integrated Suit (JSLIST) II Ensemble, Improved Toxicological Agent Protective (TAP) Suit, Personal Ice Cooling System, Interim Firefighters Suit - Combat, Improved Sun, Wind and Dust Goggles, Body Armor Set Individual Countermine (BASIC) P3I, Modular Body Armor, Modular Load Bearing Equipment, Auxiliary Aviation Lighting. (3839)
- Procure test items and initiate DT/OT: JSLIST I Ensemble (chemical protective suits, socks, boots and gloves), Women's Dress Skirt, Improved Fabric for Optional Green Uniform, Personnel Armor System for Ground Troops (PASGT), Small Arms Overvest (urgent Army requirement). (1970)
- Complete DT/OT and assessment reports, type classify, and/or complete Technical Data Package and transition to production: Women's Dress Ensemble, Maternity Uniform, Ballistic/Laser Eye Protection Spectacle P3I, and Special Protective Eyewear, Cylindrical System. (115)
- Advanced CVC Helmet now reported in PE/Project 0603747A/D603.
- SBIR/STTR Adjustments (126)

FY 1996 Planned Program:

- Conduct market survey, develop initial design concepts, conduct technical and early user evaluations and/or downselect designs/materials/equipment in design review: Modular Body Armor, Modular Load Bearing Equipment. (1000)
- Procure test items and initiate DT/OT: Improved TAP Suit and Personal Ice Cooling System (Joint Service DT/OT), BASIC P3I. (1105)
- Complete DT/OT and assessment reports, type classify, and transition to urgent production of contingency supply: PASGT Small Arms Overvest. (100)
- Starting in FY 96, funds for chemical defense items such as the JSLIST I and II Ensembles will come from OSD to lead Services (JSLIST I = US Marine Corps, JSLIST II = US Army), per Public Law 103-60. DL40 total reflects a $2.3M transfer to OSD PE 060384BP Chem/Bio Defense.

FY 1997 Planned Program:

- Conduct market survey, develop initial design concepts, conduct technical and early user evaluations and/or downselect designs/materials/equipment in design review: Lightweight Microclimate Cooling System. (793)
- Procure test items and initiate DT/OT: Modular Body Armor, Modular Load Bearing Equipment. (1883)
- Complete DT/OT and assessment reports, type classify, and/or complete Technical Data Package and transition to production: BASIC P3I, Improved TAP Suit, Personal Ice Cooling System. (1050)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604713A Combat Feeding,Clothing and Equipment

- DL40 reflects a $1.0M transfer to OSD PE 0603884PB Chem/Bio Defense per Public Law 103-60.

Project D548 - Military Subsistence System: Engineering and Manufacturing Development (EMD) and Non-Developmental Item (NDI) evaluation of food and food service equipment to enhance soldier efficiency and survivability. New food items and food service equipment will be developed to reduce food service logistics requirements for all four services. Development of Joint Service Food/Food Service Equipment to improve individual combat effectiveness and reduce logistics burden and Operation and Support costs of subsistence support for service men & women. Develop multi-fuel, rapidly deployable field food service equipment to support combat, humanitarian missions and operations-other-than-war. Improve equipment to enhance safety in food service, utilize battlefield fuels and decrease fuel and water requirements. Program is reviewed and validated twice annually by the DoD Food and Nutrition Research and Engineering Board as part of the Joint Service DoD Food Program.

FY 1994 Accomplishments:
- Fabricated prototype Initial Deployment Kitchen for Air Force Bare Base as part of the DoD food program. (354)
- Initiated an NDI integration effort to develop a prototype of a more efficient Containerized Kitchen. (798)
- Terminated development of a portable water heater and sanitation unit for Marine Corps field feeding system. (114)

FY 1995 Planned Program:
- Conduct Technical/Operational Testing and type classify the safer, more efficient and supportable Powered Multifuel Burner to replace the gasoline burner. (240)
- Complete Technical/Operational Testing of the Initial Deployment Kitchen for Air Force. (200)
- Conduct initial Technical/Operational Testing of the highly mobile Containerized Field Kitchen. (406)
- SBIR/STTR Adjustments (18)

FY 1996 Planned Program:
- Initiate pre-planned product improvement to replace the battery with a thermoelectric power supply on the Powered Multifuel Burner. (400)
- Complete Technical Data Package (TDP) for Initial Deployment Kitchen and transition to Air Force for procurement. (50)
- Complete development and operational testing of Containerized Field Kitchen. (394)

FY 1997 Planned Program:
- Complete pre-planned product improvement program for the Powered Multifuel Burner. (390)
- Develop and conduct user test(s)/evaluation(s) of the planned improvements designed to increase safety, performance and readiness of the Army Field Feeding System-Future in cold and extreme cold environments. (175)
- Type classify Containerized Field Kitchen and transition to procurement. (272)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604713A Combat Feeding,Clothing and Equipment

Project D667 - Enhanced Land Warrior: The Enhanced Land Warrior (ELW) program strategy is structured for the continuous modernization of all soldiers: Land Warrior (LW), Mounted Warrior (MW), and Air Warrior (AW). LW is the lead program and the technology carrier for the ELW program. LW is a first generation, integrated soldier system for dismounted combat soldiers. LW is focused to keep pace with the Army Digitization effort and is critical to the digitization of the soldier system to support the Force XXI Concept and the Chief of Staff of the Army's initiative to field an operational digitized force by the year 2000. LW will incorporate mature technologies demonstrated in the Soldier Integrated Protective Ensemble (SIPE) and other RDT&E capabilities by government and industry. LW will enhance the dismounted infantryman's lethality, command and control, mobility, sustainment and survivability. The program encompasses everything the soldier wears or carries for individual use. The backbone of LW will be the radio/computer/Global Positioning System (GPS) and head mounted display. The LW program will leverage NDI components, whenever possible, to provide state-of-the-art digitized technology. LW will also incorporate/integrate equipment from ongoing RDA programs, where appropriate. Less mature technologies not available for acquisition in LW will be demonstrated in the 21st Century Land Warrior (21CLW) Top Level Demonstration (TLD) and then transition to 21CLW development. MW program is planned to follow the LW program and will leverage on LW technology. MW system is needed to enhance combat effectiveness, reduce vulnerability and integrate combat vehicle crewman (CVC) into the digital battlefield.

FY 1994 Accomplishments:
- Project not established until FY 95.

FY 1995 Planned Program:
- Continue development of an Advanced CVC helmet to support the MW program. (244)
- Conduct market surveys to evaluate state-of-the-art headsets to determine technical feasibility of doing cordless communications. (100)
- In-House support to prepare documentation in preparation of Milestone I for Mounted/Air Warriors. (142)
- SBIR/STTR Adjustments (10)

FY 1996 Planned Program:
- Program is not funded in FY 96.

FY 1997 Planned Program:
- Conduct LW Development Test (DT) and Pre-production Qualification Test (PPQT) and prepare test support package. (16000)
- Fix deficiencies and finalize LW hardware/software design/integration. (10500)
- Implement LW functional plans: Integrated Logistics Support (ILS), configuration management, etc. (14000)
- Publish LW draft system manuals. (1500)
- Program Management and government oversight of contractor effort. (7739)
- Procurement of LW long lead items for IOTE. (2000)
- Conduct LW logistics demonstration. (500)

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BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604713A Combat Feeding,Clothing and Equipment

Project D668 - Soldier Enhancement Program: This project consists of multiple programs to identify, test and evaluate individual soldier clothing and equipment to improve soldier lethality, survivability, combat effectiveness, quality of life and sustainability. Programs focus on non-developmental items to expedite the research and development process. Programs are categorized in four general areas: weapons and munitions, combat clothing, communications and navigation aids, and food/water/shelter. Programs generally take three years to complete.

FY94 Accomplishments:

- Completed development/type classified the AT4 Night Sight Bracket, M249 Sniper Weapon Night Sight, Universal Boresight Device, M249 Squad Automatic Weapon Blank Firing Adapter, 5.56 NATO Armor Piercing Ammunition, 7.62mm Small Arms Light Armor Penetrator (SALAP), Small Unit Health Comfort Pack, Ghillie Suit Accessory Kit, Insulated Food Container, Mounted Water Ration Heater, Neckgaiter, Multi-Faith Individual Ration, Personal Body Armor, Modular Sleeping Bag System, and Personal Hygiene Body Wipe. (1137)
- Developed/procured prototypes and/or tested the Modular Weapon System, Multiple Magazine Holder, M203 for M4 Carbine, M249 Collapsible Buttstock, Dual Mount, XM144 Spotting Scope, Miniature Binoculars, 40mm Infra-Red (IR) Illumination Round, Portable Periscope, Close Combat Optics, HMMWV Mount, Surveillance Battle Damage Assessment (BDA) Device, 5.56 Dim Tracer, Lightweight Video Reconnaissance System, Lightweight Leader Computer, 40mm Smoke Projectile, Fighting Position Excavator, Soldier Fighting Cover, Electronic Tool Supply Catalog, Fighting Position Revetment Kit, Monocular Night Vision Device, Small Unit Shower, Improved Mechanics Coveralls, Improved Skis and Bindings, Lightweight Underwear, Enhanced Tactical Load Bearing Vest, Mounted Crewman Cold/Wet Glove, Improved Chemical Biological Glove, Lightweight Chemical Overgarment, Trigger Finger Mitten, Second Generation Extended Cold Weather Clothing System (2nd Gen ECWCS) (Parka/Trousers), Combat Medic Vest, Individual Soldier Enhanced Ration, Inconspicuous Body Armor, Dual Mount, Improved Butt Pack, Improved Rain Suit, Sock System, Improved Shelter, Improved Hot Weather Boot, and Improved Personal Armor System Ground Troops (PASGT) Helmet Suspension. (14202)
- Began development on the M249 Flash Suppressor/Blast Attenuator, Stun Grenade, .50 caliber Multiple Purpose Round, PASGT Liner (Parachutist), and the Mounted Crewman Boot. (709)
- Terminated and/or redirected efforts on the XM 192 Lightweight Tripod, 40mm High Velocity Tracer, and 40mm Canister Round for the M19. (122)

FY 1995 Planned Program:

- *Complete development/type classify the XM144 Spotting Scope, Medium Machine Gun, M24 Flash Suppressor/Blast Attenuator, 5.56 Dim Tracer, Dual Mount, M203* for M4 Carbine, Multiple Magazine Holder, Miniature Binoculars, M249 Collapsible Buttstock, Portable Periscope, Close Combat Optics, .50 caliber Multiple Purpose Round, Stun Grenade, Launched Grapnel Hook, Mounted Crewman Cold/Wet Glove, Enhanced Tactical Load Bearing Vest, Lightweight Underwear, 2nd Gen ECWCS, Improved Butt Pack, Small Unit Shower, Electric Tool Supply Catalog, Dual Mount, Lightweight Video Reconnaissance System, Individual Soldier Enhanced Ration, Interim Water Individual Purification System, and Inconspicuous Body Armor. (6159)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604713A Combat Feeding,Clothing and Equipment

- Develop/procure prototypes and/or test the Modular Weapon System, 40mm IR Illumination Round, HMMWV Mount, Surveillance BDA Device, Improved Chemical/Biological Glove, Mounted Crewman Boot, Lightweight Chemical Overgarment, Fighting Position Excavator, Soldier Fighting Cover, Fighting Position Revetment Kit, Monocular Night Vision Device, Lightweight Leader Computer, and 40mm Smoke Grenade. (6308)
- Begin market surveys and/or development of the following FY 1995 new starts: Armor Crew Infantry Protective Mask, Soldier Radio, Medium Machine Gun, Machine Gun Optics, Improved Floatation Device, Face Paint, and Individual Sandbagging Accessory. (2866)
- Terminate/suspend the Trigger Finger Mitten, Individual Air Activated Catalytic Heater, and Enhanced Incendiary Grenade programs. (0)
- Reprogramming. (220)
- SBIR/STTR Adjustments (334)

FY 1996 Planned Program

- Complete development/type classify the Modular Weapon System, 40mm IR Illumination Round, Surveillance BDA Device, HMMWV Mount, Mounted Crewman Boot, Combat Medic Vest, Improved Floatation Device, Soldier Radio, Lightweight Leader Computer, Soldier Fighting Cover, Fighting Position Revetment Kit, 40mm Smoke Grenade, Armor Crew/Infantry Mask, and Individual Sand Bagging Accessory. (3296)
- Development/procure prototypes/test Machine Gun Optics, and Face Paint. (1852)
- Complete DT/OT on the Lightweight Chemical Overgarment and Improved Chemical/Biological Glove. (400)
- Initiate market surveys/development on items identified for development in FY 1996 (since these are three year Non Developmental Items programs, requirement documentation will not be developed until FY 1995 for FY 1996 programs). (5142)

FY 1997 Planned Program:

- Complete development/type classify the Lightweight Chemical Overgarment, Improved Chemical/Biological Glove, Soldier Radio, Machine Gun Optics, and Face Paint. (1176)
- Continue work/testing on FY 1996 projects (based on March 1995 Soldier Enhancement Program Review). (5370)
- Initiate market surveys/development on items identified for development in FY 1997 (since these are three year Non Developmental Items programs, requirement documentation will not be developed until FY 1996 for FY 1997 programs). (3775)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604713A Combat Feeding,Clothing and Equipment

B. Program Change Summary:

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	28389	25058	27466	25950
Appropriated Value	28389	24719		
Adjustments to Appropriated Value	-1381			
a. SBIR/STTR (-441)				
b. Reprogramming total (-940)				
Current Budget Submission/President's Budget	27008	24719	17959	67971

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604713A Combat Feeding,Clothing and Equipment

PROJECT: DC40

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
DC40 Unit/Organizational Equipment	4085	1422	4220	848	1988	2022	1596	1469	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 Activity 3: Force Provider (M80200)		10664	12275	12127	12327	6880	6910	13329		74512

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
Conducted Force Provider OT	X*															
Type classified Force Provider			X*													
Complete PPQT of Space Heater Convective								X								
Conduct TT for Force Provider P3I												X				
Complete TT/OT of LADS																X
TC Modular General Purpose Tent System											X					

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604713A Combat Feeding,Clothing and Equipment PROJECT DC40

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	4065	1393	4220	848
SBIR/STTR Adjustment		29		
Total	4065	1422	4220	848

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
Product Development Organizations											
Hunter Mfg, Army Lab, Acurren, White Range, General Services	Research Sands Missile Technical,		N/A*	N/A*	2754	1650	576	1695	341	Cont	Cont
Support and Management Organizations											
Soldier Systems	Command				350	420	145	425	85	Cont	Cont
Test and Evaluation Organizations											
TECOM, CSTA					400	1995	701	2100	422	Cont	Cont

* DC40 Program line is ongoing in nature, and is made up of multiple projects which are on separate project schedules, as a result, the EAC, Budget to Complete and Total Program Categories are not applicable to DC40.

Government Furnished Property: N/A

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604713A Combat Feeding,Clothing and Equipment

PROJECT: DC40

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	2754	1650	576	1695	341	Cont	Cont
Subtotal Support and Management	350	420	145	425	85	Cont	Cont
Subtotal Test and Evaluation	400	1995	701	2100	422	Cont	Cont
Total Project	3504	4065	1422	4220	848	Cont	Cont

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604713A Combat Feeding,Clothing and Equipment

PROJECT: DL40

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
DL40 Clothing and Equipment	5507	6050	2205	3726	4091	4860	4052	5071	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
OMA	2890	7050	5960	6130	6130	6020	6020	6020	cont	cont

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
Type Classify (TC) Aircrew Cold Weather Clothing & Women's Oxford Shoe			X*													
Eye Protection (BLPS P3I/SPEC) Complete DT/OT & Reports/TC				X*	X	X										
PASGT Small Arms Overvest Complete Testing/TC								X	X							
Improved TAP Suit/PICS Conduct Market				X*												
Improved TAP Suit/PICS Complete DT/OT												X				
Improved TAP Suit/PICS Complete Testing Reports/TC														X		
Modular Body Armor & LBE Complete DT/OT & Reports																X
Modular Body Armor & LBE Complete Designs and Early Evaluation/Complete DT/OT and Reports									X							

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604713A Combat Feeding,Clothing and Equipment PROJECT DL40

A. **Project Cost Breakdown**

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	5507	5824	2205	3726
SBIR/STTR Adjustment		126		
Total	5507	6050	2205	3726

B. **Budget Acquisition History and Planning Information**: N/A

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604713A Combat Feeding,Clothing and Equipment

PROJECT: D548

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
D548 Military Subsistence System	1266	864	844	837	969	1440	1848	1996	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 Activity 3 M86400 Kitchen, Containerized, Field							4673	8099	cont	cont

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
Fabricated prototype Initial Deployment Kitchen (IDK)				X*												
Conduct DT/OT of Powered Multifuel Burner								X								
Conduct DT/OT of IDK								X								
Complete TDP of IDK												X				
Conduct DT/OT Containerized Field Kitchen												X				
Complete P3I for Powered Multifuel Burner																X

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604713A Combat Feeding,Clothing and Equipment

PROJECT: D548

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	1266	846	844	837
SBIR/STTR Adjustment		18		
Total	1266	864	844	837

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
Product Development Organizations											
Natick, CECOM, Technical Services	General				3729	1104	570	548	543		
Support and Management Organizations											
Soldier Systems Command					249	72	44	42	42		
Test and Evaluation Organizations											
TECOM, OPTEC					994	90	250	254	252		

Government Furnished Property: N/A

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	3729	1104	570	548	543	Cont	
Subtotal Support and Management	249	72	44	42	42		
Subtotal Test and Evaluation	994	90	250	254	252		
Total Project	4972	1266	864	844	837		

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604713A Combat Feeding,Clothing and Equipment

PROJECT: D667

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
D667 Enhanced Land Warrior	0	496	0	52239	34761	23610	18129	25496	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
RDTE, Budget Activity 4 PE 0603747A	3768*	5458	25935	9453					154731	195507
OPA3, M80500 Enhanced Land Warrior						52342	52479	63304	131022	299147
WTCV, GB3007 Mod Wpn Sys - M4 Carbine Mod			930	2206	2287	2524				7947
WTCV, GZ2800 Mod Wpn Sys (M16/M203)	2024	639	2842	5767	8081	7559				26912

*Note: Land Warrior was a portion of Project *D669* within *PE 0603747A*.

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
ORD Approved			X*													
Milestone I/II Decision				X*												
Contract Award							X									
Fabricate OT Prototypes																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604713A Combat Feeding,Clothing and Equipment PROJECT D667

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
System Engineering and Program Management				33739
System Test and Evaluation				16500
Prototype Development and Manufacturing				2000
Other RDTE Costs		496		
Total		496		52239

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
Product Development Organizations											
To be determined							244		12500		
Support and Management Organizations											
Soldier Systems	Command								23239		
Test and Evaluation Organizations											
To be determined							252		16500		

Government Furnished Property: None

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DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604713A Combat Feeding,Clothing and Equipment

PROJECT: D668

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
D668 Soldier Enhance Program	16170	15887	10690	10321	10752	10811	13407	14638	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 Cont	Total Cost Cont
Operations & Maintenance, Army (OMA)	28971	70496	59566	61283	61283	60154	60154	60154		
Other Procurement , Army:										
K30800 Lightweight Video Reconnaissance Sys		2210	2354	2696	3412	4221				14893
MA6800 Soldier Enhancement Program	9200									9200
W63800 Lightweight Leader Computer				6840	8814					15654
Weapons & Tracked Combat Vehicles (WTCV)										
GC0076 Small Arms (SEP)			2428	2525	1294	1294				7541
GZ1290 Squad Automatic Weapon (MODS)		1943								1943
GZ2800 Modified Weapons Systems (M16/M203)	2024	639	2842	5767	8081	7559				26912
F88000 CTG Cal .50 (M904)/SLAPT			1041		351	868	787	943		3990
GB3007 Modified Weapons Systems (M4 Carbine)			930	2206	2287	2524				7947

D. Schedule Profile: Approximately 50 individual projects are ongoing under the Soldier Enhancement Program (SEP) and each project has its own milestone schedule.

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SEP Requirements Review		X*				X				X				X		
SEP Programs Review				X*				X				X				X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604713A Combat Feeding,Clothing and Equipment PROJECT D668

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
D668 - Soldier Enhancement Program	16170	15887	10690	10321
Total	16170	15887	10690	10321

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
Product Development Organizations											
PM Small Arms, PM Mines, and Demolitions	Natick, Countermines					16170	15887	10690	10321	Cont	Cont
Support and Management Organizations											
Soldier Systems Command											
Test and Evaluation Organizations											
TECOM											

Government Furnished Property: N/A

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604715A Non-System Training Devices Engr Dev

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	57004	47029	55303	53343	66081	54031	82160	64636	Continuing	Continuing
DC82 Louisiana Maneuvers	0	5848	5973	4987	4005	4021	3997	3990	Continuing	Continuing
DC91 Distributive Interactive Simulation	0	3445	6138	3745	11328	6992	17063	14053	Continuing	Continuing
D241 Non-System Training Devices Combined Arms	42790	24680	31121	31314	36732	29923	46611	31928	Continuing	Continuing
D396 Tactical Simulation (TIARA)	5173	3448	2083	2879	3205	2382	3997	3990	Continuing	Continuing
D573 STRICOM and Naval Air Warfare Center Training Systems Division	9041	9608	9987	10418	10811	10713	10492	10675	Continuing	Continuing

A. Mission Description and Budget Item Justification: Program Element funds engineering development of Non-System Training Devices to support force-on-force training at the Combat Training Centers (CTC), general military training and training on more than one item/system, as compared with system devices which are developed in support of a specific item/weapon system. Training devices and training simulations provide force multipliers that improve combat effectiveness by providing realistic training while helping to control rapidly escalating costs. Training devices maximize the transfer of knowledge, skills and experience from the training situation to a combat situation. Force-on-force training at the National Training Center (NTC), Ft. Irwin, CA; Joint Readiness Training Center (JRTC), Ft. Chaffee, AR, and Combat Maneuver Training Center (CMTC), Hohenfels, Germany; and battlestaff training in Battle Command Training Program (BCTP) will provide increased combat readiness through realistic collective training in low, mid, and high intensity scenarios. Project DC82, Louisiana Maneuvers, is intended to energize and guide the restructuring of the Army while simultaneously keeping it combat-ready for any contingency. Project DC91, Distributive Interactive Simulation (DIS), includes engineering development of techniques and technology for DIS and related simulations and simulator efforts. Project D241, Non-System Training Devices-Combined Arms, develops simulation training devices for Army-wide use, including the CTCs. Project D396 Tactical Simulation, is an intelligence simulation/driver for both training (intelligence driver for Corps Battle Simulation (CBS)) and testing. Project D573, STRICOM/Naval Air Warfare Center Training Systems Division (NAWCTSD) Support, funds in-house costs of project support by US Army Simulation, Training and Instrumentation Command (STRICOM) and NAWCTSD. Projects D241, D396 and D573 in this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

DC82 - Louisiana Maneuvers (LAM): LAM will serve as a laboratory for the Army to practice its roles and missions, to develop and explore options, to assess and direct progress, to provide a framework for decisions by senior leaders, and to facilitate the Army's transformation. LAM will consist of a series of related exercises forming a campaign to assess the Army of the 21st century in areas of policy, doctrine, organization, training, materiel, leader development, and soldier issues shaping the force. As an evolving process, LAM will exploit the results and outcomes of each exercise by incorporating lessons learned in order to enhance the value of follow-on

exercises. Overall, LAM will focus the Army's self-assessment of institutional effectiveness, provide direction for change, and orient the Army's leadership to accomplish the national military strategy with available resources.

FY94 Accomplishments: Funded under project D241. Restructured to DC82 in FY 95

FY 95 Planned Program:
- Continue development of database tools for theater-level exercises (2448)
- Initiate development of simulation linkages (1468)
- Conduct issue investigation by AMC, TRADOC, FORSCOM & Strategic Space Defense Cmd (1809)
- SBIR/STTR (123)

FY 96 Planned Program:
- Continue development of database tools for theater-level exercises (2500)
- Continue development of simulation linkages (1500)
- Continue issue investigation by AMC, TRADOC, FORSCOM & Strategic Space Defense Cmd (1973)

FY 97 Planned Program:
- Continue development of database tools for theater-level exercises (2500)
- Continue development of simulation linkages (1500)
- Continue issue investigation by AMC, TRADOC, FORSCOM & Strategic Space Defense Cmd (987)

DC91 - Distributive Interactive Simulation (DIS) - DIS technology provides wide area simulation networking in support of modeling and simulation, doctrinal development, training, and operations, utilizing live, virtual and constructive simulations. This project was established in FY 95 and funding restructured from Project D241 to allow better tracking of DIS efforts.

FY94 Accomplishments: Funded under project D241. Restructured to Project DC91 in FY 95.

FY 95 Planned Program:
- Continue DIS site operations (1415)
- Initiate systems engineering and integration contract (1958)
- SBIR/STTR (72)

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BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604715A Non-System Training Devices Engr Dev

FY 96 Planned Program:

- Provide system engineering, configuration management, and standard development for core DIS facilities (2434)
- DIS verification, validation and accreditation (2450)
- Provides enhancements to and integration of simulation software upgrades to support Advance Warfighting experiments (1255)

FY 97 Planned Program:

- Provides system engineering, configuration management, and standard development for core DIS facilities (1395)
- DIS Verification, validation and accreditation (2350)

D241 - NSTD Combined Arms: This project is used to develop prototype training devices to support Combined Arms (Infantry, Armor, Aviation, Air Defense, Artillery, Engineer, Chemical, and Support troops) training and multi-system training within the Army, to include the Reserve Components. JANUS is a simulation to train Commanders and Battle Staff in the execution of close battle operations. Corps Battle Simulation (CBS) is the Army's standard command and staff training simulation at the corps/division level. Combat Service Support Training Simulation System (CSSTSS) is a training simulation which supports training at battalions through echelons-above-corps levels to provide the level of detail required to train logistics commanders and staffs. CSSTSS will be linked to CBS to provide integrated maneuver and logistics training. Distributed Interactive Simulation (DIS) will allow training simulations representing different weapons systems and command levels at geographically dispersed locations to interact with one another in real time to provide more realistic combined arms training. Warfighter Simulation (WARSIM) will be the next generation battle simulation to replace CBS and Brigade/Battalion Battle Simulation (BBS). WARSIM will utilize current technology to efficiently provide training support and linkage to other simulations and simulators. WARSIM will comply with DIS standards and open architecture to meet the Army's training requirements into the next century. Multiple Integrated Laser Engagement Simulation 2000 (MILES 2000) will provide additional weapon system capabilities during tactical engagement exercises. Simulated Area Weapons Effects-Radio Frequency (SAWE-RF) simulates area weapons effects using distributed processing techniques and a radio frequency communications system. The Area Weapons Scoring System (AWSS) is the standard objective scoring system for aviation crew gunnery qualifications. The Intelligence Electronic Warfare Tactical Proficiency Trainer (IEWTPT) will provide the initial capability for sustainment training for military intelligence units. Additionally, this project provides for the development of maintenance simulators for many Army weapon systems. This project funds the development of training devices, simulators, simulations and instrumentation for the Combat Training Centers (CTC's) to include Opposing Forces Surrogate Vehicles (OSV's) for display of doctrinally correct threat at the CTC's. The Air Ground Engagement System II (AGES II) will permit the inclusion of aviation assets in MILES tactical engagement exercises. Devices developed will enable the Army to train units collectively to obtain synergistic results through the employment of weapons and support systems in their respective battlefield roles The Fire Support Combined Arms Tactical Trainer (FSCATT), provides for initial and sustainment gunnery training, and can be linked as part of the CATT family. FSCATT is designated as the Army's only defense acquisition pilot program IAW the Federal Acquisition Streamlining Act (FASTA)

FY94 Accomplishments:

- Initiated development of MILES II for crew served and individual weapons (1034); FSCATT Phase I (385); CBS 1.5.2 (3194); STOW-E (250); architecture and test bed for WARSIM 2000 (2796); After Action Review system for BCTP (536)
- Initiated enhancement of After Action Report (AAR) for Armywide CBS use (164)
- Continued limited BBS enhancement (737)

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BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604715A Non-System Training Devices Engr Dev

- Continued development of AGES II upgrades (4517); M113/BMP-2 Opposing Force Surrogate Vehicle (1383); CSSTSS (7878); devices, simulators and simulations to support training at the National Training Center (NTC), Joint Readiness Training Center (JRTC), and BCTP (5442); and CBS 1.5 (1448)
- Initiated development of AGES II (AH-64) interface with CTC instrumentation (1422)
- Completed testing of Precision Gunnery Training System (1895); and GUARDFIST I (164)
- Completed Initial Operational Test & Evaluation of SAWE-RF (3091)
- Provided support of Louisiana Maneuvers exercises and CINC training initiatives (3092)
- Provided system engineering, configuration management, hardware maintenance and daily operation of the core DIS facilities (3362)

FY 95 Planned Program:

- Initiate development of CBS 1.5.3 (1488)
- Complete development of AGES II upgrades (1445); CSSTSS (5693); FSCATT Phase I (5755); and devices, simulators and simulations to support training at the CTC's (i.e., NTC, JRTC, CMTC and BCTP) to include completing development of CTC-IS interface Ages II) (1572)
- Continue architecture development and initiate Engineering Manufacturing Development for WARSIM 2000 (4735)
- Continue limited BBS enhancements (580)
- Continue enhancements of BCTP AAR for Armywide CBS (731)
- Complete development of M113 OSV (500); and CBS 1.5.2 (1487); and GUARDFIST I (175)
- SBIR/STTR (519)

FY 96 Planned Program

- JANUS development of battle focus trainer enhancements to existing software baseline (429)
- Continue limited BBS enhancements (515); development of the CSSTSS (3362); and development of devices, simulators and simulations to support training at the NTC, JRTC, CMTC & BCTP (1889)
- Complete CBS 1.5.3 and continue limited enhancements to CBS (3003)
- Exercise contract option for Prime WARSIM EMD (10295)
- Complete development of FSCATT Phase I (6006);
- Initiate SAWE-RF downsized man worn system (2188); and development of IEWTPT (3434)

FY 97 Planned Program

- JANUS development of battle focus trainer enhancements to existing software baseline (498)
- Continue limited BBS and CBS enhancements (4080); development of the CSSTSS (2988); WARSIM 2000 EMD (18304); and IEWTPT (4558) and development of devices, simulators and simulations to support training at the NTC JRTC, CMTC & BCTP (87)
- Initiate development of MILES 2000 for new weapon systems (i.e., armored gun system and Bradley A3 (799)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604715A Non-System Training Devices Engr Dev

D396 - Tactical Simulation (TACSIM): TACSIM is a TIARA program. Funds development and testing support of TACSIM.

FY 94 Accomplishments:
- Completed TACSIM version 2.1.5 development (1731)
- Initiated TACSIM 2.1.6 development (800)
- Continued TACSIM/CBS development for CBS (2422)
- Initiated TACSIM/Aggregate Level Simulation Protocol (ALSP) interface development (220)

FY 95 Planned Program:
- Complete TACSIM 2.1.6 development (1050)
- Complete TACSIM/CBS development for CBS (590)
- Initiate TACSIM 2.1.7 development (1028)
- Continue TACSIM/ALSP interface development (218)
- Initiate development of Warfighters' Simulation (WARSIM) intelligence capability (490)
- SBIR/STTR (72)

FY 96 Planned Program:
- Complete TACSIM 2.1.7 development (868)
- Complete TACSIM/ALSP interface development (175)
- Initiate TACSIM 2.1.8 development/compatibility with CBS (565)
- Continue development of Warfighters' Simulation (WARSIM) intelligence capability (475)

FY 97 Planned Program:
- Complete TACSIM 2.1.8 (800)
- Initiate minor TACSIM enhancements (186)
- Continue development of Warfighters' Simulation (WARSIM) intelligence capability(1893)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604715A Non-System Training Devices Engr Dev

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	57188	48329	55060	46191
Appropriated Value	57188	47029		
Adjustments to Appropriated Value	-804			
a. SBIR/STTR decrement (-804)				
b. Reprogramming total (620)	620			
Current President's Budget Submit	57004	47029	55303	53343

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604715A Non-System Training Devices Engr Dev

PROJECT: DC82

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
DC82 Louisiana Maneuvers	0	5848	5973	4987	4005	4021	3997	3990	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
OPA2, Appropriation	433	846	941	774	171	147	149	994	Cont'd	Cont'd
BE4162 MACOM Automation Systems										

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
Development of database tools for theater-level exercises		X*				X				X				X		
Simulator Linkages		X*				X				X				X		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604715A Non-System Training Devices Engr Dev PROJECT DC82

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Development of database tools for theater-level exercises	0	2448	2500	2500
Development of simulation linkages	0	1468	1500	1500
Issue investigation by AMC, TRADOC, FORSCOM & Strategic Space Defense Command (SSDC)	0	1809	1973	987
SBIR/STTR		123		
Total		5848	5973	4987

B. Budget Acquisition History and Planning Information: NOT APPLICABLE

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604715A Non-System Training Devices Engr Dev

PROJECT: DC91

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
DC91 Distributive Interactive Simulation	0	3445	6139	3745	11328	6992	17063	14053	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
RDTE, Budget Activity 5 PE 0604760A Project DC81 Battle Lab Reconfigurable Simulators	0	6412	0	0	0	0	0	0	0	6412
RDTE, Budget Activity 4 PE 0603760A Project DC80 Battle Lab Reconfigurable Simulators	0	8385	0	0	0	0	0	0	0	8385
OPA3, Appropriation KA6000, Reconfigurable Simulators	0	0	12616	7152	0	0	0	0	0	19768
OMA, Reconfigurable Simulators	0	0	12100	12200	12300	12400	12500	12600	Cont'd	Cont'd

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
Award SEI Contract						X										
DIS Verification and Validation												X				X
Simulator Upgrades												X				X
Reconfigurarble Simulator Program												X				X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604715A Non-System Training Devices Engr Dev PROJECT DC91

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Operate DIS facilities	0	1415		
Award SEI Contract	0	1958		
Develop module definition for Soldier Combat Service Support & early entry SIMS	0		2434	1395
Simulation Software upgrades	0		1255	
DIS Verification and Validation	0		2450	2350
SBIR/STTR		72		
Total		3445	6139	3745

B. Budget Acquisition History and Planning Information: NOT APPLICABLE

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604715A Non-System Training Devices Engr Dev

PROJECT: D241

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
D241 Non-System Training Devices Combined Arms	42790	24680	31121	31314	36732	29923	46611	31928	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
OPA3, Appropriation	78774	85323	71561	102660	70903	90890	97430	112246	Cont'd	Cont'd
NA0100 Training Devices, Nonsystem										
OPA3, Appropriation	22919	21086	22208	5609	13919	14914	33803	34802	Cont'd	Cont'd
MA6600 CTC Support										
OPA3, Appropriation	0	0	0	22152	21044	30190	27280	16686	Cont'd	Cont'd
NA0174 Fire Support Combined Arms Tactical Trainer										

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
WARSIM Contract Award							X									
JANUS CDR								X			X				X	
CSSTSS CDR			X*													
CSSTSS Milestone III IPR									X							
BCTP AAR Contract Award				X*												
AWSS Contract Award					X*											
AGES II Field Development Test								X								
GUARDFIST I Milestone III							X									
JRTC-IS IOC												X				
FSCATT IOC														X		
M113 OSV Milestone I/IIIA				X*												
M113 OSV Milestone III								X								
SAWE-RF Milestone III IPR												X				

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604715A Non-System Training Devices Engr Dev
	PROJECT D241

A. **Project Cost Breakdown**

	FY 1994	FY 1995	FY 1996	FY 1997
System Development	42231	23485	29885	30642
Test and Evaluation	395	626	1000	87
Technical Data	164	50	236	585
SBIR/STTR		519		
Total	**42790**	**24680**	**31121**	**31314**

B. **Budget Acquisition History and Planning Information**: NOT APPLICABLE

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604715A Non-System Training Devices Engr Dev

PROJECT: D396

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
D396 Tactical Simulation (TIARA)	5173	3448	2083	2879	3205	2382	3997	3990	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
Software Build				X*				X				X				X
Developmental Test and Evaluation		X*				X				X				X		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604715A Non-System Training Devices Engr Dev	PROJECT D396

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Software Development	1460	938	538	772
System Engineering	1129	760	537	587
Configuration Management	930	610	370	566
Technical Data	729	460	269	385
Developmental Test and Evaluation	925	608	369	569
SBIR/STTR		72		
Total	5173	3448	2083	2879

B. Budget Acquisition History and Planning Information: NOT APPLICABLE

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE: February 1995
BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE: 0604715A Non-System Training Devices Engr Dev		PROJECT: D573

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
D573 STRICOM and Naval Air Warfare Center Training Systems Division	9041	9606	9987	10418	10611	10713	10492	10675	Continuing	Continuing

C. **Other Program Funding Summary**: NOT APPLICABLE

D. **Schedule Profile:** The nature of this project does not lend itself to acquisition milestones.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604715A Non-System Training Devices Engr Dev PROJECT D573

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Fund STRICOM Personnel	6505	6706	6795	6940
Fund NAWCTSD Support	1500	1584	1689	1862
Front End Analysis	1036	1254	1503	1616
SBIR/STTR		64		
Total	9041	9608	9987	10418

B. Budget Acquisition History and Planning Information: NOT APPLICABLE

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604716A Terrain Information - Engineering Development (TIARA)

PROJECT: D579

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
D579 Field Army Map Sys Eng Dev	9375	10213	9011	7630	3214	2986	2398	1896	Continuing	Continuing

A. Mission Description and Budget Item Justification: This program element funds development of two systems: Digital Topographic Support System (DTSS) and Quick Response Multicolor Printer (QRMP). The current terrain analysis, topographic and reproduction support provided by Army Engineer Terrain Teams are slow, labor intensive processes that do not meet the needs of the digitized battlefield in which the commander must have the ability to rapidly obtain terrain information and topographic products. DTSS will automate the updating and processing of terrain information into terrain analysis products and disseminate them rapidly within Command and Control systems. QRMP will provide rapid reproduction of low volume, up-to-date, large format, full color imagery maps, situation overlays, special graphics (e.g , captured enemy maps) and other topographic and terrain products. Three blocks of Pre-Planned Product Improvements (P3I) are authorized including: downsizing, terrain visualization, imagery exploitation, increased internal and communications throughput, and others. Part of imagery exploitation includes the development of a Multi-Spectral Imagery Processor (MSIP), which provides an image map making capability. Commercial DTSS-MSIP systems will be provided to Army Engineer Terrain Teams as an interim solution for making image maps. Using the most current technology available, the functional capabilities of DTSS and QRMP will be developed into a single interoperable architecture. The projects in this Program Element support research efforts in the engineering and manufacturing development (E&MD) phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

The Acquisition Strategy being pursued for the DTSS/QRMP EMD phase is to utilize Army standard equipment and the Common Hardware/Software (CHS) computer workstations in conjunction with non-development items (NDI) components to develop an integrated baseline hardware configuration. The plan is to utilize the Combat Terrain Information System (CTIS) System Engineering and Integration (SE&I) contractor to execute the EMD phase and to perform system integration and provide units for formal test and evaluation. The procurement of the Multi-Spectral Image Processor (MSIP) was approved by the Army. The acquisition of the MSIP will rely on existing contracts and commercial-off-the-shelf (COTS) to the fullest extent possible.

Program Management responsibility and milestone decision authority have been assigned to the Program Executive Officer for Command and Control Systems (PEO CCS). Project management is provided by the Project Director (PD) for Combat Terrain Information Systems.

The contracting strategy for the DTSS/QRMP program is to execute the EMD phase through the current SE&I contractor, Martin Marietta Corporation. A competitive Cost Plus Fixed Fee (CPFF) contract was awarded for the CTIS SE&I contract. A competitively awarded, Firm Fixed Price (FFP) contract is anticipated for the Full Rate Production of the DTSS/QRMP. The computer workstations for CTIS programs are being procured through the PM for Common Hardware and Software.

FY 1994 Program Accomplishments:

- Continued DTSS Block I P3I Development (5100)
- Initiated Development of DTSS-MSIP (500)
- Initiated Development of Integrated Downsized DTSS/QRMP (3275)
- Deployed and Upgraded QRMP Early Field Prototypes (500)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604716A Terrain Information - Engineering Development (TIARA)
	PROJECT D579

FY 1995 Planned Program:

- Develop DTSS Low Rate Initial Production (LRIP) Upgrade (1699)
- Complete Development of DTSS-MSIP (300)
- Complete DTSS Block I P3I and Conduct Test and Evaluation (Software) (1000)
- Continue Development of Downsized DTSS/QRMP (6500)
- Continue P3I Program (Communications) (500)
- Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) (214)

FY 1996 Planned Program:

- Complete Development of DTSS LRIP Upgrade (1900)
- Continue Development of Downsized DTSS /QRMP (6311)
- Continue P3I Program (Interoperability) (700)
- Initiate Test and Evaluation of EMD Prototypes (100)

FY 1997 Planned Program:

- Complete Development of Downsized DTSS/QRMP (4800)
- Complete Test and Evaluation of Developmental Prototypes (500)
- Continue P3I Program (Interoperability) (2330)

B. Program Change Summary	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	9523	10547	8527	6580
Appropriated Value	9523	10213		
Adjustments to Appropriated Value	-148			
a. SBIR/STTR decrement (148)				
Current President's Budget	9375	10213	9011	7630

Change Summary Explanation:

Funding: Funding profile was restructured to reflect approved April 1994 CTIS Modernization Plan. This plan approved the downsizing of the DTSS/QRMP systems, resulting in minor RDT&E and Other Procurement, Army appropriation adjustments.

Schedule: Since the previous President's budget submission, revisions to the program schedule have become necessary in response to requirements identified in the CTIS Modernization Plan.

Technical: No change to technical requirements as a result of CTIS Modernization Plan

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604716A Terrain Information - Engineering Development (TIARA)

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
OPA - KA2550 - DTSS	10412	7779	6954	6683	8160	5110	1988	2486	CONT	CONT

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
Achieve DTSS First Unit Equipped (FUE)			X*													
MSIP Mission Need Statement Approved			X*													
Initiate Procurement of MSIP Hardware			X*													
Award Downsized DTSS/QRMP EMD Task Order					X*											
Conduct MSIP Beta Testing					X*											
Initiate Delivery of MSIP to Terrain Teams						X										
Develop DTSS LRIP Upgrade						X										
Incorporate DTSS LRIP Upgrades										X						
Conduct Downsized DTSS/QRMP Developmental Test and Evaluation/Operational Test and Evaluation (DT&E/OT&E)												X				
Initiate Fielding of Upgraded DTSS LRIP Systems														X		
Downsized DTSS/QRMP MS III																X

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604716A Terrain Information - Engineering Development (TIARA)

PROJECT: D579

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary System Development	2500	2400	2900	1100
Software Development	2600	2700	1900	800
Government Furnished Equipment	0	500	0	0
Government Engineering Support (includes Test Support)	1600	1700	1300	2800
Contractor Engineering Support	1100	900	900	900
Licenses and Maintenance	75	313	311	330
Project Management and Administration	1500	1700	1700	1700
Total	9375	*10213	9011	7630

*SBIR/STTR (214)

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
Product Development Organizations											
Loral Defense Akron, OH	C/CPFF/FFP Prod Option	7/87	35157	35157	32700	2400	0	0	0	0	35100
Martin Marietta Ft Wash, PA	C/CPFF	1/93	17000	17000	1500	2700	5100	4800	1900	CONT	CONT
In-House Support/TEC						1575	2013	2011	2030	CONT	CONT
Support and Management Organizations											
CSC Fairfax, VA	C/FFP					400	400	400	400	CONT	CONT

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

DATE: February 1995

BUDGET ACTIVITY
5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE
0604716A Terrain Information - Engineering Development (TIARA)

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
MITRE Corp McLean, VA	FFRDC thru CECOM					700	500	500	500	CONT	CONT
OGAs	MIPR					1300	1300	1000	1800	CONT	CONT
Test and Evaluation Organizations											
TECOM	MIPR					300	400	300	1000	CONT	CONT
Government Furnished Property											
Item Description	Contract 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											
CHS Computers	MIPR	30 Oct 94	30 Jan 95			0	500	0	0	CONT	CONT
Support and Management Property						0	0	0	0	CONT	CONT
Test and Evaluation Property						0	0	0	0	CONT	CONT

		FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	34200	6675	7613	6811	3930	CONT	CONT
Subtotal Support and Management		2400	2200	1900	2700	CONT	CONT
Subtotal Test and Evaluation		300	400	300	1000	CONT	CONT
Total Project	*34200	9375	*10213	9011	7630	CONT	CONT

* Prior year funding only covers the Prime Contractors. FY 95 SBIR/STTR (214)

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604740A Tactical Surveillance System - Engineering Development (TIARA)

PROJECT: D662

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
D662 Tactical Surveillance System - Eng Dev	37534	2093	0	0	0	0	0	0	0	N/A

A. Mission Description and Budget Item Justification: In FY94 and prior, this project supported engineering development work directed at meeting the deep intelligence and targeting needs of tactical commanders, as stated in Field Manual 100-5 and under Airland Battle tactics, to fight out-numbered and win. Specific tactical imagery exploitation studies and developments are under the Army's Tactical Exploitation of National Capabilities (TENCAP). This Program Element (PE) includes efforts to maintain sensor interfaces, modernize the existing Modernized Imagery Exploitation Systems (MIES), perform engineering development of the hardware of the Enhanced Tactical Radar Correlator (ETRAC) and DOD's Common Synthetic Aperture Radar Processor (CSARP), and provide program management support to the Joint Services Imagery Processing System (JSIPS) Program Office (JPO). The MIES receives and processes imagery from National and tactical sources to generate intelligence reports and exploited imagery products to the field commander. The CSARP processes the signals from Synthetic Aperture Radars (SAR). The ETRAC contains the DoD CSARP and is a C-130 drive on/off system that receives inputs from various platforms, converts the SAR to a visual image, and is capable of stand alone contingency operations. The project in this PE supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and is therefore correctly placed in Budget Activity 5.

Project D662 Tactical Surveillance System Engineering and Manufacturing Development: These systems will provide direct operational access to National and theater imagery in near-real-time to provide critical, deep target intelligence support to tactical commanders and to support contingency missions and low intensity conflicts. TENCAP Common Baseline (Cmn Bsln) addresses common subsystems, planned improvements, key activities and ongoing planned initiatives determined to have potential application to multiple TENCAP systems (including MIES and ETRAC that are funded under the DARP (PE 0305154D)). Graphic Situation Display (GSD), which is part of the Common Baseline effort, is a jointly funded program to develop a means to computer generate, transmit, and display graphical representations to the battle space thereby saving communication bandwidth, manpower and time. The beta software portion of GSD development effort was funded in FY 93 with Military Exploitation of Reconnaissance and Intelligence Technology (MERIT) funds. This PE also provides technical and engineering support efforts to MIES and ETRAC from the Topographic Engineering Center (TEC), Federally Funded Research And Development Centers (FFRDC), and Contractor Systems Engineering and Technology Assistance (SETA) activity. In FY 95, all funds directly related to the development of MIES, ETRAC and JPO support are moved to PE #0305154D, DARP. In a parallel action, the support efforts remaining in this PE were consolidated under Project D909 beginning in FY 96. Further details may be found in the Tactical Intelligence and Related Activities (TIARA) Congressional Justification Book, Volume II, and the TENCAP Master Plan.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604740A Tactical Surveillance System - Engineering Development (TIARA)
	PROJECT D662

FY 1994 Accomplishments:

- Completed second MIES and integrated into existing Imagery Exploitation System (IES) at USAREUR. (100)
- Upgraded all MIESs with 168 giga bytes of memory (7 full days of on-line storage). (4226)
- Integrated GSD into all MIESs. (679)
- Upgraded all MIES with National/tactical fiber optics interfaces for real-time connectivity with TRAC/ETRAC. (2427)
- Initiated development of 3rd MIES to replace defielded Imagery Processing and Dissemination System (IPDS). (4763)
- Continued joint support within JSIPS program. (6800)
- Continued hardware development for integration of ETRAC and DoD CSARP. (16331)
- Continued Contractor Systems and Engineering Technology Assistance (SETA) to TENCAP program from FFRDC (Aerospace). (397)
- Continued SETA to TENCAP program from TEC. (480)
- Continued Contractor SETA to TENCAP program. (1331)

FY 1995 Planned Program:

- Initiate installation of GSD into all Forward Area Support Terminal (FAST) systems. (759)
- Continue SETA to TENCAP program from FFRDC (Aerospace). (551)
- Continue Contractor SETA to TENCAP program. (739)
- Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR). (44)

FY 1996 Planned Program:

- All efforts in this project transferred/consolidated under PE 0604766A (Project D909), Tactical Exploitation of National Space Capabilities Program (TENCAP) - Engineering Development, Project D909, Tactical Electronic Surveillance System, Engineering Development.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604740A Tactical Surveillance System - Engineering Development (TIARA)
	PROJECT D662

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	38734	2121	1158	1086
Appropriated Value	38734	2093		
Adjustments to Appropriated Value	-1200			
a. SBIR/STTR Decrement (-600)				
b. Reprogrammed out of PE (-600)				
Current Budget Submit/President's Budget	37534	2093	0	0

Change Summary Explanation:

Project D662 - Tactical Surveillance System - Engineering Development

Funding: IN FY 96, THE ARMY CONSOLIDATED THE REMAINING PEs SUPPORTING THE ARMY TACTICAL EXPLOITATION OF NATIONAL CAPABILITIES (TENCAP) PROGRAM. PE 0604740A/PROJECT 662 WAS CONSOLIDATED WITH PE 0604766A/PROJECT D909 IN FY 96 AND BEYOND. AS A PART OF THIS SAME ACTION, PE 0603730A/PROJECT D560 WAS CONSOLIDATED WITH PE 0603766A/PROJECT D907 IN FY 96 AND BEYOND. These PEs/Projects were consolidated because in FY 95 all funds directly related to the development of IES and ETRAC and support to the JSIPS Program that were funded under Project D560 and D662 in FY94 were moved to OSD PE 0305154D, DARP. Even though the funds have been moved to the Defense Airborne Reconnaissance Office (DARO), the Department of the Army continues to support these development efforts on their behalf. Funding to support these DARO efforts (ASPO salaries and expenses, TEC, FFRDC, Contractor SETA, and certain studies) remain in this PE and are still required.

Schedule: None

Technical: None

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604740A Tactical Surveillance System - Engineering Development (TIARA)
	PROJECT D662

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
RDTE, A Budget Activity 4										
PE 0603766A Project D907										
TENCAP-Adv Dev	15069	14815	28369	26913	23935	28057	29377	34319	Cont	Cont
PE 0603730A Project D560										
Tact Surv Sys - Adv Dev	15140	11717	0	0	0	0	0	0		
RDTE, A Budget Activity 5										
PE 0604766A Project D909										
TENCAP - Eng Dev	26456	19214	24699	15302	19012	22016	29577	28533	Cont	Cont
RDTE, D Budget Activity 7										
PE 0305154D Project D531										
DARP	0	40017	33833	37216	12390	6328	6328	6328	Cont	Cont
Other Procurement, Army, OPA-2										
BZ 7315 TENCAP	7729	4636	4617	1807	1784	1853	4971	14916	Cont	Cont
BA 0329 DARP	1927	2411	0	0	0	0	0	0	N/A	N/A
Procurement, Defense Wide										
0305154D, DARP	0	0	88700	123400	77900	69100	71400	73300	Cont	Cont

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
Complete Development 2nd MIES and Integrate into existing IES	X															
Initiate Development of 3rd MIES			X													
Complete Development and Field 3rd MIES							X									

See Project Army D909 and OSD PE 0305154D, Project P531 for Milestones in FY 95 - FY 97.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604740A Tactical Surveillance System - Engineering Development (TIARA)
	PROJECT D662

A. **Project Cost Breakdown**

	FY 1994	FY 1995	FY 1996	FY 1997
System Development:				
Common Baseline (*2)	679	759	See Proj D909	See Proj D909
MIES (*1)	11516	(*1)		
ETRAC (*1)	16331	(*1)		
Subtotal System Development	28526	759		
Program Management:				
FFRDC (*2)	397	551	See Proj D909	See Proj D909
System Engineering (Contractor)(*1, *2, *3)	8131	783	"	"
System Engineering (Government) (*2)	480	0	"	"
Subtotal Program Management (*1, *2, *3, *4)	9008	1334	"	"
Total	37534	2093	0	0

(*1) In FY 95, all development efforts for these systems moved to PE 0305154D (Defense Airborne Reconnaissance Program (DARP), Project P531

(*2) In FY 96 and beyond, this PE/Project is consolidated under PE 0604766A (TENCAP - Eng Dev), Project D909 (Tactical Electronic Surveillance System - Eng Dev).

(*3) In FY 95, $6.8M of this line funds Army's share of support to JPO to support the ongoing JSIPS Program. This effort moved to PE 0305154D (DARP), Project P531 in FY 95.

(*4) In FY 95, these funds support the system being developed under PE 0305154D (DARP), P531.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604740A Tactical Surveillance System - Engineering Development (TIARA)
	PROJECT D662

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
Product Development Organizations											
TEC (MIES)	MIPR	4Q94	N/A	N/A	N/A	11516	*	*	*		
Classified ETRAC	MIPR	3Q93	N/A	N/A	10365	13444	*	*	*		
Classified (CmnBln)	MIPR	2Q95	N/A	N/A	0	679	759	*	*		
Support and Management Organizations											
ESC (JSIPS Sys Eng Cont)	MIPR	2Q-4Q94	N/A	N/A	N/A	6800	*	*	*		
Classified (Sys Eng Cont)	MIPR	1Q EA FY	N/A	N/A	N/A	1331	783	**	**		
SSD/FDEA (FFRDC)	MIPR	1Q EA FY	N/A	N/A	N/A	397	551	**	**		
TEC (Sys Eng Cont)	MIPR	1Q EA FY	N/A	N/A	N/A	480	0	**	**		
Test and Evaluation Organizations											
None											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604740A Tactical Surveillance System - Engineering Development (TIARA)
	PROJECT D662

Government Furnished Property

Item Description	Contract 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										
Modularized Interoperable Surface Terminal (MIST) (ETRAC)	MIPR	2Q93	2Q96	3416	2887	*	*	*		
Support and Management Property										
None										
Test and Evaluation Property										
None										

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	N/A	25639	759	**	**		
Subtotal Support and Management	N/A	9008	1334	**	**		
Subtotal Test and Evaluation	N/A	0	0	**	**		
Subtotal Government Furnished Property	3416	2887	*	*	*		
Total Project	N/A	37534	2093				

* See PE 0305154D, P531
** See PE 0604766A, D909

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604741A Air Def Cmd, Cntl & Intel-Engr Dev

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	17526	28136	22030	21143	15338	2044	6994	7981	Continuing	Continuing
D126	FAAD Command and Contol Engineering Development	17526	28002	21035	21143	15338	2044	6994	7981	111902	655100
D146	Air Defense Tactical Operations Center	0	0	995	0	0	0	0	0	Continuing	Continuing
D2JT	FAAD C2 Operational Test	0	134	0	0	0	0	0	0	Continuing	Continuing

A. **Mission Description and Budget Item Justification:** The Forward Area Air Defense Command, Control and Intelligence (FAAD C2I) System provides critical forward area air defense automated information to support the command and control decision process at various levels of command. The mission is to collect, digitally process and disseminate target information, air threat warning, and command and control information to all FAAD weapons (AVENGER, Bradley STINGER Fighting Vehicle (BSFV), Manportable Air Defense System (MANPADS), and combined arms). Unique FAAD C2I software will provide the mission capability by integrating FAAD C2 engagement operations software using Common Hardware/Software (CHS), Standard Integrated Command Post System (SICPS), Enhanced Position Location Reporting System (EPLRS), Joint Tactical Information Distribution System (JTIDS), Single Channel Ground and Air Radio System (SINCGARS), Light and Special Division Interim Sensor (LSDIS), Global Positioning System (GPS), Airborne Warning and Control System (AWACS), Ground Based Sensor (GBS), and the Army Battle Command System (ABCS) architecture. The projects in this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

Project D126 - FAAD Command and Control Eng Dev: The Forward Air Defense Command and Control (FAAD C2) System is an automated system deployed with FAAD weapons to provide accurate and timely command, control and targeting information for the weapon systems. The system utilizes non-developmental item sensors, computers, displays and interface hardware integrated with data communication equipment. It automates mission related functions and uses the Single Channel Ground and Airborne Radio Systems (SINCGARS) for voice and the Army Data Distribution System (ADDS) for data.

FY 1994 Program Accomplishments

- Continued Block II Software Development (12786)
- Conducted Block II Development Test (2440)
- Awarded Block III Development Contract (300)
- ATCCS III Testing Support (2000)

FY 1995 Planned Program

- Conducted Block II IOTE (6808)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604741A Air Def Cmd, Cntl & Intel-Engr Dev

- Continue Block III Software Development (17433)
- Prepare for Milestone III Decision Review -- Heavy Division (650)
- Prepare for First Unit Equipped -- Heavy Division (600)
- Congressionally Directed Sensor Study (2000)
- Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) (511)

FY 1996 Planned Program
- Continue Block III Software Development (19606)
- Prepare for Block III Users Test (800)
- Prepare for Technology Insertion (629)

FY 1997 Planned Program
- Conduct Block III Users Test (UT) (2000)
- Continue Block III Software Development (18339)
- Prepare for Block III Development Test (DT) (804)

Project D2JT - Forward Area Air Defense Command and Control Operational Test: This project finances the direct costs of planning and conducting operational testing and evaluation of the Forward Area Air Defense Command, Control, and Intelligence (FAAD C2I) by the Operational Test and Evaluation Command (OPTEC). The FAAD C2I is an Acquisition Category (ACAT) ID system with a dedicated Initial Operational Test and Evaluation (IOTE) in FY 1995 in support of Milestone III full production decisions. Operational testing is conducted under conditions, as close as possible, to those encountered in 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 D2JT is not a new start. It is restructured from PE 0605712, Support of Operational Testing, Project D001, OPTEC IOTE. In FY 1995 funding for operational testing of ACAT I systems is programmed with the PE funding for each system. Future fiscal years will be reprogrammed when system information becomes available.

FY 1994 Program: Program unfunded in FY 1994

FY 1995 Planned Program
- Conduct FAAD C2I IOTE (131)
- SBIR/STTR (3)

FY 1996 Planned Program: Program unfunded in FY 1996

FY 1997 Planned Program: Program unfunded in FY 1997

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604741A Air Def Cmd, Cntl & Intel-Engr Dev

Project D146 - Air Defense Tactical Operations Center: Air Defense Artillery (ADA) requires a standardized, integrated, automated command post (CP) and fire direction center (FDC) capability that will fully interoperate with all US Army and Joint C3I and Air Defense systems, and selected systems of allied nations. These capabilities will be incorporated in an Air Defense Tactical Operations Center (ADTOC). The ADTOC must incorporate air defense and theater missile defense force operations and engagement operations functions into a single command, control, communications and intelligence system. Project D146 finances the direct costs of developing an ADTOC that will be used to provide a single system command, control, communications, and intelligence system that will support the requirements of any air defense weapon system at any echelon of Corps and below. This is not a new start. These efforts were previously funded under Project D126.

FY 1994 Program: Program unfunded in FY 1994

FY 1995 Planned Program: Program unfunded in FY 1995

FY 1996 Planned Program

- Development and integration studies (995)

FY 1997 Planned Program: Program unfunded in FY 1997

B. Program Change Summary	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	15410	26494	22056	21139
Appropriated Value	15410	28136		
Adjustments to Appropriated Value	+2116			
a. SBIR/STTR decrement (-184)				
b. HQDA reprogramming (+2300)				
Current President's Budget	17526	28136	22030	21143

Change Summary Explanation:
Project D126:
Funding: FY94 reprogramming to enable Development Test (DT) to remain on schedule and to cover OPTEC requirement in FY94. $1M restructured to D146 in FY 96 to finance direct costs of developing an ADTOC. FY 95 (+2M) added for Congressionally directed Sensor Study.
Schedule: None
Technical: None
Project D146:
Funding: $1M restructured into this project in FY 96 to finance direct costs of developing an ADTOC.
Schedule: None
Technical: None

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604741A Air Def Cmd, Cntl & Intel-Engr Dev

PROJECT: D126

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
D126 FAAD Command and Contol Engineering Development	17526	28002	21035	21143	15338	2044	6994	7981	111902	655100

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
RDTE, DE10 - FAAD GBS	16661	5900								22561
OPA 2, WK5053 - FAAD GBS	7900	63855	44678	53282	46776	44438	64327	69010	CONT	CONT
OPA 2, AD5050 - FAAD C2	13300	14150	32942	38236	16811	12628	0	0	0	128067
Spares (BA9702/MA9702/BS9702)	1473	1447	1520	1425	1677	933			0	8475
Spares (BS9732)			2634	4040	5672	5868				18214

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
Conduct Block II Development Test				X*												
Initiate Block III Software Development				X*												
Conduct Block II IOT&E					X*											
Milestone III Decision for Heavy Divisions						X										
Complete Block II Software Development								X								
First Unit Equipped Initial -- Heavy Division								X								
Conduct Block III Users Test														X		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604741A Air Def Cmd, Cntl & Intel-Engr Dev
	PROJECT D126

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Major Contract	9528	17500	16500	15000
Support Contract	775	1000	1000	1000
PMO/In-house/Other	2883	2694	3335	3143
GFE/Testing	4340	6808	200	2000
Total	17526	*28002	21035	21143

* SBIR/STTR (511).

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
Product Development Organizations											
TRW	C/CPIF	Sep 86	178000	178000	176233	228					176461
TRW	SS/CPIF	Aug 92	50106	50106	15806	9000	7100				31906
TRW	SS/CPIF	Sep 94	53194	53194	0	300	7400	14000	14000	CONT	CONT
TRW	SS/T&M	Sep 93	4900	4900	0	0	1000	2500	1000	CONT	CONT
Matrix (RDEC)	MIPR					1132	1031	1900	1800	CONT	CONT
Sensor Study	TBD	TBD					2000				2000
Support and Management Organizations											
SETA, CAS	SS/CPFF	Feb 91	9400	9400	9099	775				CONT	CONT
SETA, TBD	C/CPFF						1000	1000	1000	CONT	CONT
In-House/ Other						1451	1663	1435	1343	CONT	CONT
Test and Evaluation Organizations											
ADATD, Ft Bliss						2440	6608		2000	CONT	CONT
OPTEC						2000					2000

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604741A Air Def Cmd, Cntl & Intel-Engr Dev

Government Furnished Property

Item Description	Contract 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										
CHS	MIPR				200	200	200		CONT	CONT
JTIDS	MIPR	1988		6000					0	6000

Support and Management Property: None

Test and Evaluation Property: None

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	198039	10860	18731	18600	16800	CONT	CONT
Subtotal Support and Management	9099	2226	2663	2435	2343	CONT	CONT
Subtotal Test and Evaluation		4440	6608		2000	CONT	CONT
Total Project	207138	17526	*28002	21035	21143	CONT	CONT

*SBIR/STTR (511).

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604741A Air Def Cmd, Cntl & Intel-Engr Dev

PROJECT: D146

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
D146 Air Defense Tactical Operations Center	0	0	995	0	0	0	0	0	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
ADTOC Development									X							

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604741A Air Def Cmd, Cntl & Intel-Engr Dev

PROJECT: D146

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Development Efforts			995	
Total			995	

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
Product Development Organizations											
TBD	TBD							995		CONT	CONT
Support and Management Organizations: None											
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development								995		CONT	CONT
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project								995		CONT	CONT

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604741A Air Def Cmd, Cntl & Intel-Engr Dev

PROJECT: D2JT

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
D2JT FAAD C2 Operational Test	0	134	0	0	0	0	0	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 Compl	Total Cost
RDTE, A 0604820 Radar Development - FAADC3I Oper Test - D2IT		4951								4951

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
FAADC2 IOTE					X*											

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604741A Air Def Cmd, Cntl & Intel-Engr Dev

PROJECT: D2JT

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Testing		134		
Total		134		

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
Product Development Organizations: N/A											
Support and Management Organizations: N/A											
Test and Evaluation Organizations											
OPTEC							134				134
Government Furnished Property: None											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation							134				134
Total Project							134				134

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604746A Automatic Test Equipment 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	19926	15512	5437	2878	2848	2818	3747	3741	Continuing	Continuing
DL10 Electro-Optic (EO) Test Equipment	1302	4740	0	0	0	0	0	0	0	24702
DL59 Diagnostic/Expert System Development	13478	7892	5437	2878	2848	2818	3747	3741	Continuing	Continuing
D537 Integrated Family of Test Equipment	5146	2880	0	0	0	0	0	0	0	66312

A. Mission Description and Budget Item Justification

This program element provides for development of modular, reconfigurable Automatic Test Equipment (ATE) to satisfy test and fault isolation requirements across equipment commodities and to meet operational readiness needs of sophisticated systems and state-of-the-art technologies. An urgent requirement exists at all levels of maintenance for ATE to support complex communications and electronics-intensive commodities such as missiles, aircraft, and combat vehicles. The Integrated Family of Test Equipment (IFTE), with improvements as required to keep pace with technologies employed in the supported weapons systems, can meet these mission requirements into the next century. This program element further provides for identification and evaluation of the capabilities of nondevelopmental items (NDI) to satisfy requirements for manual and semi-automatic general purpose test, measurement, and diagnostic equipment (TMDE) at the division level. Expert systems and artificial intelligence applications are also being developed under this program element to provide paperless maintenance manuals/procedures and battlefield electronic displays which will reduce the Army's investment in test program sets (TPS) and in maintenance publications and procedures. These projects are appropriately assigned to Budget Activity 5 since they provide for engineering and manufacturing development of new ATE systems to meet the test and diagnostic requirements of the Army's weapons systems and for incorporation of state-of-the-art technologies into the Army's ATE systems.

Project DL10 - Electro-Optic Test Equipment: This project provides for development of state-of-the-art, technologically superior general purpose test equipment capable of performing fault isolation and failure diagnosis on electro-optical components and assemblies of the Army's major weapons systems. Currently, electro-optic (EO) testing requirements in the forward areas are met with a multitude of non-standard, semi-automatic or manual testers which vary greatly in capability, reliability, weight, and cost, and require very highly skilled operators and maintainers. Serious deficiencies exist in EO testing capabilities in the field. There is no automatic EO testing capability at organizational and direct support levels for certain weapons systems and critical parameters of other systems cannot be measured at the organizational levels because EO test equipment is not available. The test equipment being developed under this project will fill these voids in the field and replace outdated, deficient, and difficult to maintain equipment such as the Land Combat Support System (LCSS). This new equipment will alleviate the existing EO test and diagnostic shortfalls and is in concert with Army and DOD policy on standard ATE. Program has been restructured and continuing effort is funded under Project DL59 beginning in FY 1996.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604746A Automatic Test Equipment Development

FY 1994 Accomplishments:
- Continued development of and acquisition support functions for Contact Test Set-EO Augmentation (CTS-EOA) (929)
- Performed design analysis of EO test facility (EOTF) in shelter and van configuration (166)
- Procured interactive electronic technical manual and calibration equipment for EOA (145)
- Commenced preparation of cost and operational effectiveness analysis (COEA) for EO test equipment (62)

FY 1995 Planned Program:
- Evaluate/validate off-system EO test requirements and solutions (663)
- Convert LCSS EO TPSs for use on Base Shop Test Facility (BSTF) (3800)
- Close out CTS-EOA development and complete preparation of COEA (200)
- Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) (77)

FY 1996 Planned Program:
- See Project DL59.

FY 1997 Planned Program:
- See Project DL59.

Project DL59 - Diagnostic/Expert System Development: This project supports full-scale development of expert/diagnostic systems and general purpose test equipment and evaluation/testing of nondevelopmental items (NDI) equipment for support of Army's weapons systems. These systems and equipment are required to overcome existing deficiencies and voids in organic test and diagnostic capabilities. The project provides for development of diagnostic technologies and state-of-the-art general purpose test equipment to support the Army's weapons systems; improvement of general purpose test equipment to meet new testing and technological requirements; market surveys of commercially available general purpose test equipment to determine applicability to Army requirements; evaluations and validations of diagnostic software on targeted hardware; and development/evaluation of test programs sets (TPS) for use with standard ATE. Applications of state-of-the-art technologies in expert systems and artificial intelligence, paperless maintenance and troubleshooting manuals, electro-optics displays for battlefield use, and soldier-friendly equipment will be developed to meet identified requirements.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604746A Automatic Test Equipment Development

FY 1994 Accomplishments:
- Developed, tested, and implemented additional diagnostic data capability and developed of test capability to meet new air quality standards (2576)
- Commenced development of TPSs for the Kiowa Warrior Mast Mounted Sight and Control Display System (2000)
- Commenced development of depot and factory level TPSs and on-system diagnostic enhancements for the Longbow Apache (7000)
- Converted Army Depot Automatic Diagnostic System TPSs for use on Integrated Family of Test Equipment (IFTE) (146)
- Developed TPSs for Ground Based Sensor (801)
- Converted LCSS electronic TPSs for use on Base Shop Test Facility (BSTF) (955)

FY 1995 Planned Program:
- Complete development of TPSs for Kiowa Warrior Mast Mounted Sight and Control Display System (4438)
- Complete development of selected depot and factory level TPSs and on-system diagnostic enhancements for the Longbow Apache (3288)
- Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) (166)

FY 1996 Plann Progam
- Test new Contact Test Set (CTS) hardware (1800)
- Test software for compatibility with new CTS (700)
- Commence development of software tools for new CTS (628)
- Perform bench testing of NDI equipment (380)
- Perform initial integration of Virtual Memory Extension Bus for Instrumentation (VXI) into IFTE (1409)
- Test commercial equipment for satisfaction of IFTE capability requirements (520)

FY 1997 Planned Program:
- Complete development of software tools for new CTS (340)
- Test commercial instrumentation in CTS chassis (618)
- Test new state-of-the-art commercial equipment for use in Army TMDE programs (390)
- Test IFTE VXI integration for TPS compatibility (930)
- Evaluate down-sized test equipment for field use (600)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604746A Automatic Test Equipment Development

Project D537 - Integrated Family of Test Equipment (IFTE): This project provides for development and upgrade of ATE that provides automated testing of electronics-intensive weapons systems at all maintenance levels. IFTE will automatically test and verify the operation of line replaceable units and screen shop replaceable units. Its pre-planned product improvement program upgrades both the software and the hardware. The hardware upgrade will be for inclusion of the latest commercially available VXI technology as well as upgrades in the digital and radio frequency areas to support new weapons systems. Program has been restructured and continuing effort is funded under Project DL59 beginning in FY 1996.

FY 1994 Accomplishments:
- Commenced computer system upgrade for the BSTF (1825)
- Commenced development of display replacement for the BSTF (660)
- Commenced software tool development (1122)
- Evaluated continuous acquisition and life cycle support and audio/video implementation (261)
- Acquired line replaceable units and TPSs for use in verification of test equipment operability (1278)

FY 1995 Planned Program:
- Evaluate VXI and develop a method for VXI implementation into IFTE (751)
- Complete development and test computer system and display upgrades for the BSTF (1225)
- Complete development and implement new software tools (355)
- Perform base shop test facility TPS acceptance testing (500)
- Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)(49)

FY 1996 Planned Program:
- See Project DL59.

FY 1997 Planned Program:
- See Project DL59.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604746A Automatic Test Equipment Development

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	23453	7201	10894	5739
Appropriated Value	23453	15512		
Adjustments to Appropriated Value (Total PE)	-3527			
b. SBIR/STTR (-327)				
b. Reprogrammed Out of PE (-3200)				
Current President's Budget Submit	19926	15512	5437	2878

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604746A Automatic Test Equipment Development

PROJECT: DL10

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
DL10 Electro-Optic (EO) Test Equipment	1302	4740	0	0	0	0	0	0	0	24702

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
OPA2 Appropriation										
Integrated Family of Test Equipment (KA4100)		3897	6241						Cont'd	Cont'd

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
Complete Design Analysis of EOTF			X*													
Revise CTS-EOA Schedules				X*												
Complete COEA							X									
Complete CTS-EOA Developmental Testing							X									
IETM Delivery							X									
Preproduction Hardware Delivery							X									

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604746A Automatic Test Equipment Development PROJECT DL10

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development/Support	506	200		
Development Support Equipment Acquisition	28			
Systems Engineering	224	588		
Software Development/Engineering	105	3800		
Technical Data	115			
Integrated Logistic Support	114	75		
Product Assurance	48			
Test Planning/Preparation	100			
Miscellaneous	62	77		
Total	1302	4740		

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
Product Development Organizations											
To be selected	C/CPIF	31Mar95	3800	3800			3800				3800
Pentastar Electronics, Inc Huntsville, AL	C/FFP	FY92-FY94	10487	10487	10487						10487
Gov't In-House					3208	918	663				4789
SBIR/STTR							77				77

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604746A Automatic Test Equipment Development

Contractor or Government Performing Activity	Contract Method/Type o. 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
Other Contracts					4965	384	200				5549

Government Furnished Property None.

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	18660	1302	4740				24702
Subtotal Support and Management							
Subtotal Test and Evaluation							
Total Project	18660	1302	4740				24702

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604746A Automatic Test Equipment Development

PROJECT: DL59

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
DL59 Diagnostic/Expert System Development	13478	7892	5437	2878	2648	2818	3747	3741	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
OPA2 Appropriation Integrated Family of Test Equipment (K18400/K51600)	57835	58370	20208	20067	15714	16104	68368	68377	Cont'd	Cont'd

D. Schedule Profile

Not Applicable

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604746A Automatic Test Equipment Development

PROJECT: DL59

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
System Engineering	2579		3944	2373
Software Development	8890	7726	1328	340
Development Support Equipment Acquisition	1984			
Miscellaneous	25	166	165	165
Total	13478	7892	5437	2878

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
Product Development Organizations											
McDonnell Douglas Corp., Huntington Beach, CA	SS/FFP	Aug94/ Apr95	4100	4100		2000	2100				4100
Honeywell, Inc Albuquerque, NM	SS/FFP	Apr95	4760	4760	2337		2338			85	4760
McDonnell Douglas Corp., Mesa, AZ	SS/CPIF	Sep94	5400	5400		5400					5400

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604746A Automatic Test Equipment Development

PROJECT: DL59

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
McDonnell Douglas Corp., Mesa, AZ		May94	3288	3288			3288				3288
Gov't In-House					6525	1018		1625	1500	Cont'd	Cont'd
SBIR/STTR							166				166
Other Contracts					26327	5060		3812	1378	Cont'd	Cont'd

Government Furnished Property

Item Description	Contract 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										
Support and Management Property										
Test and Evaluation Property										
Subtotal Product Development				32852	13478	7892	5437	2878	Cont'd	Cont'd
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project				32852	13478	7892	5437	2878	Cont'd	Cont'd

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604746A Automatic Test Equipment Development

PROJECT: D537

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
D537 Integrated Family of Test Equipment	5146	2880	0	0	0	0	0	0	0	66312

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
OPA2 Appropriation Integrated Family of Test Equipment (K18400/K51600)	57835	58370	20208	20067	15714	16104	68368	68377	Cont'd	Cont'd

D. Schedule Profile

Not Applicable

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604746A Automatic Test Equipment Development PROJECT D537

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development/Engineering Changes	1025	1509		
Development Support Equipment Acquisition	1278	15		
Systems Engineering	376	507		
Software Development	1122	50		
Testing	325	700		
Technical Data	470			
Miscellaneous	550	99		
Total	5146	2880		

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
Product Development Organizations											
SAIC San Diego, CA	C/CPAF	May/Jul/ Dec94	1122	1122		1122					1122
Northrop Grumman, Bethpage, NY	SS/FFP	Jun/Dec94 Apr95	2509	2509		500	2009				2509
Grumman Aerospace, Corp Bethpage, NY		Various	52792	52792	52792						52792

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604746A Automatic Test Equipment Development

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
Gov't In-House					5494	981	650				7125
Funded Requisitions						674					674
SBIR/STTR							49				49
Other Contracts						1869	172				2041

Government Furnished Property None.

		FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	58286	5146	2880				66312
Subtotal Support and Management							
Subtotal Test and Evaluation							
Total Project	58286	5146	2880				66312

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604760A Distributive Interactive Simulations - Engineering Development

PROJECT: DC81

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
DC81 Reconfigurable Simulator Engineering Development	0	6412	0	0	0	0	0	0	0	6412

A. Mission Description and Budget Item Justification: This program element (PE) provides for engineering development of reconfigurable simulators. Project DC81 is focused on development of engineering techniques and equipment for reconfigurable simulators. Emphasis is placed on development of engineering prototypes for various configurations of reconfigurable simulators. Prototypes will be evaluated by the Army's Battle Laboratories, and both software and hardware modules will be verified, validated, and accredited. Work done on this program will have benefit across the Army and DoD by providing standards for interoperability and software reuse in this emerging domain. This project in this Program Element supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and is therefore correctly placed in Budget Activity 5.

Project DC81 - Reconfigurable Simulators Engineering Development: This project initiates engineering development of both software and hardware for reconfigurable simulators for use in TRADOC Battle Labs. Simulators developed in this program are not system specific, but will represent generic equipment (tanks, aircraft, etc.). Reconfigurable simulators will be used to simulate existing and developmental equipment to explore new concepts and systems for technology insertion, and for the development of doctrine necessary to mesh new equipment items into training and battle situations. FY 95 efforts will include development of a first-generation rotary wing aircraft simulator, a generic armored vehicle simulator reconfigurable to any weapons and performance criteria, a fire support simulator for both artillery and air defense systems, and a combat service support module.

FY 1994 Accomplishments: Unfunded in FY 1994

FY 1995 Planned Program

- Develop engineering techniques, drawings, and specification for design and fabrication of reconfigurable simulators (1160)
- Build prototype reconfigurable simulators with various designs for evaluation in Battle Labs (4678)
- Conduct verification, validation, and accreditation of software and hardware reconfigurable simulator modules (440)
- SBIR/STTR (134)

FY 1996 Planned Program

- Program continues as part of PE 0604715A - Project DC91, Distributive Interactive Simulation

FY 1997 Planned Program

- Program continues as part of PE 0604715A - Project DC91, Distributive Interactive Simulation

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604760A Distributive Interactive Simulations - Engineering Development

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget		8041		
Appropriated Value		6412		
Adjustments to Appropriated Value				
Current Budget Estimate Submission (BES)		6412		

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
RDTE, A Budget Activity 5 PE 0604715A Project DC91, Distributive Interactive Simulation	0	3445	6139	3745	11328	6992	17063	14053	Cont'd	Cont'd
RDTE, A Budget Activity 4, PE 0603760A, Distributive Interactive Simulations	0	8385	0	0	0	0	0	0	0	8385

D. Schedule Profile: The efforts funded in this project are non-system specific and represent continuing advanced development in the area of Reconfigurable Simulators; therefore, no milestones are provided.

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Request for Proposal release						X										
Contract Award								X								
Software/Hardware Integration										X						

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604760A Distributive Interactive Simulations - Engineering Development

PROJECT: DC81

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Systems Engineering		1160		
Primary Hardware Development		4678		
Reliability, Maintainability, and Availability		440		
SBIR/STTR		134		
Total		6412		

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
Product Development Organizations											
TBD	Best value contract	Aug 95	6078	6078	0	0	6078	0	0	0	6078
Support and Management Organizations											
Miscellaneous	Various	Various	200	200	0	0	200	0	0	0	200
SBIR/STTR			134	134	0	0	134	0	0	0	134
Government Furnished Property: Not Applicable											
Subtotal Product Development					0	0	6078	0	0	0	6078
Subtotal Support and Management					0	0	334	0	0	0	334
Subtotal Test and Evaluation					0	0	0	0	0	0	0
Total Project					0	0	6412	0	0	0	6412

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering Development (TIARA)

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	47470	28065	24699	15302	19012	22016	29577	28533	Continuing	Continuing
D113 Joint Tactical Ground Station	21014	8851	0	0	0	0	0	0	0	29865
D909 Tactical Electronic Surveillance System - Eng Dev	26456	19214	24699	15302	19012	22016	29577	28533	Continuing	Continuing

A. Mission Description and Budget Item Justification: This Program Element (PE) supports the engineering development directed at meeting the tactical commanders intelligence mission requirements for contingency force deployment and deep battle surveillance and targeting - as stated in Field Manual 100-5. Specific Signals Intelligence (SIGINT) and multi-spectral developments are managed within the Army's Tactical Exploitation of National Capabilities (TENCAP) program. The scope of the program is directed towards advanced techniques and capabilities to exploit National and selected theater capabilities that uniquely meet stated Army tactical intelligence and targeting needs and deficiencies for near-real-time receipt, analysis, and dissemination to the appropriate tactical echelon. Further details may be found in the Tactical Intelligence and Related Activities (TIARA), Congressional Justification Book, Volume II and the TENCAP Master Plan. The projects in this PE support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

Project D113 Joint Tactical Ground Station (JTAGS): This project initiates development of two Engineering and Manufacturing Development (EMD) JTAGS units. The project is a follow-on to the Tactical Surveillance Demonstration (TSD) and Tactical Surveillance Demonstration Enhancement (TSDE) programs (Project D909). JTAGS is designed for in-theater receipt, processing and dissemination of warning and alerting data from Defense Support Program (DSP) sensors and follow-on space based sensors of major tactical events such as missile launches. JTAGS supports active defense, attack operations, and passive defense. By being located in-theater, the system improves the warning and alerting response time and eliminates several single-point-failure susceptible communications relay nodes. The warning and cueing information gathered will be disseminated via Tactical Information Broadcast System (TIBS), Tactical Related Application (TRAP) and other existing in-theater communications nets.

FY 1994 Accomplishments:

- Completed developmental and phase I operational testing of transportable TSDE unit. (470)
- Prepared for and conducted Milestone (MS) II decision review. (720)
- Developed EMD JTAGS ruggedization specifications. (1331)
- Awarded EMD contract for two JTAGS EMD units. (18493)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY **5 - Engineering And Manufacturing Development**	PE NUMBER AND TITLE **0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering Development (TIARA)**

FY 1995 Planned Program:

- Develop and deliver two JTAGS EMD units. (6897)
- Initiate developmental and operational testing of EMD units. (1081)
- Initiate preparation for MS III decision review. (687)
- Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR). (186)

FY 1996 Planned Program:

- Project completed in FY 96. Effort moves to Procurement (BZ8410).

Project D909 Tactical Exploitation of National Systems (TENCAP) Engineering Development: This project supports the engineering development/enhancement of the Electronic Tactical User Terminal (ETUT), Mobile Integrated Tactical Terminal (MITT) (replaces the Tactical High Mobility Terminal (THMT)), Forward Area Support Terminal (FAST), Electronic Processing Dissemination System (EPDS) and Tactical Exploitation System (TES). The Army's emerging TES will incorporate the standards and protocols dictated by the Common Imagery Ground Surface System (CIGSS) program. TES brings all of the existing and emerging Army TENCAP capabilities (EPDS, MIES, and ETRAC) into an integrated common baseline; downsized, modular and scaleable to meet a wide range of contingency requirements. TENCAP Common Baseline addresses common subsystems, planned improvements, key activities and ongoing/planned initiatives determined to have potential application to multiple TENCAP systems (including MIES and ETRAC that are funded under the Defense Airborne Reconnaissance Program (DARP) (PE 0305154D)). Graphic Situation Display (GSD) is a jointly funded program to develop a means to computer generate, transmit, and display graphical representations of the battle space thereby saving communicating bandwidth, manpower and time. The beta software portion of the GSD effort was funded with FY 93 Military Exploitation of Reconnaissance and Intelligence Technology (MERIT) funds.

FY 1994 Planned Program:

- Continued software upgrades and enhancements for the refinement of the TENCAP Common Baseline (including work done to modify Synthesized UHF Computer controlled Electronic Sub-System (SUCCESS) Radios to DAMA) to fully exploit National capabilities to meet emerging worldwide contingency scenarios. (14201)
- Initiated the engineering development of five additional MITTs to replace the existing THMTs. (6200)
- Continued to retrofit of ETUTs with MITT hardware and software (based on an open architecture baseline). (5149)
- Continued support to TENCAP program management and administrative activities (e.g., FFRDC (Aerospace), Army Research Laboratory (ARL) support, U.S. Army Space Program Office (ASPO) support and Contractor System Engineering and Technology Assistance (SETA) support. (906)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering Development (TIARA)

FY 1995 Planned Program:

- Continue software upgrades and enhancements for the refinement of the TENCAP Common Baseline to fully exploit National capabilities to meet emerging worldwide contingency scenarios which includes major upgrade to communications component which is common to all TENCAP systems SUCCESS Radio. (9749)
- Continue engineering development of five additional MITTs to replace existing THMT. (1500)
- Continue the retrofit of ETUTs with enhanced MITT hardware and software. (1330)
- Initiate effort to upgrade ETUT to include EPDS capabilities, which will allow for the defielding of the EPDS systems in FY 7. (4270)
- Continue support to TENCAP program management and administrative activities (e.g., FFRDC (Aerospace), ARL support, ASPO support and Contractor SETA support. (1962)
- Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR). (403)

FY 1996 Planned Program:

- Continue software upgrades and enhancements for the refinement of the TENCAP Common Baseline to fully exploit National capabilities such as integration of communications capabilities to meet changing architectures and implementation of software appliqué to provide the operational commander with enhanced battlefield intelligence products. (11114)
- Complete the retrofit of ETUTs with enhanced MITT hardware and software. (2000)
- Complete effort to upgrade ETUT to include EPDS capabilities. (5800)
- Complete building/fielding of five additional MITTs. (1000)
- Initiate engineering development of the TES. (1614)
- Continue support to TENCAP Program management and administrative activities (e.g., FFRDC (Aerospace), ARL support, ASPO support, SETA support, and U.S. Army Topographic Engineering Center (TEC). (3171)

FY 1997 Planned Program:

- Continue software upgrades and enhancements for the refinement of the TENCAP Common Baseline to fully exploit National capabilities such as integration of communications capabilities to meet changing architectures and implementation of software appliqué to provide the operational commander with enhanced battlefield intelligence products. (7008)
- Continue engineering development of the TES. (4800)

Continue support to TENCAP program management and administrative activities (e.g., FFRDC (Aerospace) and Contractor SETA support. (3494)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY **5 - Engineering And Manufacturing Development**	PE NUMBER AND TITLE **0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering Development (TIARA)**

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	52279	28475	23664	14291
Appropriated Value	52279	28065	0	0
Adjustments to Appropriated Value	-4809	0	0	0
a. SBIR/STTR decrement (-810)				
b. Reprogrammed out of PE (-3999)				
Current Budget Submit/President's Budget	47470	28065	24699	15302

Change Summary Explanation (by Project):

Project D909, Tactical Electronics Surveillance System - Engineering Development

Funding: IN FY 96, THE ARMY CONSOLIDATED THE REMAINING PEs SUPPORTING THE ARMY TACTICAL EXPLOITATION OF NATIONAL CAPABILITIES (TENCAP) PROGRAM. ALL EFFORTS FUNDED UNDER PE 0604740A/PROJECT D662 WERE CONSOLIDATED WITH PE 0604766A/ PROJECT D909 IN FY 96 AND BEYOND. AS A PART OF THIS SAME ACTION, PE 0603730A/PROJECT D560 WAS CONSOLIDATED WITH PE 0603766A/PROJECT D907 IN FY 96 AND BEYOND. These PEs/Projects were consolidated because in FY 95 all funds directly related to the development of MIES and ETRAC and support to JSIPS program that were funded in Project D560 and D662 in FY94 were moved to OSD PE 0305154D, DARP. Even though the funds have been moved to the Defense Airborne Reconnaissance Office (DARO), the Department of the Army continues to support these development efforts on their behalf. Funding to support these DARO efforts (ASPO salaries and expenses, TEC, FFRDC, Contractor SETA, and certain studies) remained in this project and are still required. Therefore the increase to this PE in FY 96 and FY 97 is the result of consolidating the DARO support efforts that were previously funded under project D560 with project.

Schedule: None

Technical: None

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering Development (TIARA)

PROJECT: D113

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
D113 Joint Tactical Ground Station	21014	8851	0	0	0	0	0	0	0	29865

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, OPA-2										
BZ 8410 Joint Tactical Ground Station (JTAGS)	0	0	30914	0	0	0	0	0	0	30914

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
Milestone II IPR			X*													
EMD Contract Award				X*												
Technical Review Complete				X*												
Del 1st EMD Prototype						X										
Developmental Test Begin							X									
Del 2nd EMD Prototype							X									
Operational Tests Begin								X								
Milestone III IPR										X						

*Completed

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering Development (TIARA)

PROJECT: D113

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Prime Contractor	14195	2894	0	0
Contract Engr Support	3313	2070	0	0
Program Management Support	1549	1708	0	0
Government Engineering Support	984	2055	0	0
Government Furnished Equipment	973	124	0	0
Total	21014	8851	0	0

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations											
Aerojet (Prime)	C/CPFF	8 Jul 94	16441	16968	0	13934	2894	0	0	0	16828
Aerojet (TSDE)						261	0	0	0	0	261
Support and Management Organizations											
Proj Mgt/Matrix	N/A	N/A	N/A	N/A	0	1743	2475	0	0	0	4218
SETA	C/CPIF	2 Oct 90	N/A	N/A	0	2064	1369	0	0	0	3433
Contract Eng Spt			N/A	N/A	0	1249	701	0	0	0	1950
Test and Evaluation Organizations											
WSMR					0	405	888	0	0	0	1293
OTEA/Other					0	385	400	0	0	0	785

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

DATE: February 1995

BUDGET ACTIVITY
5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE
0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering Development (TIARA)

Government Furnished Property

Item Description	Contract 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										
Radios, Comms, (Generator, etc.)	Various	2Q94 - 2Q95	4Q94-3Q95	0	973	124	0	0	0	1097
Support and Management Property										
None										
Test and Evaluation Property										
None										

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development		14195	2894				17089
Subtotal Support and Management		5056	4545				9601
Subtotal Test and Evaluation		790	1288				2078
Subtotal Government Furnished Property		973	124				1097
Total		21014	8851				29865

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering Development (TIARA) PROJECT D909

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
D909 Tactical Electronic Surveillance System - Eng Dev	26456	19214	24699	15302	19012	22016	29577	28533	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
RDTE, A Budget Activity 4 PE 0603730A Project D560 Tact Surv Sys - Adv Dev	15140	11717	0	0	0	0	0	0	N/A	N/A
PE 0603766A Project D907 TENCAP-Adv Dev	15069	14815	28693	26913	23935	28057	29377	34319	Cont	Cont
RDTE, A Budget Activity 5 PE 0604740A Project D662 Tact Surv Sys - Eng Dev	37534	2093	0	0	0	0	0	0	N/A	N/A
RDTE, D Budget Activity 7 PE 0305154D Project P531 DARP	0	40017	33833	37216	12390	6328	6328	6328	Cont	Cont
Other Procurement Army, OPA-2 BZ7315 TENCAP	7729	4636	4617	1807	1784	1853	4971	14916	Cont	Cont
BA0329 DARP	1927	2411	0	0	0	0	0	0	Cont	Cont
Procurement, Defense Wide PE 0305154D	0	0	88700	123400	77900	69100	71400	73300	Cont	Cont

D. Schedule Profile

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering Development (TIARA)

PROJECT: D909

	FY 1995				FY 1996				FY 1997							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Completed and Fielded Initial six MITTs		X														
Awarded Contract of five Additional MITTs				X												
Completed Eng Dev and Field FASTs			X													
Initiate upgrade to ETUT with EPDS Functionality							X									
Completed Dev and Fielded five Additional MITTs											X					
Completed Retrofit and Refield ETUTs											X					
Complete and Field DAMA Appliqué into SUCCESS Radios													X			
Initiate Engineering Development of TES											X					
Install GSD in FAST Systems												X				

RTD&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering Development (TIARA)
	PROJECT D909

A. Project Cost Breakdown D909

	FY 1994	FY 1995	FY 1996	FY 1997
System Development:				
MITT	6200	1500	1000	0
ETUT	5149	5600	7800	0
TES	0	0	1614	4800
Common Baseline (*1)	14201	9749	11114	7008
Subtotal System Development	25550	16849	21528	11808
Program Management:				
FFRDC (*2)	426	995	1323	1326
System Engineering (Contractor) (*2)	480	1370	1848	2168
Subtotal Program Support (*2)	906	2365	3171	3494
Total	**26456**	**19214**	**24699**	**15302**

(*1) TENCAP Common Baseline addresses common subsystems, planned improvements, key activities and ongoing/planned initiatives determined to have potential application to multiple TENCAP systems (including MIES and ETRAC that are funded under the DARP (PE 0305154D).

(*2) In FY 96 and beyond, the support efforts previously funded under PE 0604740A, Project D662 (which support efforts developed under PE 0305154 (DARP)) are consolidated into this project.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering Development (TIARA)
	PROJECT D909

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
Product Development Organizations											
	MIPR	4Q94	N/A	N/A	N/A	6200	1500	1000	0		
	MIPR	2Q94	N/A	N/A	N/A	5149	5600	7800	0		
	MIPR	N/A	N/A	N/A	N/A	12931	9179	11039	6933		
	TBD	TBD	N/A	N/A	0	0	0	1614	4800		
Support and Management Organizations											
SSD/FDEA (FFRDC)	MIPR	1Q EA FY	N/A	N/A	N/A	426	995	1323	1326		
Classified (Sys Eng Cont)	MIPR	1Q EA FY	N/A	N/A	N/A	480	1370	1848	2168		
Test and Evaluation Organizations											
TEXCOM (Cmn Bsln)	MIPR	1Q94	N/A	N/A	N/A	70	70	75	75		

RTD&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering Development (TIARA) PROJECT D909

Government Furnished Property

Item Description	Contract 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
ROTERMs/ CHARIOTs (Cmn Bsln)	MIPR	3Q94	3Q95	N/A	1200	500	0	0		

Support and Management Property

Test and Evaluation Property

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	N/A	24280	16279	21453	11733		
Subtotal Support and Management	N/A	906	2365	3171	3494		
Subtotal Test and Evaluation	N/A	70	70	75	75		
Subtotal Government Furnished Property	N/A	1200	500	0	0		
Total Program	N/A	26456	19214	24699	15302		

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604768A Brilliant Anti-Armor Submunition

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	121894	117526	193303	185974	184102	139786	152388	108777	7405	1726358
D641 BAT	121894	92287	99028	71525	24947	0	0	0	0	924884
D687 BAT P3I	0	15275	37136	34742	63336	63041	77439	36314	0	327283
D688 ATACMS BLK II	0	9964	56840	77916	77704	41653	0	0	0	264077
D686 ATACMS BLK IIA	0	0	0	0	11847	31111	74949	72463	7405	197775
D2NT BAT OPERATIONAL TEST	0	0	299	1791	6268	3981	0	0	0	12339

A. Mission Description and Budget Item Justification: The BAT system supports the Army's deep fires doctrine that calls for the destruction and disruption of threat forces and long range weapons at ranges in excess of 100 kilometers before they can influence the maneuver battle. In the past, the only options have been to engage these targets with attack helicopters or fixed wing aircraft. While effective, these options place critical resources and their air crews at risk. The BAT system significantly reduces this risk through its autonomous acquisition and terminal guidance capabilities to attack well defended armored forces behind enemy lines. The BAT system includes the BAT submunition, a pre-planned product improvement (P3I) BAT submunition, the Army Tactical Missile System Block II (ATACMS BLK II) missile, and the ATACMS BLK IIA missile. BAT is a dual-sensor (acoustic and infrared) submunition that autonomously seeks out and destroys moving armored vehicles without human interaction. It is an unpowered, aerodynamically stable vehicle, approximately 36 inches long, 5.5 inches in diameter and weighs 44 pounds. BAT submunitions are carried deep into enemy territory by the two Army TACMS variants, then dispensed over a large target array to selectively attack and destroy individual targets. The BAT P3I program will improve the sensor and warhead subassemblies to increase lethality and to enable the BAT submunition to attack cold, stationary, armored targets and other targets of high value. The ATACMS BLK II missile is a version of the currently fielded and combat-proven Army TACMS Block I missile and is designed to carry 13 BAT submunitions. The ATACMS BLK IIA missile is an extended range version of the ATACMS BLK II missile and will carry 6 BAT P3I submunitions out to ranges in excess of 200 kilometers. The projects in this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

Project D641-BAT: The BAT submunition is an unpowered, aerodynamically stable vehicle approximately 36 inches long, 5.5 inches in diameter, and weighs 44 pounds. The BAT is an acoustic and infrared terminally guided submunition that searches for, tracks, and destroys armored, mobile targets. BAT submunitions are carried deep into enemy territory by variants of the Army Tactical Missile System (ATACMS), then dispensed over numerous high-payoff targets to selectively attack and destroy individual targets. By utilizing acoustic technology, BAT has the advantage of a large footprint which allows it to compensate for target location errors. Being a certified round, the BAT submunition has a low sustainment cost.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor Submunition

FY 1994 Accomplishments:
- Conducted EMD Program (111994)
- Conducted Carrier Integration Activities and other studies (4000)
- Conducted Test Range and Target Operation, Maintenance and Improvements (5900)

FY 1995 Planned Program:
- Conduct EMD Program (55695)
- Conduct Carrier Integration Activities and other studies (25884)
- Conduct Test Range and Target Operation, Maintenance and Improvements (8800)
- SBIR/STTR decrement(1908)

FY 1996 Planned Program:
- Conduct EMD Program (71139)
- Conduct Carrier Integration Activities and other studies (19089)
- Conduct Test Range and Target Operation, Maintenance and Improvements (8800)

FY 1997 Planned Program:
- Conduct EMD Program (58988)
- Conduct Carrier Integration Activities and other studies (5458)
- Conduct Test Range and Target Operation, Maintenance and Improvements (7079)

Project D687-BAT P3I: The BAT P3I submunition maintains the BAT length, diameter, and weight configurations. The BAT P3I is a multi-sensored, terminally guided submunition that searches for, tracks, and destroys specific targets including mobile armored combat vehicles, cold stationary armor combat vehicles, Surface-to-Surface Missile (SSM) Transporter Erector Launchers (TELs), and Heavy Multiple Rocket Launchers (MRL). BAT P3I submunitions are carried deep into enemy territory by variants of the Army Tactical Missile System (ATACMS), then dispensed over numerous high-payoff targets to selectively attack and destroy individual targets. BAT P3I is intended to increase submunition lethality and expand the target arrays to be attacked. Being a certified round, the BAT P3I submunition has a low sustainment cost. This program will incorporate new seeker, warhead, and microprocessor technologies into the current BAT configuration while maintaining the current BAT form, fit design and maximum commonality of BAT components. This program includes studies/demonstrations pertaining to technology advancements, alternate carriers, identification friend or foe, and acoustic/infrared/millimeter wave characterization of expanded target sets.

FY 1994 Accomplishments: No Planned Program

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor Submunition

FY 1995 Planned Program:
- Conduct P3I DEM/VAL Phase II program (13232)
- Conduct P3I warhead development (1697)
- Test Range Activities (25)
- SBIR/STTR decrement(321)

FY 1996 Planned Program:
- Conduct P3I DEM/VAL Phase II program (33174)
- Conduct P3I warhead development (2162)
- Test Range Activities (1800)

FY 1997 Planned Program:
- Conduct P3I DEM/VAL Phase II program (30069)
- Conduct P3I warhead development (1773)
- Test Range Activities (2900)

Project D688-Army Tactical Missile System Block II: The Army Tactical Missile System Block II (ATACMS BLK II) will be a ground launched, solid propellant, inertially guided (GPS aided) missile system with 13 BATs or P3I BATs as its payload. The mission of the ATACMS BLK II is to delay, disrupt, neutralize, or destroy armored combat vehicles and other postulated high-payoff targets. Once the BAT P3I submunition is incorporated into the ATACMS BLK II, these targets will include cold stationary armored combat vehicles, mobile armored combat vehicles, heavy multiple rocket launchers and missile transporter/launchers. ATACMS BLK II will carry and dispense BAT and BAT P3I submunitions deep in enemy territory where these submunitions will autonomously track and destroy numerous high-payoff targets. Global Positioning System (GPS) technology will increase accuracy in flight, reducing target location errors. ATACMS BLK II will be launched from the M270 launcher.

FY 1994 Accomplishments: No Planned Program

FY 1995 Planned Program:
- DA IPR (Mar 95) (1000)
- Complete Preliminary Design Support (DAAH01-94-C-S036) (3050)
- Restraint and Static Testing (PDS) (205)
- CD Contract Award (May 95) (5500)
- SBIR/STTR decrement (209)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor Submunition

FY 1996 Planned Program:

- Conduct Continued Development (55440)
- Conduct Static and Sled Tests (800)
- Conduct Range Planning and Activities to Accommodate BLOCK II Flight Tests (600)

FY 1997 Planned Program:

- Conduct CD Program (60737)
- Conduct PPT Flight Test Program (16369)
- Conduct activities to support JPSD and future improvement programs (810)

Project D686-Army Tactical Missile System Block IIA: The Army Tactical Missile System Block IIA (ATACMS BLK IIA) is the extended range version of the ATACMS BLK II missile. It is a ground launched, solid propellant, inertially guided missile system with 6 Pre-Planned Product Improvement (P3I) BATs as its payload. The mission of the ATACMS BLK IIA is to delay, disrupt, neutralize, or destroy moving armored combat vehicles, cold stationary targets, dug-in targets, Surface-to-Surface Missile (SSM) Transporter and Erector Launcher (TELS), and other high value targets at ranges in excess of 200 kilometers. Global Positioning System (GPS) technology will increase accuracy in flight, reducing target location errors. The ATACMS Block IIA missile will be launched from the M270 launcher.

FY 1994 Accomplishments: No Planned Program

FY 1995 Planned Program: No Planned Program

FY 1996 Planned Program: No Planned Program

FY 1997 Planned Program: No Planned Program

Project D2NT-OPTEC: Project D2NT finances the direct costs of planning and conducting operational testing and evaluation of the BAT submunition by the Operational Test and Evaluation Command (OPTEC). The BAT submunition is an Acquisition Category (ACAT) I system with a dedicated Initial Operational Test and Evaluation in FY 1998 in support of a Low Rate Initial Production (LRIP) decision. Operational testing is conducted under conditions, as similar as possible, to those encountered in actual combat with typical user troops trained to employ the system. OPTEC provides the Army leadership with an independent test and evaluation of both the effectiveness and suitability of the system. Project D2NT is not a new start. It is reprogrammed from PE 0605712, Support of Operational Testing, Project D001, OPTEC Initial Operational and Evaluation (IOTE).

FY 1994 Accomplishments: No Planned Program

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor Submunition

FY 1995 Planned Program: No Planned Program

FY 1996 Planned Program:

- IOTE planning and preparation (299)

FY 1997 Planned Program:

- IOTE planning and preparation (1791)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	119727	109011	136501	106794
Appropriated Value	119727	117526		
Adjustments to Appropriated Value (Total PE)	2167			
a. SBIR/STTR Decrement (-1832)				
b. Reprogrammed to PE (3999)				
Current President's Budget Submit	121894	117526	193303	185974

Change Summary Explanation

- 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.

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604768A Brilliant Anti-Armor Submunition

PROJECT: D641

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
D641 BAT	121894	92287	99028	71525	24947	0	0	0	0	924884

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 CA 6100 BAT					127425	112232	187512	204623	1160647	1792439

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
EMD Restructure	X*															
1st Prototype Unit Delivered				X*												
Complete DVT								X								
Begin Subsystem Qual					X*											
Complete WT/Sled Tests											X					
Complete Subsystem Qual									X							
Initiate Contractor Drop Test (CDT)										X						
Complete CDT														X		

* Indicates activity is complete

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604768A Brilliant Anti-Armor Submunition

PROJECT: D641

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engr Support	95800	68517	74028	46590
Developmental Test & Eval	6000	8100	9400	7100
Program Management Spt	10552	8297	7858	9706
Program Management Personnel	9542	7373	7742	8129
Total	121894	92287	99028	71525

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
Product Development Organizations											
Northrop Grumman Corp	SS/CPAF/ CFFF	5 JUN 91	561000	561000	378107	95800	68517	74028	46590	20622	683664
In-House Support	PO	OCT			38366	9542	7373	7742	8129	1329	72481
Support and Management Organizations											
SETA & Program Mgmt Spt	SS/CPFF	NOV			45520	4699	4570	4800	3935	825	64349
Misc. OGA Activities	PO	OCT			34732	5853	3727	3058	5771	961	54102
Test and Evaluation Organizations											
Range Support	PO	OCT			10137	3900	6400	6669	5700	612	33418
Other Test Activities	PO	OCT			8341	2100	1700	2731	1400	598	16870
Government Furnished Property: N/A											
Subtotal Product Development					416473	105342	75890	81770	54719	21951	756145
Subtotal Support and Management					80252	10552	8297	7858	9706	1786	118451
Subtotal Test and Evaluation					18478	6000	8100	9400	7100	1210	50288
Total Project					515203	121894	92287	99028	71525	24947	924884

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604768A Brilliant Anti-Armor Submunition

PROJECT: D687

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
D687 BAT P3I	0	15275	37136	34742	63336	63041	77439	36314	0	327283

C. **Other Program Funding Summary:** There are no other related 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	4
Dem Val Phase I	X*															
Dem Val Phase II CA					X*											
CFT														X		X

* Indicates activity is complete

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604768A Brilliant Anti-Armor Submunition

PROJECT: D687

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contract Engineering Support		10074	26718	25183
Developmental Test & Evaluation			1747	2918
Program Management Support		3409	4198	3645
Program Management Personnel		1792	4473	2996
Total		15275	37136	34742

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
Product Development Organizations											
Northrop Grumman Corp	SS-CPIF	DEC	274663	274663			10074	26718	25183	214632	276607
In-House Support	PO	OCT					1792	4473	2996	13295	22556
Support and Management Organizations											
SETA & Prog Mgmt Spt	SS-CPFF	NOV					985	1162	1184	4410	7741
AMCCOM	PO	OCT					1697	2162	1773	0	5632
MISC OGA Activities	PO	OCT					727	874	688	2785	5074
Test and Evaluation Organizations											
Range Support	PO	OCT						747	1418	1608	3773
Other Test Activities	PO	OCT						1000	1500	3400	5900
Government Furnished Property: N/A											
Subtotal Product Development							11866	31191	28179	227927	299163
Subtotal Support and Management							3409	4198	3645	7195	18447
Subtotal Test and Evaluation								1747	2918	5008	9673
Total Project							15275	37136	34742	240130	327283

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604768A Brilliant Anti-Armor Submunition

PROJECT: D688

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
D688 ATACMS BLK II	0	9964	56840	77916	77704	41653	0	0	0	264077

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 CA 6105 ATACMS BLK II						77028	104616	130676	875600	1187920

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
Static Test									X							
Sled Test										X						
Engr Flight Test													X			
CDR													X			
DA IPR						X										

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604768A Brilliant Anti-Armor Submunition

PROJECT: D688

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engr Support		5500	39489	58914
Development Test & Eval		205	1400	2695
Program Management Spt		1970	9029	10047
Program Management Personnel		2289	6922	6260
Total		9964	56840	77916

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
Product Development Organizations											
Loral Vought	SS/CPIF	MAY 95	182000	182000			5500	39489	58914	81060	184963
In-House Support	PO	OCT					2289	6922	6260	20991	36462
Support and Management Organizations											
SETA & Program Mgmt Spt	SS/CPFF	OCT					1908	8477	8080	8062	26527
Misc OGA Activities	PO	OCT					62	552	1967	2794	5375
Test and Evaluation Organizations											
Range Support	PO	OCT					205	1350	2035	4450	8040
Other Test Activities	PO	OCT						50	660	2000	2710
Government Furnished Property: N/A											
Subtotal Product Development							7789	46411	65174	102051	221425
Subtotal Support and Management							1970	9029	10047	10856	31902
Subtotal Test and Evaluation							205	1400	2695	6450	10750
Total Project							9964	56840	77916	119357	264077

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604768A Brilliant Anti-Armor Submunition

PROJECT: D686

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
D686 ATACMS BLK IIA	0	0	0	0	11847	31111	74949	72463	7405	197775

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 CA 6110 ATACMS BLK IIA (Begins FY 2002)										

D. **Schedule Profile**: N/A Funds Begin in FY 1998

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604768A Brilliant Anti-Armor Submunition

PROJECT: D2NT

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
D2NT BAT OPERATIONAL TEST	0	0	299	1791	6268	3981	0	0	0	12339

C. **Other Program Funding Summary**: There are no other related 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	4
Conduct IOTE Activities									X	X			X	X	X	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor Submunition PROJECT D2NT

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Operational Test & Eval			299	1791
Total			299	1791

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
Product Development Organizations: N/A											
Support and Management Organizations: N/A											
Test and Evaluation Organizations											
Other Test Activities								299	1791	10249	12339
Government Furnished Property: N/A											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation								299	1791	10249	12339
Total Project								299	1791	10249	12339

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604770A Joint Surv/Tgt Attack Radar System

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	29415	39655	18771	7884	7426	6276	4996	14965	Continuing	Continuing
D202 Army Joint STARS	29415	33723	16990	7884	7426	6276	4996	14965	Continuing	Continuing
D2CT JSTARS OPERATIONAL TEST	0	5932	1781	0	0	0	0	0	0	7713

A. Mission Description and Budget Item Justification: This is a Tactical Intelligence and Related Activities (TIARA) program. US Forces have an urgent need for a wide-area surveillance and target attack radar system capable of continuous coverage out to a depth in excess of 100km beyond their Forward Line of Troops. Commanders must have the capability to detect, locate, classify and track moving and stationary targets for situation assessment to avoid surprise and attack targets out to the range of existing and developing weapons. The Joint Surveillance and Target Attack Radar System (JSTARS) provides battle management and targeting of enemy units at critical times and places so commanders can employ their organic forces and firepower in support of deep, close and rear operations. The joint Army/Air Force program objective is to develop a radar, datalink, ground station, and airframe that will provide the capability to locate, track and classify tracked and wheeled vehicles beyond ground line-of-sight during the day and night and under most weather conditions. Radar data is distributed to ground station modules via a secure surveillance and control data link. The Army will develop the ground components of the JSTARS under this PE, project D202. Also included in this PE is project D2CT with FY 95 and FY 96 funding for the Multi-service Operational Test and Evaluation (MOTE). The projects in this program element support research efforts in the Engineering and Manufacturing development phases of the Acquisition Strategy and are therefore correctly placed in Budget Activity 5.

Project D202: The Army will develop the ground components of the JSTARS under this PE/Project. The Ground Station Module (GSM) is being developed in a Block approach. Block I GSMs utilize the same prime mission equipment and will be developed and deployed on different platforms. The Block I Medium GSM (MGSM) is housed in a standard S280 shelter and mounted on a 5 Ton Truck. The rapidly deployable Block I Light GSM (LGSM) is housed in a Standard Integrated Command Post Shelter (SICPS) and mounted on a High Mobility Multi Purpose Wheeled Vehicle (HMMWV). A Block I Heavy GSM (HGSM) prototype was also assembled. This variant integrated the GSM prime mission equipment into a Command and Control Vehicle (C2V) (a Bradley variant). Also included in this project is the development of the Block II GSM now called the Common Ground Station (CGS). The CGS will integrate signal, imagery, and other intelligence processing into a single ground station, resulting in enhanced battle management as well as significant cost savings. These enhancements are being implemented in a phased approach. Significant enhancements by phase include: integration of Secondary Imagery Dissemination (Phase I), full design/test of the tracked vehicle (heavy) variant (Phase II), and integration/interface with other sensor systems (Phase III).

FY 1994 Accomplishments

- Conducted Block I Light Technical Test (TT) (2743)
- Completed LGSM Engineering and Manufacturing Development Model Delivery (14544)
- Completed Block I Light Force Development Test & Evaluation (FDTE) (150)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604770A Joint Surv/Tgt Attack Radar System

- Completed GSM Trainer development and delivery (7750)
- Completed LGSM software development (4228)

FY 1995 Planned Program
- Obtain Block I Light LRIP Decision (306)
- Complete Data Link Mast Head redesign (4313)
- Release draft CGS Solicitation (4866)
- Continue LGSM EMD Program (19535)
- Complete LGSM Software Stress Testing (4012)
- Small Business Innovative Research (SBIR)/ Small Business Technology Transfer (STTR) program (691)

FY 1996 Planned Program
- Complete LGSM EMD Program (7878)
- Obtain Milestone III/IV Decision (275)
- Initiate Phase I CGS design/system enhancements (8837)

FY 1997 Planned Program
- Conduct Phase I CGS Critical Design Review (CDR) (1220)
- Complete CGS Phase I Integration (6089)
- Complete CGS Phase I Technical /User Assessment (575)

Project D2CT: D2CT provides for the Army's costs associated with the MOTE. All MOTE activities will be completed by 2Q96. This Joint Service Initial Operational Test and Evaluation (IOT&E) will support both the US Army and US Air Force in FY 96 Joint STARS Full Scale Production Decision. Project D2CT is not a new start. It is a transfer of effort from PE 0605712, Support of Operational Testing, Project D001 OPTEC Initial Operational Test and Evaluation.

FY 1994 Accomplishments: Not funded in FY 94

FY 1995 Planned Program
- Conduct MOTE Pre Test Planning and Training (1233)
- Develop Instrumentation of Test Hardware, Simulators and Facility (906)
- Conduct MOTE (3668)
- SBIR/STTR (125)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604770A Joint Surv/Tgt Attack Radar System

FY 1996 Planned Program

- Conduct MOTE (881)
- Complete Test Analysis and Reports (725)
- Obtain Milestone II/IV Decision (175)

FY 1997 Planned Program: Not funded in FY 97

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	25955	40186	21849	25904
Appropriated Value	25955	39655		
Adjustments to Appropriated Value	3460			
FY94 a. SBIR Decrement (-390)				
b. Reprogrammed into PE (3850)				
Current Budget Submit/President's Budget	29415	39655	18771	7884

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604770A Joint Surv/Tgt Attack Radar System

PROJECT: D202

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
D202 Army Joint STARS	29415	33723	16990	7884	7426	6276	4996	14965	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
BA1080 Joint STARS Army TIARA Funding	57796	55239	82984	89855	94326	80609	86499	85516	Cont	Cont
Qty	7	8	12	12	12	10	10	7		

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
Conducted Block I Light Technical Test (TT)			X*													
Completed Block I Light Force Development & Test Evaluation (FDTE)				X*												
LGSM E&MD Model Delivery				X*												
Completed GSM Trainer Development				X*												
Complete LGSM Software Stress Testing					X*											
Release Draft CGS Solicitation					X*											
Obtain Block I Light LRIP Decision						X										
Obtain Milestone III/IV Decision											X					
Initiate Phase I CGS design/system enhancements											X					
Conduct CGS Phase I CDR														X		
Complete CGS Phase I Technical/User Assessment																X

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604770A Joint Surv/Tgt Attack Radar System

PROJECT: D202

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	14522	18291	7731	1180
Software Development	4388	5212	2150	1164
Integrated Logistics Support	241	388	265	270
Developmental/Operational Test and Evaluation	899	783	650	800
Contractor Engineering Support	4338	4530	3350	1948
Government Engineering Support	773	564	435	360
Program Management Support	1830	1451	885	915
Program Management Personnel	2424	1813	1524	1247
SBIR/STTR	0	691	0	0
Total	29415	33723	16990	7884

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
Product Development Organizations											
Motorola (92-C-L001)	SS/CPFF	May 92	104263	105260	63562	17750	17359	4775	0	1814	105260
Motorola (91-C-L006)	SS/CPFF	Sep 91	10780	11150	11112	38	0	0	0	0	11150
Motorola (93-C-K257)	SS/CPFF	Sep 93	18102	18102	450	4300	4530	3350	1948	3524	18102
Unknown	COMP/CPFF	Jul 96	N/A	7864	0	0	0	2000	2244	3620	7864
Grumman (90-C-0197)	SS/CPFF	Feb 92	10200	10883	4000	0	2000	2970	0	1913	10883
E-Systems (88-C-0080)	SS/FFP		2700	2700	0		2700	0	0	0	2700
Cubic (93-C-0166)	SS/FPI	Apr 93	3614	2234	374	1000	862	6	0	0	2234

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604770A Joint Surv/Tgt Attack Radar System

PROJECT: D202

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
Tobyhanna	MIPR	Nov 94			2100	700	0	0	0	0	2800
Support and Management Organizations											
CECOM	MIPR					1082	1060	670	495		
Misc	MIPR					3346	3426	2269	2097		
SBIR/STTR							691				
Test and Evaluation Organizations											
Various	MIPR					899	795	650	800		

Government Furnished Property

Item Description	Contract 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										
Various	Reqn				300	300	300	300		

Support and Management Property: N/A

Test and Evaluation Property: N/A

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	81598	24088	27751	13401	4492		
Subtotal Support and Management		4428	5177	2939	2592		
Subtotal Test and Evaluation		899	795	650	800		
Total Project		29415	33723	16990	7884		

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604770A Joint Surv/Tgt Attack Radar System

PROJECT: D2CT

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
D2CT JSTARS OPERATIONAL TEST	0	5932	1781	0	0	0	0	0	0	7713

C. Other Program Funding Summary

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Complete	Total Cost
BA1080 Joint STARS Army TIARA Funding	57796	55239	82984	89855	94326	80609	86499	85516	Cont	Cont
Qty	7	8	12	12	12	10	10	7		

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
MOTE Pre Test Planning and Training						X										
MOTE										X						
Milestone II/IV Decision											X					

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604770A Joint Surv/Tgt Attack Radar System
	PROJECT D2CT

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Operational Test and Evaluation	0	5807	1781	0
SBIR/STTR	0	125	0	0
Total	0	5932	1781	0

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations: *N/A*											
Support and Management Organizations											
SBIR/STTR							125				
Test and Evaluation Organizations											
OPTEC	MIPR	Dec 94	7588	7588	0	0	5807	1781	0	0	7588

Government Furnished Property: N/A

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development							
Subtotal Support and Management			125				
Subtotal Test and Evaluation			5807	1781			
Total Project			5807	1781			

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604778A Positioning 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
Total Program Element (PE) Cost	4455	3797	460	449	450	440	0	0	0	18208
D163 Modular Azimuth and Positioning System (MAPS) Hybrid Product Improvement Program (PIP)	3988	3332	0	0	0	0	0	0	0	15477
D168 NAVSTAR Global Positioning System (GPS) Equipment	467	465	460	449	450	440	0	0	0	2731

A. Mission Description and Budget Item Justification

Project D163 provides for Engineering and Manufacturing Development (EMD) of a Hybrid Modular Azimuth and Positioning System(MAPS) into one host system, the Paladin (M109A6 155mm Self-Propelled Howitzer). The MAPS will be integrated with a Global Positioning System (GPS) receiver to provide rapid initialization and frequent updates of the inertial positioning and orientation system without need of a local survey control and will limit inertial Position/Navigation (POS/NAV) errors. Project D168 provides for Army participation in the research and development phases of Army weapon systems requiring POS/NAV capabilities. It provides for the engineering development of several alternatives for integration of GPS receivers into selected systems. These alternatives include, but are not limited to Embedded/Integrated GPS, Advanced GPS Receivers (AGR), Tactical GPS Anti-Jam Technology (TGAT) and Differential GPS. The projects in this program element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

Project D163 -MAPS Hybrid PIP: Maps Hybrid PIP is a product improvement of MAPS. The project is intended to improve the autonomous capability of Paladin and other potential users by decreasing their reliance on externally provided survey control points and , thus, increasing system effectiveness and survivability on the battlefield.

FY 1994 Accomplishments:

- Researched and developed alternatives related to system integration and application technology ($2000)
- Reviewed documentation and interface with host systems ($431)
- Participated in studies, prototyping and integration of candidate systems ($835)
- Supported test and evaluations of GPS integration ($722)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604778A Positioning System Development

FY 1995 Planned Program:
- Continued Test and Evaluation (1536)
- Production and Field Retrofit Planning (670)
- Type Classification of MAPS Hybrid Unit (1059)
- Small Business Innovative Research (SBIR)/ Small Business Technology Transfer Program (STTR) (67)

Project D168- (NAVSTAR GPS) GPS sets were used in Operation Desert Storm and proved to be a significant force multiplier. GPS assures greater command and control and significantly reduces the likelihood of fratricide. New uses for GPS are being developed. These new uses require an analysis of the overall host vehicle operational POS/NAV system to support development of alternative GPS applications

FY 1994 Accomplishments:
- Researched and developed alternatives related to system integration of GPS in selected weapon systems (293).
- Reviewed documentation and interface with host systems (74).
- Developed and tested GPS anti-jam, differential and embedded applications (100).

FY 1995 Planned Program:
- Continue development/testing of GPS anti-jam, differential and embedded technologies (100).
- Incorporation of new GPS technology into next generation user equipment through insertion of P3I (256).
- Testing of prototype equipment (100).
- SBIR/STTR (9)

FY 1996 Planned Program:
- Procurement and testing of items in marketplace to remain current with NDI alternatives (to include embedding) ($173).
- Advanced GPS receiver framework conceptualization (non-hardware work) to meet evolving user requirements ($171).
- Air receiver exploration for MAGR follow-on replacement ($116).

FY 1997 Planned Program:
- Improved accuracy and time to fix studies for follow-on equipment requirements (125).
- Test program for NDI aviation GPS receiver (MAGR follow-on/replacement) (154).
- Improved survivability of GPS capability (renewed antijam/antispoof and other threats response) (170).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604778A Positioning System Development

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	4888	3846	462	451
Appropriated Value	4888	3797	0	0
Adjustments to Appropriated Value	-433	0	0	0
a. SBIR & STTR decrease ($74)				
b. Internal Reprogramming Action ($359)				
Current Budget Submit/President's Budget	4455	3797	460	449

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604778A Positioning System Development

PROJECT: D163

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
Modular Azimuth and Positioning System (MAPS) Hybrid Product Improvement Program (PIP)	3988	3332	0	0	0	0	0	0	0	15477

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	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Software Design and Review		X*														
Engineering & Development Test				X*												
Quality Test								X								

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604778A Positioning System Development PROJECT D163

A. Project Cost Breakdown:

	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engineering Support	2021	1400		
Government Engineering Support	1367	1250		
Developmental Test & Evaluation	600	0		
Operational (Qual) Test & Evaluation	0	615		
SBIR/STTR		67		
Total	3988	3332		

B. Budget Acquisition History and Planning Information: N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE: February 1995
BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE: 0604778A Positioning System Development		PROJECT: D168

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
NAVSTAR Global Positioning System (GPS) Equipment	467	465	460	449	450	440	0	0	0	2731

C. **Other Program Funding Summary:** N/A

D. **Schedule Profile:** N/A

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604778A Positioning System Development PROJECT D168

A. **Project Cost Breakdown**

	FY 1994	FY 1995	FY 1996	FY 1997
Developmental Test and Evaluation	100	100	0	154
Government Engineering Support	185	194	291	170
Contractor Engineering Support	182	171	169	125
Total	467	465	460	449

B. **Budget Acquisition History and Planning Information:** N/A

C. **Funding Profile:** N/A

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604780A Combined Arms Tactical Trainer (CATT)

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	50801	51375	59475	20669	3136	3212	15213	18727	143658	403198
D571 Close Combat Tactical Trainer (CCTT)	50801	51375	59475	20669	3136	3212	3225	3220	0	233135
D581 Aviation Combined Arms Tactical Trainer (AVCATT)	0	0	0	0	0	0	5495	7754	52429	64678
D582 Engineer Combined Arms Tactical Trainer (ENCATT)	0	0	0	0	0	0	3496	3763	58129	65388
D583 Fire Support Combined Arms Tactical Trainer (FSCATT)	0	0	0	0	0	0	2997	3990	33100	39997

A. Mission Description and Budget Item Justification: *The Combined Arms Tactical Trainer (CATT) is a* family of combined arms simulation systems designed to support the Army's simulation-based Combined Arms Training Strategy. The specific systems that comprise CATT include Close Combat Tactical Trainer (CCTT), Aviation Combined Arms Tactical Trainer (AVCATT), Engineer Combined Arms Tactical Trainer (ENCATT), Fire Support Combined Arms Tactical Trainer (FSCATT) and Air Defense Combined Arms Tactical Trainer (ADCATT). CATT enables units, from crew to the Battalion Task Force level, to conduct a wide variety of combat tasks on a realistic, interactive synthetic battlefield. CATT's combination of manned simulators and staff officer workstations enables units to train as a combined arms team in a cost effective manner. CATT reinforces the successes and corrects the shortcomings of the Simulator Network (SIMNET) and Aviation Network (AIRNET) demonstration programs executed by the Advanced Research Projects Agency (ARPA). By practicing skills in CATT, units are able to make more effective use of scarce and costly live fire and maneuver exercises as well as train tasks deemed too hazardous to conduct in the field. Fielded in both fixed site and mobile/transportable versions, CATT enables both Active and Reserve component units to prepare for real world contingency missions. Units taking their CATT systems with them on operational deployments, such as peacekeeping missions, are able to sustain essential warfighting skills when not at their home station. By being able to process a wide array of terrain data bases and modify the behavior of the computer generated opposing forces, CATT offers a virtually unlimited array of training options to support the Army's many regional contingency missions. The combination of tough field and live fire training and realistic simulation training in CATT is the catalyst to prepare soldiers and their leaders for the uncertainties they will face in an unpredictable world. The projects in this program element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

Project D571 - Close Combat Tactical Trainer: This project provides for engineering and manufacturing development (EMD) and pre-planned product improvements for the Close Combat Tactical Trainer (CCTT) which will enhance readiness of both active and reserve component forces. The program will develop a networked system of interactive computer driven simulators, emulators and semi-automated forces that replicate combat vehicles and weapon systems, combat support systems, combat service support systems, and command and control systems to create a fully integrated real-time collective task training environment. This trainer will allow soldiers to

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604780A Combined Arms Tactical Trainer (CATT)

practice, repetitively, techniques which, if performed on real equipment, would be too hazardous, time-consuming and expensive. These trainers enhance realism and allow soldiers and units to learn tactical combat lessons on maneuver, command and control, and improved teamwork for increased survivability.

FY94 Accomplishments:

- Completed software requirement specification; conducted and completed spiral development of hardware/software builds 1 & 2 (41120)
- Supported data collection, analysis and dissemination; performed software independent verification and validation; developed life cycle estimates and provided program office support (7154)
- Provided government program management, engineering, technical and contract support (2527)

FY 95 Planned Program:

- Conduct and complete spiral development of hardware/software builds 3 through 7 (40531)
- Support data collection, analysis and dissemination; perform software independent verification and validation; develop life cycle estimates and provide program office support (6292)
- Provide government program management, engineering, technical and contract support (3473)
- SBIR/STTR (1079)

FY 96 Planned Program:

- Produce and deliver a fixed company team site (38 modules) and 2 mobile platoon sets (11 modules); perform software/hardware physical configuration audit; conduct Preproduction Qualification Test (PPQT) for both fixed and mobile systems and prepare for fixed and mobile Initial Operational Test and Evaluation (IOT&E) (50838)
- Maintain support services to the program office (6327)
- Provide government program management, engineering, technical and contract support (2310)

FY 97 Planned Program:

- Conduct and support IOT&E and prepare for pre-planned product improvements (14706)
- Maintain support services to the program office (3853)
- Provide government program management, engineering, technical and contract support (2110)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604780A Combined Arms Tactical Trainer (CATT)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	52921	52160	41771	10772
Appropriated Value	52921	51375		
Adjustments to Appropriated Value	-2120			
a. SBIR/STTR Decrement (-820)				
b. Reprogramming Total (-1300)				
Current Budget Estimate Submission (BES)	50801	51375	59475	20669

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604780A Combined Arms Tactical Trainer (CATT)

PROJECT: D571

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
D571 Close Combat Tactical Trainer (CCTT)	50801	51375	59475	20669	3136	3212	3225	3220	0	233135

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
OPA3, Appropriation	0	31808	30655	88520	98509	10)682	27091	15830	0	402095
NA0170 SIMNET/CCTT										
Military Construction, A Appropriation	7500	0	10500	17600	20000	0	0	0	0	55600
Operation and Maintenance, A Appropriation	0	0	415	5009	7537	13190	13190	13190	Cont'd	Cont'd

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
Spiral Build 1			X*													
Spiral Build 2				X*												
Spiral Build 3					X*											
Spiral Build 4						X										
Spiral Build 5							X									
Spiral Build 6								X								
Spiral Build 7									X							
Hardware PDR			X*													
Software PDR					X*											
Hardware CDR				X*												
Software CDR						X										
CSCI								X								
FQT/QS Fielding Decision										X						
PPQT Fixed Site												X				
PPQT Mobile													X			
IOTE/Milestone IIIA															X	

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604780A Combined Arms Tactical Trainer (CATT)

PROJECT: D571

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Hardware Design and Manufacturing	12328	12151	15242	4409
Software Design and Manufacturing	13430	13238	16604	4803
Hardware/Software Integration	882	870	1091	316
System Test and Evaluation	821	810	1016	294
Contractor Program Management/System Engineering	13120	12932	16221	4692
Contractor Other Support	538	530	665	192
Program Office/Technical Support	2527	3473	2310	2110
Government Agency Support	3978	2367	3590	2280
Support Contracts	3177	3925	2736	1573
SBIR/STTR		1079		
Total	50801	51375	59475	20669

B. Budget Acquisition History and Planning Information

Performing Organi ations

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
Product Development Organizations											
Loral FSC	C-CPAF/ T&M/FFP	Nov 92	178320	178320	31125	41120	40531	50838	14706	0	178320
Support and Management Organizations											
NAWC-TSD	MIPR	Dec 92	11566	11566	1146	2527	3473	2310	2110	0	11566
RCI	T&M	Feb 93	3687	3687	2914	773	0	0	0	0	3687
CECOM	MIPR	Nov 93	7893	7893	0	2056	1294	2490	2053	0	7893
MICOM	MIPR	Jan 94	1020	1020	0	1020	0	0	0	0	1020
Sherikon	T&M	Oct 94	4400	4400	0	0	1800	1800	800	0	4400
Miscellaneous	Various	Various	25170	25170	2837	3305	3198	2037	1000	12793	25170
SBIR/STTR	N/A	N/A	N/A	N/A			1079				

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604780A Combined Arms Tactical Trainer (CATT)
	PROJECT D571

Government Furnished Property: Not Applicable

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	31125	41120	40531	50838	14706	0	178320
Subtotal Support and Management	6897	9681	10844	8637	5963	12793	42022
Subtotal Test and Evaluation							
Total Project	38022	50801	51375	59475	20669	12793	233135

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604801A Aviation - Engineering Development

PROJECT: DC45

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
DC45 Aviation Life Support Equipment (ALSE) Engineering Manufacturing Development	8221	4650	5142	6899	7835	7153	2498	2494	Continuing	Continuing

A. **Mission Description and Budget Item Justification:** This PE provides engineering development to programs associated with Aviation Life Support equipment (ALSE). Project DC45 makes battlefield survivability possible and enhances the aircrew's ability to return to fight again through new protective clothing ensembles, aviator protective masks, laser protective visors, survival kits, restraint systems, integrated flight helmets, and microclimatic cooling devices. The Project in this Program Element supports research efforts in the Engineering Manufacturing Development Phase of the Acquisition Strategy and is correctly placed in Budget Activity 5.

Project DC45-Aviation Life Support Equipment (ALSE)-Engineering Development: This project provides engineering development for those systems and items of equipment which are unique and necessary for the sustainment and enhanced survivability of Army aircrews and passengers on the future integrated battlefield and during related training activities. Engineering development programs will focus on air vehicle integration, airworthiness qualification and user evaluation of multiple technologies to improve aircrew mission performance, aircrew comfort, aircrew and aircrew station interface, safety, and survivability. These programs include: advanced laser protection against emerging new threat systems; product improvements to existing helmets to improve performance and increase commonality; microclimatic cooling to improve aircrew performance and endurance in harsh environments and while encumbered with NBC protective equipment; development and adaptation of automotive airbag technology to the APACHE aircraft to improve crash protection and enhanced aircrew survivability; and follow-on air vehicle integration and test of Air Warrior program effort to enhance and maximize aircrew performance in force modernized aircraft. Maximum advantage will be taken of simulation to reduce program technical risk through early user evaluation and to reduce program design and test cost and schedules. Both joint and service independent efforts will be pursued under the scope of this project.

FY 1994 Accomplishments:

- Completed EMD for Inflatable Body and Head Restraint System (IBAHRS) (Joint Service) (427)
- Initiated prototype testing and production planning for Lightweight Motor Blower (LWMB) for M43A1E1 Mask (1860)
- Continued product improvement and follow-on operational testing of the Aircrew Integrated Helmet System (AIHS)(2442)
- Continued Aircrew Microclimatic Conditioning System (AMCS) prototype test and evaluation (1692)
- Initiated production contract planning for Lightweight Motor Blower (LWMB) for M43A1E1 Mask (1800)

FY 1995 Planned Program:

- Initiate Cockpit Airbag System (CABS) EMD for the AH-64 Apache (2017)
- Continue AIHS (P3I) efforts (1000)
- Complete AMCS test and evaluation (672)
- Initiate EMD for Advanced Laser Eye Protection (LEP) effort (Joint Service) (925)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604801A Aviation - Engineering Development
	PROJECT DC45

- SBIR/STTR (36)

FY 1996 Planned Program:

- Continue CABS EMD AH-64 Apache (2012)
- Initiate program planning for the Joint Cockpit Air Bag System (JCABS) EMD Program (Joint Service) (579)
- Continue Product Improvement of the AIHS in EMD (1075
- Continue EMD for Advanced Laser Protective Visor (1476)

FY 1997 Planned Program:

- Complete EMD qualification test and evaluation of CABS for the AH-64 Apache (1864)
- Continue JCABS EMD Program (Joint Service) (2080)
- Complete AIHS P3I testing (900)
- Complete EMD for the Advanced LEP (Joint Service) (1200)
- Initiate EMD Program for Nuclear, Biological and Chemical Advanced Initiatives (855)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	8569	4672	5098	6844
Appropriated Value	8569	4650		
FY94 Adjustments to Appropriated Value	-348			
a. SBIR /STTR (-89)				
b. Reprogrammed out of PE (-259)				
President's Budget Submission	8221	4650	5142	6899

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
RDT&E, A Budget Activity 4										
PE 0603801A Project DB45 Aviation Life Support Equipment (ALSE) Aviation Advanced Development	9764	9997	3907	4238	2813	2740	0	0	0	33459
Aircraft Procurement Army (ALSE) SSN AZ3110	7192	8809	9732	9577	10281	10958	9954	9953	Continue	Continue

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604801A Aviation - Engineering Development

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
AH-64 CABS																
EMD Contract Award							X									
Critical Design Review (CDR)											X					
Development Test (DT)													X			
Aircrew Microclimatic Conditioning System (AMCS)																
Initial Technical Tests				X*												
Complete Operational Test							X									
Milestone III IPR								X								
Advanced Laser Eye Protection (LEP)																
Dem/Val Phase	X*															
EMD Phase								X								
Preliminary Design Review (PDR)										X						
Initiate Design Verification Testing											X					
Joint Cockpit Air Bag System (JCABS)																
Dem/Val Contract Award			X*													
PDR					X*											
EMD											X					

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604801A Aviation - Engineering Development

PROJECT: DC45

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engineering Support	7359	2575	2492	3050
Program Management Support	862	2075	2650	3849
Total	8221	4650	5142	6899

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
JCABS Simula											
Phoenix, AZ	C-FFP	Mar 1997			0				1400	2400	3800
AH-64 CABS Simula											
Phoenix, AZ	SS-CPFF	May 1994			550	0	1000	1312	750	0	3612
AMCS, MRI,.											
Kansas City, Mo.		Mar 1994			4777	2374	500				7651
Advanced LEP											
NAWC Warminster, PA	C-CPFF	July 1995	1931	1931	0	0	425	891	615	0	1931
Miscellaneous	SS/C-CPFF	FY 95-97	N/A	N/A	5595	3512	628	333	340	0	10408
Subtotal					10922	5886	2553	2536	3105	2400	27402
Support and Management Organizations											
Various Organizations	MIPR	Various	N/A	N/A	5067	2335	2097	2606	3794	5386	21285
Total Performing					15989	8221	4650	5142	6899	7786	48687

Government Furnished Property Not Applicable

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604801A Aviation - Engineering Development

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	10922	5886	2553	2536	3105	2400	27402
Subtotal Support and Management	5067	2335	2097	2606	3794	5386	21285
Subtotal Test and Evaluation							
Total Project	15989	8221	4650	5142	6899	7786	48687

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604802A Weapons And Munitions Engineering 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	20865	16900	15928	14607	5970	0	0	1996	Continuing	Continuing
D134 OBJECTIVE INDIVIDUAL COMBAT WEAPON ENGINEERING DEVELOPMENT	0	0	0	0	0	0	0	1996	Continuing	Continuing
D284 MULTI PURPOSE INDIVIDUAL MUNITION	0	0	12309	14607	5970	0	0	0	0	32886
D290 BUNKER DEFEAT MUNITION	6198	2807	0	0	0	0	0	0	0	8840
D531 105MM HOWITZER AMMUNITION IMPROVEMENT	5615	3128	3619	0	0	0	0	0	0	28610
D613 MORTAR SYSTEMS	9052	11165	0	0	0	0	0	0	0	72396

A. Mission Description and Budget Item Justification: Provides for engineering development of weapons and munitions systems. The Multi-purpose Individual Munition (MPIM) provides the infantry with a fire-and-forget weapon capable of defeating enemy forces in buildings, bunkers and lightly armored vehicles. The Bunker Defeat Munition (BDM) is an interim solution to provide the individual soldier the ability to destroy field fortifications from a standoff position several years before the MPIM is ready. The howitzer ammunition effort supports development of ammunition for the M119A1 Howitzer. The PE also supports qualification of an Improved Mortar Ballistic Computer (IMBC). Projects within this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in budget activity 5.

Project D284- Multi Purpose Individual Munition: Provides for an Engineering Manufacturing Development (EMD) of a lightweight, shoulder fired, multiple purpose weapon. Provides the infantry with a fire and forget weapon capable of defeating enemy forces in buildings, bunkers, and lightly armored vehicles. The Multiple Purpose Individual Munition/Short Range Anti-tank weapon (MPIM/SRAW) is capable of being fired quickly from its carrying configuration and can be safely fired from an enclosure for the close battle. It will replace the current AT4 system which was designed to defeat only light armor. This system will have tremendously increased lethality over the AT4 and will be multiple target capable. System design will allow for growth, service life extension and technology insertion to support the U.S. Army mission of crisis response to regionally based threats. The Army and U.S. Marine Corps have initiated a memorandum of agreement for horizontal technology integration effort utilizing the USMC SRAW flight module/launcher as the carrier for the MPIM warhead.

FY 1994 Accomplishments: Not applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604802A Weapons And Munitions Engineering Development

FY 1995 Planned Program: Not Applicable

FY 1996 Planned Program:

- Proceed with MPIM/SRAW EMD (3384)
  - Develop Program Milestone II documentation
  - Prepare request for proposal
  - Award EMD contract
- Conduct system level trade studies (336)
- Develop software (702)
- Procure bus/launcher hardware for Pre-production testing (PPT) (6955)
- Procure and deliver warhead components for PPT (932)

FY 1997 Planned Program:

- Continue MPIM/SRAW EMD (2967)
- Conduct preliminary design review (1551)
- Conduct Early User Test (298)
- Conduct Critical Design Review (2127)
- Conduct Logistic Demonstration (697)
- Complete Limited User Test (497)
- Conduct PPT (526)
- Procure hardware components for production qualification testing (4867)
- Continue software development (1077)

Project D290 Bunker Defeat Munition: This project provides for the development and type classification of a throwaway munition for neutralizing earth and timber field fortification, and breeching masonry and reinforced concrete structures.

FY 1994 Accomplishments:

- Completed side-by side tests of candidate systems (5498)
- Down-selected to "best value" system (300)
- Initiated validation test to support type classification standard and materiel release (200)
- Conducted TC-LP (200)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604802A Weapons And Munitions Engineering Development

FY 1995 Planned Program:
- Conduct final Technical Test/Operational Test program (2200)
- Materiel release (352)
- Small Business Innovation Resear.h (SBIR)/Small Business Technology Transfer (STTR) (55)

FY 1996 Planned Program: No planned Program.

FY 1997 Planned Program: No planned Program

Project D531- 105MM How Ammo IMP: *This project provides for the fielding of an extended range 105MM artillery projectile for the M119A1 Howitzer and development of self-destruct fuzing technology for munitions.*

FY 1994 Accomplishments:
- Multi-phase hardware contract increments to provide Development Test & Evaluation (DT&E) hardware (836)
- XM234 self-destruct fuze multi-phase contract increment (2664)
- Load, assemble ,and pack of EMD test cartridges at Lone Star Army Ammunition Plant (LSAAP) (372)
- In-house performance testing and envelope studies of the XM80 grenade and XM915 projectile (188)
- EMD testing with self destruct hardware (417)
- Evaluation of all design hardware concepts, follow up all contracts and testing (1138)

FY 1995 Planned Program:
- Increment to contract to provide containers and additional grenade fuzes (174)
- New machining operation added to grenade body process (249)
- Procure additional projectile bodies (90)
- Load, assemble, and pack (LAP) of Dual Purpose Improved Conventional Munition (DPICM) test cartridges at LSAAP (360)
- EMD testing, including HE airburst reliability, HE Sequential Environmental Safety Reliability, Twelve Meter Drop, SD Fuze Evaluation, Demonstration performance and suitability to enter DT&E (459)
- XM80/XM24 Performance Testing; Degradation Effects (85)
- AFATDS fire control software support program, USAFAS/ARDEC (50)
- Development Test and Evaluation: safety phase (300)
- Engineering evaluation of performance, follow up all testing (1295)
- SBIR/STTR decrement (66)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604802A Weapons And Munitions Engineering Development

FY 1996 Planned Program:
- LAP of remainder of DT&E test cartridges (780)
- Development test and evaluation: testing (1870)
- Follow up on all tests, evaluate test results, prepare technical data package for Milestone III. Finalize reports (969)

FY 1997 Planned Program: No planned program

Project D613- Mortar Systems: This program provides funds to develop existing and emerging technology to enhance the effectiveness, lethality, versatility of use, mobility, and accuracy of mortar systems. Current mortar systems include conventional ammunition with a variety of fuzing and applications, weapons that range from man-portable 60mm to vehicle-mounted 120mm mortars, and related equipment such as fire control, mortar ballistic computer, training devices, and ammunition. This project provides for the qualification of a new Mortar Ballistic Computer to replace and insure continued maintainability of the nearly obsolescent current M23 version. This project also provides for the qualification of a full range training cartridge for the 120mm Battalion Mortar System to provide a realistic training alternative at a lower cost than training with high explosive service ammunition, and for the qualification of an illumination round (conventional and infrared).

FY 1994 Accomplishments:
- Developed software to provide ballistic data for all existing and planned mortar munitions (3027)
- Evaluated and selected hardware platform for all Improved Mortar Ballistic Computers (125)
- Evaluated and analyzed materiel requirements to achieve mortar systems mobility and accuracy requirements. Developed a program plan for a mortar fire control system (900)
- Developed, tested and type classified a 120mm mortar Full Range Training Cartridge (5000)

FY 1995 Planned Program:
- Complete development of IMBC software (603)
- Conduct pre-production qualification testing (PPQT) of IMBC (153)
- Conduct operational testing of IMBC (673)
- Type classify the IMBC (1502)
- Type classify the Full Range Training Round (300)
- Conduct PPQT for the Full Range Training Round (1700)
- Complete development of 120mm illumination (conventional and infrared) rounds (4200)
- Conduct engineering and PPQT (1800)
- SBIR/STTR decrement (234)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604802A Weapons And Munitions Engineering Development

FY 1996 Planned Program: No planned program

FY 1997 Planned Program: No planned program

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	20346	9130	1837	1862
Appropriated Value	20346			
Adjustments to Appropriated Value	+519			
Current Budget Submit/President's Budget	20865	16900	15928	14607

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604802A Weapons And Munitions Engineering Development PROJECT D134

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
D134 OBJECTIVE INDIVIDUAL COMBAT WEAPON ENGINEERING DEVELOPMENT	0	0	0	0	0	0	0	1996	Continuing	Continuing

C. **Other Program Funding Summary** Not applicable

D. **Schedule Profile** Not applicable

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604802A Weapons And Munitions Engineering Development

PROJECT: D284

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
D284 MULTI PURPOSE INDIVIDUAL MUNITION	0	0	12309	14607	5970	0	0	0	0	32886

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
PE 0603313A, Proj D307	0	5601	4575	3892	0	0	0	0	0	10468
Missile Procurement, Army, Budget Activity 2, SSN C09100	0	0	0	0	0	30851	49770	49762	cont	cont

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
Award EMD contract for MPIM/SRAW											X					
Conduct Preliminary Design Review													X			
Begin Pre-production Tests (PPT)													X			
Conduct critical design review															X	
Initiate & complete Limited User Test																X

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604802A Weapons And Munitions Engineering Development

PROJECT: D284

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary hardware development			10458	11298
Program management support			1641	1588
Developmental Test & Evaluation			210	1721
Total			12309	14607

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations											
Prime	TBD	TBD	TBD	TBD	0	0	0	10458	11298	3427	25183
Support and Management Organizations											
PM CCAWS, RSA	PO							503	734	491	1728
MICOM,RSA, AL	PO							664	668	446	1778
MISC	PO							474	186	125	785
Test and Evaluation Organizations											
TECOM, APG, MD	PO							210	1721	1481	3412
Government Furnished Property: None											
Subtotal Product Development								10458	11298	3427	25183
Subtotal Support and Management								1641	1588	1062	4291
Subtotal Test and Evaluation								210	1721	1481	3412
Total Project								12309	14607	5970	32886

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604802A Weapons And Munitions Engineering Development

PROJECT: D290

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
D290 BUNKER DEFEAT MUNITION	6198	2607	0	0	0	0	0	0	0	8840

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
Procurement Ammunition, Army: Bunker Defeating Munition, SSN E88401	0	7707	0	0	0	0	0	0	0	7707

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
Side-by-side tests of candidate systems			X*													
Down select to "best value" system				X*												
Validation test to support mat'l release				X*												
Conduct TC-LP				X*												
Conduct validation test program								X								
Complete type classification standard								X								
Materiel release											X					

* Denotes completed.

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604802A Weapons And Munitions Engineering Development

PROJECT: D290

A. Project Cost Breakdown	FY 1994	FY 1995	FY 1996	FY 1997
Contracts	3600	0	0	0
Test and Evaluation	791	1352	0	0
Project management and Engineering	1807	1200	0	0
SBIR/STTR	0	55	0	0
Total	6198	2607	0	0

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations											
Talley Defense Sys	FP	DEC 94	3600	3600	0	3600	0	0	0	0	3600
Support and Management Organizations											
ARDEC-Picatinny			3797	3797	0	1807	1200	0	0	0	3007
SBIR/STTR							55				55
Test and Evaluation Organizations											
TECOM-APG, MD; YPG; RTTC, Redstone Ars , AL			2233	2233	0	791	1352	0	0	0	2143
Government Furnished Property: None											
Subtotal Product Development						3600					3600
Subtotal Support and Management						1807	1255				3062
Subtotal Test and Evaluation						791	1352				2143
Total Project						6198	2607				8805

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604802A Weapons And Munitions Engineering Development

PROJECT: D531

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
D531 105MM HOWITZER AMMUNITION IMPROVEMENT	5615	3128	3619	0	0	0	0	0	0	28610

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
Procurement Ammunition, Army, Cartridge, Arty, 105mm DPICM, XM915, SSN E53500	0	0	0	20000	20000	50000	50000	15217	Cont'd	Cont'd

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
Contracts to provide DT&E hardware				X*												
XM234 S-D fuze multi-phase contract increment				X*												
LAP of EMD test cartridges at Lone Star						X										
In-house performance testing & envelope studies of XM80 grenade & XM915 proj				X*												
EMD testing with self destruct hardware						X										
Evaluation of all design h/w concepts				X*												
Increment to contract to provide containers and additional grenade fuzes							X									
LAP of DPICM test cartridges at LSAAP																
EMD testing; includes HE airburst reliability; HE Sequential Environmental Safety Reliability; SD fuze eval; other tests							X									
XM80/XM24 performance tests; degradation effects							X									

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604802A Weapons And Munitions Engineering Development

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AFATDS fire control software support program, USAFAS/ARDEC							X									
DT&E: safety phase									X							
Engineering eval of performance				X*												
LAP of remainder DT&E test cartridges										X						
DT&E Testing											X					
Follow up on tests, eval test results, prepare TDP for MS III. Finalize reports.											X					

* Denotes completed

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604802A Weapons And Munitions Engineering Development

PROJECT: D531

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Program engineering and management support	1138	1310	969	0
Contract engineering support	3872	783	780	0
Test and evaluation support	605	969	1870	0
SBIR/STTR	0	66	0	0
Total	5615	3128	3619	0

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations											
TACOM/ARDEC	Allot	OCT 92	5527	5527	1663	1381	1514	969	0	0	5527
Chamberlain: SAAP , Scranton	Open/CPIF	SEP 93	1100	1100	750	450	0	0	0	0	1200
Amron Corp.; Waukesha, WI	Open/CPIF	SEP 93	590	590	590	25	0	0	0	0	615
KDI Precision Products, Cincinnati, OH	Open/CPIF	SEP 93	3914	3914	1250	2664	0	0	0	0	3914
Olin, East Alton, IL	Open/FP	SEP 93	117	117	117	0	0	0	0	0	117
Norris Industries, Vernon, CA	Open/CPIF	SEP 93	371	371	371	150	0	0	0	0	521
Dayron Corp., Orlando, FL	Open/FP	SEP 94	238	238	0	156	82	0	0	0	238
LSAAP	FP/Allot	JUL 94	1792	1792	0	372	640	780	0	0	1792

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604802A Weapons And Munitions Engineering Development

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
Support and Management Organizations											
SBIR/STTR							66	0	0	0	66
Test and Evaluation Organizations											
TECOM, YPG AZ			3193	3193	80	417	826	1870	0	0	3193
Government Furnished Property: None											
Subtotal Product Development					4741	5264	2236	1749			13990
Subtotal Support and Management							66				66
Subtotal Test and Evaluation					80	417	826	1870			3193
Total Project					4821	5681	3128	3619			17249

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604802A Weapons And Munitions Engineering Development

PROJECT: D613

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
D613 MORTAR SYSTEMS	9052	11165	0	0	0	0	0	0	0	72396

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
Procurement Ammunition, Army										
SSN E25504, XM929	4784	21546	47704	10073	21285	19692	18525	21746	Continuing	Continuing
SSN E25507, XM931	0	0	18768	19091	13622	13168	12085	14714	Continuing	Continuing
SSN E25502, XM933	0	29789	0	0	0	1992	43771	0	0	202780
Other Procurement, Army, 2: SSN K99200 (IMBC)	0	0	5019	4125	3833	0	0	0	0	39949

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
Dev software to provide ballistic data for all existing & planned mortar munitions				X*												
Eval & select h/w platform for all IMBCs				X*												
Eval & analyze mat'l rqmts to achieve mortar sys mobility & accuracy rqmts					X											
Develop, test & TC a 120mm mortar Full Range Training Cartridge										X						
Complete development of IMBC software								X								
Conduct DT/OT of the IMBC									X							
Type classify the IMBC										X						

*Denotes completed.

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604802A Weapons And Munitions Engineering Development

PROJECT: D613

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Product development	5327	4803	0	0
Management/engineering Support	3638	3202	0	0
Test and evaluation	87	2926	0	0
SBIR/STTR	0	234	0	0
Total	9052	11165	0	0

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations											
Pocal Industries Moscow, PA	SS/CPIF	2Q95	3344	3344	0	3344	0	0	0	0	3344
Miltope: Hope Hull, Al	C/FP	1Q95	310	310	0	310	0	0	0	0	310
ARDEC	WR	2Q94	1124	1124	0	1124	0	0	0	0	1124
MTA: Huntsville,AL	SS/FP	3Q94	351	351	0	351	0	0	0	0	351
Mitre: Tinton Falls, NJ	SS/FP	3Q94	78	78	0	78					78
M930: ARDEC	WR	3Q95	1480	1480	0	0	1480	0	0	0	1480
Pine Bluff Arsenal	WR	3Q95	360	360	0	0	360	0	0	0	360
Crane Army Depot	WR	3Q95	1350	1350	0	0	1350	0	0	0	1350
Diehl Gmbh: GE	C/FP	3Q95	213	213	0	0	213	0	0	0	213
Martin Marietta	C/FP	3Q95	193	193	0	0	193	0	0	0	193
Ferrulmatic: NJ	C/FP	3Q95	604	604	0	0	604	0	0	0	604
IMBC: ARDEC	WR	1Q95	603	603	0	0	603	0	0	0	603

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604802A Weapons And Munitions Engineering Development

PROJECT: D613

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
Support and Management Organizations											
PM Mortars, Picatinny, NJ	Allot	1Q94	433	433	0	433	0	0	0	0	433
ARDEC	WR	1Q94	2716	2716	0	2716	0	0	0	0	2716
CECOM. Ft Monmouth, NJ	WR	1Q94	76	76	0	76	0	0	0	0	76
Camber Corp: Mt. Arlington, NJ	SS/FP	3Q94	413	413	0	413	0	0	0	0	413
SET: Knoxville, TN	SS/FP	3Q94	120	120	0	120	0	0	0	0	120
IMBC: PM Mtrs	Allot	1Q95	466	466	0	0	466	0	0	0	466
ARDEC	WR	1Q95	668	668	0	0	668	0	0	0	668
AMCCOM	WR	1Q95	235	235	0	0	235	0	0	0	235
CECOM	WR	2Q95	133	133	0	0	133	0	0	0	133
M931: ARDEC	WR	3Q95	1700	1700	0	0	1700	0	0	0	1700
SBIR/STTR					0	0	234	0	0	0	234
Test and Evaluation Organizations											
TECOM: WSMR, NM	WR	2Q95	15	15	0	15	0	0	0	0	15
CSTA: APG, MD	WR	2Q95	72	72	0	72	0	0	0	0	72
M930: Dugway PG	WR	3Q95	1800	1800	0	0	1800	0	0	0	1800
IMBC: WSMR	WR	2Q95	153	153	0	0	153	0	0	0	153
FT Hood, TX	WR	4Q95	673	673	0	0	673	0	0	0	673
M931:CSTA, APG	WR	4Q95	300	300	0	0	300	0	0	0	300

Government Furnished Property: None

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604802A Weapons And Munitions Engineering Development	PROJECT D613

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development		5207	4803				10010
Subtotal Support and Management		3758	3436				7194
Subtotal Test and Evaluation		87	2926				3013
Total Project		9052	11165				20217

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering 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	22397	21970	20756	19150	16722	12463	7663	7681	Continuing	Continuing
DH01	Combat Engineer Equipment Engineering Development	4623	2460	9691	10089	7999	4786	100	100	Continuing	Continuing
DH14	Logistics Support Equipment Engineering Development	2657	6615	1362	90	91	91	100	100	Continuing	Continuing
DL39	General Support Equipment Engineering Development	2682	1587	1649	1734	2205	2442	2199	2219	Continuing	Continuing
DL41	Fuels Handling Equipment Engineering Development	1424	1457	1220	1070	1193	1220	1199	1197	Continuing	Continuing
DL42	Camouflage System Engineering Development	0	0	1290	995	995	995	500	499	Continuing	Continuing
D194	Engine Driven Generators Engineering Development	1506	1969	833	299	270	286	719	723	Continuing	Continuing
D279	Airdrop Equipment Engineering Development	4462	1457	1493	1496	1502	1507	1546	1545	Continuing	Continuing
D429	Tactical Rigid Wall Shelters Engineering Development	5043	3581	2870	3377	2467	1134	1298	1297	Continuing	Continuing
D461	Marine Oriented Logistics Equipment Engineering Development	0	2794	348	0	0	0	0	0	Continuing	Continuing

A. Mission Description and Budget Item Justification: This program supports engineering and manufacturing development (EMD) of new and advanced combat support and combat service support equipment.

Project DH01 - Combat Engineer Equipment-Engineering Development: This project supports the development and transition to procurement of military tactical bridging for wet and dry bridging requirements such as the Improved Common Bridge Transporter (ICBT), the Improved Ribbon Bridge (IRB) Bays, the Military Load Class (MLC) 70 Ton version of the Armored Vehicle Launched Bridge (AVLB 70), the Heavy Dry Support Bridge (HDSB), and the testing of the MLC 96 Ton upgrade

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development

for the Medium Girder Bridge (MGB). All bridging work is in support of the increased MLC requirements for the M1 tank. In FY94 this project also supports the development of low cost and low observable camouflage systems for suppression of visual, near-infrared, thermal, radar, and acoustic signatures of high mobile and semi-mobile weapons systems. Camouflage systems development is restructured to Project DL42 in FY 96. This project also provides for the non-developmental item acquisition of the Deployable Universal Combat Earthmover (DEUCE) and market investigations of other engineer construction equipment.

FY 1994 Accomplishments:

- Conducted Preplanned Product Improvement (P3I) for general purpose camouflage with enhanced thermal radar and visual signature reduction (465)
- Completed testing of AVLB 70 (760)
- Type classified the AVLB 70 and transitioned to production (499)
- Investigated the Medium Girder Bridge (MGB) for military load class 96 capability (350)
- Conducted Production Qualification Test (PQT)/Operational Test (OT) and Milestone III Review for Aviation and General Purpose Ultra Light Camouflage Net (ULCANS) and Preproduction Qualification Test (PPQT)/OT/Milestone Review for High Mobility Camouflage (HMC) for M1 tank and M2 Bradley (480)
- Acquired four upgraded prototype ICBTs and initiate PQT (661)
- Conducted Milestone I/II Review and pre-award contract activities for the *DEUCE (1408)*

FY 1995 Planned Program:

- Conduct Source Selection Board for DEUCE contract (200)
- Procure preproduction prototypes for DEUCE (824)
- Conduct testing of preproduction prototypes for DEUCE (357)
- Complete ICBT PQT. (275)
- Complete ICBT OT. (300)
- Initiate and conduct ICBT Milestone II review. (453)
- Adjustment due to SBIR/STTR. (51)

FY 1996 Planned Program:

- Conduct Source Selection Board for HDSB (640)
- Conduct Milestone II Review for HDSB (412)
- Award HDSB Engineering Manufacturing Development (EMD) contract (7441)
- Release Request for Proposal for IRB bays (398)
- Conduct Milestone III for ICBT (300)
- Complete preproduction qualification test for DEUCE (300)
- Conduct Milestone III IPR for DEUCE (100)

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BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development

- Conduct market investigation for construction equipment (100)

FY 1997 Planned Program:
- Fabricate HDSB EMD prototype #1 (6209)
- Conduct Contractor Testing of HDSB EMD prototype (2086)
- Prepare for award of IRB bays RDTE contract (380)
- Develop design for IRB bays (1314)
- Conduct market investigation for construction equipment (100)

Acquisition Strategy: ICBT - Competitive RDTE followed by procurement.
HDSB - Competitive RDTE followed by procurement.
DEUCE - Competitive procurement of integrated NDI.

(U) **Project DH14 - Logistics Support Equipment Development:** Develops and transitions to procurement a series of Material Handling Equipment (MHE) items.

FY 1994 Accomplishments:
- Completed Purchase Description (477)
- Released Request for Proposal for ATLAS (423)
- Conducted Special-In-Process Review for ATLAS (70)
- Approved ATLAS Source Selection Plan (30)
- Supported delivery of Improved Ribbon Bridge transporters in DH01 for testing (1607)

FY 1995 Planned Program:
- Conduct Source Selection Board for ATLAS (642)
- Award ATLAS contract and fabricate ATLAS Preproduction Qualification Test (PPQT) vehicles (3688)
- Develop ATLAS logistics (885)
- Initiate ATLAS PPQT testing (1261)
- Adjustment due to SBIR/STTR. (139)

FY 1996 Planned Program:
- Complete Preproduction Qualification Testing of the ATLAS (1008)
- Complete ATLAS logistics development (54)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development

- Conduct ATLAS Milestone III IPR (200)
- Conduct market investigations of material handling equipment (100)

FY 1997 Planned Program:
- Conduct market investigations for the Container Cargo Retriever (CCR) (25)
- Conduct market investigations for warehouse Material Handling Equipment (MHE) (25)
- Conduct market investigations for other general Material Handling Equipment (40)

Acquisition Strategy: ATLAS - Competitive procurement of integrated NDI.
CCR - P 3 I improvements to ATLAS.
MHE - Competitive procurements for miscellaneous MHE.

Project DL39 - General Support Equipment Engineering Development: Develop and transition to procurement water purification equipment, maintenance equipment and environmental control units (ECU) that do not use ozone depleting refrigerants.

FY 1994 Accomplishments:
- Completed evaluation of NBC protective covers for 600 gallon per hour (GPH) Reverse Osmosis Water Purification Units (ROWPU). (100)
- Performed Cost and Operational Effectiveness Analysis for NBC protection of 3000 GPH ROWPU. (150)
- Initiated final design of Modular Collective Protective Equipment for 3000 GPH ROWPU. (50)
- Completed Technical Data Package and implementation procedures for cold weather kit for the 600 GPH ROWPU. (75)
- Initiated evaluation of cold weather protection for storage and distribution equipment. (151)
- Initiated evaluation of candidate lightweight water purifiers (LWP). (221)
- Prepared program management documentation for LWP. (100)
- Completed standardization of chemicals and evaluation of ocean intake and direct drive systems and improvements to the family of water supply equipment. (863)
- Completed fabrication of four (4) production prototypes of the Heavy Contact Maintenance Truck (CMT) (200)
- Completed test of the CMT (130)
- Completed Technical Data Package for the CMT (642)

FY 1995 Planned Program:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development

- Complete testing of NBC protective covers for 3000 GPH ROWPU and incorporate into existing Technical Data Packages (TDPs) and manuals. (115)
- Complete winterization of water storage and distribution equipment and incorporate improvements into TDPs and manuals. (283)
- Continue evaluation of candidate lightweight water purifiers. (201)
- Prepare contract package for prototype of lightweight water purifier. (50)
- Conduct Milestone I/II In Process Review for High Capacity Purifier. (300)
- Initiate contract package for design and fabrication of prototype High Capacity Purifiers. (150)
- Perform trade-off analysis of high Capacity Purifier Subsystems. (357)
- Complete Market Investigation of Packaged Water System. (100)
- Adjustment due to SBIR/STTR. (31)

FY 1996 Planned Program:
- Conduct tests on 36K British Thermal Units per Hour (BTUH) Environmental Control Units (ECU) prototypes. (90)
- Award contract for design/fabrication of prototype Lightweight Water Purifier. (200)
- Conduct Pre Production Qualification Testing of Lightweight Water Purifier. (100)
- Award contract for design/fabrication of prototype High Capacity Purifier. (1000)
- Conduct Milestone I/II In Process Review for Packaged Water System. (259)

FY 1997 Planned Program:
- Prepare data package for improved ECU procurement. (178)
- Conduct Initial Operational Test and Evaluation of the Lightweight Water Purifier (LWP). (200)
- Hold Milestone III In Process Review to Type Classify Lightweight Water Purifier. (161)
- Complete fabrication of prototype High Capacity Purifier. (508)
- Conduct Engineering Testing of High Capacity Purifier. (207)
- Award contract for design/fabrication of Engineering Development prototype for Packaged Water System. (273)
- Conduct Milestone II In Process Review for High Capacity Purifier. (207)

Acquisition Strategy: - Competitive procurement for all items under this project.

DL41 - Fuels Handling Equipment Engineering Development: Develop and transition to procurement petroleum storage and distribution systems.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development

FY 1994 Accomplishments:
- Fabricated three Lightweight Arctic Forward Area Refueling Equipment (LAFARE) prototypes. (928)
- Completed component testing of LAFARE (246)
- Conducted logistics demonstration (Part I) of LAFARE (200)
- Continued long term exposure testing of tank fabrics. (50)

FY 1995 Planned Program:
- Conduct TT/IOT&E, logistics demonstration, and physical configuration audit for LAFARE. (950)
- Conduct Milestone III - type classification for LAFARE. (175)
- Conduct Milestone I/II IPR for the Helicopter Extended-Range Refueling System (HERRS) (157)
- Prepare statement of work for design and testing of the HERRS prototype. (93)
- Continue long term exposure testing of tank fabrics. (50)
- Adjustment due to SBIR/STTR. (28)

FY 1996 Planned Program:
- Award HERRS EMD contract (120)
- Design and fabricate HERRS initial prototypes. (750)
- Initiate HERRS component testing. (200)
- Prepare program management documentation for bulk fuel storage (BFS). (150)

FY 1997 Planned Program:
- Complete HERRS component testing. (150)
- Conduct system test of HERRS. (350)
- Fabricate final HERRS prototype. (400)
- Conduct Milestone I/II in process review for the BFS. (170)

Acquisition Strategy: - Competitive procurement for all items under this project.

Project DL42 - Camouflage System Engineering Development: Project DL42, which is restructured in FY 96 from DH01, provides for development and transition to procurement low cost low observable systems for suppression of visual, near-infrared, thermal, radar, and acoustic signatures of highly mobile and semi-mobile weapon assets.

FY 1996 Planned Program:

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BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development

- Develop desert Ultralightweight Camouflage Screening System (ULCANS) (800)
- Develop Multispectral Camouflage System-Mobile Equipment (MSCS-ME) for selected Army assets (490)

FY 1997 Planned Program:
- Develop snow ULCANS (300)
- Incorporate Electrol Optic (EO) signature enhancements in ULCANS and MSCS-ME (695)

Project D194 - Engine Driven Generators Engineering Development: Develop and transition to procurement a series of diesel engine driven generator sets/auxiliary power units and provide continual modernization of fielded sets in order to meet federally mandated environmental statutes with reduced weight and size and reduced thermal signatures.

FY 1994 Accomplishments:
- Awarded multiple development contracts for fabrication/testing for a 5 kW 28VDC auxiliary power unit (APU). (1446)
- Completed the test phase of Foreign Comparative Test program for LT 3 kW program. (10)
- Completed cold weather starting kit program for Tactical Quiet Generator (TQG) sets. (50)

FY 1995 Planned Program:
- Complete design and down-select 5 kW 28V DC APU (1574)
- Initiate testing 5kW 28 VDC APU. (383)
- Adjustment due to SBIR/STTR. (32)

FY 1996 Planned Program:
- Begin fabrication of 5 kW 28VDC APU Production Qualification Test (PQT) models. (268)
- Begin testing of 5 kW 28VDC APU PQT models. (270)
- Complete fabrication of 5 kW 28 VDC PQT Models. (270)
- Begin development of 3 kW Tactical Quiet Generator (TQG). (25)

FY 1997 Planned Program:
- Complete testing of 5 kW 28VDC APU PQT models. (150)
- Complete preparation of formal program review of 5 kW 28VDC APU. (149)

Acquisition Strategy: - Competitive procurements of integrated NDI generators and the Preproduction Qualification testing for the generators.

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BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development

Project D279 - Airdrop Equipment Engineering Development: Develop and transition to procurement cargo parachutes, airdrop containers and associated equipment. Air delivery equipment will enhance mission capabilities by fully using the airdrop capacity of C-5 and C-17 aircraft for resupply and cargo air delivery.

FY 1994 Accomplishments:
- Completed combined technical/user testing of single unit 60,000 lbs airdrop system allowing airdrop of combat-ready vehicle/weapon systems. (1680)
- Completed user testing of All Purpose Weapons and Equipment Container (AIRPAC) to assure airborne soldiers are fully combat operational upon landing. (365)
- Provided support to the USAF C17 aircraft program to ensure that Army personnel and cargo requirements are met. (2417)

FY 1995 Planned Program:
- Complete combined technical/user testing of linked platforms for 60,000 lbs airdrop system allowing increased lethality and rapid ground assembly of prime mover weapons systems and ammo combinations. (580)
- Initiate development of Guided Parafoil Aerial System (GPADS)-Light, Rapid Acquisition Program to provide a precision guided offset delivery capability for payloads up to 1500 pounds. (250)
- Continue support to the airdrop capability portion of the ongoing USAF C17 program. (576)
- Type classify AIRPAC for transition to procurement and operational use. (50)
- Adjustment due to SBIR/STTR. (31)

FY 1996 Planned Program:
- Type classify 60,000 lbs (Single and Linked Platform) to increase lethality of delivered systems. (250)
- Continue the Army airdrop capability effort directly supporting the USAF C17 program. (498)
- Conduct technical/user tests of GPADS-Light as part of Rapid Acquisition Program. (745)

FY 1997 Planned Program:
- Complete and transition to procurement the GPADS-Light capability for precision guided airdrop. (746)
- Award contract for GPADS-Medium to provide precision guided offset delivery capability for payloads up to 20,000 lbs. (750)

Project D429 - Tactical Rigid Wall Shelters Engineering Development: Develop and transition to procurement a series of rigid wall shelters (RWS) with added capabilities and enhanced survivability.

FY 1994 Accomplishments:
- Conducted Pre-Production Test of non-expandable Electro-Magnetic Interference (EMI) shelter prototypes for enhanced EMI security for Division C2 system. (320)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development

- Completed development of Standard Integrated Command Post System (SICPS) 5-ton E-van for mobile C2 systems. (536)
- Type classified standard the lightweight multipurpose shelter (LMS) for HMMWV-mounted battlefield systems. (50)
- Prepared Technical Data Packages (TDPs) for Modular Extendible Rigid Wall Shelter (MERWS) for Corps level medical applications and disaster relief. (439)
- Fabricated integrated Chemical/Biological Protective Shelter (CBPS) wheeled vehicle prototypes and conduct technical testing to provide mobile chemically protection Battalion Aid Station. (1990)
- Completed technical testing of SICPS RWS objective version for the Army Tactical Command and Control System (ATCCS); provides added power and increases mission payload. (950)
- Initiated testing of SICPS tent P3I. (283)
- Completed Operational Testing (OT) and TC-STD Version 1 SICPS RWS for ATCCS. (475)

FY 1995 Planned Program:

- Complete testing and conduct Milestone III for non-expandable EMI International Standards Organization (ISO) shelter which will provide 60dB EMI and EMP protection to critical battlefield C4 system. (200)
- Complete technical testing and conduct operational test of version 3 SICPS RWS. (1255)
- Milestone III for MERWS, completing development. (250)
- Complete component testing of SICPS P3I tent. (500)
  Conduct special IPR and award Limited Procurement Contract for CBPS. (250)
- Design study for ISO P3I Components. (250)
- Design study for LMS upgrade. (250)
- Procure new technology components for objective SICPS. (550)
- Adjustment due to SBIR/STTR. (76)

FY 1996 Planned Program:

- Type Classify version 3 SICPS RWS. (800)
- Begin test of new technology components (engine, generator, Environmental Control Unit (ECU), regenerative CB filters) for objective SICPS; lighter weight, quieter, less maintenance. (980)
- Fabricate ISO P3I prototypes. (300)
- Fabricate upgraded LMS prototypes. (290)
- Design investigation on CBPS armored vehicle integration, provides mobile medical aid for Heavy Divisions. (500)

FY 1997 Planned Program:

- Conduct technical testing of ISO EMI P3I components. (400)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development

- Award R&D contract to develop full integration package for CBPS armored vehicle mobile medical aid station integration. (557)
- Complete testing TDP and conduct Milestone III for LMS upgrade. (200)
- Complete testing next generation SICPS components. (500)
- Conduct technical/operational testing of 5th wheel trailer-mounted SCIPS RWS. (1720)

Project D461 - Marine Oriented Logistical Equipment Engineering Development: Develop and transition to procurement watercraft systems needed to perform Logistics Over The Shore (LOTS) operations in support of the Army Strategic Mobility Plan.

FY 1994 Accomplishments: Project not funded in FY 1994.

FY 1995 Planned Program:
- Test and evaluate the Lighter Amphibian Resupply Cargo-60 Ton (LARC-LX) prototype (932)
- Manual update data for the LARC-LX prototype (1408)
- Landing Craft Mechanized (LCM-8) to Coastal, Harbor and Inland (CHI) Boat propulsion system and deck arrangement conversion (433)
- Adjustment due to SBIR/STTR (59)

FY 1996 Planned Program:
- Development of berthing and propulsion systems for the Floating Crane (278)
- Development of fendering system for the Pusher Tug (70)

FY 1997 Planned Program: Project not funded in FY 1997

Acquisition strategy: Floating Crane -- Competitive Procurement to performance specification
Pusher Tug -- Competitive Procurement to performance specification

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	25519	21171	12418	10410
Appropriated Value	25519	21970		
Adjustments to Appropriated Value (Total PE)	-3122			
a. SBIR/STTR decrement (-386)				
b. Reprogrammings out of PE (-2736)				
Current Budget Estimate Submission (BES)	22397	21970	20756	19150

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

PROJECT: DH01

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
DH01 Combat Engineer Equipment Engineering Development	4623	2460	9691	10089	7999	4788	100	100	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
OPA, BA3, Other Support Equipment										
G82400 Heavy Dry Support Bridge							10264	10491	96237	116992
M26800 Improved Common Bridge Transporter			3828	4472	4574	4675	4778	4883	14078	41288
M26600 Improved Ribbon Bridge, Int. Bays							3371	2855	23145	29371
M26700 Improved Ribbon Bridge, Ramp Bays							1445	1223	10101	12769
Construction Equipment (Various)	17337	9206	21021	10398	3399	17617	35483	32039	Cont'd	Cont'd

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
Milestone 0 IPR for DUECE	X*															
Milestone I/II IPR for DEUCE			X*													
Release RFP for DEUCE				X*												
Four prototype ICBT's upgraded, contractor tested and delivered.				X*												
ICBT Logistic Demo Completed				X*												
Commencement of ICBT PQT				X*												
Conduct P3I for GP Camouflage				X*												
Conduct ULCANS PQT/QT & and Milestone III Review				X*												
Award DEUCE contract						X										
Conduct PPQT Test for DEUCE							X									
Conduct ICBT IOT&E							X									

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

PROJECT: DH01

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Complete preproduction qualification test for DEUCE									X							
Conduct Milestone III IPR for DEUCE											X					
Conduct Milestone II Review for HDSB									X							
Awd HDSB EMD Contract									X							
Conduct Milestone III Review for ICBT									X							
Release Request for Proposal for IRB Bays											X					
Fabricate HDSB EMD Prototype #1															X	
Conduct contractor testing of HDSB EMD prototype																X
Award IRB bays contract													X			

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development PROJECT DH01

A. Project Cost Breakdown

DH01 DEUCE & Construction Equipment	FY 1994	FY 1995	FY 1996	FY 1997
Request For Proposal Preparation	218			
Test planning and development	250			
Integrated Logistics Spt (ILS)	150			
Program Management Support	150	100	80	
Govt Engineering Spt	150	100	200	
Purchase Description Development	200			
Program Cost Estimate (PCE)	100			
Environmental Assessment	20			
Prototype Hardware Development		794		
Developmental and Operational Testing		307		
Construction Equip Market Investigations	0	0	100	100
Miscellaneous (SBIR/STTR = 76 in FY 95)	170	106	120	
Subtotal	1408	1407	500	100
DH01 BRIDGING (HDSB, ICBT & IRB)				
Primary Hardware Development	1248	0	6032	7188
Integrated Logistics Support (ILS)	40	20	100	100
Technical Data development and data rights	245	201	1820	1157
Developmental Test and Evaluation	333	550	0	557
Program Management Support (three programs)	310	222	1093	845
Miscellaneous (SBIR/STTR = 25 in FY 95)	94	60	146	142
Subtotal	2270	1053	9291	9989
DH01 CAMOUFLAGE				
Development of Prototypes				
Program Management Spt	369			
Technical Data Package (TDP) Preparation	270			
Document Support	50			
Testing	185			
Miscellaneous	71			
Subtotal	945			
Grand Total for Project DH01	4623	2460	9691	10089

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

PROJECT: DH01

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
Product Development Organizations											
Contractor TBD	C-CPFF	Oct 95	18399	18399	N/A			7843	6846	14787	18399
Contractor TBD	C-CPFF	Feb 97	2152	2152	N/A				1394	1394	2152
MTC-BELVOIR					N/A	1394	1053	1200	1192	3634	Cont'd
Total						1394	1053	9043	9432		
Support and Management Organizations NONE											
Test and Evaluation Organizations NONE											

Contractor or Gov't Performing Activity		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
Miscellaneous											
TBD		Nov 94	N/A	N/A	N/A	150		98			
Contractor TBD	FFP	Mar 95					800				
RADIAN INC.	TASK ODR.	Various	N/A	N/A	N/A	184					
MTC-Belvoir	PO	Various	N/A	N/A	N/A	848					
BRTRC	TASK ORD	Various	N/A	N/A	N/A	580					
VSE	TASK ORD	Various	N/A	N/A	N/A	454	150	150	150		Cont'd
TACOM	1095	Various	N/A	N/A	N/A	145					
ATCOM	1095	Various	N/A	N/A	N/A		150	150			
TECOM	1095	Various	N/A	N/A	N/A	539	307	250	507		Cont'd
CSTA	1095	Various	N/A	N/A	N/A	161					
ARL	1095	Various	N/A	N/A	N/A	28					
PM-113	1095	Various	N/A	N/A	N/A	140					
Total						3229	1407	648	657		Cont'd

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	Cont'd	1394	1053	9043	9432	Cont'd	Cont'd
Subtotal Support and Management	0					0	0
Subtotal Test and Evaluation	0					0	0
Miscellaneous	Cont'd	3229	1407	648	657	Cont'd	Cont'd
Total Project	Cont'd	4623	2460	9691	10089		

Government Furnished Property NONE

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

PROJECT: DH14

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
DH14 Logistics Support Equipment Engineering Development	2657	6615	1382	90	91	91	100	100	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
OPA, BA3, Other Support Equipment										
M41800 All Terrain Lifting Articulating System			14403	16589						
ML5365 Items Less Than $2.0M (MHE)	5816	4694	2843	2772	1827	1826	1988	1989	Cont'd	Cont'd

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
Contract Award (ATLAS)							X									
Prototype Fabrication (ATLAS)								X								
Prototype delivery (ATLAS)									X							
Pre Production Qualification Test Initiated (ATLAS)									X							
Type Classification Generic (ATLAS)											X					
1st Production Quality call up (ATLAS)											X					
Conduct Market Investigations for MHE												X				X

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

PROJECT: DH14

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Government Engineering and Other Support	1257	910		
Primary Hardware Development	640	2639		
Developmental Test and Evaluation	400	2539	1008	
Program Management Support	230	527	254	
Miscellaneous	130		100	90
Total	2657	6615	1362	90

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
Product Development Organizations											
Contractor TBD	CPFF	Mar 95	3175	3175			3175				
Support and Management Organizations : NONE											
Test and Evaluation Organizations:											
TECOM	MIPR	Various	NA			420	2306	1069			
Miscellaneous											
TARDEC	MIPR	Various	NA			947	820	118	70	Cont'd	Cont'd
BRDEC	PO	Various	NA			885					
PM CE/MHE	PO	Various	NA			175	175	175	20	Cont'd	Cont'd
Contractors	CPIF	Various				230					
TECOM	MIPR	Various	NA				139				
TOTAL						2237	6615	1362	90		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	Cont'd	0	3175			Cont'd	Cont'd
Subtotal Support and Management	Cont'd	0	0			Cont'd	Cont'd
Subtotal Test and Evaluation	Cont'd	420	2306	1069		Cont'd	Cont'd
Miscellaneous	Cont'd	2237	1134	293	90	Cont'd	Cont'd
Total Project	Cont'd	2657	6615	1362	90	Cont'd	Cont'd

Government Furnished Property : None

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

PROJECT: DL39

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
DL39 General Support Equipment Engineering Development	2682	1587	1649	1734	2205	2442	2199	2219	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
RDTE, A Budget Activity 4 PE 0603804A, Project DK39 General Support Equip Adv Dev	984	853	985	900	1497	1482	1799	1970	Cont'd	Cont'd

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
Complete evaluation of NBC protective covers for 600 GPH ROWPU.			X*													
Perform COEA of NBC protection for 3000 GPH ROWPU.				X*												
Initiate final design for 3000 GPH ROWPU Modular Collective Protective Equipment.		X*														
Complete TDP and implementation procedures for the cold weather kit for the 600 GPH ROWPU.				X*												
Initiate evaluation of cold weather protection for storage & distribution equip.				X*												
Initiate evaluation of candidate lightweight water purifiers (LWP).			X*													

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Complete standardization of chemicals and evaluation of ocean intake and direct drive systems and improvements to the family of water supply equipment.				X*												
Complete fabrication of 4 production prototypes of the Heavy Contact Maintenance Truck (CMT).				X*												
Complete test of the CMT.				X*												
Complete TDP for the CMT.				X*												
Complete testing of NBC protective covers for 3000 GPH ROWPU and incorporate into existingTDPs and manuals.								X								
Complete winterization of water storage & distribution equipment and incorporate improvements into TDPs and manuals.								X								
Continue evaluation of candidate lightweight water purifiers.								X								
Prepare contract package for prototype of lightweight water purifier.								X								
Conduct Milestone I IPR High Capacity Purifier (HCP).								X								
Perform trade-off analysis on HCP subsystems							X									
Initiate contract package for design and fabrication of prototype High Capacity Purifiers.							X									
Complete Market Investigation of Packaged Water Systems.							X									
Conduct tests on 36K ECU prototypes.												X				
Award contract for design/fabrication of prototype Lightweight Water Purifier.										X						
Conduct Pre Production Qualification												X				

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

DATE: February 1995

BUDGET ACTIVITY: 3 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Testing of Lightweight Water Purifier.																
Award contract for design/fabrication of prototype High Capacity Purifier.										X						
Award contract for design/fabrication of EMD prototype Packaged Water System.														X		
Prepare data package for improved ECU procurement.																X
Conduct IOT&E of the LWP.																X
Hold Milestone III In Process Review to Type Classify Lightweight Water Purifier.																X
Complete fabrication of prototype High Capacity Purifier.															X	
Conduct Engineering Testing of High Capacity Purifier.														X		
Conduct Packaged Water System MS I/II IPR												X				
Conduct MS II IPR for High Capacity Purifier															X	

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

PROJECT: DL39

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Hardware Development	1700	1019	1000	1075
Operational Test and Evaluation	130	0	0	150
Development Test and Evaluation	0	0	225	150
Government Engineering and Support	377	212	224	201
Government Program Support	200	150	150	108
Miscellaneous	275	206	50	50
Total	2682	1587	1649	1734

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
Product Development Organizations -NONE											
Support and Management Organizations - NONE											
Test and Evaluation Organizations - NONE											
Miscellaneous											
TACOM	In-House	Various	1051	1051		1944	524	349	349		

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

PROJECT: DL39

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
Contractors-Various	CPFF					222	527	1000	1185		
TECOM	MIPR						100	100	100		
TEXCOM	MIPR								100		
NFESC	MIPR					65	100	200			
CRREL	MIPR					100	150				
BOR	MIPR					70	75				
NSF	MIPR					80	80				
DESC	MIPR					201					
SBIR/STTR in FY 95							31				
Total						2682	1587	1649	1734		

Government Furnished Property - N/A

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development - NONE							
Subtotal Support and Management - NONE							
Subtotal Test and Evaluation - NONE							
Subtotal Miscellaneous		2682	1587	1649	1734		
Tc tal Project							

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

PROJECT: DL41

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
DL41 Fuels Handling Equipment Engineering Development	1424	1457	1220	1070	1193	1220	1199	1197	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
RDTE, A Budget Activity 4										
PE 0603804A, Project DK41, POL Distribution Equip Adv Dev	799	666	910	920	941	906	999	998	Cont.	Cont.

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
Fabricate 3 LAFARE prototypes.				X*												
Completed component testing of LAFARE.				X*												
Conduct TT/IOT&E, logistics demonstration, and physical configuration audit for LAFARE.								X								
Conduct MS III - TC for LAFARE.								X								
Conduct MS I/II IPR for the HERRS.								X								
Award HERRS EMD contract.									X							
Design & fabricate HERRS initial prototypes.											X					
Initiate HERRS component testing.												X				
Fabricate final HERRS prototype.																X
Conduct MS I/II IPR for the BFS.																X

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

PROJECT: DL41

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Hardware Development	1,283	722	900	800
Test and Evaluation	22	350	50	50
Government Engineering and Support	70	282	197	148
Government Program Support	49	75	73	72
Miscellaneous	0	28	0	0
Total	1424	1457	1220	1,070

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
Product Development Organizations - NONE											
Support and Management Organizations - NONE											
Test and Evaluation Organizations - NONE											
Miscellaneous:											
TARDEC	In-House	Various	119			119	350	245	200		
Contractors (TBD)	CPFF	9312	1283			1283	722	900	800		
TECOM	MIPR	9404	12			12	232	40	40		
TEXCOM	MIPR	9402	10			10	100	10	10		
ARL	MIPR						25	25	20		
SBIR/STTR							28				

Government Furnished Property - NONE

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development PROJECT DL41

	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development - NONE						
Subtotal Support and Management - NONE						
Subtotal Test and Evaluation - NONE						
Subtotal Miscellaneous	1424	1457	1220	1070	Cont'd	Cont'd
Total Project	1424	1457	1220	1070	Cont'd	Cont'd

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

PROJECT: DL42

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
DL42 Camouflage System Engineering Development	0	0	1290	995	995	995	500	499	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
RDTE,A Budget Activity 2 PE 0602786A, AH20, Mobility Equipment Technology	7323	9457	7203	7397	8173	8953	8253	8458	Cont'd	Cont'd

NOTE: Camouflage is a Defense Business Operating Fund (DBOF) production item.

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
Desert ULCANS P3I MDR												X				
MSCS- ME MS I/II										X						
Snow ULCANS P3I MDR																X
EO Signature Enhancements ULCANS P3I MDR																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development PROJECT DL42

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Government Engineering Support	0	0	520	400
Contractor Engineering Support	0	0	494	395
Developmental Test and Evaluation	0	0	200	150
Travel	0	0	56	30
Miscellaneous	0	0	20	20
Total	0	0	1290	995

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

PROJECT: D194

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
D194 Engine Driven Generators Engineering Development	1506	1989	833	299	270	286	719	723	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
OPA, BA3, Other Support Equipment MA9800, Generators and Associated Equip	24797	25206	13761	15715	15865	16493	38200	65205	Cont'd	Cont'd

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
Award contracts for fabrication/testing for a 5 kW 28VDC (APU).				X*												
Complete the test phase of Foreign Comparative Test program for LT 3 kW program.																
Complete cold weather starting kit program for Tactical Quiet Generator (TQG) sets.			X*													
Complete design and down-select 5 kW 28 VDC APU.							X									
Initiate testing 5 kW 28 VDC APU.								X								
Begin fabrication of 5 kW 28VDC APU Production Qualification Test (PQT) models.									X							
Begin testing of 5 kW 28VDC APU PQT models.												X				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development PROJECT D194

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Complete fabrication of 5 kW 28 VDC PQT Models.											X					
Complete testing of 5 kW 28VDC APU PQT models.														X		
Complete preparation of formal program review of 5 kW 28 VDC APU.															X	
Begin development of 3 kW (TQG)										X						

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

PROJECT: D194

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	900	1168	400	
Test and Evaluation		200	200	150
Government Engineering and Support	306	300	70	49
Program Management	150	100	75	60
Miscellaneous	150	221	88	40
Total	1506	1989	833	299

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
Product Development Organizations											
Contractors Various	CPFF	9406				900	1168	400	0		
Support and Management Organizations	None										
Test and Evaluation Organizations	None										
Miscellaneous:											
CECOM	In-House	Various	NA	N/A		606	589	233	149	Cont'd	Cont'd
TECOM	MIPR	Various				0	200	200	150	Cont'd	Cont'd
SBIR/STTR							32				
Project TOTAL						1506	1989	833	299	Cont'd	Cont'd

Government Furnished Property NONE

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

PROJECT: D279

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
D279 Airdrop Equipment Engineering Development	4462	1487	1493	1496	1502	1507	1548	1546	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
RDTE, A Budget Activity 4 PE 0603804A Project D266 Airdrop Equip Adv Development	4022	1224	1493	1496	1502	1507	1499	1696	Cont'd	Cont'd

NOTE: Camouflage is a Defense Business Operating Fund (DBOF) production item.

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
Complete TT/OTof single unit 60,000k lb airdrop system				X*												
Complete Technical/User tests of 60,000k lb linked platform airdrop system							X									
Conduct technical/ User tests of GPADS-light											X					
Award development contract for GPADS-medium														X		

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

PROJECT: D279

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	3211	1017	985	995
Program Management Support	530	185	185	185
Test and Evaluation	721	254	330	323
Miscellaneous		31		
Total	4462	1487	1493	1496

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
Product Development Organizations											
Natick, E-Systems, A.D. Little, Metric Corp., ARO			N/A	N/A	12299	3211	1017	978	988	Cont	Cont
Support and Management Organizations											
Natick, GTS, GEO Centers			N/A	N/A	1605	530	185	185	185	Cont	Cont
Test and Evaluation Organizations											
TECOM, EGLIN AFB, ABSOTD.			N/A	N/A	4940	721	254	330	323	Cont	Cont
Miscellaneous SBIR/STTR							31				
Subtotal Product Development					12299	3,211	1017	978	988	Cont	Cont
Subtotal Support and Management					1605	530	185	185	185	Cont	Cont
Subtotal Test and Evaluation					4940	721	254	330	323	Cont	Cont
Subtotal Miscellaneous							31				
Total Project					18844	4462	1487	1493	1496	Cont	Cont

Government Furnished Property: NONE

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DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

PROJECT: D429

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
D429 Tactical Rigid Wall Shelters Engineering Development	5043	3581	2870	3377	2467	1134	1298	1297	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
Various Shelter Items which are customer funded to include ISO Shelters, ATCCS and MRWS. (Approx. $20M per year)										
OPA, BA3, Other Support Equipment										
MX1010, SICPS	20250									
R12300, CBPS		6989								

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
Complete development of SICPS 5-ton E-van				X*												
TC Lightweight Multi-Purpose Shelter		X*														
Milestone III for non-expandable EMI ISO shelter								X								
Milestone II objective version SICPS RWS							X									
Milestone III MERWS								X								
Conduct OT objective version SICPS RWS												X				
TT of ISO EMI P3I components																X
Milestone III objective version SICPS RWS														X		

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DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

PROJECT: D429

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	2530	1516	1486	1577
Program Management Support	1000	900	518	900
Test and Evaluation	1513	1089	866	900
Miscellaneous		76		
Total	5043	3581	2870	3377

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
Product Development Organizations											
Natick, Gichner, Brunswick, DBA					9128	2530	1592	1486	1577	Cont	Cont
Support and Management Organizations											
Natick, GTS, GEO Centers					3651	1000	900	518	900	Cont	Cont
Test and Evaluation Organizations											
TECOM, CSTA, YPG, TEXCOM					5477	1513	1013	866	900	Cont	Cont
Miscellaneous											
BIR/STTR					0	0	76	0	0	0	0

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BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development

		FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	9128	2530	1592	1486	1577	Cont	Cont
Subtotal Support and Management	3651	1000	900	518	900	Cont	Cont
Subtotal Test and Evaluation	5477	1513	1089	866	900	Cont	Cont
Total Project	18,256	5043	3581	2870	3377	Cont	Cont

Government Furnished Property: None

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DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604804A Logistics And Engineer Equipment Engineering Development

PROJECT: D461

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
D461 Marine Oriented Logistics Equipment Engineering Development	0	2794	348	0	0	0	0	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 Compl	Total Cost
OPA, BA3, Other Support Equipment										
M32400 Floating Crane				14900	14913	14914				44727
M44500 Pusher Tug			3576	7152	7158					17886
MA0900 LARC-60 SLEP							6959	6960	0	13919

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
Pusher Tug Milestone I/III								X								
Contract Award											X					
Material Release																X
Floating Crane Mission Need State			X*													
Milestone I/III													X			
Contract Award															X	

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BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics And Engineer Equipment Engineering Development
	PROJECT D461

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engineering Support (includes test & evaluation)		2689	318	
Program Management Support		46	30	
SBIR/STTR (FY 95)		59		
Total		2794	348	

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BUDGET ACTIVITY 5 Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604805A Cmd, Cntrl, Comm Systems Engr Dev

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	8971	11237	13432	13842	6808	6894	0	0	Continuing	Continuing
D097 C3I Interoperability Network Activity	1834	1850	1782	1776	1762	1747	0	0	Continuing	Continuing
D098 Tactical Radio Accessories	1218	0	195	597	597	597	0	0	0	4989
D282 SINCGARS-V Engineering Development	1712	4535	7393	7280	0	0	0	0	0	Continuing
D485 C4I Interoperability Standardization and Certification	0	78	498	498	497	498	0	0	Continuing	Continuing
D488 Tactical Net Radio Communications	4207	4774	3564	3691	3952	4052	0	0	Continuing	Continuing

A. Mission Description and Budget Item Justification: In support of the Army Enterprise Strategy, achieve interoperability within the Army and with the Joint/Combined forces, this program includes Engineering and Manufacturing Development (EMD), interoperability evaluation of Army command, control, communications and intelligence (C3I) systems and equipment, and the supporting interoperability facilities. Included is engineering development of life-cycle capability to develop, test, and maintain interoperability, and support an interoperability development and evaluation process consisting of an Army interoperability board and technical management to ensure maximum horizontal and vertical integration for Army battlefield digitization. Also included is the Army portion of engineering development efforts in support of the Combat Survivor Evader Locator System (CSEL). This includes the Single Channel Ground and Airborne Radio System (SINCGARS) product improvements identified in the SINCGARS System Improvement Plan; the Frequency Hopping Multiplexer (FH MUX) which allows multiple radios to operate on one antenna for reduced visual signature and rapid transportability and set-up; and follow on programs to demonstrated technologies evolving from Wireless Network Access, Communications Network Planning and Management and initiatives to establish a Multiband Radio Integrated testbed. The projects in this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition process and are therefore correctly placed in Budget Activity 5.

Project D097 - C3I Interoperability Network Activity: Provide a suite of distributed communications, sites, and services (Army Interoperability Network - AIN) supporting Army C3I systems throughout the life-cycle, which provides the capability to develop, test, and maintain interoperability, and support a continuous life-cycle interoperability development and evaluation process through remote access to the actual C3I systems and test evaluation facilities. Enable engineering solutions that replicate battlefield configurations by networking dispersed C3I systems, creating the environments needed to identify, isolate, and resolve interoperability problems, evolve interoperability standards and protocols, and support testing required to meet the DOD interoperability objectives. Provide the connectivity for achieving horizontal and vertical integration, and initiatives such as C4I for the Warrior, Louisiana Maneuvers, Battle Labs Process, Digitizing the Battlefield (Force XXI), and Life-Cycle Software Engineering.

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BUDGET ACTIVITY 5 Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604805A Cmd, Cntrl, Comm Systems Engr Dev

FY 1994 Accomplishments:
- Began AIN Block-1 Development (supports emerging C4I interoperability test evaluation requirements) (988)
- Installed two new remote field command and control (C2) interoperability sites (395)
- Supported JCS' C4I for the Warrior and interservice tactical switch interoperability (90)
- Supported interoperability development, testing, and sustainment of Army's C4I systems (PEOs, PMs, CECOM and fielded systems) (361)

FY 1995 Planned Program:
- Integrate AIN Block-1 Capabilities into Task Force XXI sites (835)
- Develop Rapid deployment AIN Video Teleconferencing (VTC) communications package(106)
- Support PEOs, PMs, and CECOM in achieving systems Army/Joint interoperability, C4I certification testing and DOD policy objectives (190)
- Continue to support Joint Chiefs of Staff (JCS) C4I for the Warrior, and interservice tactical switching, and other Army Interoperability programs (75)
- Install two remote field support sites (390)
- Begin compliance and interoperability testing support for Task Force XXI system implementations (215)
- Small Business Innovative Research (SBIR)/Small Business Technology Transfer Program (STTR) (39)

FY 1996 Planned Program:
- Enhance AIN Block-1 capabilities to support Force XXI and Force XXI sites (645)
- Evolve AIN protocol test capabilities to support Force XXI requirements (200)
- Develop rapid deployment AIN broadcast and non-RF communications capability (392)
- Provide compliance and interoperability testing support for Task Force XXI system implementations (295)
- Continue to support Army's interservice tactical switching and other Army interoperability programs (75)
- Support PEOs, PMs and CECOM in achieving systems Army/Joint interoperability C4I certification testing and DOD policy objectives (175)

FY 1997 Planned Program:
- Complete AIN Block-1 capabilities and integration. (675)
- Evolve AIN protocol test capabilities to support Force XXI requirements (190)
- Install two remote field support sites (395)
- Provide compliance and interoperability testing support for Force XXI and Force XXI system implementations (291)
- Continue to support Army's interservice tactical switching and other Army interoperability programs (75)
- Support PEOs, PMs, and CECOM in achieving systems Army/Joint interoperability, C4I certification testing and DOD policy objectives. (150)

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Project D098 - Tactical Radio Accessories: In FY94, this project funds development of radio improvements resulting from emerging technologies. This includes the SINCGARS Forward Error Correction design improvements, part of the SINCGARS System Improvement Plan (SIP) which reduces bit error rate data messages throughout the battlefield, while providing the necessary traffic isolation between SINCGARS data nets needed to maximize the available throughput. It will provide both a voice and data Gateway to the Area Common User System (ACUS). In FY 95 these efforts transition to Project D282 contained within this Program Element. Improvements will be incorporated into the current production of the airborne radio via Engineering Change Proposal (ECP) cut-in to the current production line beginning in FY 96. In FY 96, this project will provide for development efforts for the Combat Survivor Evader Locator System (CSEL), a joint program led by the Air Force. This program will provide service, joint, and/or composite operational recovery rescue forces with the capability to pinpoint the location of and establish communication with downed personnel in need of extraction from hostile territories. The CSEL system will include the capability to pass data directly into the standard warfighter command, control, communications, computer, and intelligence (C4I) systems envisioned by the C4I for the Warrior Concept. The user's equipment will consist of a small hand-held unit used for geopositioning, Over the Horizon data communications, and two-way Line of Sight voice communications.

FY 1994 Accomplishments:
- Initiated design plans for airborne SIP development (220)
- Finalized airborne system definition (aircraft/receiver-transmitter interface) (100)
- Initiated core hardware development (898)

FY 1995 Planned Program: Program unfunded in FY 1995

FY 1996 Planned Program:
- Support Air Force development efforts on the CSEL program (195)

FY 1997 Planned Program:
- Support Air Force development efforts on the CSEL program (597)

Acquisition Strategy: The joint Air Force led acquisition strategy is to pursue a modified Non-Developmental Item (NDI) approach for the hand-held unit and award a production contract beginning in FY 99.

Project D282 - SINCGARS-V Engineering Development: This program provides for analysis and implementation of overall product improvements to the SINCGARS Combat Net Radio. Product improvements included are Global Positioning System (GPS) interfaces , Airborne Battlefield Combat Identification System (BCIS), Forward Error Correction (FEC) (data transmission enhancement techniques), improved data capability , weight reduction (to include a Half-size Receiver-Transmitter, Battery Box and Vehicular Appliqué), MANPRINT (ease of operations), vehicular system re-engineering, improved electronic counter-counter measure (ECCM) performance and switched system dial up interfacing. Program provides simplified operations, improved performance of existing capabilities, new operational capabilities and reduced life cycle costs.

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FY 1994 Accomplishments:
- Continued development of SINCGARS GPS interface and FEC hardware/development for ITT (1030)
- Conducted design verification testing for FEC for ITT (656)
- Conducted field demonstration of GPS/FEC prototype models (26)

FY 1995 Planned Program:
- Initiate design feasibility study for an ITT SINCGARS Half-Size radio as part of the planned SIP program (1000)
- Initiate design feasibility study for a General Dynamics (GD) SINCGARS Half-Size radio as part of the planned SIP program (1000)
- SIP Engineering Support (1000)
- Initiate development of Airborne BCIS (1204)
- Program Management Support (135)
- Continue hardware and software compatibility testing with aircraft integrators (100)
- Small Business Innovative Research (SBIR)/Small Business Technology Transfer Program (STTR) (96)

FY 1996 Planned Program:
- Airborne BCIS Demonstration (400)
- Initiate development effort for ITT SIP Half Size radio (3415)
- Initiate development effort for GD SIP Half Size radio (3415)
- Program Management Support (163)

FY 1997 Planned Program:
- Complete development effort for ITT SIP Half Size radio (3390)
- Complete development effort for GD SIP Half Size radio (3390)
- Complete design verification testing/demonstrations for both ITT and GD Half Size Radios (500)

Acquisition Strategy: The Half-size Receiver-Transmitter and associated items planned development design products will be used by competitive producers as a part of the anticipated FY 97 production buyout of the SINCGARS radio.

Project D485 - C4I Interoperability Standardization and Certification: The Army Enterprise Strategy, DOD 4630.5, DODI 4630.8, C4I for the Warrior, and CJSCI 6212.01, mandate the establishment and sustainment of interoperability between Army C4I systems, and within the Army and Joint/Allied C4I communities. This includes operation of the Army board to synergize and integrate the Army's interoperability certification testing and analysis, and configuration management functions. Provide the Army focal point for the review, staffing, coordination and development of Army positions for the interface interoperability standards and specifications. Direct the integration of the Army systems' requirements and operational concepts documents with the joint standards and interface documents. Included is the Army's participation

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in Joint/Allied and intra-Army interoperability certification testing and the Army's representation in the Joint/Allied Configuration Management Process. This is a restructure of project D488, and not a new start.

FY 1994 Accomplishments: Efforts funded under PE 0604805A, Project D488

FY 1995 Planned Program:
- Continue to Implement Army Five Year Interoperability Assurance Plan (FYIAP) to manage Army Interoperability testing requirements (76)
- SBIR (2)

FY 1996 Planned Program:
- Continuation of Army FYIAP implementation (120)
- Staff, consolidate, and formulate Army Interface Change Proposals (ICPs) (200)
- Review ICP test results and represent the Army at joint test meetings (178)

FY 1997 Planned Program:
- Continuation of Army FYIAP implementation (120)
- Staff, consolidate, and formulate Army Interface change proposals (200)
- Review ICP test results and represent the Army at joint test meetings (178)

Acquisition Strategy: The efforts funded within this project are non-system specific, therefore no Acquisition Strategy is provided.

Project D488 - Tactical Net Radio Communications: Develops the Frequency Hopping Multiplexer which allows multiple radios to operate on one antenna for reduced visual signature and rapid transportability and set-up. Performs procedural interoperability testing and provides the Army's gateway to interoperability test network for certification of Army C3I systems. Develops Wireless Network Access (WNA) to provide Comm interface to CHS host computers and transmission security for tactical operations. Provide for executive agent and requirements for test and evaluation of the Joint Task Force Comm Planning and Management System.

FY 1994 Accomplishments:
- Completed development effort on the FH MUX (1439)
- Conducted design verification test on the FH MUX using development models (333)
- Initiated pilot (pre-production) FH MUX model fabrication(225)
- Prepared, coordinated, processed, and approved 340 Interface Change Proposals (ICPs), Convened 4 Army Configuration Control Boards (CCBs); Provided Army voting principal at 26 Joint/Combined review panels (1044)
- Participated in 28 Army/Joint interoperability tests and provide Army voting principal at joint certification forums (627)

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BUDGET ACTIVITY 5 Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604805A Cmd, Cntrl, Comm Systems Engr Dev

- Developed simulation/stimulation message drivers, analyzers and data reduction tolls for testing interoperability (219)
- Initiated implementation of Army Five Year Interoperability (FYIAP) to manage Army interoperability testing requirements (320)

FY 1995 Planned Program:

- Complete pilot (pre-production) model fabrication (4529)
- Conduct operational test and evaluation on the FH MUX (30)
- Conduct Design Verification Testing (120)
- SBIR/STTR (95)

FY 1996 Planned Program:

- Complete Pre-Production Qualification FHMUX (Design Verification) testing (955)
- Prepare, complete and submit technical reports and documentation in support of FH MUX pre-production model fabrication(245)
- Ensure development of prototypes for COMM network management systems that meets Joint Task Force Comm Management Planning System requirements (800)
- Develop new applications for improved spectrum efficiency (800)
- Conduct Demonstration of initial Multiband Radio Integration testbed (764)

FY 1997 Planned Program:

- Develop prototype of Wireless Network Access (WNA) for test and evaluation. (951)
- Test prototype version 1 of Comm Network Management System (1000)
- Test high data radio for requirements of digitized battlefield (1000)
- Demonstrate interface of integration testbed to DIS2 and control capability to include automated test configuration. (740)

Acquisition Strategy: The acquisition strategy for the FH MUX is to award a sole source contract for up to 50 FH MUX Pre-Production Qualification Test (PPQT) model units to Xetron Corporation, Cincinnati, OH, the current developer of the FHMUX. This contract is an essential preparatory phase to the planned full rate production contract scheduled for 3QFY96 and will provide substantial reduction in production risk.

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	8906	11386	14592	10484
Appropriated Value	8906	11237		
Adjustments to Appropriated Value	-135			
a. SBIR/STTR decrement (-135)				
Current President's Budget Submit	8971	11237	13432	13842

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE: February 1995
BUDGET ACTIVITY: 5 Engineering And Manufacturing Development	PE NUMBER AND TITLE: 0604805A Cmd, Cntrl, Comm Systems Engr Dev		PROJECT: D097

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
C3I Interoperability Network Activity	1834	1850	1782	1776	1762	1747	0	0	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, therefore no Milestones are provided.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604805A Cmd, Cntrl, Comm Systems Engr Dev PROJECT D097

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contractual Engineering Support	1239	1175	1107	1101
Government Engineering Support	219	480	480	480
Development Test and Evaluation	369	150	150	150
Training	3	12	12	12
Travel	4	33	33	33
Total	1834	1850	1782	1776

B. Budget Acquisition History and Planning Information: N/A

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

DATE: February 1995

BUDGET ACTIVITY: 5 Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604805A Cmd, Cntrl, Comm Systems Engr Dev

PROJECT: D098

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
Tactical Radio Accessories	1218	0	195	597	597	597	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	Total Cost
ARMY, OPA2 B03200							18493	15214	30000	63708

D. Schedule Profile

	FY 1994				FY 1995				FY 1996				FY 1997			
CSEL Program	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Milestone I						X										
Milestone II											X					
Award NDI Development Contract														X		
Conduct IOT&E - FY 98																
Milestone III - FY 99																

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

DATE: February 1995

BUDGET ACTIVITY: 5 Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604805A Cmd, Cntrl, Comm Systems Engr Dev

PROJECT: D098

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engineering Support	1218	0	195	597
Total	1218		195	597

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
Product Development Organizations											
TBD	TBD	Jun 96	TBD	TBD				195	597	1204	1996
Support and Management Organizations: None											
Test and Evaluation Organizations: None											
Government Furnished Property N/A											
Subtotal Product Development					1775	1218		195	597	1204	4989
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project					1775	1218		195	597	1204	4989

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

DATE: February 1995

BUDGET ACTIVITY: 5 Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604805A Cmd, Cntrl, Comm Systems Engr Dev

PROJECT: D282

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
SINCGARS-V Engineering Development	1712	4535	7393	7280	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	Total Cost
RDTE,A Budget Activity 5	1218	0	195	597	597	597	0	0	0	
PE 0604805A Project D098										
Army OPA2, SSN: B00500	314121	330214	284098	217863	184951	131212	153932	164072	0	Cont
Army OPA2, SSN: J30500	20616	20818	12580	12603	0	0	0	0	0	Cont

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
ECP Cut In to Ground Production						X										
Award Airborne SIP Development Contract						X										
ECP Cut In to Airborne Production										X						
Complete Design Feasibility Study on Half Size radio								X								
Award Half-Size Development Contracts									X							

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

DATE: February 1995

BUDGET ACTIVITY: 5 Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604805A Cmd, Cntrl, Comm Systems Engr Dev

PROJECT: D282

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engineering Support	1686	4435	7393	6780
Developmental Test & Evaluation	26	100	0	500
Total	1712	4535	7393	7280

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
Product Development Organizations											
ITT Ft Wayne, IN	SS/CPFF	Oct 94	TBD	4941		1686	1255	1000	1000		4941
GD, Tallassee, FL	SS/CPFF	Dec 94	TBD	7213			300	3415	3408	0	7123
ITT Ft Wayne, IN	SS/CPFF	Jan 95	TBD	8365	0		2880	2978	2372	0	8230
Support and Management Organizations: None											
Test and Evaluation Organizations											
White Sands, NM	MIPR	Nov 94				26					26
EPG, MD	MIPR	TBD					100		500		600
Government Furnished Property: N/A											
Subtotal Product Development						1686	4435	7393	6780		20294
Subtotal Support and Management											
Subtotal Test and Evaluation						26	100		500		626
Total Project						1712	4535	7393	7280		20920

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE: February 1995		
BUDGET ACTIVITY: 5 Engineering And Manufacturing Development				PE NUMBER AND TITLE: 0604805A Cmd, Cntrl, Comm Systems Engr Dev					PROJECT: D485	
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
C4I Interoperability Standardization and Certification	0	78	498	498	497	498	0	0	Continuing	

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

D. **Schedule Profile**: The efforts funded are non-system specific, therefore no Milestones are provided.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604805A Cmd, Cntrl, Comm Systems Engr Dev PROJECT D485

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Government Engineering Support		78	498	498
Total		78	498	498

B. Budget Acquisition History and Planning Information: N/A

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

DATE: February 1995

BUDGET ACTIVITY: 5 Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604805A Cmd, Cntrl, Comm Systems Engr Dev

PROJECT: D488

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
Tactical Net Radio Communications	4207	4774	3564	3691	3952	4052	0	0	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
OPA2, SSN BA1205			24803	32885	27013	0	0	0	0	84701

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
FH MUX J&A Approved			X*													
FH MUX AP Approved			X*													
DT&E COMPLETE				X*												
FH MUX OT Complete					X*											
Milestone III - FH MUX							X									
Delivery FH MUX PPQ Units										X						
FH MUX Production Award											X					

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1995
BUDGET ACTIVITY 5 Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604805A Cmd, Cntrl, Comm Systems Engr Dev	PROJECT D488

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engineering Support	2798	4035		
Ancillary Hardware Development			894	1036
Developmental Test and Evaluation	333	200		1323
Operational Test and Evaluation		539	1240	
Government Engineering Support	682		787	925
Research Support Equipment Acquisition	96			
Travel	39		214	148
Training	4			
Miscellaneous	255		429	259
Total	4207	4774	3564	3691

B. Budget Acquisition History and Planning Information: N/A

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604806A NBC Defense Systems - Engineer 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	42455	19510	0	0	0	0	0	0	Continuing	Continuing
DF97 NBC Decontamination Systems	0	991	0	0	0	0	0	0	Continuing	Continuing
D017 NBC Protection Systems	170	9050	0	0	0	0	0	0	Continuing	Continuing
D020 NBC Contamination Avoidance Systems	42285	9469	0	0	0	0	0	0	Continuing	Continuing

A. Mission Description and Budget Item Justification: U.S. Forces must survive and sustain operations on the Nuclear, Biological and Chemical (NBC) contaminated battlefield. This program element supports the Engineering and Manufacturing Development (EMD) of NBC defensive equipment and addresses various shortcomings identified in Conduct of the Persian Gulf War: Final Report to Congress, April 1992. Projects provide for development and demonstration testing of individual and collective protection equipment such as the XM45 Aircrew Protective Mask (ACPM); radiological detection and monitoring equipment; an array of chemical/biological/toxin detection and warning systems to include the Multi-Purpose Integrated Chemical Agent Detector (MICAD), the XM22 Automatic Chemical Agent Alarm (ACADA), the CB Mass Spectrometer (CBMS), and the XM93E1 Fox NBC Reconnaissance Systems (NBCRS); and, finally, decontamination solutions and equipment to replace currently logistically burdensome and time consuming decon methods. The projects in this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

This program was transferred to a Defense Program Element (PE 0604384BP) starting in FY 96 pursuant to Congressional direction in Public Law 103-160, Title XVII.

Project DF97 - NBC Decontamination Systems: Provides EMD of new NBC decontamination solutions and equipment.

FY 1994 Accomplishments: No planned program

FY 1995 Planned Program:
- Continue Sorbent Decon formulation and applicator design (570)
- Initiate/complete Sorbent Decon Engineering Design Test (EDT) (400)
- SBIR/STTR (21)

FY 1996 Planned Program: Program transferred to PE 0604384BP/DF97.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604806A NBC Defense Systems - Engineer Development

FY 1997 Planned Program: Program transferred to PE 0604384BP/DF97.

Project D017 - NBC Protection Systems: Provides EMD of equipment to protect soldiers on NBC contaminated battlefields. The project resources development of the XM45 Aircrew Protective Mask (ACPM) which provides rotary-wing air crewmen with a less burdensome respiratory protection system. The ACPM eliminates the air crew dependence on forced air and is compatible with helicopter weapon sights and night vision system. This project also supports the Advanced Integrated Collective Protection System (AICPS) which integrates NBC filtration environmental controls and power source components for combat systems and exploits new filtration technology. The AICPS can be integrated into multiple configurations to provide protection to several different tactical systems. Also supports the M40 Mask Pre-Planned Product Improvement and the M20 Collective Protection System Pre-Planned Product Improvement. The ACIPS program is supported by the Counterproliferation Initiative in FY 1995 (PE 0604384BP/CP05)

FY 1994 Accomplishments:
- M20P3I - Contract Closed-Out (60)
- M40P3I - Developed Ballistic Protection (110)

FY 1995 Planned Program:
- AICPS - Initiate design configuration testing (769)
- AICPS - Initiate prototype fabrication (1911)
- AICPS - Conduct preliminary/critical design reviews. (3900)[1]
- AICPS - Develop prototype filter (300)[1]
- ACPM - Complete Hardware Design and build for Engineering Design Test (EDT), and Preproduction Qualification Test (PPQT) (2880)
- ACPM - Conduct EDT and prepare PPQT test plans, procedures and fixtures (1250)
- ACPM - Purchase Technical Data Package (TDP) tooling and develop logistics support (2050)
- SBIR/STTR (190)

[1] Counterproliferation funding support.

FY 1996 Planned Program: Program transferred to PE 0604384BP/DO17.

FY 1997 Planned Program: Program transferred to PE 0604384BP/DO17.

Project D020 - NBC Contamination Avoidance Systems: This project provides for the Engineering and Manufacturing Development (EMD) of new nuclear and chemical defensive equipment to enhance U. S. capability to detect and identify threat agents on the battlefield. The project supports: (1) Automatic Chemical Agent

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604806A NBC Defense Systems - Engineer Development

Detector Alarm (ACADA), which is more sensitive and responsive than current detectors and is capable of concurrent nerve and blister agent detection; (2) Multipurpose Integrated Chemical Agent Alarm (MICAD) which automates NBC warning and reporting throughout the battlefield and links digital data into the Army's command, control and communications systems; (3) the XM93E1 FOX NBC Reconnaissance System (NBCRS), which is a dedicated system of NBC detection, warning, and sampling equipment integrated into a high speed, wheeled, high mobility armored carrier capable of performing NBC reconnaissance on primary, secondary, or cross country routes throughout the battlefield; (4) AN/UDR-13 Pocket Radiac Set which provides ground troops with a lightweight, user-friendly tactical device for measuring and detecting radiation; (5) Advanced Airborne Radiac System (AARS) to provide rapid, accurate, and safe measurement of radiation from the air and for correlating airborne readings to ground radiation readings and positions; and (6) CB Mass Spectrometer (CBMS) which identifies all chemical and biological agents collected and is a component of the NBCRS and Biological Integrated Detection System (BIDS); and (7) Biological Detector (BD), a point detector for threat biological agents which is also a component of the BIDS and is under management of the Joint Program Office for Biological Defense (JPO-BIO).

FY 1994 Accomplishments:

- ACADA - Completed inventory delivery and data item submission on Environmental Technologies Group, Inc. contract (3899)
- ACADA - Initiated Comparative Testing and Evaluation of ACADA/Non Developmental Item (NDI) (1200)
- ACADA - Conducted Market Survey (810)
- MICAD - Conducted Preliminary Design and Review (5000)
- MICAD - Conducted Hardware Critical Design and Review (1553)
- MICAD - Conducted Software Design and Phase 1 Review (1597)
- NBCRS - Completed Initial Operational Test & Evaluation (IOT&E) (4000)
- NBCRS - Completed Pre-Production Qualification Testing (PPQT) (2000)
- NBCRS - Prepared MS III IPR Documentation (100)
- NBCRS - Prepared Technical Manuals for IOT&E (3000)
- NBCRS - Performed Failure Analysis (1000)
- NBCRS - Refurbished systems after Technical Test (TT) in preparation for IOT&E (1200)
- NBCRS - TDP updated and change incorporated (3000)
- NBCRS - Finalized logistics provisioning, packaging and manuals (5000)
- NBCRS - Conducted configuration control and change management (2825)
- POCKET RADIAC - Completed design and fabrication of P-Channel metal oxide semi-conductor field effect transistors (PMSOFT) for prototype (200)
- POCKET RADIAC - Prepared test plans and conducted Nuclear Performance Testing (70)
- POCKET RADIAC - Conducted test and evaluation of PMSOFT, prototype evaluation and development of alternative dosimetric elements (1223)
- AARS - Designed installation mounts to install AN/VDR-2 with interface board into OH58D helicopter (1752)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604806A NBC Defense Systems - Engineer Development

FY 1994 Accomplishments (continued):

- AARS - Conducted software development and testing (1109)
- JPO BIO - Initiated engineering analysis for Bio Detection kit integration into BIDS (1741)

FY 1995 Planned Program:

- NBCRS - Complete EMD and production planning for Block I upgrade (6575)
- NBCRS - Complete MS III IPR Documentation and hold IPR (200)
- NBCRS - Conduct Operational MANPRINT Demonstration (800)
- ACADA - Close out of Program and Engineering Manufacturing Development Contract (200)
- ACADA - Initiate and Conduct Non-Development Item (NDI) Contract (800)
- ACADA - Prepare Production Contract and IPR Program Documentation (200)
- Pocket Radiac - Conduct Preproduction Qualification Test (PPQT) (450)
- Pocket Radiac - Finalize system design after PPQT (50)
- SBIR/STTR (194)

FY 1996 Planned Program: Program transferred to PE 0604384BP/DO20.

FY 1997 Planned Program: Program transferred to PE 0604384BP/DO20.

B. Program Change Summary:

	FY 1994	FY 1995
Previous President's Budget	42839	13474
Appropriated Value	42839	19510
Adjustments to Appropriated Value	+16	
a. Reprogrammed into PE (277)		
b. SBIR/STTR (-661)		
Current Budget Submit/President's Budget	42455	19510

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604806A NBC Defense Systems - Engineer Development

PROJECT: DF97

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
DF97 NBC Decontamination Systems	0	991	0	0	0	0	0	0	Continuing	Continuing

C. **Other Program Funding Summary:**

	FY 1994	FY 1995	To Compl	Total Cost
RDTE, A Budget Activity 2, PE 0602622A, Proj A553, CB Defense & General Investigations	35529	29614	Cont'd	Cont'd

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
Sorbent Decon - Initiate/Complete								X								
Engineering Design Test																

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604806A NBC Defense Systems - Engineer Development	PROJECT DF97

A. Project Cost Breakdown:

	FY 1994	FY 1995	FY 1996	FY 1997
Systems Engineering		570		
Engineering Design Test		400		
SBIR/STTR		21		
Total		991		

B. Budget Acquisition History and Planning Information: Not Applicable

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604806A NBC Defense Systems - Engineer Development

PROJECT: D017

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
D017 NBC Protection Systems	170	9050	0	0	0	0	0	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 Compl	Total Cost
RDTE,A Budget Activity 2 PE 0602622A Project A553 CB Defense & General Investigations	35529	29614	0	0	0	0	0	0	Cont'd	Cont'd
RDTE,A Budget Activity 4 PE 0603806A Project D604 NBC Protection Systems	6318	1480	0	0	0	0	0	0	Cont'd	Cont'd
RDTE, D Budget Activity 5 PE 0604384BP Project CP05 Counterproliferation Support	0	15200	18800	10700	8500	12500	36500	29500	Cont'd	Cont'd
OPA-3, A Appropriation										
M97400, M20/M20E1 SCPE	1527	0	0	0	0	0	0	0	0	1527
SX8001, XM28 NBC TEMPER	4366	10236	0	0	0	0	0	0	0	14602

D. Schedule Profile:

	FY 1994				FY 1995			
	1	2	3	4	1	2	3	4
Conduct MSII IPR for ACPM				X*				
Build EDT Hardware for ACPM							X	
Conduct EDT for ACPM								X
Initiate AICPS prototype fabrication						X		
Initiate AICPS Engineering Design Test								X

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604806A NBC Defense Systems - Engineer Development

PROJECT: D017

A. Project Cost Breakdown:	FY 1994	FY 1995
Government Engineering Support	110	2005
Contractor Engineering Support		
Project Management Office		
Hardware Development		2600
Software Development		
ILS		225
Technical Data		150
Testing		525
Design		325
Documentation	60	200
QA		150
Prototype Fabrication		1911
Design configuration testing		769
SBIR/STTR		190
Total	170	9050

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	Budget to Complete	Total Program
Product Development Organizations									
CBDCOM	PO	Oct 94	3349	3349	0	170	3179		3349
Unknown	C/FP	Apr 95	3486	3486	0	0	3486		3486
Miscellaneous	CPFF/PO	Jan 95	625	625	0	0	625		625
Support and Management Organizations									
CBDCOM	PO	Oct 93	720	720	0	0	720		720
Test and Evaluation Organizations									
	PO	Jun 95	850	850	0	0	850		850

Government Furnished Property: None

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604806A NBC Defense Systems - Engineer Development PROJECT D017

	Total Prior to FY 1994	FY 1994	FY 1995	Budget to Complete	Total Program
Subtotal Product Development		170	7290		7460
Subtotal Support and Management			720		720
Subtotal Test and Evaluation			850		850
Total Project		170	8860*		9030

* Does not include SIBR/STTR (190)

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604806A NBC Defense Systems - Engineer Development

PROJECT: D020

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
D020 NBC Contamination Avoidance Systems	42285	9469	0	0	0	0	0	0	Continuing	Continuing

C. Other Program Funding Summary:

	FY 1994	FY 1995	To Compl	Total Cost
RDTE,A Budget Activity 4 PE 0603806A Project D601 NBC Contamination Avoidance Systems	21277	8623	Cont'd	Cont'd
RDTE, D Budget Activity 7, PE 06073724D, Joint Biological Defense Program		52895		52895
OPA-3, A Appropriation				
M98800, ACADA XM22		5455		5455
M93000, BIDS		14583		14583

D. Schedule Profile:

	FY 1994				FY 1995			
	1	2	3	4	1	2	3	4
ACADA-Procure NDI Hardware				X*				
ACADA-Initiate Shoot-Off Testing				X*				
ACADA-Evaluate NDI Candidates					X*			
ACADA-MS III IPR TC LRP						X		
ACADA-Prepare Acquisition Plan				X*				
ACADA-Prepare Production Contract						X		
ACADA-Award Production Contract							X	
ACADA - Conduct Market Survey/Test							X	
ACADA - Close out EMD Contract								X
MICAD-Preliminary Design Rev		X*						

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604806A NBC Defense Systems - Engineer Development

	FY 1994				FY 1995			
	1	2	3	4	1	2	3	4
MICAD-Hardware Critical Design Rev			X*					
MICAD-Software Design & Phase 1 Rev				X*				
MICAD-Sample Transfer System Design								
MICAD-Build Prototype Hardware								
MICAD-Conduct PPT								
XM93E1-Complete IOT&E			X*					
XM93E1-Complete PPQT				X*				
XM93E1-IER (UT)				X*				
XM93E1-MS III IPR					X			
XM93E1-Production Contract Award								
XM93-Begin Upgrade of Fielded Systems								
POCKET RADIAC-Build 1st Prototype				X*				
POCKET RADIAC - Conduct PPQT						X		
POCKET RADIAC - Conduct MSIII IPR								X
POCKET RADIAC-Complete Dev								X
AARS-Critical Design Review				X*				
AARS-Complete DT/OT Testing								X
CBMS-Design								
CBMS-Test								
CBMS-Document								
Bio Detector Engineering Analysis				X*				

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604806A NBC Defense Systems - Engineer Development PROJECT D020

A. Project Cost Breakdown:

	FY 1994	FY 1995
Government Engineering Support	12654	2030
Contractor Engineering Support	15551	4280
Project Management Office Support	3907	
Hardware Development	5056	50
Software Development	2792	
ILS	1368	1215
QA	500	
Technical Data	457	
Testing		1495
Design		
Document		205
SBIR/STTR		194
TOTAL	42285	9469

B. Budget Acquisition History and Planning Information:

Performing Organizations

Contractor or Government Performing Activity		Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	FY 1994	FY 1995	Budget to Complete	Total Program
Product Development Organizations									
GEN DYNA -LSD	SS/CPIF	Apr 94	102921	102921	84297	14344	4280		102921
STC	CPIF	Feb 94		581	400	181			581
CBDCOM	PO	Oct 93		18348	11883	4100	2365		18348
TACOM	PO	Jan 94		1900	700	600	600		1900
STRICOM	PO	Dec 93		175		175			175
MISC	PO			1500	1500				1500
CBDCOM	PO	Oct 93	4652	4652	1764	1688	1200		4652

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604806A NBC Defense Systems - Engineer Development

PROJECT: D020

Contractor or Government Performing Activity		Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	FY 1994	FY 1995	Budget to Complete	Total Program
LORAL-LIBRA		Jan 94	13527	13527	7127	6400	0		13527
MISC	PO/MIPR		534	534	466	68	0		534
ETG	SS, CPIF	Jan 94		30210	30210				30210
Sandia Labs	MIPR	Mar 94		210		200	10		210
Modern Tech Corp	FFP	May 94	332	332		332			332
Nuclear Rsch Corp	FFP	Mar 94	65	65		25	40		65
Bell Heli- Textron	CPFF	Mar 94	1922	1922		1922			1922
MRDC	MIPR	Dec 93	207	207		207			207
NAVSEA	MIPR	Apr 94	110	110		110			110
Support and Management Organizations									
MISC	PO			16950	11800	5150			16950
CBDCOM	PO	Oct 96		14947				14947	14947
CECOM	PO	Dec 93	1554	1554		1554			1554
ARL	PO	Jan 94		36		6	30		36
Camber	SS/CPFF	Jan 94	426	426		426			426
AAESA	MIPR	May 94	322	322		322			322
SARDA	MIPR	Jul 94	223	223		223			223
USA Chem School	MIPR	Jul 94	274	274		274			274
JPO-BD	PO	Oct 93		579		579			579
Test and Evaluation Organizations									
FT HOOD	MIPR	May 94		1750		1750			1750
TECOM	PO	May 94		6322	3923	1649	750		6322

Government Furnished Property: None

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - Engineering And Manufacturing Development	0604806A NBC Defense Systems - Engineer Development	D020

		FY 1994	FY 1995	Budget to Complete	Total Program
Subtotal Product Development	138347	30352	8495		177194
Subtotal Support and Management		8534	30	14947	35311
Subtotal Test and Evaluation	3923	3399	750		8072
Total Project	154070	42285	9275*	14947	220577

*Does not include SIBR/STTR (194)

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604807A Med Matl/Med Bio Def Equip Engr Dev

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	15665	12369	4738	4961	5166	5290	6707	6697	Continuing	Continuing
D812 Military Human Immunodeficiency Virus (HIV) Vaccine and Drug-Engineering Development	6205	6352	199	199	298	299	1998	1995	Continuing	Continuing
D832 Combat Medical Materiel-Engineering Development	2582	1595	1590	1754	1795	1921	1909	1906	Continuing	Continuing
D834 Soldier System Protection-Engineering Development	306	0	901	915	950	962	956	955	Continuing	Continuing
D847 Medical Biological Defense-Engineering Development	1278	0	0	0	0	0	0	0	0	1278
D848 Medical Chemical Defense Life Support Materiel *	1074	52	0	0	0	0	0	0	0	1126
D849 Infectious Disease Drug and Vaccine-Engineering Development	4220	4390	2048	2093	2123	2108	1844	1841	Continuing	Continuing

* Starting in FY 1996, funding has been consolidated into PE 0605384BP in accordance with P.L. 103-160.

A. **Mission Description and Budget Item Justification**: This engineering and manufacturing development program funds improved medical equipment and drugs essential to counteracting lethal and human performance degrading effects of chemical threats, infectious diseases and medical equipment essential to meeting medical requirements on the integrated battlefield with emphasis on deceased size/weight and high mobility, yet supporting large numbers of combat casualties. Additionally, foreign medical materiel may be procured for exploitation of advanced technology and development to meet Army medical defense goals. This program element supports the full-scale development of vaccines, prophylactic and therapeutic drugs, resuscitation fluids and drug products, rapid identification and diagnostic systems, arthropod vector repellent systems for the prevention of naturally occurring diseases, and Acquired Immune Deficiency Syndrome (AIDS). Starting in FY 1996, funding for chemical and biological defense medical research and development efforts (project D848) have been consolidated into PE 0605384BP in accordance with P.L. 103-160. Additionally, the program element funds engineering and manufacturing development of medical equipment which provides measurement of or protection against physiological, psychological or environmental factors which degrade physical performance. This includes engineering development of vision corrective devices for protective masks, environmental health monitoring equipment, and medical water quality monitoring equipment. This program is primarily managed by the U.S. Army Medical Research and Materiel Command The projects in this Program Element support research efforts in the engineering and manufacturing development phase of the acquisition cycle and are therefore correctly placed in Budget Activity 5.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604807A Med Matl/Med Bio Def Equip Engr Dev

Project D812-Military Human Immunodeficiency Virus (HIV) Vaccine and Drug-Engineering Development: This project funds Congressionally mandated, militarily relevant HIV medical countermeasures. This provides for engineering and manufacturing of sufficient candidate vaccines and drugs to permit large-scale field testing and education/training materials. Efforts are directed to answer militarily unique needs affecting manning, mobilization and deployment. The major contractor is Henry M. Jackson Foundation for the Advancement of Military Medicine., Rockville, MD.

FY 1994 Accomplishments:
- Evaluated vaccines to treat or protect against HIV. (6205)

FY 1995 Planned Program:
- Evaluate vaccines to treat or protect against HIV. (6219)
- Funds will be reprogrammed for SBIR/STTR programs in accordance with the Small Business Innovation Research program Reauthorization Act of 1992. (133)

FY 1996 Planned Program:
- Evaluate vaccines to treat or protect against HIV. (199)

FY 1997 Planned Program:
- Evaluate vaccines to treat or protect against HIV. (199)

Project D832-Combat Medical Materiel-Engineering Development: This project supports engineering and manufacturing development to field new and improved medical materiel essential for combat casualty care to reduce logistical support requirements and minimize losses from duty rates. The major contractor is the Ohmeda Corp., Chicago, IL.

FY 1994 Accomplishments:
- Completed contract for a portable sterile water for injection system. (2395)
- Completed study for fielding commercial liquid oxygen generators. (134)
- Evaluated human efficacy data of Hypertonic Saline Dextran. (53)

FY 1995 Planned Program:
- Reevaluate data and submit to FDA a New Drug Application for Hypertonic Saline Dextran. (32)
- Contract for prototype armored ambulance medical interior concepts. (1144)
- Conduct user testing of field medical oxygen generation and distribution system. (287)
- Support the engineering development and user evaluation of telemedicine hardware and concepts for the treatment of combat casualties. (98)
- Funds will be reprogrammed for SBIR/STTR programs in accordance with the Small Business Innovation Research program Reauthorization Act of 1992. (34)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604807A Med Matl/Med Bio Def Equip Engr Dev

FY 1996 Planned Program:

- Conduct milestone 3 In-Process Review of Hypertonic Saline Dextran. (124)
- Fabricate armored ambulance prototype and prepare specifications. (758)
- Monitor field medical oxygen generation and distribution system production contract. (58)
- Conduct technical and user evaluations of the intraosseous infusion device. (350)
- Support the engineering development and user evaluation of telemedicine hardware and concepts for the treatment of combat casualties. (298)

FY 1997 Planned Program:

- Conduct additional clinical trials and submit a supplemented New Drug Application for Hypertonic Saline Dextran. (189)
- Monitor field medical oxygen generation and distribution system production and fielding. (58)
- Conduct technical and user testing of far forward suction apparatus. (257)
- Support the engineering development and user evaluation of telemedicine hardware and concepts for the treatment of combat casualties. (1250)

Project D834-Soldier System Protection-Engineering Development: This project supports engineering development of preventive medicine materiel, including devices, pharmacologicals and other tools, to provide protection, sustainment, and enhancement of the physiological and psychological capabilities of soldiers in the face of combat operations under all environmental conditions Focus is on reduction in the incidence of personnel losses due to preventable disease and non-battle injuries through development of environmental and physiological performance monitors and other preventive medicine countermeasures. A major contractor is Stanford Research Institute, Palo Alto, CA.

FY 1994 Accomplishments:

- Provided optometry and engineering support in the design, fabrication and testing of special eyewear incorporated into protective masks. (306)

FY 1995 Planned Program: Project not funded

FY 1996 Planned Program:

- Provide optometric and engineering support for the development of corrective eyewear for application to other developers responsible for protective masks and aviation life support equipment. (901)

FY 1997 Planned Program:

- Provide optometric and engineering support for the development of corrective eyewear for application to other developers responsible for protective masks and aviation life support equipment. (915)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604807A Med Matl/Med Bio Def Equip Engr Dev

Project D847-Medical Biological Defense-Engineering Development: This project funds exploratory research on the development of vaccines and drugs to provide an effective medical defense against validated biological threat agents including bacteria, toxins, viruses and other agents of biological origin. By employing biotechnology, medical systems will be designed to rapidly identify, diagnose, prevent and treat disease due to exposure to biological threat agents.

FY 1994 Accomplishments:
- Prepared Product and Establishment License Application for tularemia vaccine. (82)
- Completed development of Human Botulism Immune Globulin for contingencies. (258)
- Tested and evaluated automated systems for rapid diagnosis of biological warfare agent exposure. (938)

FY 1995 Planned Program: Project moved to PE 0208051A, project BD2, Joint Biological Defense-Medical.

FY 1996 Planned Program: Project not funded.

FY 1997 Planned Program: Project not funded.

Project D848-Medical Chemical Defense Life Support Materiel: **This project funds the development of medical materiel necessary to field an effective capability for medical defense against chemical agent threats facing U.S. forces in the field.**

FY 1994 Accomplishments:
- Conducted extended stability testing of the medical aerosolized nerve agent antidote, convulsant antidote for nerve agents, and nerve agent pretreatment pyridostigmine. (116)
- Filed New Drug Application for nerve agent pretreatment, pyridostigmine with FDA. (958)

FY 1995 Planned Program:
- Conduct extended stability testing of the medical aerosolized nerve agent antidote, convulsant antidote for nerve agents, and nerve agent pretreatment pyridostigmine. (51)
- Funds will be reprogrammed for SBIR/STTR programs in accordance with the Small Business Innovation Research program Reauthorization Act of 1992. (1)

FY 1996 Planned Program: Project moved to DoD PE 0605384BP.

FY 1997 Planned Program: Project moved to DoD PE 0605384BP.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604807A Med Matl/Med Bio Def Equip Engr Dev

Project D849-Infectious Diseases Drug and Vaccine-Engineering Development: This project funds engineering and manufacturing development of sufficient candidate medical countermeasures to permit large-scale field testing and complete studies required for FDA licensure. Work performed in laboratories and among troop populations is directed to prevention, diagnosis, and treatment of viral, bacterial and parasitic diseases, so as to prevent casualties, sustain operational performance and minimize deaths and disability of armed forces during military operations.

FY 1994 Accomplishments:

- Conducted field trial for whole cell/B subunit cholera vaccine. (1191)
- Completed lot trials on Argentine Hemorrhagic Fever vaccine. (255)
- Accelerated immunization schedule for Tick-Borne Encephalitis vaccine.(205)
- Conducted challenge study for efficacy of cholera vaccine. (1262)
- Conducted expanded Phase 1 clinical trials of Chikungunya live vaccine. (1307)

FY 1995 Planned Program:

- Complete Phase 3 field study with cholera vaccine. (645)
- Conduct efficacy study of schistosomal topical antipenetrant. (563)
- Complete field study with whole cell/B subunit cholera vaccine. (1654)
- Perform clinical testing of lyophilized Tick-Borne Encephalitis vaccine. (91)
- Conduct expanded Phase 1/2 trials of Chikungunya live vaccine, Argentina, Hantaan and Rift Valley live vaccines. (693)
- Complete Phase 3 field study and submit PLA for Hepatitis A inactive vaccine. (268)
- Support the engineering development and user evaluation of telemedicine hardware and concepts in the prevention, diagnosis and treatment of infectious diseases. (384)
- Funds will be reprogrammed for SBIR/STTR programs in accordance with the Small Business Innovation Research program Reauthorization Act of 1992. (92)

FY 1996 Planned Program:

- Submit a Product License Application for the whole cell cholera vaccine. (100)
- Conduct field trials of Hantaan, Chikungunya, live Shigella flexneri and Enterotoxigenic E. coli whole cell, and Rift Valley Fever live vaccines. (987)
- Conduct safety and efficacy tests of the antimalarial drug Azithromycin. (961)

FY 1997 Planned Program:

- Conduct field trials of malaria blood stage and Rift Valley Fever vaccines. (1057)
- Conduct safety and efficacy tests of antimalarial drug Azithromycin (1036)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604807A Med Matl/Med Bio Def Equip Engr Dev

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	19569	12799	7394	7570
Appropriated Value	19569	12389		
Adjustments to Appropriated Value	-3904			
a. SBIR/STTR (-303)				
b. Reprogramming total (-3601)				
Current President's Budget Submit	15665	12389	4738	4961

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604807A Med Matl/Med Bio Def Equip Engr Dev PROJECT D812

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
D812 Military Human Immunodeficiency Virus (HIV) Vaccine and Drug-Engineering Development	6205	6352	199	199	298	299	1998	1995	Continuing	Continuing

C. **Other Program Funding Summary**: Not Applicable

D. **Schedule Profile**: Multiple medical developmental products will advance through the various events throughout the FY.

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604807A Med Matl/Med Bio Def Equip Engr Dev

PROJECT: D812

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Test & Evaluation	6102	6438	200	200
Product Development	0	0	0	0
Project Management	103	0	0	0
Total	6205	6438	200	200

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
Product Development Organizations: None											
Support and Management Organizations											
USAMMDA	NA	NA	NA	NA	NA	83	0	0	0	0	0
Contracts	NA	NA	NA	NA	NA	20	0	0	0	0	0
Test and Evaluation Organizations											
Army Laboratories	NA	NA	NA	NA	NA	100	0	0	0	0	0
Contracts	NA	NA	NA	NA	NA	1002	0	0	0	0	0
H.M. Jackson Foundation	C/Coop Agmt	Apr 93	125000	125000	38042	5000	6438	200	200	Cont	Cont
Government Furnished Property: None											
Subtotal Product Development											
Subtotal Support and Management					NA	103	0	0	0	Cont	Cont
Subtotal Test and Evaluation					NA	6102	6438	200	200	Cont	Cont
Total Project					NA	6205	6438	200	200	Cont	Cont

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604807A Med Matl/Med Bio Def Equip Engr Dev

PROJECT: D832

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
D832 Combat Medical Materiel-Engineering Development	2582	1595	1590	1754	1795	1921	1909	1906	Continuing	Continuing

C. **Other Program Funding Summary:** Not Applicable

D. **Schedule Profile:** Multiple medical developmental products will advance through the various events throughout the FY

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Field Medical Oxygen Generation and Distribution System MLST 3							X									
Intraosseous Infusion Device MLST 3															X	

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604807A Med Matl/Med Bio Def Equip Engr Dev

PROJECT: D832

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Test and Evaluation	1034	4	60	5
Product Development	995	1398	1324	1488
Program Management	575	216	214	270
Total	2604	1618	1598	1763

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
Product Development Organizations											
Contracts	NA	NA	NA	NA	NA	995	1398	1324	1488	Cont	Cont
Support and Management Organizations											
USAMMDA	NA	NA	NA	NA	NA	266	132	99	180	Cont	Cont
Contracts	NA	NA	NA	NA	NA	309	84	115	90	Cont	Cont
Test and Evaluation Organizations											
Army Laboratories	NA	NA	NA	NA	NA	1034	4	60	5	Cont	Cont
Government Furnished Property: None											
Subtotal Product Development					NA	995	1398	1324	1488	Cont	Cont
Subtotal Support and Management					NA	575	216	214	270	Cont	Cont
Subtotal Test and Evaluation					NA	1034	4	60	5	Cont	Cont
Total Project											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604807A Med Matl/Med Bio Def Equip Engr Dev PROJECT D834

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
D834 Soldier System Protection-Engineering Development	306	0	901	915	950	962	956	955	Continuing	Continuing

C. **Other Program Funding Summary:** Not Applicable

D. **Schedule Profile:** Multiple medical developmental products will advance through the various events throughout the FY

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604807A Med Matl/Med Bio Def Equip Engr Dev

PROJECT: D834

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Test & Evaluation	0	0	0	0
Product Development	10	0	885	899
Project Management	296	0	20	21
Total	306	0	905	920

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
Product Development Organizations											
Contracts	NA	NA	NA	NA	NA	10	0	885	899	Cont	Cont
Support and Management Organizations											
USAMMDA	NA	NA	NA	NA	NA	296	0	20	21	Cont	Cont
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development					NA	10	0	885	899	Cont	Cont
Subtotal Support and Management					NA	296	0	20	21	Cont	Cont
Subtotal Test and Evaluation					NA	0	0	0	0	Cont	Cont
Total Project					NA	306	0	905	920	Cont	Cont

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604807A Med Matl/Med Bio Def Equip Engr Dev

PROJECT: D847

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
D847 Medical Biological Defense-Engineering Development	1278	0	0	0	0	0	0	0	0	0

C. Other Program Funding Summary: Not Applicable

D. Schedule Profile: Multiple medical developmental products will advance through the various events throughout the FY.

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604807A Med Matl/Med Bio Def Equip Engr Dev

PROJECT: D847

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Test & Evaluation	20	0	0	0
Product Development	770	0	0	0
Project Management	97	0	0	0
Total	887	0	0	0

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations											
Contracts	NA	NA	NA	NA	NA	770	0	0	0	0	0
Support and Management Organizations											
USAMMDA	NA	NA	NA	NA	NA	63	0	0	0	0	0
Contracts	NA	NA	NA	NA	NA	34	0	0	0	0	0
Test and Evaluation Organizations											
Army Laboratories	NA	NA	NA	NA	NA	20	0	0	0	0	0
Government Furnished Property: None											
Subtotal Product Development					NA	770	0	0	0	0	0
Subtotal Support and Management					NA	97	0	0	0	0	0
Subtotal Test and Evaluation					NA	20	0	0	0	0	0
Total Project					NA	887	0	0	0	0	0

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604807A Med Matl/Med Bio Def Equip Engr Dev

PROJECT: D848

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
D848 Medical Chemical Defense Life Support Materiel	1074	52	0	0	0	0	0	0	0	0

C. **Other Program Funding Summary:** Not Applicable

D. **Schedule Profile:** Multiple medical developmental products will advance through the various events throughout the FY.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604807A Med Matl/Med Bio Def Equip Engr Dev PROJECT D848

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Test & Evaluation	107	0	0	0
Product Development	728	0	0	0
Project Management	239	52	0	0
Total	1074	52	0	0

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations											
Contracts	NA	NA	NA	NA	NA	728	0	0	0	Cont	Cont
Support and Management Organizations											
USAMMDA	NA	NA	NA	NA	NA	211	52		0	Cont	Cont
Contracts	NA	NA	NA	NA	NA	35	0	0	0	0	0
Test and Evaluation Organizations											
Contracts	NA	NA	NA	NA	NA	100	0	0	0	Cont	Cont
Government Furnished Property: None											
Subtotal Product Development					NA	728	0	0	0	Cont	Cont
Subtotal Support and Management					NA	239	52	0	0	Cont	Cont
Subtotal Test and Evaluation					NA	107	0	0	0	Cont	Cont
Total Project					NA	1074	52	0	0	Cont	Cont

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604807A Med Matl/Med Bio Def Equip Engr Dev

PROJECT: D849

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
D849 Infectious Disease Drug and Vaccine-Engineering Development	4220	4390	2048	2093	2123	2108	1844	1841	Continuing	Continuing

C. **Other Program Funding Summary:** Not Applicable

D. **Schedule Profile:** Multiple medical developmental products will advance through the various events throughout the FY

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Cholera MLST 3a									X							
ETEC MLST 3a											X					
TBE MLST 3a										X						
Hepatitis A MLST 3									X							
Hantaan MLST 3a															X	
Chikungunya MLST 3a																X
Shigell flexner MLST 3a											X					

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604807A Med Matl/Med Bio Def Equip Engr Dev

PROJECT: D849

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Test & Evaluation	2527	2601	1645	1553
Product Development	1284	1834	58	0
Project Management	414	256	355	550
Total	4225	4691	2058	2103

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
Product Development Organizations											
Contracts	NA	NA	NA	NA	NA	1284	1834	58	0	Cont	Cont
Support and Management Organizations											
USAMMDA	NA	NA	NA	NA	NA	114	221	295	386	Cont	Cont
Contracts	NA	NA	NA	NA	NA	300	35	60	164	Cont	Cont
Test and Evaluation Organizations											
Army Laboratories	NA	NA	NA	NA	NA	168	219	308	349	Cont	Cont
Walter Reed Army Inst of Research	NA	NA	NA	NA	NA	1347	1102	1137	554	Cont	Cont
Contracts	NA	NA	NA	NA	NA	264	300	0	0	Cont	Cont
Navy Laboratories	NA	NA	NA	NA	NA	748	980	200	650	Cont	Cont
Government Furnished Property: None											
Subtotal Product Development					NA	1284	1834	58	0	Cont	Cont
Subtotal Support and Management					NA	414	256	355	550	Cont	Cont
Subtotal Test and Evaluation					NA	2527	2601	1645	1553	Cont	Cont
Total Project											

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604808A Landmine Warfare/Barrier Engineering 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	2912	7689	7382	20429	20399	38020	20884	17958	Continuing	Continuing
D016 Mine Systems Engineering Development	2912	6757	5392	5694	0	0	0	0	0	20755
D415 Mine Neutralization/Detection	0	932	1990	14735	20399	38020	20884	17958	Continuing	Continuing

A. Mission Description and Budget Item Justification: This program element (PE) provides for engineering and manufacturing development of mine and countermine systems. The PE provides for the increased tactical effectiveness and responsiveness of landmines by supporting the development of a Minefield Command and Control (MC2) system for the Wide Area Mines (WAM) and improved sensors that increase countermeasure resistance of Volcano mines, which can be dispensed rapidly from helicopters, ground dispensers, artillery systems and tactical aircraft. Project D415, Mine Neutralization/Detection Engineering Development, is the engineering and manufacturing development for the Airborne Standoff Minefield Detection System (ASTAMIDS), Explosive Standoff Minefield Breacher (SMB) and Close-in Manportable Mine Detector, and a product improvement to the Armored Vehicle Launched Mine Clearing Line Charge (AVLM). It provides a group of mutually supported mine detection and neutralization devices to counter a variety of threat mines, minefields and obstacles necessary for implementing the Army's Countermine Modernization Plan.

Project D016 - Mine Systems Engineering Development: Provides for engineering and manufacturing development of Scatterable Mines (FASCAM) and new smart mines.

FY 1994 Accomplishments:
- Built hardware and completed M87E1 canister Qualification Testing (707)
- Developed corrective actions and built Technical Test (TT) hardware for M87E1 canister (1668)
- Completed Technical Testing for M87E1 canister (537)

FY 1995 Planned Program:
- Design control unit and communications module for WAM Command & Control (C2) (2408)
- Design Safe & Arm (S&A) for WAM Command & Control (2100)
- Perform WAM system engineering/integration and modify control electronics (2107)
- SBIR/STTR (142)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604808A Landmine Warfare/Barrier Engineering Development

FY 1996 Planned Program:
- Complete radio brassboard design for WAM C2 (1250)
- Complete S&A design and control electronics modifications for WAM C2 (2440)
- Develop software and lab test units for WAM C2 (1702)

FY 1997 Planned Program:
- Integrate, assemble, test and complete software development for WAM C2 (2220)
- Conduct field demonstration and engineering verification for WAM C2 (2820)
- Qualify WAM C2 prototype (654)

Acquisition Strategy: ASTAMIDS - RDTE development with sole source production award to RDTE contractor.
SMB - RDTE development with sole source production award to RDTE contractor.
VMMD - RDTE development with sole source production award to RDTE contractor.

Project D415 - Mine Neutralization/Detection: This project provides engineering and manufacturing development for the Airborne Standoff Minefield Detection System (ASTAMIDS), Explosive Standoff Minefield Breacher (SMB), Close-in Manportable Mine Detector, Vehicle Mounted Mine Detector (VMMD) and a product improvement to the Armored Vehicle Launched MICLIC (AVLM). It provides a group of mutually supported mine detection and neutralization devices to counter a variety of threat mines, minefields and obstacles necessary for implementing the Army's Countermine Modernization Plan.

FY 1994 Accomplishments: Project not funded in FY 1994.

FY 1995 Planned Program:
- Conduct technical/operational testing of mounting device for AVLM (350)
- Prepare Safety Assessment Report and document design of AVLM mounting device (112)
- Reprogram to Anti-Personnel Obstacle Breaching Device to complete TC (450)
- SBIR/STTR (20)

FY 1996 Planned Program:
- Award contract and procure test hardware for Interim VMMD (1290)
- Conduct test and evaluation for Interim VMMD (500)
- Conduct Milestone III IPR for Interim VMMD (200)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604808A Landmine Warfare/Barrier Engineering Development

FY 1997 Planned Program:

- Conduct Milestone II IPR for ASTAMIDS (1000)
- Conduct source selection and initiate engineering development design for ASTAMIDS (9735)
- Procure long lead sensor and processor components for ASTAMIDS prototypes (4000)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	2957	7794	10963	19577
Appropriated Value	2957	7689		
Adjustments to Appropriated Value	-45			
a. SBIR/STTR decrements (-45)				
Current Budget Submit/President's Budget	2912	7689	7382	20429

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604808A Landmine Warfare/Barrier Engineering Development

PROJECT: D016

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
D016 Mine Systems Engineering Development	2912	6757	5392	5694	0	0	0	0	0	20755

C. Other Program Funding Summary

Ammo, \ Appropriation	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
E72190 , Volcano XM89	2466	5440	2000							
E72195, Volcano M87A1	0	43937								
OPA 3, A Appropriation										
G39100/Mine Dispenser M139	15933	16194	953	4273						
RDTE, A Budget Activity 4										
0604619A Project D088 Landmine Warfare	23272	33356	31028	18253	18092	19745	22283	22248	25400	213677

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
Complete M87E1 Canister Qualification Tests	X*															
Build TT Hardware for M87E1 Canister			X*													
Complete Technical Tests for M87E1				X*												
Design control unit and communications module for WAM Command & Control (C2)								X								
Design Safe & Arm (S&A) for WAM C2								X								
Perform WAM system engineering/integration and modify control electronics								X								
Complete radio brassboard design for WAM C2												X				
Complete S&A design and control electronics modifications for WAM C2												X				

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604808A Landmine Warfare/Barrier Engineering Development

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Develop software and lab test units for WAM C2												X				
Integrate, assemble test and complete software development for WAM C2																X
Conduct field demonstration and engineering verification for WAM C2																X
Qualify WAM C2 Prototype																X

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604808A Landmine Warfare/Barrier Engineering Development

PROJECT: D016

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Hardware Development	1864	5955	4417	4519
Test & Evaluation	453	0	300	500
Gov't Engineering & Support	457	500	500	500
Gov't Program Support	138	160	175	175
Miscellaneous - SBIR/STTR (FY 95)		142		
Total	2912	6757	5392	5694

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
Product Development Organizations											
Alliant	CPIF	AUG 90	10294	10294	8430	1864					10294
Textron	CPIF	TBD	14991	14991			5955	4417	4519		14891
Support and Management Organizations											
ARDEC						595	660	675	675		2605
Test and Evaluation Organizations											
TECOM						453	0	300	500		1253
Miscellaneous	SBIR/STTR	(FY 95)					142				142
Subtotal Product Development					8430	1864	5955	4417	4519		25185
Subtotal Support and Management						595	660	675	675		2605
Subtotal Test and Evaluation						453		300	500		1253
Subtotal Miscellaneous							142				142
Total Project					8430	2912	6757	5392	5694		29185

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604808A Landmine Warfare/Barrier Engineering Development

PROJECT: D415

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
D415 Mine Neutralization/Detection	0	932	1990	14735	20389	38020	20884	17958	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
RDTE, A Budget Activity 5										
PE 0603619 Project D606 Countermine/Barrier Advanced Development	15986	23562	32889	17044	7915	5575	7211	11673	Cont'd	Cont'd
OPA 3, A Appropriation										
M80101, Initial VMMD				6755	9942	6667				23364
S11500, ASTAMIDS							11989	11989		23978
R68200, Close-in Manportable Detection								6822		6822
R68000, Standoff Hand Held Detector						3977	3977			7954
M79900, Mine Countermeasures, Electronic								13672		13672

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
Conduct Technical/Operational Testing of AVLM mounting kit							X									
Complete design of AVLM mounting kit								X								
Award contract and procure test hardware for Interim VMMD									X							
Conduct test and evaluation for Interim VMMD											X					
Conduct Milestone III IPR for Interim VMMD											X					
Conduct Milestone II IPR for ASTAMIDS														X		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 · Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604808A Landmine Warfare/Barrier Engineering Development

		FY 1994				FY 1995				FY 1996				FY 1997			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Conduct source selection and initiate engineering development design for ASTAMIDS																	X
Procure long lead sensor and processor components for ASTAMIDS prototypes																	X
ASTAMIDS LRIP IPR	4Q 99																
ASTAMIDS Milestone III	4Q 00																
Explosive SMB Milestone III	4Q 01																

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604808A Landmine Warfare/Barrier Engineering Development

PROJECT: D415

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development		0	1215	10035
Test and Evaluation		350	200	0
Govt Engineering and Support		432	475	4100
Govt Program Management		130	100	600
Miscellaneous - SBIR/STTR- (FY 95)		20		
Total		932	1990	14735

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
Product Development Organizations											
TBD	CPIF	TBD	N/A	N/A	0	0	0	0	10035		10035
TBD	CPIF	TBD	N/A	N/A	0	0	0	1215			1215
Support and Management Organizations											
CECOM			N/A	N/A	0	0	562	575	4700		5837
Test and Evaluation Organizations											
TECOM					0	0	350	200	0		550
Miscellaneous	SBIR/STTR	(FY 95)					20				20
Subtotal Product Development								1215	10035		11250
Subtotal Support and Management							562	575	4700		5837
Subtotal Test and Evaluation							350	200			550
Subtotal Miscellaneous							20				20
Total Project							932	1990	14735		17657

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604814A Sense And Destroy Armor Engineering 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	42008	41395	16617	3626	2428	0	0	0	0	944636
D2ST SADARM OPERATIONAL TEST	0	0	0	3626	2428	0	0	0	0	6054
D644 GENERIC SADARM ENGINEERING DEVELOPMENT	42008	41395	16617	0	0	0	0	0	0	938582

A. **Mission Description and Budget Item Justification**: Sense and Destroy Armor (SADARM) munitions will provide an enhanced fire/counterfire capability for 155mm howitzer delivery systems capable of attacking targets well beyond the Forward Line of Troops (FLOT) in a fire-and-forget mode. SADARM will be capable for use, both day and night, in inclement weather and degraded battlefield conditions. SADARM munitions are designed for use against self-propelled howitzers and armored vehicles acquired while providing counterfire, close support, suppression of enemy air defense (SEAD), and interdiction fires. Upon ejection from the 155mm projectile, the submunition deploys and descends toward the ground at a constant velocity and spin rate. The submunition contains a sensing mechanism which is a dual-mode millimeter wave sensor and an infrared sensor array. If a target is present within the scan area, the sensor detects its presence and fires an explosively formed penetrator (an explosive charge forms a ballistically shaped penetrator from a metal liner) into the target. The projects within this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

Project D2ST - SADARM Operational Test: This project finances the direct costs of planning and conducting operational testing evaluation of the Sense and Destroy Armor (SADARM) munitions by the Operational Test and Evaluation Command (OPTEC). SADARM is an Acquisition Category (ACAT) I system with an initial Operational Test and Evaluation (IOTE) in FY 98. Operational Testing is conducted under conditions that approximate, as closely as possible, 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 D2ST is restructured from SSN E66300, Projectile, Artillery, 155mm SADARM, M898, Procurement Ammunition, Army, and is not a new start.

FY 1994 Accomplishments: Not applicable.

FY 1995 Planned Program: No planned program

FY 1996 Planned Program: No planned program

FY 1997 Planned Program:

- Planning and preparation for test during the 3QTR FY 98 IOTE (1804)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604814A Sense And Destroy Armor Engineering Development

- Planning and preparation for evaluation during the 3QTR FY 98 IOTE (911)
- Player unit and instrumentation preparation for the 3QTR FY 98 IOTE (911)

Project D644 - Generic Sense and Destroy Armor Engineering Development
FY 1994 Accomplishments
- 155mm Engineering/Failure Analysis (19250)
- 155mm corrective action (8158)
- 155mm Technical Testing (2100)
- Ramp-up prime/reactivate subs/vendors (12500)

FY 1995 Planned Program:
- 155mm Engineering/corrective action (32626)
- 155mm Technical Performance Testing (3100)
- Producibility Efforts (4800)
- Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) decrement (869)

FY 1996 Planned Program:
- 155mm Performance Testing (2000)
- Producibility Efforts/Testing (8800)
- Transition to production efforts (5817)

FY 1997 Planned Program: No planned program

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	28500	72071	88117	0
Appropriated Value	28500	41395		
Adjustments to Appropriated Value	13508			
a. SBIR/STTR decrease (-442)				
b. Reprogrammed into PE (350)				
c. Congressional Reprogramming (+13600)				
Current Budget Submit/President's Budget	42008	41395	16617	3626

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604814A Sense And Destroy Armor Engineering Development

Change Summary Explanation (By Project):

Project D644 - Sense and Destroy Armor (SADARM)

Funding/Schedule/Technical: Congress reduced the FY 1994 budget from $42.0M to $28.5M because of failures in performance testing, requiring a total revision to the SADARM Program Plan. Subsequently, a General Officer Steering Committee (GOSC) revalidated the requirement for the SADARM Smart Submunition in the 155mm Carrier. Successful performance tests were conducted in April 1994.

The FY 1995 PB request for $88.1M for the FY 96 program was based on a restructured program (approved in Oct 93) that extended EMD by 27 months, with initial production of the 155mm SADARM to begin in FY 97. However, after the successful April 94 tests, the GOSC approved going to the ASARC and accelerating initial production to FY 95. This strategy was subsequently approved by Congress.

The ASARC approved FY 95 Low Rate Production in Jan 1995. The Defense Acquisition Board (DAB) is scheduled for March 1995. FY 1995 initial production of 80 SADARM projectiles for $24.8M. The Full Rate Production decision is scheduled for FY 1998.

The R&D requirement in FY 96 was reduced from $88.1M to $16.7M because of the Army's decision not to put the SADARM in the basic MLRS, correction of second order technical issues to improve reliability, and plans to begin initial production in FY 95 (versus FY 97).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604814A Sense And Destroy Armor Engineering Development PROJECT D2ST

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
D2ST SADARM OPERAT JNAL TEST	0	0	0	3626	2428	0	0	0	0	6054

C. **Other Program Funding Summary**: There are no other related 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	4
Initiate preparation for 1Q FY 98 IOTE													X			
Opn'l Test Readiness Review (1 of 3)																X

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604814A Sense And Destroy Armor Engineering Development

PROJECT: D2ST

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Operational Test and Evaluation				3626
Total				3626

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
Product Development Organizations: N/A											
Support and Management Organizations: N/A											
Test and Evaluation Organizations											
OPTEC, Alex, VA									3626	2428	6054
Government Furnished Property: None											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation									3626	2428	6054
Total Project									3626	2428	6054

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604814A Sense And Destroy Armor Engineering Development

PROJECT: D644

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
D644 GENERIC SADARM ENGINEERING DEVELOPMENT	42008	41395	16617	0	0	0	0	0	0	938582

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
Procurement, Ammunition, Army, SSN E66300, Proj, Arty, 155mm SADARM XM898		24824	24284	62449	72576	82100	90000	90000	2078800	2525033

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
Complete Fuze, Safe, and Arm tests				X*												
ASARC/Type Classify (Low Rate Prod)						X										
Defense Acq Board/MSIIIA						X										
Initial Verification Testing						X										
Award first Low Rate Prod Contract						X										
Final Verification Tests										X						
Award second Low Rate Prod Contract														X		
Producibility Confirmation Firings												X				
Conduct Initial Production Test (IPT)															X	

IOTE: 4QFY98
MSIII: 1QFY99
Award Full Scale Prod: 2QFY99
IOC: 4QFY99

* Denotes completed

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604814A Sense And Destroy Armor Engineering Development

PROJECT: D644

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engineering Support	36109	32800	12200	0
Government Engineering Support	2724	2670	1700	0
Program Management Support	1498	1741	1047	0
Developmental Test and Evaluation	1677	3315	1670	0
SBIR/STTR		869		
Total	42008	41395	16617	

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
Product Development Organizations											
Aerojet- Azusa CA	C/CPIF	SEP 86	TBD	436830	355721	36109	32800	12200	0	0	436830
ARDEC- Picatinny					57453	950	1000	650	0	0	60053
Alliant Tech Sys- Hopkins, MN	C/CPIF	SEP 86	TBD	188714	188038	0	0	0	0	0	188038
Loral Vought Sys- Dallas, TX	SS/CPIF	SEP 88	TBD	90535	90535	0	0	0	0	0	90535
Miscellaneous					7645	0	0	0	0	0	7645
Support and Management Organizations											
Picatinny Arsenal					7792	2338	2047	1397	0	0	13574
PMO-MLRS, SADARM, AL					15891	375	0	0	0	0	16266
SBIR/STTR							869				869
Miscellaneous					7118	336	914	350	0	0	8718
Test and Evaluation Organizations											

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604814A Sense And Destroy Armor Engineering Development

PROJECT: D644

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
YPG, Yuma, AZ.					18237	1115	1040	1000	0	0	21392
WSMR, White Sands, N.Mex.					26487	0	0	0	0	0	26487
Miscellaneous					63645	785	2725	1020	0	0	68175
Government Furnished Property: None.											
Subtotal Product Development					699392	37059	33800	12850			783101
Subtotal Support and Management					30801	3049	3830	1747			39427
Subtotal Test and Evaluation					108369	1900	3765	2020			116054
Total Project					838562	42008	41395	16617			938582

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604816A Longbow - Engineering 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	271103	169048	23590	4080	0	0	0	0	0	1736891
DC13 Hellfire Seeker	105314	34522	0	0	0	0	0	0	0	384022
DC27 Longbow - Engineering Development	79839	22479	0	0	0	0	0	0	0	761795
DC31 Longbow - Apache	85950	88216	9261	0	0	0	0	0	0	548834
DC87 LBA TESS	0	0	14329	4080	0	0	0	0	0	18409
D2DT LBA Operational Test	0	23831	0	0	0	0	0	0	0	23831

A. Mission Description and Budget Item Justification: Longbow will provide the AH-64 with a fire-and-forget Hellfire capability, greatly increasing weapon system effectiveness and aircraft survivability. The weapon system will be employable by day or night, in adverse weather, and in countermeasures environments. The Hellfire missile will effectively engage and destroy advanced threat armor on the digital battlefield will into the next century. Longbow Project DC27 consists of the development of a mast-mounted Fire Control Radar (FCR) for the AH-64; DC13 consists of the development of a radar frequency (RF) missile seeker for the Hellfire missile. Project DC31 encompasses efforts necessary to synchronize the integration of the FCR and RF missile onto the Apache aircraft. It includes two versions of the Longbow Apache AH-64D series aircraft: (1) the AH-64D with the FCR mission kit plus the upgraded 701C engine, and (2) the AH-64D without the FCR mission kit and engine upgrade. Project D2DT was previously transferred from support of operational test PE 65712 (Project D001) to fund the direct costs of Initial Operational Test and Evaluation (IOTE) in October 1994 and the Longbow Operation Test in January 1995. Project DC87 is a new start. Longbow Apache Tactical Engagement Simulation System (TESS) will perform air-to-air and RF missile simulations in addition to the functions of the Multiple Integrated Laser Engagement System/Air to Ground Engagement System for force-on-force collective training after fielding (and also includes follow-on development of the Longbow Crew Trainer). The projects in this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

Project DC13 - Hellfire Seeker: This project develops the Longbow Hellfire, a missile that is capable of being employed day or night, in adverse weather, and in a countermeasures environment against armored targets and air defense systems. Its millimeter wave seeker and inertial measurement system provide a fire-and-forget capability which greatly reduces aircraft exposure time. It uses a Hellfire II warhead system to destroy threat armor projected for early into the 21st century.

FY 1994 Accomplishments:

- Engineering development contract (87664)
- Testing (7221)
  - Missile Flight Testing

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604816A Longbow - Engineering Development

- Qualification Testing
- Electromagnetic Environmental Effect Testing
- Warhead/Live Fire Testing
- Countermeasure Testing

- Program Management Support (10429)

FY 1995 Planned Program:

- Complete Engineering Development Contract (20994)
- Testing (4962)
  - Missile Flight Testing
  - Qualification Testing
  - Electromagnetic Environmental Effect Testing
  - Warhead / Live Fire Testing
  - Countermeasure Testing
- Complete Program Management Support (7841)
- SBIR/STTR (725)

Project DC27 - Longbow Engineering Development: This project consists of a mast-mounted Fire Control Radar (FCR) that will be integrated onto the AH-64 airframe. The FCR integration, along with the Hellfire Seeker (Project DC13) will provide the AH-64 with a fire-and-forget capability, greatly increasing weapon system effectiveness and aircraft survivability. The weapon system will be employable day or night, in adverse weather, and in countermeasures environments. The system will effectively engage and destroy high-value targets including advanced armor on the battlefield well into the next century. To be effective and survive on this future battlefield, the attack helicopter team must rapidly engage multiple targets with minimum exposure time and deploy a system that is inherently resistant to threat countermeasures.

FY 1994 Accomplishments:

- Engineering Development Contract (66202)
  - Complete Aircraft Integration
  - Complete 1,000 Hour Test, Analyze, and Fix Effort
  - Complete FCR Mode Development
  - Conduct FCR Specification Verification Tests
  - Conduct Government Technical Test
  - Complete Delivery of FCR Prototypes
  - Conduct Environmental Qualification Tests
- In House Support (4195)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604816A Longbow - Engineering Development

- Test Support (6853)
  - Development Testing (3209)
  - Qualification Testing (2550)
  - Live Fire Test and Evaluation (115)
  - Target Support (979)
- Support Contracts (2589)
  - Technical Support (712)
  - Software Support (653)
  - Logistics Support (825)
  - Planning Support (399)

FY 1995 Planned Program:

- Engineering Development Contract (15897)
  - Conduct FDTE
  - Complete environmental qualification
  - Award Long Lead Production Contract
  - Complete Systems Test
  - Conduct Functional Configuration Audit
  - Conduct Initial Operat onal Test and Evaluation
  - Complete Development Program
- In House Support (2986)
- Test Support - Live Fire Test and Evaluation (430)
- Support Contracts (2780)
- SBIR/STTR (386)

Project DC31 - Longbow Apache: The Longbow program encompasses modifications to the AH-64 Apache as well as upgrades to the aircraft systems for the AH-64D series to efficiently and effectively integrate the FCR and RF missile. The system provides an adverse weather fire-and-forget missile capability that increases the AH-64 lethality and survivability. The Longbow Apache also retains the capability to fire the Semi-Active Laser Hellfire. The greatly improved design enhancements increase operational capability of the crew and provide increased survivability and lethality, while complying with Congressional direction to standardize the fleet to a common configuration.

FY 1994 Accomplishments:

- McDonnell Douglas Helicopter Systems (MDHS) Prime Contract (71126)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604816A Longbow - Engineering Development

- Fabricate Aircraft #5 and #6
- Electromagnetic Vulnerability / Hazards of Electromagnetic Radiation to Ordnance Test
- Electromagnetic Compatibility Demonstration
- Physical Teardown Logistics Demonstration
- Preliminary Production Qualification Test (PPQT)
- Improved Data Modem Testing
- Handling Qualities Testing
- Software Development
- Logistics Demonstrations
- PPQT Pilot Training
- Force Development Test and Experimentation (FDTE) Maintenance Training
- Aviation Mission Planning Station Training

- Programmatic and Technical Support (PATS) Contract (1731)
- GFE (2000)
- In House Support (11093)

FY 1995 Planned Program:

- MDHS Prime Contract (70566)
- PATS Support Contract (2800)
- GFE (1110)
- In House Support (11887)
- SBIR/STTR (1853)

FY 1996 Planned Program:

- MDHS Prime Contract (7754)
- In House Support (407)
- PATS Support Contracts (1100)

Project DC87 - LBA TESS: The Tactical Engagement Simulation System (TESS) consists of an "A" Kit and a "B" kit. The Longbow PM will contract with McDonnell Douglas Helicopter Systems to do the provisioning for the "A" Kit, which consists of minimal on-board software for data interface operator control software, wiring, and power source taps for the "B" kit. Validation of the program depends upon completion of the Best Technical Approach. This project is a new start.

FY 1996 Planned Program:

- Start development, fabrication, and integration of the "A" Kit (2000)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604816A Longbow - Engineering Development

- Start development, fabrication, and integration of the "B" Kit (12329)
- Continue development of the Longbow Crew Trainer (29)

FY 1997 Planned Program:

- Complete integration of the "A" Kit (600)
- Complete integration of the "B" Kit (3480)

Project D2DT - LBA Operational Test: This project finances the direct costs of planning and conducting operational testing and evaluation of the Longbow Apache system by the Operational Test and Evaluation Command (OPTEC). The Longbow Apache is an Acquisition Category I system with an Initial Operational Test and Evaluation (IOTE) in 1995. 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 D2DT is restructured from PE 0605712A, Support of Operational Testing.

FY 1995 Planned Program:

- Longbow Apache IOTE testing (18379)
- Longbow Apache IOTE evaluation (1367)
- Player unit support of IOTE (3584)
- SBIR/STTR (501)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	277954	191303	23707	4100
Appropriated Value	277954	169048		
Adjustments to Appropriated Value (Total PE)	-6651			
a. SBIR/STTR(-4245)				
b. Reprogrammed out of PE (-2406)				
Current President's Budget	271103	169048	23590	4080

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604816A Longbow - Engineering Development

PROJECT: DC13

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
DC13 Hellfire Seeker	105314	34522	0	0	0	0	0	0	0	384022

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 Hellfire (C70300)	0	41995	197513	262504	280491	302314	304590	311214	548400	2249021

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
Tower Test	X*															
High Speed Captive Flight Test							X									
Missile Firings (Rail-launched)				X*												
Missile Firings (Helo-launched)						X										
Hardware-In-The-Loop Tests						X										
System Qualification Tests							X									
IOTE						X										
Live Fire Tests							X									

*Denotes complete effort

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604816A Longbow - Engineering Development

PROJECT: DC13

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Prime Contract	87664	20994	0	0
Program Management Support	17650	12803	0	0
SBIR/STTR		725		
Total	105314	34522		

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
Product Development Organizations											
Longbow Joint Venture (Martin Marietta and Westinghouse)	SS/CPIF/AF	DEC 90	317801	320310	224831	87664	20994	0	0	0	333489
SBIR/STTR							725				725
Support and Management Organizations											
Program Management Support					19355	10429	7841	0	0	0	37625
Test and Evaluation Organizations											
Test Activities						7221	4962	0	0	0	12183

Note: EAC shown reflects only contract work definitized to date. Total Program data reflects additional work not yet on contract.

Government Furnished Property - Not Applicable

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604816A Longbow - Engineering Development

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	224831	87664	21719				334214
Subtotal Support and Management	19355	10429	7841				37625
Subtotal Test and Evaluation		7221	4962				12183
Total Project	244186	105314	34522				384022

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604816A Longbow - Engineering Development

PROJECT: DC27

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
DC27 Longbow - Engineering Development	79839	22479	0	0	0	0	0	0	0	761795

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
APA - Apache Longbow FCR (AA6608)	0	0	84679	98984	110321	126136	123395	115873	34033	693421

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
BIT Demonstrations			X*													
Logistics Demonstrations			X*													
FCR Mode Performance Demonstration			X*													
Technical Test					X*											
Adverse Weather Test					X											
FDTE					X*											
IOTE						X										
Long Lead IPR					X*											
FCA						X										
Long Lead Contract Award					X*											

*Denotes complete effort

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604816A Longbow - Engineering Development

PROJECT: DC27

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engineering & Development	66202	15897		
Government Program Management	3525	2986		
Other Government Support	7523	430		
PATS Contractor Program Support	2589	2780		
SBIR/STTR		386		
Total	79839	22479		

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
Product Development Organizations											
Proof of Principle Contract: Longbow Joint Venture (Martin Marietta and Westinghouse)	SS / CPIF		Contract is Complete	Contract is Complete	396945	0	0	0	0	0	396945
EMD Contract: Longbow Joint Venture	SS CPIF / AF	DEC 90	330020	331561	251483	66202	15897	0	0	0	333582
SBIR/STTR							386				386
Support and Management Organizations											
Gov't In-House	Varies	Quarterly			3446	4195	2986	0	0	0	10027
PATS Contractors	Varies	Quarterly			4053	2589	2780	0	0	0	9422
Test and Evaluation Organizations											
Test Activities	Varies	Quarterly			3550	6853	430				10833

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604816A Longbow - Engineering Development

Government Furnished Property - Not Applicable

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	648428	66202	16283				730913
Subtotal Support and Management	7499	6784	5166				20049
Subtotal Test and Evaluation	3550	6853	430				10833
Total Project	659477	79839	22479				761195

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604816A Longbow - Engineering Development

PROJECT: DC31

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
DC31 Longbow - Apache	85950	88216	9261	0	0	0	0	0	0	548834

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
APA - Longbow Apache Mods (AA6607)	0	79438	270168	310729	349771	441378	518328	489977	5203694	7663483

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
BIT Demonstrations				X*												
Logistics Demonstrations		X*														
Technical Test				X*												
FDTE					X*											
IOTE (Project D2DT)						X										
Long Lead IPR					X*											
Long Lead Contract Award					X*											
FCA							X									
Live Fire Testing						X										
Line Replaceabie Units Qualification						X										
Environmental Control System Redesign		X														
Longbow Crew Trainer			X													

*Denotes complete effort

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604816A Longbow - Engineering Development

PROJECT: DC31

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engineering & Development	71126	70566	7754	
Government Program Management	5272	4191	0	
Other Government Support	7821	8806	407	
PATS Contractor Program Support	1731	2800	1100	
SBIR/STTR		1853		
Total	85950	88216	9261	

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
Product Development Organizations											
Contract: McDonnell Douglas Helicopter Systems	CPIF	AUG 89	416992	422100	308020	71126	70566	7754	0	0	457466
SBIR/STTR							1853				1853
Support and Management Organizations											
Gov't In-House	Varies	Quarterly			53057	11620	12402	407	0	0	77486
PATS Contractors	Varies	Quarterly			3450	1731	2800	1100	0	0	9081
Test and Evaluation Organizations											
Test Activities	Varies	Quarterly			880	1473	595	0	0	0	2948

Note: EAC shown reflects only contract work definitized to date. Total Program data reflects additional work not yet on contract.

Government Furnished Property - Not Applicable

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604816A Longbow - Engineering Development	PROJECT DC31

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	308020	71126	72419	/754			459319
Subtotal Support and Management	56507	13351	15202	1507			86567
Subtotal Test and Evaluation	880	1473	595				2948
Total Project	365407	85950	88216	9261			548834

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604816A Longbow - Engineering Development

PROJECT: DC87

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
DC87 LBA TESS	0	0	14329	4080	0	0	0	0	0	18409

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
Longbow Apache TESS (AA6607)	0	0	0	0	3600	3800	24400	0	0	31800

This procurement funding represents only the portion of this line to be used for this effort. The procurement line (SSN) includes additional funding for Longbow Apache 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	4
Begin Kits installation									X							
Complete Kits installation														X		

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604816A Longbow - Engineering Development

PROJECT: DC87

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engineering & Development			14300	4080
Longbow Crew Trainer Development			29	
Total			14329	4080

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
Product Development Organizations											
MDHS	Unknown							14329	4080	0	18409
Support and Management Organizations: N/A											
Test and Evaluation Organizations: N/A											
Government Furnished Property - Not Applicable											
Subtotal Product Development								14329	4080		18409
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project								14329	4080		18409

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604816A Longbow - Engineering Development

PROJECT: D2DT

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
D2DT LBA Operational Test	0	23831	0	0	0	0	0	0	0	23831

C. Other Program Funding Summary: N/A

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
Initiate Preparation for IOTE					X*											
Complete IOTE								X								

*Denote complete effort

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604816A Longbow - Engineering Development

PROJECT: D2DT

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Operational Test and Evaluation		23330		
SBIR/STTR		501		
Total		23831		

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
Product Development Organizations											
SBIR/STTR							501				501
Support and Management Organizations: N/A											
Test and Evaluation Organizations											
OPTEC				23330	0	0	23330	0	0	0	23330
Government Furnished Property - Not Applicable											
Subtotal Product Development							501				501
Subtotal Support and Management											
Subtotal Test and Evaluation							23330				23330
Total Project							23831				23831

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604817A Combat Identification

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	33627	18424	30466	17359	10032	10085	9992	9977	Continuing	Continuing
D482 Ground Combat Identification	24817	18424	30466	17359	10032	10085	9992	9977	Continuing	Continuing
D356 Noncooperative Target Recognition - Electonic Surveillance Measure (NCTR-ESM)	8810	0	0	0	0	0	0	0	0	75634

A. Mission Description and Budget Item Justification: The world situation and modern warfare are evolving in a manner that dictates making reliable identification of friends, foes, and neutrals an absolute necessity, but increasingly difficult to achieve. The ability of weapons systems to engage targets at ranges longer than the capability to positively identify them significantly increases the potential for fratricide. Work is directed toward the design and development of distinct technology devices to help minimize this battlefield deficiency and is appropriately assigned to Budget Activity 5. The projects within this PE are in the Engineering and Manufacturing Development (EMD) phase.

Project D482- Ground Combat Identification: The Battlefield Combat Identification System (BCIS) is the lead Army horizontal technology initiative using the "A kit" (platform specific) and "B kit" (common to all platforms) philosophy. The program takes advantage of acquisition streamlining and directs industry to use commercial parts and practices to shorten acquisition timelines and to reduce cost. The purpose of BCIS is to reduce fratricide, a problem made increasingly difficult for gunners as we participate in coalition warfare where partners operate weapon systems formerly associated with adversaries. BCIS is a millimeter wave (mmW), ground-ground (G-G), point of engagement system which provides through-the-sight, day/night, all weather positive identification of BCIS equipped US, Allied and coalition platforms. Shooters query potential targets at ranges that can extend beyond 5 km. Friendly platforms targeted by friendly shooters generate automatic electronic responses in less than one second. BCIS is resistant to electronic countermeasures, active exploitation and deception. Air-ground (A-G), Forward Air Controller and Enhanced BCIS are additional applications to be developed under this PE and Project. The Enhanced BCIS will add to the existing functions, a capability to provide platoon-level mmW network for passing Situational Awareness data between BCIS equipped platforms. BCIS will be demonstrated during the Army Digitization Exercise, Task Force XXI. It will be used by combat, combat support, and combat services support units.

FY 1994 Program Accomplishments

- Conducted Preliminary Design Review (PDR) (792)
- Conducted Critical Design Review (CDR) (1000)
- Initiated platform integration efforts (7000)
- Conducted Dismounted Soldier/Fixed Wing/Training Studies (500)
- Initiated hardware fabrication/assembly/test (14725)
- Initiated modeling/simulation effort (800)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604817A Combat Identification

FY 1995 Planned Program

- Complete hardware fabrication/assembly/test (6212)
- Complete platform integration (4726)
- Conduct Pre-Production Qualification Test (PPQT) (1850)
- Complete modeling/simulation effort (262)
- Exercise options for Task Force XXI (TF XXI) Experiment (5000)
- Small Business Innovative Research (SBIR)/Small Business Technology Transfer (STTR) Program (374)

FY 1996 Planned Program

- Conduct Limited User Test (LUT) (1200)
- Continue hardware build for Task Force XXI (19571)
- Initiate Forward Air Controller (FAC) EMD effort (3786)
- Initiate Enhanced BCIS effort (1818)
- Conduct Low Cost BCIS Study (1091)
- All Service Combat Identification Evaluation Team (ASCIET) Support- (3000)

FY 1997 Planned Program

- Complete TF XXI effort (5154)
- Complete FAC effort (700)
- Complete Enhanced BCIS effort (850)
- Conduct Air-to-Ground (A-G) Preliminary Design Review (PDR) (1600)
- Conduct A-G Critical Design Review (CDR) (1920)
- Initiate A-G platform integration efforts (4135)
- ASCIET Support - (3000)

Project D356 - NCTR-ESM: AN/VSX-2 Target Acquisition and Identification devices developed by this project will locate and identify targets at extended ranges to permit maximum weapons air defense and encounter and preclude engagement of friendly aircraft. The NCTR-ESM device passively identifies aircraft by recognizing their electronic emissions. The device collects, processes and analyzes data for comparison to a signature library to identify the aircraft.

FY 1994 Program Accomplishments

- Completed integration of AN/VSX-2 unit with host platform (1700)
- Completed AN/VSX-2 PPQT/Operational Assessment (PPQT/OA) (2400)
- Completed Army Engineering and Manufacturing Development (E&MD) (2660)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604817A Combat Identification

- Developed and tested Model 2 IFF capability for FAAD GBS (2050)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	34150	13666	10002	10026
Appropriated Value	34150	18424		
Adjustments to Appropriated Value SBIR/STTR Decrement (-523)	-523			
Current Budget Submit/President's Budget	33627	18424	30466*	17359*

*Reflects a realignment of funding from Procurement to RDT&E; units planned for Task Force 21 are engineering development models within experimental purpose and should be funded in the engineering and manufacturing development program.

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604817A Combat Identification

PROJECT: D482

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
D482 Ground Combat Identification	24817	18424	30466	17359	10032	10085	9992	9977	Continuing	Continuing

C. Other Program Funding Summary

Work in this program element is related to and fully coordinated with efforts in PE #0602120 (Battlefield Ground Combat Identification Technology) and PE #0603772 (Ground Combat Identification Demonstration).

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
RDTE, A Budget Activity 2, PE 0602120A Proj AH15 Ground Combat Identification Tech	4601	4085	3615	3783	3828	3927	3928	4030	Cont	Cont
RDTE A, Budget Activity 3, PE 0603772A Proj D281 Ground Combat ID Demo	5897	8173	6976	7349	3528	0	0	0	0	36824

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
Conduct Preliminary Design Review	X*															
Conduct Critical Design Review		X*														
Initiate Platform Integ			X*													
Complete Dismounted Soldier/Fixed Wing/Training Studies			X*													
Initiate Hardware Fabrication/Assmb/Test			X*													
Initiate modeling/simulation effort				X*												
Complete Hardware Fabrication/ Assmb/ Test						X										
Complete modeling/simulation effort						X										
Exercise option for TF XXI Experiment						X										
Conduct PPQT							X									
Complete platform integration							X									
Conduct LUT									X							

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604817A Combat Identification

PROJECT: D482

	FY 1994				FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Initiate FAC effort										X						
Initiate Enhanced BCIS effort										X						
Complete TF XXI Experiment															X	
Complete FAC effort														X		
Complete Enhanced BCIS effort														X		
Conduct A-G PDR															X	
Conduct A-G CDR																X
Initiate A-G platform integration efforts														X		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604817A Combat Identification
	PROJECT D482

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Primary Hardware Development	13644	8786	19282	7243
Platform Integration	5965	3792	3350	3888
System Engineering/Program Management Support				
Government	2592	1291	1280	1264
Contractor	1812	1473	1454	1014
Program Management Personnel	804	858	900	950
Development Test and Evaluation		1850		
Operational Test and Evaluation			1200	
ASCIET			3000	3000
SBIR/STTR		374		
Total	24817	18424	30466	17359

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
Product Development Organizations											
TRW	C/CPAF	12 Aug 93	50330	51106	5400	13644	8786	19282	3994		51106
GDLS	SS/CPFF	29 Apr 94	6655	6655	0	2863	3792	0	0		6655
Misc	MIPR	15 Jan 94			0	3102	0	3350	200		6652
TBS (Hardware)	CPAF	2Q97			0	0	0	0	3249	8265	11514
TBS (Integration)	CPFF	2Q97			0	0	0	0	3688	20768	24456
Support and Management Organizations											
	MIPR				2632	2616	2331	2354	1964		Continue
CECOM	MIPR				1393	2592	1291	1280	1264		Continue
SBIR/STTR					0	0	374	0	0	0	374

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604817A Combat Identification

PROJECT: D482

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
Test and Evaluation Organizations											
TECOM	MIPR	01 Mar 95			0	0	1850	0	0	2648	4498
TEXCOM	MIPR	15 Oct 95			0	0	0	1200	0	1766	2966
All Service Combat Identification Evaluation Team (ASCIET)	MIPR	1Q 96/97			0	0	0	3000	3000	0	6000

Government Furnished Property

Item Description	Contract 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										
Support and Management Property										
Test and Evaluation Property										

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	5400	19609	12578	22632	11131	29033	Cont
Subtotal Support and Management	4025	5208	3622	3634	3228		Cont
Subtotal Test and Evaluation		0	2224	4200	3000	4414	Cont
Total Project	9425	24817	18424	30466	17359		Cont

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604817A Combat Identification

PROJECT: D356

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
D356 Noncooperative Target Recognition - Electonic Surveillance Measure (NCTR-ESM)	8810	0	0	0	0	0	0	0	0	75634

C. Other Program Funding Summary **No related RDTE or other appropriations efforts.**

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost

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
Complete platform integration	X*															
Complete PPQT-OT		X*														
Complete Development				X*												

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604817A Combat Identification	PROJECT D356

A. Project Cost Breakdown D356:

	FY 1994	FY 1995	FY 1996	FY 1997
Host Platform Integration	1700	0	0	0
PPQT-OT	2400	0	0	0
Complete EMD Effort	2660	0	0	0
Develop and Test IFF Capability (Model 2)	2050	0	0	0
Total	8810			

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

DATE: February 1995

BUDGET ACTIVITY: **5 - Engineering And Manufacturing Development**

PE NUMBER AND TITLE: **0604818A Army Tactical Command & Control System (ATCCS)-Engineering 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	23976	18694	18769	16960	16801	16625	9992	9977	Continuing	Continuing
DC34 ARMY TACTICAL C2 SYSTEMS (ATCCS) ENGINEERING	13911	10346	10739	8947	8865	8774	9992	9977	Continuing	Continuing
DC36 C3I INTEROPERABILITY TEST SUITE	1871	0	0	0	0	0	0	0	0	1871
D323 COMMON HARDWARE SOFTWARE (CHS)	8194	8348	8030	8013	7936	7851	0	0	Continuing	Continuing

A. Mission Description and Budget Item Justification: The umbrella program to exploit automation technology for the conduct of combat operations is the Army Tactical Command and Control System (ATCCS) program. The ATCCS program provides automation in the five battlefield functional areas (BFAs) with the following specific systems: (1) Maneuver Control System (MCS); (2) Advanced Field Artillery Tactical Data System (AFATDS); (3) All Source Analysis System (ASAS) for Intelligence/Electronic Warfare; (4) Forward Area Air Defense Command, Control and Intelligence System (FAADC2I); and (5) Combat Service Support System (CSSCS) and to other Army Joint and Allied Systems. To provide an overall technically sound, cost effective, and operationally responsive approach, the design and development of ATCCS must be accomplished on a total systems basis. The ATCCS Engineering program provides the required systems engineering to assure integrated Army tactical command and control, and the utilization of common hardware and software throughout the five ATCCS nodal systems. The Command, Control, Communications and Intelligence (C3I) interoperability test bed provides each system developer the capability to conduct system compatibility and interoperability evaluations with other systems without requiring the interfacing systems to be relocated. Each ATCCS life-cycle software engineering center throughout the country is connected via commercial leased lines to each of the other centers to test the interfaces prior to field testing. The Common Hardware Software (CHS) project provides common hardware and software to customers to meet their developmental and fielding needs. The projects in this program element support the ATCCS programs which for the most part are in the engineering and manufacturing development phases of their acquisition strategies and, therefore, they are correctly placed in Budget Activity 5.

Project DC34 - Army Tactical C2 Systems (ATCCS) Engineering: The Airland Battle Doctrine requires military leaders to make sound and timely command and control decisions to direct the activities of assigned and supporting units. The umbrella program to exploit automation technology in support of this mission is the Army Tactical Command and Control System (ATCCS) Program. The effort to achieve horizontal integration of the ATCCS battlefield functional areas (BFA), although going on independently in each BFA, was not disciplined enough to address all connections and needs within the entire spectra of communications and control. Therefore, to ensure this horizontal integration effort is complete and automated, a significant management, systems engineering and integration effort is required. This project provides the technical and programmatic disciplines required for systems engineering and integration, experimentation, acquisition management, testing, Ada software development, interoperability, fielding, and sustainment to assure an interoperable, as well as, affordable ATCCS. The Program Executive Officer Command and Control Systems (PEO CCS) has planned an evolutionary approach to fielding the ATCCS as soon as possible.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604818A Army Tactical Command & Control System (ATCCS)-Engineering Development

FY 1994 Program Accomplishments:

- Prototyped and demonstrated battalion and below command and control (B2C2) rapid prototype to meet identified B2C2 functions in support of National Training Center Rotation (1000)
- Conducted/supported system configuration/operational demonstration and system interface compatibility demonstrations in conjunction with ATCCS III (2700)
- Conducted technical horizontal interoperability engineering and interoperability lab (2000)
- Provided ATCCS interoperability and system level engineering support (2900)
- Initiated a tech insertion program for ATCCS, e.g., voice recognition global positioning system (GPS) and terrain evaluation (578)
- Updated the command post analysis for notional units to finalize follow-on test evaluations (1000)
- ATCCS Testing support (3733)

FY 1995 Planned Program:

- Perform functional analysis and update command post analysis to allow FOTE/fielding (1000)
- Establish an ATCCS data architecture and standardization program (800)
- Continue the tech insertion program, e.g., large screen displays, plotters, advanced networking, weather tactical decision aids, and interactive electronic pen technology (500)
- Provide ATCCS interoperability engineering and system level engineering support (3000)
- Produce and test voice recognition system and GPS prototype (700)
- Continue B2C2 applications, including brigade/battalion task force and operation plan/operations order, and refine communications interface to include IVIS (672)
- Conduct/support system configuration developmental/operational demonstrations in conjunction with MCS V.12 Limited User Test (LUT) (3479)
- Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) (195)

FY 1996 Planned Program:

- Perform functional analysis and update command post analysis to allow Follow-on Test and Evaluation (FOTE)/fielding (800)
- Extend the ATCCS data architecture and standardization program to additional functional areas (1400)
- Continue the tech insertion program, e.g., advanced comm protocols, advanced networking, tactical decision aids, and extended interactive electronic pen technology (669)
- ATCCS interoperability engineering and system level engineering support (3000)
- Perform verification and validation of all BFA fielded software including common and unique applications (1700)
- Productize B2C2 applications for embedded applications (800)
- Conduct/support system configuration developmental/operational demonstrations in conjunction with MCS Initial Operational Test & Evaluation (IOT&E) and other BFA FOTE's (2370)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604818A Army Tactical Command & Control System (ATCCS)-Engineering Development

FY 1997 Planned Program:

- Perform functional analysis and update command post analysis to allow FOTE/fielding (500)
- Extend the ATCCS data architecture and standardization program to additional functional areas including a standard data element dictionary (1200)
- Continue the tech insertion program, e.g., wireless LANs, high efficiency net radio protocols, and interactive video (547)
- ATCCS interoperability engineering and system level engineering support (3700)
- Perform dependency analysis and verification and validation of all BFA fielded software including common and unique applications (800)
- Perform multi-echelon integration of all command and control applications (800)
- Conduct/support system configuration developmental/operational demonstrations in conjunction with BFA FOTE's (1400)

Project DC36 - C3I Interoperability Test Suite: The ATCCS C3I Interoperability Test Suite is a collection of equipment and software that collectively represents BFA Central Systems (BFACS) in a pseudo-realistic command post setting. The Suite is linked to other compatible test, experimentation, validation, and demonstration sites (ATCCS Experimentation Site--AES; Total System, Tactical Validation--TSTV; Battle Laboratory--BCCL; Electronic Proving Ground--EPG, etc.) via the Army Interoperability Network (AIN). The Suite provides a capability to do rapid prototyping, intra -Army and joint services compatibility and interoperability (C&I) evaluations, and certification of various message exchange implementations prior to live testing. Furthermore one may conduct rapid cost effective experiments and demonstrations on the ATCCS family of systems as hardware, software and concepts evolve. The activity supports early evaluation of emerging technology in the development of interoperable automated Command and Control (C2) systems, facilitates the smooth transition from the initial to the objective systems and supports evaluation of communication systems and hardware platforms integral to the ATCCS family of systems.

FY 1994 Program Accomplishments:

- Experimentation in support of battlefield functional area (BFA) block/version developments, which include MCS, ASAS, CSSCS, V3.3 & 4, FAADC2 V4 and AFATDS V1 & V2 (450)
- Executed follow-on ATCCS logistics maintainability demonstration (LMD) with Standardized Integrated Command Post System (SICPS), common hardware software (CHS), lightweight computer unit (LCU) (200)
- Executed ATCCS confidence demonstration to determine the operational and technical readiness of ATCCS to proceed to ATCCS III test and evaluation (950)
- Experimentation in support of BFA developments, to include FAADC2 V4 (heavy), CSSCS V4 and AFATDS V2 (165)
- Evaluated methods and implementation of common ATCCS support (CASS) V2 into ATCCS and BFA's (106)

FY 1995 Planned Program: No planned program in RDTE.

Project D323 Common Hardware Software (CHS): The CHS program is the cornerstone upon which the Army must build its integrated efforts for tying together the Army Command and Control Systems. The project provides vehicles (contracts) from which customers can acquire/procure state of the art common hardware/software and

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604818A Army Tactical Command & Control System (ATCCS)-Engineering Development

associated peripherals to meet their developmental and fielding needs. The project also develops reusable common support software and command post internal structures within shelters. The common software supports many Army, other services and Joint systems.

FY 1994 Program Accomplishments:

- Managed the acquisition and delivery of CHS-1/Lightweight Computer Unit (LCU) equipment in support of customer requirements (767)
- Executed the Common Hardware, Software Reuse and Standard Integrated Command Post System (SICPS) Programs (6229)
- Completed Source Selection process and awarded contract for CHS-2 (1198)

FY 1995 Planned Program:

- Manage the acquisition and delivery of CHS-1/LCU equipment in support of customer requirements. Perform Source Selection Evaluation for CHS-2 Re-award. Test, accept, and deliver initial CHS-2 hardware and software (1329)
- Provide SICPS Rigid Wall Shelter (RWS), M1068, 5-Ton and Softtop platforms in support of BFA requirements (1109)
- Continue execution of the Common Hardware and Software Reuse programs. Support joint and DOD C2 programs (5749)
- SBIR/STTR (161)

FY 1996 Planned Program:

- Continue management of the acquisition and delivery of CHS equipment (LCU/CHS-2) in support of customer requirements (1300)
- Continue execution of Common Hardware and Common Software Reuse programs (5325)
- Continue providing SICPS RWS, M1068, 5-Ton and Softtop platforms in support of BFA requirements (600)
- Support the Army's initiative to digitize the battlefield (805)

FY 1997 Planned Program:

- Continue management of the acquisition and delivery of CHS equipment (LCU/CHS-2) in support of customer requirements (1250)
- Continue execution of Common Hardware and Common Software Reuse programs (5407)
- Continue providing SICPS RWS, M1068, 5-Ton and Softtop platforms in support of BFA requirements (553)
- Continue supporting the Army's initiative to digitize the battlefield (803)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604818A Army Tactical Command & Control System (ATCCS)-Engineering Development

B. Program Change Summary	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	21992	19296	18822	16991
Appropriated Value	21992	18694		
Adjustments to Appropriated Value	+1984			
a. SBIR/STTR decrement (-316)				
b. HQDA Reprogramming (+2300)				
Current President's Budget	23976	18694	18769	16960

Change Summary Explanation:
Project DC34:
Funding: FY94 (+2.3M) provided for ATCCS testing support.
Schedule: None
Technical : None

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604818A Army Tactical Command & Control System (ATCCS)-Engineering Development

PROJECT: DC34

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
DC34 ARMY TATICAL C2 SYSTEMS (ATCCS) ENGINEERING	13911	10346	10739	8947	8865	8774	9992	9977	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
ATCCS System Confidence Demo-3			X*													
ATCCS III Operational Test & Eval				X*												
ATCCS System Confidence Demo-4								X								
ATCCS Operational test & Eval - MCS LUT									X							
Finalize Objective ATCCS specification											X					
ATCCS system confidence Demo-5													X			
ATCCS V Operational Test & Evaluation														X		
ATCCS System Confidence Demo-6															X	
ATCCS VI Operational Test & Evaluation																X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604818A Army Tactical Command & Control System (ATCCS)-Engineering Development PROJECT DC34

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
System Engineering and Integration Support	13911	10346	10739	8947
Total	13911	*10346	10739	8947

*SBIR/STTR (195)

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 Progra...
Product Development Organizations											
CSC	PWD					6535	6192				1272?
TBD	PWD							6459	5376	CONT	CONT
MITRE	MIPR					1025	510	510	340	CONT	CONT
MISC CONTRS	PWD					3214	2784	2910	2507	CONT	CONT
Matrix-CECOM	MIPR					827	860	860	724	CONT	CONT
Support and Management Organizations: None											
Test and Evaluation Organizations											
OPTEC						1788					1788
RDA	PWD					522					522
Government Furnished Property: None											
Subtotal Product Development						11601	10346	10739	8947	CONT	CONT
Subtotal Support and Management											
Subtotal Test and Evaluation						2310					2310
Total Project						13911	*10346	10739	8947	CONT	CONT

*SBIR/STTR (195)

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604818A Army Tactical Command & Control System (ATCCS)-Engineering Development

PROJECT: DC36

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
DC36 C3I INTEROPERABILITY TEST SUITE	1871	0	0	0	0	0	0	0	0	1871

C. Other Program Funding Summary: Not Applicable

D. Schedule Profile: Not Applicable

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604818A Army Tactical Command & Control System (ATCCS)-Engineering Development

PROJECT: DC36

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Interoperability Test Suite Support	1871	0	0	0
Total	1871	0	0	0

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations: None											
Support and Management Organizations: None											
Test and Evaluation Organizations											
AES						1871					
Government Furnished Property: None											
Subtotal Product Development						0	0	0	0	0	0
Subtotal Support and Management						0	0	0	0	0	0
Subtotal Test and Evaluation						1871	0	0	0	0	0
Total Project						1871	0	0	0	0	0

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604818A Army Tactical Command & Control System (ATCCS)-Engineering Development

PROJECT: D323

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
D323 COMMON HARDWARE SOFTWARE (CHS)	8194	8348	8030	8013	7936	7851	0	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 Compl	Total Cost
OPA-2 (BZ9860) Common Hardware Software	18000	0	0	0	0	0	0	0	0	18000

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
CHS-2 Contract Award				X*												
CHS-2 Contract Canceled (Protest)					X*											
CHS-2 Contract Re-Award						X										
CHS-2 Production Delivery V-1 Start								X								
CHS-2 Production Delivery V-2 Start										X						

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604818A Army Tactical Command & Control System (ATCCS)-Engineering Development
	PROJECT D323

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Program Management Personnel	4862	3785	3694	3694
Contract Engineering Support	3332	4563	4336	4319
Total	8194	*8348	8030	8013

*SBIR/STTR (161)

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
Product Development Organizations											
Matrix-CECOM						1652	1379	1365	1365	CONT	CONT
MISC Contrs						3332	4563	4336	4319	CONT	CONT
Support and Management Organizations											
In-House (CHS)						3210	2406	2329	2329	CONT	CONT
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development						4984	5942	5701	5684	CONT	CONT
Subtotal Support and Management						3210	2406	2329	2329	CONT	CONT
Subtotal Test and Evaluation						0	0	0	0	0	0
Total Project						8194	*8348	8030	8013	CONT	CONT

*SBIR/STTR (161)

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604820A Radar 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	16661	10851	0	0	0	0	0	0	0	141323
DE10 FAAD Ground Based Sensor	16661	5900	0	0	0	0	0	0	0	136372
D2IT FAAD C3I Oper Test	0	4951	0	0	0	0	0	0	0	4951

A. Mission Description and Budget Item Justification: The Forward Area Air Defense (FAAD) Ground Based Sensor (GBS) is the key air surveillance and target acquisition/tracking capability for Divisional and Corps FAAD weapons. The GBS consists of a radar-based sensor system with its prime mover/power, Identification Friend or Foe (IFF) and FAAD Command and Control Intelligence (C2I) interfaces. The GBS is an advanced three dimensional battlefield air defense radar which contributes to the digital battlefield by automatically detecting, tracking, classifying, identifying, and reporting targets (rotary wing, unmanned aerial vehicles, cruise missiles, and fixed wing aircraft) to FAAD weapons and forward maneuver forces. These projects are related to an engineering and manufacturing development program for service use that has not yet received approval for full-rate production. They are, therefore, appropriate for Budget Activity 5.

Project DE10 - FAAD Ground Based Sensor: The GBS mission is to alert/cue AVENGER, the Bradley Stinger Fighting Vehicle (BSFV) and Man Portable Air Defense System (MANPADS) teams to hostile and unknown aircraft, protect friends from fratricide, and provide air situation data to command and control centers. FAAD GBS performs this mission by providing its air picture data directly to support fire units over Single Channel Ground Air Radio System (SINCGARS)/Enhanced Position Location Reporting System (EPLRS) or through the FAAD C2I system. The FAAD GBS is the only planned Army air defense radar that has the range and accuracy performance, plus Electronic Counter Measures and Anti-Radiation Missile resistance, to perform this vital mission within current force structure, throughout the spectrum of conflict in support of light and heavy forces. The FAAD GBS has the ability to expand it's capability to keep current with the evolving threat.

FY 1994 Accomplishments:

- Conducted Development Test I (250)
- Conducted In-Process Review (IPR) for advance procurement (40)
- Completed development and fabrication of six pre-production sensors and converted one pre-production Antenna Transceiver Group of the Multipurpose Wheeled Vehicle (HMMWV) configuration (9957)
- Prepared and updated documentation defined by DODI 5000.2 and conduct pre-milestone activities for Milestone III DAB review (424)
- Continued system test to include logistics and maintainability demonstration, and development test with FAAD C3I (1094)
- Continued programmatic and technical support (2715)
- Concluded integrated logistics development and equipment publications for GBS 5-ton and HMMWV configuration (1179)
- Developed of prime mover and power for HMMWV configuration (1002)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604820A Radar Development

FY 1995 Planned Program:
- Contractor Technical Support (320)
- Continue programmatic and technical support (3233)
- Complete HMMWV Development & Performance Test (2097)
- Conduct Milestone III DAB (126)
- Small Business Innovative Research (SBIR)/Small Business Technology Transfer (STTR) program (124)

Project D2IT - FAAD C3I Oper Test: Project D2IT finances the direct costs of planning and conducting operational testing and evaluation of the Forward Area Air Defense Command, Control, Communications and Intelligence (FAAD C3I) system by the Operational Test and Evaluation Command (OPTEC). The FAAD C3I is an Acquisition Category (ACAT) I system with a dedicated Initial Operational Test and Evaluation (IOTE) in FY 95 in support of a Milestone III full production decision. (In FY 95 and beyond, funding for operational testing of ACAT I systems is programmed with PE funding development for each system. Future fiscal years will be reprogrammed when system information becomes available.) Operational testing is conducted under conditions, as close as possible, to those encountered in actual combat with typical soldiers trained to employ the system. OPTEC provides Army leadership with an independent test and evaluation of effectiveness and suitability of the system.

FY 1994 Planned Program: Unfunded in FY 1994

FY 1995 Planned Program:
- Conduct FAAD C3I Test Preparation (285)
- Conduct FAAD C3I Operational Test (3752)
- Conduct Evaluation of FAAD C3I (810)
- SBIR/STTR (104)

B. Program Change Summary

	FY 1994	FY 1995	FY 1996	FY 1997
Previous President's Budget	17934	10999		
Appropriated Value	17934	10851		
Adjustments to Appropriated Value (Total PE)	-1273			
a. SBIR/STTR (-273)				
b. Reprogramming out of PE (-1000)				
Current Budget Submit/President's Budget	16661	10851		

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604820A Radar Development

PROJECT: DE10

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
DE10 FAAD Ground Based Sensor	16661	5900	0	0	0	0	0	0	0	136372

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	7900	63855	44678	53282	46776	44438	64327	69010	continues	continues
SSN WK 5053										
Spares BS 9732			2634	4040	5672	5686				continues

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
In-Process Review			X*													
Complete Pre-Production Fabrication				X*												
Development Test with FAAD C2				X*												
IOTE Complete				X*												
In-Process Review				X*												
Award LRIP Option						X										
Milestone III DAB							X									
FUE Pre-Production							X									
Award 2nd FSP Option										X						
Award 3rd FSP Option													X			
FUE Production															X	

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604820A Radar Development

PROJECT: DE10

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Contractor Engineering and Manufacturing Support	12138	320		
Test Support	1344	2097		
Engineering Support	1228	3359		
Program Management Support	1951			
SBIR/STTR		124		
Total	16661	5900		

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
Product Development Organizations											
Hughes Aircraft Company	C/FFP	Feb 92	56836	56836	44378	12138	320				56836
MICOM	MIPR				14709	1136	2821				18666
TECOM	MIPR				1068	17	48				1133
Other/Misc	MIPR				5178	92	538				5808
Support and Management Organizations											
MICOM	MIPR				18438	1687					20125
Other/Misc	MIPR				1443	264					1707
SIBR/STTR							124				124
Test and Evaluation Organizations											
OPTEC	MIPR				20804	1327	2049				24180
Other/Misc					7793						7793

Government Furnished Property: None

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1995
BUDGET ACTIVITY 5 - Engineering And Manufacturing Development	PE NUMBER AND TITLE 0604820A Radar Development

	Total Prior to FY 1994	FY 1994	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development	65333	13383	3727				82443
Subtotal Support and Management	19881	1951	124				21956
Subtotal Test and Evaluation	28597	1327	2049				31973
Total Project	113811	16661	5900				136372

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604820A Radar Development

PROJECT: D2IT

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
D2IT FAAD C3I Oper Test	0	4951	0	0	0	0	0	0	0	4951

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 SSN WK 5053	7900	63855	44678	53282	46776	44438	64327	69010	continues	continues
Spares BS 9732			2634	4040	5672	5686				continues

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
FAAD C3I Test Preparation					X*											
FAAD C3I Oper Test					X*											
Evaluation C3I Test Results						X										
Milestone III C3I DAB							X									

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

DATE: February 1995

BUDGET ACTIVITY: 5 - Engineering And Manufacturing Development

PE NUMBER AND TITLE: 0604820A Radar Development

PROJECT: D2IT

A. Project Cost Breakdown

	FY 1994	FY 1995	FY 1996	FY 1997
Test Preparation		285		
Operational Test		3752		
Test Evaluation		810		
SBIR/STTR		104		
Total		4951		

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
Product Development Organizations: None											
Support and Management Organizations: None											
Test and Evaluation Organizations											
Army Materiel Test Dir, USA Test & Eval Cmd	MIPR	Oct 94					4847				4847
SBIR/STTR							104				104
Government Furnished Property: None											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation							4951				4951
Total Project							4951				4951