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DEPUTY CHIEF OF STAFF FOR RESEARCH DEVELOPMENT AND AC--ETC F/G 15/5
DEPARTMENT OF THE ARMY JUSTIFICATION OF ESTIMATES FOR FISCAL YE--ETC(U)
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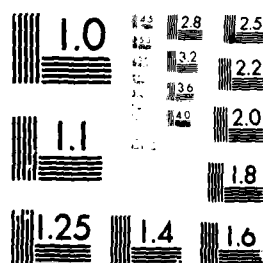
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DEPARTMENT OF THE

ARMY

JUSTIFICATION OF ESTIMATES FOR FISCAL YEAR 1981. (u)

Submitted to Congress

JANUARY 1980



DTIC ELECTE
MAR 24 1980

RESEARCH DEVELOPMENT, TEST AND EVALUATION, ARMY

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Project Number	
Project Activity Codes	
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**DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
APPROPRIATION LANGUAGE**

Section 1

For expenses necessary for basic and applied scientific research, development, test and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, as authorized by law; $\$2,853,331,000$, and in addition, $\$2,000,000$ which shall be derived by transfer from "Research, Development, Test and Evaluation, Army, 1979/1980" $\$3,232,500,000$, to remain available for obligation until September 30, 1981/1982. (10 U.S.C. 2353, 4503; Department of Defense Appropriation Act, 1980; additional authorizing legislation to be proposed.)

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Army

Research, Development, Test, and Evaluation, Army

UNCLASSIFIED

28 JAN 80

Program and Financing (in thousands of dollars)

Identification code 21-2040-0-1-051

Obligations

Budget plan (amounts for
RD&E actions programmed)

	1979 actual	1980 est.	1981 est.	1979 actual	1980 est.	1981 est.
Program by activities:						
Direct:						
1. Technology base	432,898	459,283	558,273	436,917	451,968	552,000
2. Advanced technology development	99,621	140,932	158,282	112,185	136,377	166,900
3. Strategic programs	227,810	241,618	266,254	227,019	264,500	284,500
4. Tactical programs	1,400,878	1,489,991	1,593,427	1,401,502	1,472,872	1,585,600
5. Intelligence and communications	28,802	31,290	44,095	24,555	34,600	43,200
6. Defensewide mission support	449,257	482,117	612,189	441,347	478,727	603,800
Total direct	2,638,864	2,945,231	3,232,500	2,643,825	2,802,244	3,205,000
Reimbursable program	470,837	460,000	465,000	433,938	470,756	464,000
Total	3,109,701	3,305,231	3,697,500	3,077,463	3,273,000	3,670,000
Financing:						
Offsetting collections from:						
11.00 Federal funds	-469,638	-454,700	-459,700	-448,200	-454,700	-459,700
13.00 Trust funds	-875	-500	-500	-883	-500	-500
14.00 Non-federal sources	-1,324	-4,800	-4,800	-1,109	-4,800	-4,800
21.40 Unobligated balance available, start of year:						
For completion of prior year budget plans						
Available to finance new budget plans						
Reprogramming from or to prior year budget plans		-2,000			-232,216	-264,447
Unobligated balance available, end of year:	-4,252				-2,000	
For completion of prior year budget plans						
Available to finance subsequent year budget plans						
26.00 Unobligated balance lapsing				232,216	264,447	291,947
Budget authority	2,000			2,000		
40.00 Appropriation	4,252	2,000		4,252	2,000	
41.00 Transferred to other accounts						
43.00 Appropriation (adjusted)	2,640,864	2,845,231	3,232,500	2,640,864	2,845,231	3,232,500
50.01 Reappropriation						
Relation of obligations to outlays:						
71.00 Obligations incurred, net	2,640,864	2,853,331	3,232,500	2,640,864	2,853,331	3,232,500
72.40 Obligated balance, start of year		-10,100			-10,100	
74.40 Obligated balance, end of year	2,640,864	2,843,231	3,232,500	2,640,864	2,843,231	3,232,500
77.00 Adjustments in expired accounts		2,000			2,000	
90.00 Outlays	2,627,261	2,813,000	3,205,000	2,627,261	2,813,000	3,205,000
	872,015	1,084,466	1,245,466	872,015	1,084,466	1,245,466
	-1,084,466	-1,245,466	-1,484,466	-1,084,466	-1,245,466	-1,484,466
	-5,940			-5,940		
	2,408,870	2,652,000	2,966,000	2,408,870	2,652,000	2,966,000

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Army	UNCLASSIFIED	Research, Development, Test, and Evaluation, Army	28 JAN 80
Identification code		Program and Financing (in thousands of dollars)	1978 Fiscal year program
21-2040-0-1-051		Budget plan (amounts for	Obligations
		RDTE actions programmed)	
		1979 actual 1980 est. 1981 est.	1979 actual 1980 est. 1981 est.
Program by activities:			
Direct:			
1. Technology base			
2. Advanced technology development			
3. Strategic programs			
4. Tactical programs			
5. Intelligence and communications			
6. Defensewide mission support			
Total direct			
Reimbursable program			
Total			
10.00			
Financing:			
Offsetting collections from:			
Federal funds			
11.00			
13.00			
14.00			
21.40			
Unobligated balance available, start of year:			
For completion of prior year budget plans			
Reprogramming from or to prior year budget plans			
25.00			
Unobligated balance lapsing			
Budget authority			

UNCLASSIFIED

Army	UNCLASSIFIED		Research, Development, Test, and Evaluation, Army		26 JAN 80	
	Program and Financing (in thousands of dollars)		1978 Fiscal year program		Obligations	
	Identification code	21-2040-0-1-051	Budget plan (amounts for RDT&E actions programmed)			
			1979 actual	1980 est.	1981 est.	1991 est.
Program by activities:						
Direct:						
	1. Technology base		432,988			21,849
	2. Advanced technology development		99,621			4,068
	3. Strategic programs		227,510			1,134
	4. Tactical programs		1,400,876			78,464
	5. Intelligence and communications		28,602			5,239
	6. Defensewide mission support		449,237			26,820
	Total direct		2,638,864			134,074
	Reimbursable program		470,837			96,142
10.00	Total		3,109,701			232,216
Financing:						
Offsetting collections from:						
11.00	Federal funds		-468,638			
13.00	Trust funds		-875			
14.00	Non-federal sources		-1,324			
21.40	Unobligated balance of prior year budget plans					
	For completion of prior year budget plans					
	Available to finance new budget plans					
24.40	Unobligated balance available, end of year:					
	For completion of prior year budget plans					
	Available to finance subsequent year budget plans					
25.00	Unobligated balance lapsing		2,000			
	Budget authority					
			2,640,864			

UNCLASSIFIED

Identification code	21-2040-0-1-051	Budget plan (amounts for RDT&E actions programmed)				Obligations	
		1979 actual	1980 est.	1981 est.	1979 actual	1980 est.	1981 est.
Program by activities:							
Direct:							
1.	Technology base		459,283			430,419	29,864
2.	Advanced technology development		140,932			132,309	8,623
3.	Strategic programs		241,616			226,566	15,052
4.	Tactical programs		1,489,991			1,397,408	92,583
5.	Intelligence and communications		31,290			29,361	1,929
6.	Defensewide mission support		482,117			452,107	30,010
	Total direct		2,945,231			2,668,170	177,061
	Reimbursable program		460,000			372,614	87,386
10.00	Total		3,305,231			3,040,784	264,447
Financing:							
Offsetting collections from:							
11.00	Federal funds		-454,700			-454,700	
13.00	Trust funds		-500			-500	
14.00	Non-federal sources		-4,800			-4,800	
21.40	Unobligated balance available, start of year:						
	For completion of prior year budget plans						
24.40	Unobligated balance available, end of year:						
	For completion of prior year budget plans						
	Budget authority		2,945,231			2,645,231	-284,447
Budget authority:							
40.00	Appropriation		2,953,331			2,853,331	
41.00	Transferred to other accounts		-10,100			-10,100	
43.00	Appropriation (adjusted)		2,843,231			2,843,231	
50.01	Reappropriation		2,000			2,000	

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Army

UNCLASSIFIED

Research, Development, Test, and Evaluation, Army

28 JAN 80

Program and Financing (in thousands of dollars)	1981 Fiscal year program
...	...

1901 Fiscal Year

Identification code 21-2040-0-1-051

Obiligations

Budget plan (amounts for

RT&E sections programmed)

[illegible]

Program by activation:

Direct:

1. Technology base
2. Advanced technology development
3. Strategic programs
4. Tactical programs
5. Intelligence and communications
6. Defensewide mission support

523,136
148,277
249,449
1,493,017
41,271
573,790

3,028,939
376,614

3,405,553

10.00

Reimbursable program

Financing:

Offsetting collections from:

11.00 Federal funds

Trust funds	13.00
Trust funds	13.00

14.00	Non-federal sources
14.01	State
14.02	Federal
14.03	Private
14.04	Other
14.05	Unallocated
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15.45	Unallocated
15.46	Unallocated
15.47	Unallocated
15.48	Unallocated
15.49	Unallocated
15.50	Unallocated
15.51	Unallocated
15.52	Unallocated
15.53	Unallocated
15.54	Unallocated
15.55	Unallocated
15.56	Unallocated

24.40 Unobligated balance available, end of year:
For completion of prior year budget plans

Budget authority

-459,700
-500
-4,800
291,947

3,232,500

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Army

Research, Development, Test, and Evaluation, Army

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28 JAN 80

Identification code	21-2040-0-1-051	1979 actual	1980 est.	1981 est.
Object Classification (in thousands of dollars)				
Personnel compensation:				
11.1	Permanent positions	306,362	414,751	415,755
11.3	Positions other than permanent	7,419	6,119	6,715
11.5	Other personnel compensation	6,730	7,020	7,647
	Total personnel compensation	320,511	427,890	432,117
Direct obligations:				
Personnel compensation:				
12.1	Personnel benefits: civilian personnel	248,140	346,060	345,056
21.0	Travel and transportation of persons	25,183	36,117	35,847
22.0	Transportation of things	19,248	26,746	26,454
23.2	Communications, utilities and other rent	5,693	5,184	5,926
24.0	Printing and reproduction	11,586	21,037	23,817
25.0	Other services:	476	2,286	2,921
	Purchases from industrial funds	656,279	643,525	636,586
	Contracts	1,541,363	1,595,601	1,599,451
26.0	Supplies and materials	50,685	55,500	73,542
31.0	Equipment	73,330	56,793	55,206
41.0	Grants, subsidies, and contributions	1,222	3,075	1,190
	Total direct obligations	2,643,525	2,602,244	3,206,000
Reimbursable obligations:				
Personnel compensation:				
12.1	Personnel benefits: civilian personnel	72,371	83,830	87,059
21.0	Travel and transportation of persons	7,345	8,500	9,045
22.0	Transportation of things	6,005	7,318	7,297
23.1	Standard level user charges	750	1,564	1,389
24.0	Printing and reproduction	3,430	4,337	7,098
25.0	Other services:	266	421	402
	Purchases from industrial funds	62,206	66,585	64,447
	Contracts	257,770	269,647	258,887
26.0	Supplies and materials	15,397	13,552	12,791
31.0	Equipment	6,376	23,002	13,625
	Total reimbursable obligations	433,936	470,756	464,000
99.0	Total obligations	3,077,463	3,273,000	3,670,000

PERSONNEL SUMMARY

TOTAL NUMBER OF PERMANENT POSITIONS	14,409	18,550	18,696
TOTAL COMPENSABLE WORK YEARS	14,884	19,667	19,813
FULL-TIME EQUIVALENT OF OTHER POSITIONS	(519)	(685)	(691)
FULL-TIME EQUIVALENT OF OVERTIME AND HOLIDAY HOURS	(1,419)	(455)	(460)
AVERAGE ES SALARY	47,500	50,100	50,100
AVERAGE GS GRADE	9.60	9.44	9.44
AVERAGE GS SALARY	22,026	22,749	22,629
AVERAGE SALARY OF UNGRADED POSITIONS	16,798	17,971	18,208

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DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
PROGRAM ELEMENT LISTING
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Section 2 (Contd)

PROGRAM ELEMENT LISTING INTRODUCTION AND EXPLANATION OF CONTENTS

This section has been prepared for the purpose of providing summary program element budget information concerning the US Army Research, Development, Test and Evaluation Program. The listing is preceded by three summaries: the first by Research Categories (Program), the second by Budget Activities, and the third by FYDP Programs.

A separate document, Descriptive Summaries, furnishes detail by project. In addition, it furnishes narrative information on all Research, Development, Test and Evaluation (RDTE) program elements and projects of \$5.0 million or more. The index number in the right-hand column of this Program Element Listing refers to the appropriate page in the Descriptive Summaries. The funding information reflected in these volumes corresponds to that contained in the President's Budget.

A direct comparison of FY 1979, FY 1980, and FY 1981 data in this Program Element Listing with data submitted in the Program Element Listing dated January 1979 will reveal significant differences. Narrative explanation of these changes is included in the appropriate individual Program Element Descriptive Summary.

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DEPARTMENT OF THE ARMY
FY 1981 R O T + E PROGRAM

		DATE 28 JAN 1980	
		THOUSANDS OF DOLLARS	
SUMMARY		FY 1981	FY 1982
		-----	-----
SUMMARY RECAP OF RESEARCH CATEGORIES			
RESEARCH	114,850	150,911	186,352
EXPLORATORY DEVELOPMENT	318,948	401,362	448,618
ADVANCED DEVELOPMENT	653,958	721,469	1,078,415
ENGINEERING DEVELOPMENT	1,225,249	1,228,417	1,183,348
MANAGEMENT AND SUPPORT	421,631	561,855	632,748
RESEARCH AND DEVELOPMENT (FYDP PROGRAM 6)	2,533,796	3,067,214	3,449,465
OPERATIONAL SYSTEMS DEVELOPMENT	185,868	165,206	284,929
TOTAL RESEARCH DEVELOPMENT TEST + EVAL, ARMY	2,638,664	3,232,500	3,654,394
SUMMARY RECAP OF BUDGET ACTIVITIES			
TECHNOLOGY BASE	432,998	558,273	634,962
ADVANCED TECHNOLOGY DEVELOPMENT	99,621	158,262	281,751
STRATEGIC PROGRAMS	227,510	266,254	319,655
TACTICAL PROGRAMS	1,408,876	1,593,427	1,666,189
INTELLIGENCE AND COMMUNICATIONS	28,602	44,895	82,357
DEFENSEWIDE MISSION SUPPORT	449,257	612,189	689,968
TOTAL RESEARCH DEVELOPMENT TEST + EVAL, ARMY	2,638,664	3,232,500	3,654,394
SUMMARY RECAP OF FYDP PROGRAMS			
GENERAL PURPOSE FORCES	83,875	120,258	141,718
INTELLIGENCE AND COMMUNICATIONS	21,193	45,828	63,219
RESEARCH AND DEVELOPMENT (FYDP PROGRAM 6)	2,533,796	3,067,214	3,449,465
TOTAL RESEARCH DEVELOPMENT TEST + EVAL, ARMY	2,638,664	3,232,500	3,654,394

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DEPARTMENT OF THE ARMY
FY 1961 R D T + E PROGRAM

EXHIBIT R-1

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY

DATE: 20 JAN 1960

PROGRAM LINE ELEMENT NO NUMBER	ITEM NOMENCLATURE	ACF	THOUSANDS OF DOLLARS				DESCRIPTIVE SUMMARY PAGE NUMBER
			FY 1979	FY 1980	FY 1981	FY 1982	
1	61181A IN-HOUSE LAB INDEPENDENT RESEARCH	1	16,000	17,500	19,000	21,500 J	1-1
2	61182A DEFENSE RESEARCH SCIENCES	1	98,050	113,652	137,311	164,452 U	1-10
3	62185A MATERIALS	1	11,893	13,681	12,632	12,783 U	1-90
4	62111A ATMOSPHERIC INVESTIGATIONS	1	4,908	5,947	6,717	6,853 U	1-95
5	62120A FUZE/NUCLEAR WPNS EFFECTS/FLUIDICS	1	5,793	6,636	6,595	9,814 U	1-101
6	62281A AIRCRAFT WEAPONS TECHNOLOGY	1	1,988	2,181	1,000	2,784 U	1-107
7	62282A AIRCRAFT AVIONICS TECHNOLOGY	1	5,779	6,422	6,178	7,739 U	1-112
8	62289A AERONAUTICAL TECHNOLOGY	1	16,810	17,120	21,640	24,820 J	1-118
9	62210A AIRCRAFT TECHNOLOGY	1	950	1,327	1,082	2,881 U	1-123
10	62303A MISSILE TECHNOLOGY	1	28,299	27,007	38,360	34,604 J	1-128
11	62387A HIGH ENERGY LASER TECHNOLOGY	1		1,580	28,387	22,460 U	1-141
12	62681A TANK AND AUTOMOTIVE TECHNOLOGY	1	12,828	11,487	15,571	19,791 U	1-149
13	62683A LARGE CAL AND NUCLEAR TECHNOLOGY	1					1-155
14	62617A SMALL CAL AND FIRE CNTRL TECHNOLOGY	1	9,695	8,511	18,347	11,514 U	1-161
15	62618A BALLISTICS TECHNOLOGY	1	18,439	16,384	19,589	23,748 J	1-166
16	62622A CHEMICAL MUNITIONS/CHEMICAL CMBT SPT	1	5,731	6,615	5,751	7,141 U	1-172
17	62701A COMMUNICATIONS TECH	1	9,217	10,485	9,985	9,585 U	1-177
18	62703A CMBT SURV TARGET ACQ/ID	1	5,218	3,615	4,420	4,994 U	1-184
19	62704A MIL ENVIRONMENTAL CRITERIA DE/	1	2,958	3,556	3,986	3,798 U	1-189
20	62705A ELECTRICAL AND ELECTRONIC DEVICES	1	13,335	14,619	14,867	16,728 U	1-195
21	62706A CHEM BIOLOGICAL DEF/GEN INVEST	1	12,886	12,431	12,330	12,687 U	1-204
22	62707A MAPPING - GEODESY	1	4,280	4,666	5,052	5,782 U	1-208
23	62709A NIGHT VISION INVESTIGATIONS	1	7,999	9,183	11,462	14,529 U	1-212

EXHIBIT R-1

APPROPRIATIONS 2040 A RESEARCH DEVELOPMENT TEST & EVAL, ARMY

DATE: 28 JAN 1980

APPROPRIATION: 20A9 A RESEARCH DEVELOPMENT TEST & EVAL, ARMY						DATE: 26 JAN 1980	
						THOUSANDS OF DOLLARS	
PROGRAM LINE ELEMENT NO NUMBER		ITEM NOMENCLATURE	ACT	FY 1979	FY 1980	FY 1981	DESCRIPTIVE SUMMARY PAGE NUMBER

PROGRAM LINE ELEMENT NO NUMBER	ITEM NOMENCLATURE	ACT ---	FISCAL YEAR			FISCAL YEAR			SUMMARY E PAGE NUMBER
			FY 1979 -----	FY 1980 -----	FY 1981 -----	FY 1982 -----	FY 1983 -----		
24	TACTICAL ELECTRONIC WARFARE TECHNOLOGY	1	-					1-217	
25	HUMAN FACTORS ENGR IN SYS DEV	1	5,459	6,741	7,748	8,151	U	1-229	
26	HUMAN PERFORMANCE EFFECT/SIMULATION	1	2,942	3,383	3,467	3,482	U	1-234	
27	MOBILITY AND WEAPONS EFFECTS TECH	1	5,811	4,912	6,879	6,448	U	1-239	
28	ENVIRONMENTAL QUALITY TECH	1	9,613	9,465	10,165	10,497	U	1-244	
29	MANPOWER/PERSONNEL/TRAINING	1	5,934	5,410	5,462	5,486	U	1-249	
30	CLOTHING EQUIP AND SHELTER TECH	1	3,797	4,394	6,837	5,272	U	1-254	
31	JT SVC FOOD SYS TECH	1	7,852	5,552	6,888	7,858	U	1-264	
32	COMPUTER AND INFORMATION SCIENCE	1	2,518	1,269	2,889	2,119	U	1-270	
33	ARMY SUPPORT DARPA-HOWLS	1	3,888	1,588			U	---	
34	NON-SYSTEM TRAINING DEVICES	1	2,456	2,955	3,437	4,814	U	1-278	
35	GOLD REGIONS ENGINEERING TECHNOLOGY	1	3,872	3,628	4,681	4,676	U	1-283	
36	MILITARY FACILITIES ENGINEERING TECHNOLOGY	1	3,888	2,991	4,236	4,288	U	1-289	
37	RPJ SUPPORTING TECHNOLOGY	1	1,188	2,744	2,813	2,976	U	1-294	
38	MOBILITY EQUIPMENT TECHNOLOGY	1	9,459	9,981	12,188	16,759	U	1-300	
39	WED DEFENSE AGAINST CHEM AGENTS	1	7,827	5,777	5,577	4,428	U	1-306	
40	TACTICAL ADP TECH	1			9,478	9,881	U	1-311	
41	MILITARY DISEASE HAZARDS TECH	1	23,161	17,892	17,229	26,366	U	1-317	
42	COMBAT CASUALTY CARE TECH	1	7,383	8,889	17,197	18,876	U	1-338	
43	COMBAT MAXILLOFACIAL INJURY	1	1,288	1,253	762	812	U	1-352	
44	SYSTEMS HEALTH HAZARD PREVENT TECH	1	8,878	15,881	13,258	13,481	U	1-357	

UNCLASSIFIED

DEPARTMENT OF THE ARMY
FY 1981 R O T + E PROGRAM

EXHIBIT R-1

APPROPRIATIONS 2000 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY

DATE: 20 JAN 1980

PROGRAM LINE ELEMENT NO NUMBER	ITEM NOMENCLATURE	ACT	FY 1979	FY 1980	FY 1981	FY 1982	E	DESCRIPTIVE SUMMARY PAGE NUMBER
								THOUSANDS OF DOLLARS
45	62701A ENERGY TECH APPL FOR MILITARY FACIL	1			1,607	1,614	U	1-372
	TECHNOLOGY BASE		432,990	459,203	550,273	630,962		
46	63102A MATERIALS SCALE-UP	2	2,070	3,300	3,034	6,590	U	1-376
47	63104A FUELS AND LUBRICANTS	2		2,000	1,010	2,270	U	1-380
48	63201A AIRCRAFT POWER PLANTS AND PROPULSION	2	7,000	8,282	6,657	10,447	U	1-384
49	63206A AIRCRAFT WEAPONS	2		470	6,466	19,360	U	1-389
50	63207A AIRCRAFT AVIONICS EQUIPMENT	2	804	1,930	4,190	13,352	U	1-394
51	63209A AIR MOBILITY SUPPORT	2	300	650	1,969	2,302	U	1-400
52	63211A ROTARY WING CONTROLS/ROTORSTRUCTURES	2	3,352	5,090	13,779	31,553	U	1-405
53	63212A TILT ROTAR RESEARCH ACFT IMP	2	1,250				U	---
54	63216A SYNTHETIC FLIGHT SIMULATORS	2	1,500	1,200	6,003	11,590	U	1-416
55	63218A AIRCRAFT EQUIP AND TECHNIQUES	2	466	1,250	2,037	2,646	U	1-423
56	63300A TERMINALLY GUIDED PROJECTILES	2	2,900	2,970	7,006	19,337	U	1-427
57	63313A MSL/ROCKET COMPONENTS	2	800	2,079			U	---
58	63314A HI-ENERGY LASER COMPONENTS	2	17,292	19,000			U	1-434
59	63602A ADVANCED LAND MOB SYSTEMS CONCEPTS	2	15,000	15,916	12,370	11,733	U	1-435
60	63604A LANDMINE WARFARE/BARRIER DEV	2	4,313	5,165	5,205	9,905	U	1-446
61	63607A ARMY SMALL ARMS PROGRAM	2	1,955	493			U	---
62	63613A ADVANCED FUZE DESIGN	2	1,179	1,571			U	1-451
63	63614A INCAPACITATING CHEMICAL MUN CONCEPTS	2					U	---
64	63621A COMBAT VEHICLE PROPULSION SYS	2	5,350	3,011	11,547	22,700	U	1-452
65	63624A ADVANCED DIESEL ENGINE	2		14,200			U	---
66	63631A COMBAT VEH TURRET AND CHASSIS SUBSYS	2	2,565	3,732	5,077	13,977	U	1-463

UNCLASSIFIED

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DEPARTMENT OF THE ARMY
FY 1981 R O Y + E PROGRAM

EXHIBIT R-1

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY

DATE: 28 JAN 1980

PROGRAM LINE ELEMENT NO NUMBER	ITEM NOMENCLATURE	ACT	FY 1979	FY 1980	FY 1981	THOUSANDS OF DOLLARS		DESCRIPTIVE SUMMARY PAGE NUMBER
						FY 1982	FY 1983	
67	63702A ELECTRIC POWER SOURCES	2	3,557	5,955	6,340	0,731	U	1-468
68	63709A ADV TECH DEMO OF TEST/MEASURE/DIAGNOSTIC EQ	2			1,285	1,211	U	1-473
69	63710A NIGHT VISION ADVANCED DEVELOPMENT	2	10,177	13,951	21,815	30,262	U	1-478
70	63720A BIOLOGICAL DEFENSE MATERIEL	2					U	---
71	63725A REMOTELY PILOTTED VEHICLES/Drones	2	1,691	3,329	5,266	5,744	U	1-485
72	63731A MANPOWER AND PERSONNEL	2	1,936	3,121	3,230	3,730	U	1-490
73	63732A COMBAT MEDICAL MATERIAL	2	186	111	141	182	U	1-495
74	63734A COMBAT ENGINEERING SYSTEMS	2			232	261	U	1-498
75	63739A HUMAN FACTORS IN TNG/OPER EFFECT	2		1,989	2,547	3,268	U	1-501
76	63741A METEOROLOGIC EQUIPMENT DEVELOPMENT	2	998			1,860	U	---
77	63742A AS/ ELECTRONIC DEVICES DEV	2	1,345	1,999	2,875	4,971	U	1-505
78	63743A EDUCATION AND TRAINING	2	7,826	7,105	8,388	9,079	U	1-512
79	63744A TRAINING SIMULATION	2		983	1,517	2,353	U	1-516
80	63747A SOLDIER SUPPORT/SURVIVABILITY	2	2,605	2,915	3,462	3,676	U	1-519
81	63748A ADV DEV OF AUTOMATIC TEST EQ/SYS	2		1,488	9,121	11,756	U	1-524
82	63749A TECHNICAL VULNERABILITY REDUCTION	2		2,608	2,189	3,065	U	1-531
83	63750A DRUG AND VACCINE DEVELOPMENT	2	1,888	2,545	5,140	5,939	U	1-536
	ADVANCED TECHNOLOGY DEVELOPMENT		99,621	130,942	156,262	281,751		
84	63804A OND ADVANCED TECHNOLOGY	3	113,518	128,884	132,791	143,535	U	11-1

UNCLASSIFIED

DEPARTMENT OF THE ARMY
FY 1961 R O T + E PROGRAM

EXHIBIT R-1

APPROPRIATIONS 2000 A RESEARCH DEVELOPMENT TEST + EVAL. ARMY

DATE: 20 JAN 1960

PROGRAM LINE ELEMENT NO NUMBER	ITEM NOMENCLATURE	ACT	FY 1979	FY 1980	FY 1981	FY 1982 C	THOUSANDS OF DOLLARS	DESCRIPTIVE SUMMARY PAGE NUMBER
85	63300A BALLISTIC NSL DEF SYS TECH	3	114,000	120,014	133,503	176,120 U	11-6	
	STRATEGIC PROGRAMS		227,510	241,610	266,254	319,655		
86	63215A JOINT SURVIVABILITY INVESTIGATIONS	4	600	600	693	914 U	11-12	
87	63302A HIGH-TO-MEDIUM AIR DEFENSE DEV	4			35,096	10,410 U	11-17	
88	63303A SURF-TO-SURF NSL ROCKET SYS	4		904	2,692	34,533 U	11-19	
89	63307A SHORT RANGE AIR DEF SELF PROT WPN	4			16,022	37,070 U	11-23	
90	63320A CORPS SUPPORT WEAPON SYSTEM	4		9,200	7,619	26,126 U	11-27	
91	63600A NUCLEAR MUNITIONS AND RADIAZS	4					11-32	
92	63612A ANTI-TANK GUIDED NSL IMPROVEMENTS	4	1,000	2,000	21,190	51,222 U	11-38	
93	63615A LETHAL CHEMICAL MUNITIONS CONCEPTS	4		2,320	2,009	2,010 U	11-39	
94	63610A LANDMINE/BARRIER SYS	4	1,005	4,272	6,692	0,723 U	11-44	
95	63624A MOBILITY	4	90	300			11-51	
96	63627A COMBAT SUPPORT MUNITIONS	4	2,019	2,015	2,406	6,956 U	11-52	
97	63620A FIELD ARTILLERY AMMO DEV	4	6,132	5,131	0,093	17,206 U	11-56	
98	63629A FIELD ARTILLERY CANNON SYSTEMS	4	2,035	2,269	6,775	19,117 U	11-63	
99	63632A ARMORED COMBAT SUPPORT VEHICLE FAMILY	4	300	4,400	3,516	1,513 U	11-60	
100	63633A TANK AMMUNITION DEV	4	1,000	3,742		13,003 U	11-73	
101	63705A PHYSICAL SECURITY	4	3,500	3,500	3,201	9,017 U	11-74	
102	63706A IDENTIFICATION-FRIEND OR FOE DEV	4	3,463	4,045	5,017	13,140 U	11-80	
103	63707A COMMUNICATIONS DEVELOPMENT	4	4,520	6,600	25,340	24,795 U	11-85	
104	63711A ACFT SURV/EN SELF-PROTECTION	4	3,593	6,975	7,324	13,930 U	11-93	
105	63710A SPECIAL PURPOSE DETECTORS	4				1,307 U	11-103	
106	63721A CHEMICAL DEFENSE MATERIEL CONCEPTS	4	0,440	17,230	23,217	23,670 U	11-104	

DEPARTMENT OF THE ARMY
FY 1981 RDT + E PROGRAM

EXHIBIT R-1

APPROPRIATIONS: 2040 A RESEARCH DEVELOPMENT TEST + EVAL. ARMY

DATE: 28 JAN 1988

PROGRAM LINE ELEMENT NO	ITEM NOMENCLATURE	ACT	FY 1979	FY 1980	FY 1981	FY 1982	DESCRIPTIVE SUMMARY PAGE NUMBER
							THOUSANDS OF DOLLARS
107	63723A COMMAND AND CONTROL	4	18,334	8,964	12,998	25,902	U 11-114
108	63724A COMBAT SUPPORT EQUIPMENT	4	5,741	8,576	8,897	9,638	U 11-120
109	63730A TACTICAL SURVEILLANCE SYSTEM	4					U 11-125
110	63737A ANTI-RADIATION NSL COUNTER MEASURES	4					U 11-129
111	63740A DIV AIR DEFENSE COMD/CNTRL	4		3,000	15,503	17,112	U 11-134
112	63745A TAC ELECTRONIC SPT MEASURE SYS	4					U 11-141
113	63746A SINGLE CHANNEL CRO/ADM RADIO SUB-SYS	4	14,116	14,576	15,507	6,698	U 11-148
114	63755A TAC ELEG C/W SYS	4					U 11-159
115	64202A AIRCRAFT WEAPONS	4	7,329	5,243	5,511	4,970	U 11-169
116	64203A AERIAL SCOUT	4	6,877	7,650			U 11-174
117	64204A AIR MOBILITY SUPPORT EQUIPMENT	4	250	450	1,230	1,653	U 11-175
118	64206A UH-60A BLACK HAWK (H)	4	9,472				U ---
119	64207A ADVANCED ATTACK HELICOPTER	4	179,448	176,036	171,564	50,246	U 11-179
120	64212A COMBAT TOW	4	7,337	970	9,145	4,560	U 11-194
121	64213A CH-47 MODERNIZATION	4	19,123	22,400	603		U 11-199
122	64215A UH-1 MODERNIZATION	4			3,049	6,334	J 11-209
123	64217A SYNTHETIC FLIGHT TRAINING SYSTEMS	4	5,771	1,190		14,733	U 11-212
124	64218A AIRBORNE EQUIP DEVELOPMENT	4	743	950	2,721	3,665	U 11-213
125	64220A ARMY HELICOPTER IMPROVEMENT PROG	4			5,823	30,800	U 11-217
126	64304A STINGER	4	24,502	17,577	9,945		U 11-222
127	64307A PATRIOT (SAM-D)	4	220,392	120,710	51,024	20,699	U 11-234
128	64308A PRECISION LASER DESIGNATOR	4	9,193	3,000			U ---
129	64309A BOLAND	4	27,765	11,299	12,630		U 11-239

DEPARTMENT OF THE ARMY
FY 1961 R O Y + E PROGRAM

EXHIBIT R-1

APPROPRIATIONS 2040 A RESEARCH DEVELOPMENT TEST + EVAL. ARMY

DATE: 20 JAN 1960

PROGRAM LINE ELEMENT NO	ITEM NOMENCLATURE	ACT	FY 1979	FY 1980	FY 1981	FY 1982 C	THOUSANDS OF DOLLARS	DESCRIPTIVE E SUMMARY	PAGE NUMBER
130	64318A HELIBORNE MISSILE-HELLFIRE	4	66,350	61,000	54,000	21,200 U	11-270		
131	64311A PERKINS II	4		144,000	145,905	150,022 U	11-304		
132	64312A TERMINALLY GUIDED PROJECTILES	4				9,144 U	---		
133	64313A GRASS BLADE	4	29,100	30,815	35,704	23,324 U	11-318		
134	64314A GENERAL SUPPORT ROCKET SYS	4	70,795	69,225	64,191	39,652 U	11-321		
135	64316A FIRE AND FORGET HELLFIRE	4			25,010	57,130 U	11-337		
136	64318A DIVISION AIR DEFENSE GUN	4	75,717	25,470	64,693	20,604 U	11-357		
137	64601A INFANTRY SUPPORT WEAPONS	4	3,070	5,009	4,278	4,262 U	11-370		
138	64602A WEAPONS AND AMMUNITION	4	1,143			U	---		
139	64603A NUCLEAR MUNITIONS	4					11-378		
140	64608A ARMY J-HALL ARMS PROGRAM	4	1,575	1,446		U	---		
141	64609A COMBAT SUPPORT SYSTEMS	4	1,213	1,020	620	3,520 U	11-392		
142	64618A LETHAL CHEMICAL MUNITIONS	4	475			U	---		
143	64612A COUNTERMINE AND BARRIERS	4	6,510	3,671	1,076	5,700 U	11-396		
144	64610A FLB ARTY WPKS/AMMO (195MM) (H)	4	1,047			U	---		
145	64615A M60A1 THERMAL SIGHT	4	1,046			U	---		
146	64616A FIGHTING VEHICLE SYS	4	30,074	32,937	41,900	29,009 U	11-403		
147	64617A VEM RAPID FIRE WPN SYSTEM-BJSHMASTER	4	9,179	4,103		U	---		
148	64619A LANDMINE WARFARE	4	9,695	0,767	10,401	18,141 U	11-410		
149	64628A TANK SYSTEMS	4	70,376	49,549	51,320	14,006 U	11-426		
150	64621A COPPERHEAD	4	14,982	7,036	6,025	3,349 U	11-439		
151	64620A HIGH MOBILITY MULTI PURPOSE WHEELED VEHICLE	4	0,201	10,100	9,772	U	11-447		
152	64624A HIGH MOBILITY MULTI-PURPOSE VEHICLE	4		1,200	2,771	2,612 U	11-453		

DEPARTMENT OF THE ARMY
FY 1961 R O F - E PROGRAM

EXHIBIT R-1

APPROPRIATIONS 2040 A RESEARCH DEVELOPMENT TEST & EVAL. ARMY

DATE 20 JAN 1960

PROGRAM LINE NO	ITEM NOMENCLATURE	ACT	FY 1979	FY 1980	FY 1981	FY 1982 C	THOUSANDS OF DOLLARS	DESCRIPTIVE E SUMMARY
153	64626A FIRE INTEGRATION SPT TEAM VEH	4	1,000	6,050	8,139	9,400	U 11-459	
154	64627A FLD ARTY WPMS/AMMO, 8-INCH (H)	4	607				U	
155	64628A INDIRECT FIRE TRAINING MUNITIONS	4	2,501	1,400	636	1,307	U 11-464	
156	64629A CAVALRY FIGHTING VEHICLE	4	3,303				U	
157	64630A TANK GUN COOPERATIVE DEVELOPMENT	4	33,600	42,000	61,402	69,303	U 11-460	
158	64631A FLD ARTY AMMUNITION	4	6,100	7,657	1,021	3,330	U 11-484	
159	64632A 105MM TANK AMMUNITION	4	1,963	1,400	4,231	1,959	U 11-489	
160	64701A COMM ENGINEERING DEV	4	4,732	5,243	4,028	22,703	U 111-1	
161	64704A UNATTENDED GROUND SENSORS	4	4,000	2,000	3,910	7,104	U 111-8	
162	64706A RADIOLOGICAL DEFENSE EQUIPMENT	4	905	940	200		U 111-13	
163	64709A IDENTIFICATION-FRIEND OR FOE EQ	4		1,700	3,233	6,009	U 111-10	
164	64710A NIGHT VISION DEVICES	4	2,031	3,000	6,032	9,251	U 111-22	
165	64711A ACFT EN SELF-PROTECTION SYS	4	9,002	9,920	12,322	21,055	U 111-26	
166	64712A TAG DATA SYS INTEROPERABILITY	4	1,500	4,904	11,920	19,073	U 111-40	
167	64713A COMBAT FEEDING, CLOTHING AND EQUIPMENT	4	3,375	4,526	2,543	3,463	U 111-54	
168	64714A TACTICAL ELECTRICAL POWER SOURCES	4	1,110	5,095	3,930	6,086	U 111-50	
169	64717A GENERAL COMBAT SUPPORT	4	3,726	5,636	12,229	13,961	U 111-63	
170	64718A PHYSICAL SECURITY	4	7,399	4,336	6,279	5,747	U 111-72	
171	64720A SPECIAL PURPOSE DETECTORS	4	126	99	104	6,602	U 111-79	
172	64724A BIOLOGICAL DEFENSE MATERIAL	4	3,910	4,439	2,027	2,050	U 111-84	
173	64725A CHEMICAL DEFENSE MATERIAL	4	7,902	10,367	20,027	41,150	U 111-89	
174	64727A COMMAND AND CONTROL	4	9,117	22,579	25,015	14,109	U 111-96	
175	64728A FAMILY OF MIL ENGR CONSTR EQ	4	2,833				U 111-103	

DEPARTMENT OF THE ARMY
FY 1991 R O T + E PROGRAM

EXHIBIT R-1

APPROPRIATION: 2800 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY

DATE: 20 JAN 1988

PROGRAM LINE ELEMENT NO NUMBER	ITEM NOMENCLATURE	ACT	FY 1979	FY 1980	FY 1991	FY 1992 C	DESCRIPTIVE SUMMARY PAGE NUMBER
176	64729A COUNTER MORTAR RADAR	4	4,381	1,088			U ---
177	64730A REMOTELY PILOTED VEHICLES	4	10,599	49,341	54,109	62,350	U III-114
178	64731A COUNTER BATTERY RADAR	4	6,049	2,647			U ---
179	64740A TACTICAL SURVEILLANCE SYSTEM	4					U III-118
180	64745A TAC ELECTRONIC SPT MEASURE SYS	4					U III-122
181	64746A AUTOMATIC TEST SUPPORT SYSTEMS	4				7,707	U ---
182	64748A STANDOFF TARGET ACQUISITION SYSTEM	4	36,396	66,430	55,050	21,209	U III-134
183	64749A TACTICAL OPERATIONS SYS (H)	4	36,024				U ---
184	64750A TAC ELEC C/M SYS	4					U III-145
185	64751A SINGLE CHANNEL CRO/ABN RADIO SUB ENG	4				7,769	U ---
186	64779A JT INTEROPERABILITY TAC COMD/CNTRL	4	13,521	29,329	23,200	42,072	U III-155
187	65710A JOINT CB CONTACT POINT AND TEST	4	650	674	1,001	1,357	U III-173
188	65712A BATTLEFIELD SYSTEMS INTEGRATION	4	3,000		3,300	4,661	U III-177
189	23724A MV ANTI-TANK ASSAULT WPN SYS (TOW)	4	10,400	26,197	20,776	16,459	U III-183
190	23726A TACFIRE MODULAR IMPROVEMENT PROGRAM	4	1,360		3,527	5,127	U III-189
191	23727A MED ANTI-TANK ASSAULT WPN (40	4	407				U ---
192	23730A CHAPARRAL	4	475	6,052	20,590	19,003	U III-195
193	23731A SAR NAME/NAWK IMP PROG	4	5,142	10,097	7,612	3,919	U III-212
194	23732A LANCE (HML) WARHEAD	4	4,035	3,343	1,010		U III-223
195	23735A COMBAT VEHICLE IMPROVE PROG	4	7,071	6,000	14,240	19,390	U III-227
196	23739A AM/TSQ-73 MODIFICATIONS	4			1,445	543	U III-236
197	23740A COMMANDERS INFORMATION EXECUTIVE SYSTEM	4			16,274	34,700	U III-240

DEPARTMENT OF THE ARMY
FY 1961 R O T + E PROGRAM

EXHIBIT R-1

APPROPRIATION: 2000 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY

DATE: 20 JAN 1960

THOUSANDS OF DOLLARS

PROGRAM LINE ELEMENT NO	ITEM NOMENCLATURE	ACT	FY 1959	FY 1960	FY 1961	FY 1962 C	DESCRIPTIVE SUMMARY PAGE NUMBER
190	20010A JT TACTICAL COMM PROG	4	54,105	54,622	34,976	42,572 U	111-244
199	3342A SATCOM GROUND ENVIRONMENT	4	9,520	20,990	26,491	40,765 U	111-276
200	3345A EUROM C3 SYSTEMS	4	770	1,000	2,309	2,612 U	111-291
	TACTICAL PROGRAMS		1,400,076	1,409,991	1,593,427	1,666,109	
201	63712A MAPPING AND GEODESY	5	265	930		710 J	111-295
202	63735A WMOCS ARCHITECTURE	5	2,200	811		U	---
203	64201A AIRCRAFT AVIONICS	5	4,504	2,651	0,931	15,020 U	111-296
204	64716A MAPPING AND GEODESY	5	950	1,520	232	1,437 U	111-301
205	64778A NAJSTAR GPS USER EQUIPMENT	5	9,700	15,400	10,204	25,340 U	111-306
206	31022A SCIENTIFIC AND TECH INTELLIGENCE	5					111-314
207	32033A NMCS WIDE SUPPORT COMMUNICATIONS	5	1,549			U	---
208	33111A STRATEGIC ARMY COMMUNICATIONS	5	415	500	693	704 U	111-317
209	33126A LONG-HAUL COMMUNICATIONS (LCS)	5	3,372	2,500	0,769	9,999 U	111-321
210	33401A COMMUNICATIONS SECURITY	5					111-325
	INTELLIGENCE AND COMMUNICATIONS		28,662	31,290	44,695	62,357	
211	63710A EN VULNERABILITY/SUSCEPTIBILITY	6	15,307	19,407			111-330
212	63730A NON-SYSTEM TRAINING DEVICES	6	5,671	2,950	2,771	4,043 U	111-342
213	63899A R+B FUTURE OPTIONS	6				U	---
214	64260A COMPONENT IMPROVEMENT PROGRAM	6		0,700	15,400	13,016 U	111-347
215	64715A NON-SYSTEM TNG DEVICES ENGR	6	5,400	6,037	11,020	16,749 U	111-351
216	64726A METEOROLOGICAL EQUIPMENT SYSTEMS	6	4,000	0,077	2,006	1,990 U	111-361
217	65101A NO DA OPNS RESEARCH/ANALYSES (NO	6	1,700			U	---

DEPARTMENT OF THE ARMY
FY 1961 RDT & E PROGRAM

EXHIBIT R-1

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST & EVAL. ARMY

DATE: 20 JAN 1960

PROGRAM LINE ELEMENT NO NUMBER	ITEM NOMENCLATURE	ACT	FY 1979	FY 1980	FY 1961	FY 1962 C	DESCRIPTIVE SUMMARY PAGE NUMBER
THOUSANDS OF DOLLARS							
218	65102A TRADOC STUDIES AND ANALYSES	6	2,000	2,200	1,047	2,091	U III-367
219	65201A AVIATION ENGINEERING FLIGHT ACTIVITY	6	5,405	3,959	4,609	5,199	U III-372
220	65301A KWAJALEIN MISSILE RANGE	6	87,620	93,642	119,244	124,750	U III-376
221	65702A SUPPORT OF DEVELOPMENT TESTING	6	21,460	22,231	23,524	31,053	U III-382
222	65706A MATERIAL SYSTEMS ANALYSIS	6	9,300	10,169	14,073	15,497	U III-394
223	65708A THEATER NUCLEAR FORCE SURVIVABILITY	6	1,999				U III-399
224	65709A EXPLOITATION OF FOREIGN ITEMS	6	1,511	1,500	1,726	1,924	U III-400
225	65712A SUPPORT OF OPERATIONAL TESTING	6	31,109	36,374	38,093	40,009	U III-405
226	65714A FOREIGN NPMS EVALUATION (NP)	6	2,700				U ---
227	65719A DEFENSE SYSTEMS MANAGEMENT COLLEGE	6		900	1,243	1,393	U III-424
228	65801A PROGRAM-WIDE ACTIVITIES	6	44,009	48,405	57,012	59,352	U III-428
229	65802A INTL COOPERATIVE RESEARCH AND DEV	6	600	600			III-436
230	65803A TECHNICAL INFO ACTIVITIES	6	3,463	3,915	4,044	5,716	U III-440
231	65804A DARCOM MAJOR RANGE/TEST FACIL	6	171,411	100,264	245,514	282,010	U III-446
232	65805A DOD MUNITIONS EFFECT/EXPLOSIVE SAFETY STAND	6	5,036	5,461	6,035	7,367	U III-470
233	65806A WGT HQ (RESEARCH/DEVELOPMENT)	6	27,690	24,436	35,717	33,771	U III-479
	DEFENSEWIDE MISSION SUPPORT		449,257	482,117	612,109	689,560	
TOTAL RESEARCH DEVELOPMENT TEST & EVAL, ARMY			2,630,064	2,845,231	3,232,500	3,654,394	

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DEPARTMENT OF THE ARMY RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY PERFORMER DISTRIBUTION (\$ in Thousands)

Section 3

Appropriation: Research, Development, Test and Evaluation, Army

	Total Obligational Authority		
	FY 1979	FY 1980	FY 1981
1. For operation of installations of the reporting DOD Component			
Government operated	801,655	915,844	1,174,444
2. For operation of installations of the reporting DOD Component			
Contractor operated	59,720	66,718	67,786
3. For contracts directly in support of work actually performed at installations of the reporting DOD Component	57,529	60,918	83,509
4. For work assigned to other Department of Defense activities	250,659	250,955	248,970
5. For work assigned to activities of other Government agencies	16,567	21,671	19,436
6. For work performed by industrial contractors ("profit" organizations).	1,372,925	1,440,453	1,538,172
7. For work performed by educational institutions.			
a. Designated Fed Contract Res Centers	15,599	16,817	16,130
b. Other Institutions	46,749	53,376	65,591
8. For work performed by other "non-profit" organizations	6,285	8,611	8,792
a. Designated Fed Contract Res Centers	11,176	9,868	9,670
b. Other Institutions			
9. Total Research, Development, Test and Evaluation, Army Appropriation.	2,638,864	2,845,231	3,232,500
			3,654,394

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DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
INSTALLATION ANALYSIS - IN-HOUSE

Section 4

This installation analysis indicates the resources of dollars and manpower utilized by Army installations in the accomplishment of the in-house research, development, test and evaluation effort, including contractor operated installations, under the management control of the Army. Installations reported include both installations classified as research, development, or test installations and research, development, or test units located at multi-mission installations. Funds being reported cover both direct costs and indirect or support costs. These funds are a part of project costs shown in the budget for the various projects. The amounts reflected under the category "RDTE Funds" include funds received directly through command channels, and reimbursable RDTE effort performed for other Army activities and other Department of Defense agencies. "All Other Funds" reflect the in-house effort at multi-mission installations for other than Research, Development, Test and Evaluation, Military Construction and Military Personnel costs. Military Personnel costs reflect those military personnel assigned to RDTE activities and other military personnel located at the installation in support of non-RDTE activities at multi-mission posts.

The personnel reflected includes spaces assigned and charged directly to the RDTE appropriation as reflected in the personnel summary and spaces assigned to Army Industrial Fund installations operated with RDTE funds. Contractor personnel shown are engaged in direct support or operation of Army installations.

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INSTALLATION ANALYSIS - IN-HOUSE

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INSTALLATION ANALYSIS - IN-HOUSE

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INSTALLATION ANALYSIS - IN-HOUSE

		TOA (\$ in Thousands)					PERSONNEL (Man-Years)															
		RDTE Funds					All Other Funds ^{1/}		Mil. Pers.		Civil Service					Contractor						
		Mgmt	Other	Other	DOD			Sub-				Paid	From	Paid	From	Paid	From	Paid	From	In		
FY		Bureau	Army			Total	Total	RDTE	Other	Total	Total	RDTE	RDTE	Other	RDTE	RDTE	Other	RDTE	Funds	Work	Other	Total
Installation and Location																						
Army Indus-																						
trial Fund																						
Installations																						
1.																						
Aberdeen	79	93833	35666	5104		13857	148460	1636	122	150218	3718	1799		149						107	8	5781
Proving	80	50825	17159	4161		2057	74202	4420	205	78827	1841	267		47						315	18	2488
Ground, Aber-	81	62516	17847	4061		2057	86481	4888	279	91648	2018	267		43						315	18	2661
deon, Maryland	82	68799	18500	4000		2057	93356	4880	279	98515	2098	267		43						315	18	2741
2.																						
Armament	79	61475	25500	9876		-	96851	458	228	97537	1770	983		-		5				30	15	2803
Research &	80	50996	32283	11229		-	94508	632	285	95425	1649	980		-		5				50	20	2704
Development	81	55156	30725	11258		-	97139	776	310	98225	1716	958		-		1				50	20	2745
Command, Dover, New Jersey	82	44685	31025	10022		-	85732	775	310	86817	1645	999		-		1				50	20	2715
3.																						
Army Material	79	13385	3466	385		2448	19684	-	-	19684	572	103		56		1				-	-	732
and Mechanics	80	14054	3639	404		2570	20667	-	-	20667	591	103		56		1				-	-	751
Research	81	14757	3821	424		2697	21699	-	-	21699	591	103		56		1				-	-	751
Center, Water-	82	15475	4012	445		2834	22766	-	-	22766	591	103		56		1				-	-	751
town, Massachu-																						
setts																						

1/ Exclusive of Military Personnel and Military Construction.

2/ Decapitalization of Aberdeen AIF in FY 80. What remains is ARRADCOM AIF located on the Aberdeen installation.

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Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

		TOA (\$ in Thousands)				PERSONNEL (Man-Years)									
						Civil Service				Contractor				Mil. Pers.	
						Paid				Paid					
						From				From					
						RDTE				RDTE					
						Army				Other					
						RDTE				RDTE					
						Total				Total					
						Other				Other					
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						RDTE				RDTE					
						Other</									

*** Transitions to Non-AIF in FY 80.**

**** Decapitalization of Aberdeen and Dugway AIF in FY 80 and beyond.**

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INSTALLATION ANALYSIS - IN-HOUSE

Section 4 (Contd)

		TOA (\$ in Thousands)										PERSONNEL (Man-Years)									
		RDTE Funds				All Other Funds		Sub-Total		Mil. Pers.		Civil Service		Contractor		Paid		From		Other	
Installation and Location	FY	Mgmt Bureau	Other Army	DOD																	
Army Non-Industrial Installations																					
7.																					
Aberdeen	79																				
Proving Ground, Aberdeen, Maryland	*80	45036	21142	100		71918	138196	6099	-	-	-	2	2192	70	-	-	830	-	-	-	-
	81	66986	18517	100		64169	149772	12246	-	-	-	2	588	70	-	-	829	-	-	-	-
	82	61420	16230	100		56095	133845	12261	-	-	-	2	385	70	-	-	829	-	-	-	-
8.																					
Aeromedical Research Laboratory, Ft Rucker, Alabama	79	3385	585	6		16	3992	1162	-	-	-	-	-	-	-	-	76	-	-	-	-
	80	3270	417	-		-	3687	1263	-	-	-	-	-	-	-	-	77	-	-	-	-
	81	3767	423	-		-	4190	1269	-	-	-	-	-	-	-	-	77	-	-	-	-
	82	3919	425	-		-	4344	1266	-	-	-	-	-	-	-	-	77	-	-	-	-
9.																					
Air Defense Board, Ft Bliss, Texas	79	2579	535	20		216	3350	1730	-	-	-	-	-	-	-	-	117	-	-	-	-
	80	2469	568	-		1989	5026	1854	-	-	-	-	-	-	-	-	117	-	-	-	-
	81	2577	610	-		257	3444	1857	-	-	-	-	-	-	-	-	117	-	-	-	-
	82	2577	652	-		538	3767	1856	-	-	-	-	-	-	-	-	117	-	-	-	-
10.																					
Airborne Board, Ft Bragg, North Carolina	79	1256	-	-		-	1256	1287	-	-	-	-	-	-	-	-	87	-	-	-	-
	80	1334	-	-		-	1334	1378	-	-	-	-	-	-	-	-	87	-	-	-	-
	81	1081	-	-		-	1081	1381	-	-	-	-	-	-	-	-	87	-	-	-	-
	82	1081	-	-		-	1081	1380	-	-	-	-	-	-	-	-	87	-	-	-	-

1/ Exclusive of Military Personnel and Military Construction.

* Transitions from AIF in FY 80.

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INSTALLATION ANALYSIS - IN-HOUSE

Section 4 (Contd)

		TOA (\$ in Thousands)				PERSONNEL (Man-Years)									
						Civil Service				Contractor		Mil. Pers.			
		RDTE Funds		All Other Funds ^{1/}	Sub-Total	Mil. Pers.		Paid From Army RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	In	Total
FY		Mgmt Bureau	Other Army			DOD									
Installation and Location															
Army Non-Industrial Fund Installations															
11.															
Aviation	79	5776	2367	2629	56	10828	3125	-	-	13953	94	-	88	223	405
Development	80	6198	2450	1890	-	10538	3518	-	-	14056	94	-	88	253	435
Test Activity,	81	5774	2450	2263	-	10487	3174	-	-	13661	94	-	88	213	395
Ft Rucker,	82	6076	2450	2250	-	10776	3150	-	-	13926	94	-	88	213	395
Alabama															
12.															
Armor and	79	3919	3696	12	753	8380	3433	-	-	11813	71	-	-	232	303
Engineer Board,	80	3862	5623	-	1154	10639	3677	-	-	14316	71	-	-	232	303
Ft Knox,	81	7083	3500	-	500	11083	3710	-	-	14793	71	-	65	234	370
Kentucky	82	7083	1000	-	500	8583	3710	-	-	12293	71	-	65	234	370
13.															
Army Bio-medical	*79	-	-	-	-	-	-	-	-	-	-	-	-	-	192
Laboratory,	80	6246	-	-	-	6246	1115	-	-	7361	124	-	-	68	227
Aberdeen,	81	6942	-	-	-	6942	1170	-	-	8112	154	-	-	73	227
Maryland	82	7512	-	-	-	7512	1200	-	-	8712	154	-	-	73	227
14.															
Army Communica-	79	800	-	-	-	800	28	-	-	828	11	-	-	2	13
tive Technical	80	900	-	-	-	900	30	-	-	930	11	-	-	2	13
Office, Ft	81	935	-	-	-	935	30	-	-	965	11	-	-	2	13
Eastis,	82	935	-	-	-	935	30	-	-	965	11	-	-	2	13
Virginia															

1/ Exclusive of Military Personnel and Military Construction.

* Transferred from AIV in FY 80.

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INSTALLATION ANALYSIS - IN-HOUSE

TOA (\$ in Thousands)										PERSONNEL (Man-Years)							
Installation and Location FY	RDTE Funds				All Other Funds	Sub- Total	Mil. Pers.		Civil Service			Contractor			Total		
	Mgmt Bureau	Other Army	DOD	RDTE			Other	Total	Paid	From Army	Other RDTE	Paid	From Other RDTE	In RDTE Work		Other	
15.																	
Army Engineer	3762	530	-	-	338	4630	760	-	5390	95	-	7	-	54	-	156	
Flight Activ-	3869	420	-	-	180	4469	887	-	5356	95	-	7	-	66	-	168	
ity, Edwards	4100	-	-	-	-	4100	974	-	5074	95	-	7	-	66	-	168	
Air Force Base, 82	4200	-	-	-	-	4200	976	-	5176	95	-	7	-	66	-	168	
California																	
16.																	
Army Institute	1102	-	-	-	140	1242	917	-	2159	24	-	-	-	60	-	84	
of Dental	1171	-	-	-	115	1286	984	-	2270	24	-	-	-	60	-	84	
Research, 81	1361	-	-	-	115	1476	989	-	2465	24	-	-	-	60	-	84	
Washington, DC 82	1471	-	-	-	115	1586	986	-	2572	24	-	-	-	60	-	84	
17.																	
Army Materiel	8100	-	-	-	-	8100	521	-	8621	115	-	-	-	37	-	152	
Development & 80	9862	-	-	-	-	9862	562	-	10424	115	-	-	-	38	-	153	
Readiness 81	8028	-	-	-	-	8028	562	-	8590	115	-	-	-	38	-	153	
Command, 82	22706	-	-	-	-	22706	562	-	23268	115	-	-	-	38	-	153	
Alexandria, Virginia																	

1/ Exclusive of Military Personnel and Military Construction.

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INSTALLATION ANALYSIS - IN-HOUSE

Section 4 (Contd)

TOA (\$ in Thousands)										PERSONNEL (Man-Years)									
Installation and Location	FY	RDTE Funds			All Other Funds/	Sub-Total	Mil. Pers.		Civil Service			Contractor			Paid			Other	Total
		Mgmt Bureau	Other Army	DOD			RDTE	Other	Total	Paid From Army RDTE	Paid From Other RDTE	Paid From Army RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE				
18.																			
Army Materiel Development & Readiness Command, Program Managers, Various Locations	79	31455	418	353	2576	34802	1661	859	37322	332	-	70	10	-	118	61	591		
	80	23302	447	353	2733	26835	2542	941	30318	332	-	54	10	-	225	62	683		
	81	17524	347	353	2759	20983	2849	635	24467	246	-	54	10	-	157	23	490		
	82	9336	358	343	2759	12796	2281	325	15402	246	11	74	10	-	145	20	506		
19.																			
Army Research Office, Research Triangle Park, North Carolina	79	3213	-	-	-	3213	28	-	3241	92	-	-	-	-	2	-	94		
	80	4146	-	-	-	4146	30	-	4176	92	-	-	-	-	2	-	94		
	81	5062	-	-	-	5062	30	-	5092	92	-	-	-	-	2	-	94		
	82	5847	-	-	-	5847	30	-	5877	92	-	-	-	-	2	-	94		
20.																			
Atmospheric Science Laboratory, White Sands Missile Range, Las Cruces, New Mexico	79	9847	535	631	15	11028	5040	-	16068	163	5	-	-	-	359	-	527		
	80	10000	120	299	-	10619	5616	-	16035	167	5	-	-	-	400	-	572		
	81	10378	120	200	-	10698	5934	-	16632	169	3	-	-	-	400	-	572		
	82	10689	120	200	-	11009	5916	-	16925	169	3	-	-	-	400	-	572		

1/ Exclusive of Military Personnel and Military Construction.

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INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA (\$ in Thousands)				PERSONNEL (Man-Years)									
		RDTE Funds		All Other Funds	Sub-Total	Mil. Pers.		Civil Service		Contractor		Mil. Pers.		Other	Total
		Mgmt Bureau	Other Army			RDTE	Other	Paid	From	Paid	From	In	RDTE		
								RDTE	Other	RDTE	Other	Funds	Work		
21. Aviation Test Board, Ft Rucker, Alabama	79	1938	419	5	-	2362	1168	-	-	-	-	79	-	-	115
	80	2320	-	-	-	2320	1252	-	-	-	-	79	-	-	115
	81	2043	-	-	-	2043	1255	-	-	-	-	79	-	-	115
	82	2043	-	-	-	2043	1254	-	-	-	-	79	-	-	115
22. Aviation Research and Development Command, St Louis, Missouri	79	32119	80	-	139	32338	451	-	-	-	-	32	-	-	338
	80	63302	-	-	557	63859	488	-	-	-	-	33	-	-	346
	81	74564	-	-	557	75121	502	-	-	-	-	34	-	-	367
	82	63086	-	-	469	63555	473	-	-	-	-	29	-	-	360
23. Avionics Laboratory, Ft Monmouth, New Jersey	79	6934	3683	541	4707	15865	324	28	16217	199	9	88	15	-	336
	80	7330	4396	344	6415	18485	370	-	18855	199	6	101	15	-	347
	81	9695	4265	456	6513	20929	384	-	21313	220	8	78	15	-	347
	82	9794	4387	392	6617	21190	385	-	21575	220	8	78	15	-	347
24. Research & Technology Laboratory, Moffat Field, California	79	15892	1092	85	90	17159	338	-	17497	516	20	10	-	-	570
	80	18745	1287	90	80	20202	355	-	20557	501	20	15	-	-	560
	81	23123	1581	90	75	24869	355	-	25224	496	25	15	-	-	560
	82	24896	1960	90	75	27021	355	-	27376	496	25	15	-	-	560

1/ Exclusive of Military Personnel and Military Construction.

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INSTALLATION ANALYSIS - IN-HOUSE

Section 4 (Contd)

		TOA (\$ in Thousands)				PERSONNEL (Man-Years)											
Installation and Location	FY	RDTE Funds		All Other Funds	Sub-Total	Mil. Pers.			Civil Service			Contractor			Mil. Pers.		
		Mgmt Bureau	Other Army DOD			RDTE	Other	Total	Paid From Army	Paid From Other	Paid From RDTE	Paid From Other	Paid From RDTE	Paid From Other	In Work	Other	Total
				Funds													
Army Non-Industrial Installations																	
25. Ballistic Missile Defense	79	4766	-	-	4766	171	-	4937	100	-	-	-	-	-	8	-	108
Advanced Technology Center, Huntsville, Alabama	80	5548	-	-	5548	185	-	5733	99	-	-	-	-	-	8	-	107
	81	6166	-	-	6166	186	-	6352	99	-	-	-	-	-	8	-	107
	82	6989	-	-	6989	183	-	7172	99	-	-	-	-	-	8	-	107
26. Ballistic Missile Defense Program Office, Alexandria, Virginia	79	517	-	-	517	236	-	753	18	-	-	-	-	-	11	-	29
	80	560	-	-	560	207	-	767	14	-	-	-	-	-	9	-	23
	81	606	-	-	606	208	-	814	14	-	-	-	-	-	9	-	23
	82	656	-	-	656	207	-	863	14	-	-	-	-	-	9	-	23
27. Ballistic Missile Defense Systems Command, Huntsville, Alabama	79	6588	-	-	6588	321	-	6909	179	-	-	-	-	-	15	-	194
	80	7228	-	-	7228	369	-	7597	175	-	-	-	-	-	16	-	191
	81	7516	-	-	7516	370	-	7886	175	-	-	-	-	-	16	-	191
	82	7839	-	-	7839	367	-	8206	175	-	-	-	-	-	16	-	191

1/ Exclusive of Military Personnel and Military Construction.

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INSTALLATION ANALYSIS - IN-HOUSE

		TOA (\$ in Thousands)				PERSONNEL (Man-Years)									
Installation and Location	FY	RDTE Funds		All Other Funds ^{1/}	Sub-Total	Mil. Pers.		Civil Service		Paid From Other RDTE		Paid From Other RDTE		Paid From Other RDTE	
		Mgmt Bureau	Other Army			RDTE	Other	Paid From Army	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE
		28.	28.	28.	28.	28.	28.	28.	28.	28.	28.	28.	28.	28.	28.
Army Non-Industrial Fund Installations															
28. Cold Regions Research & Engineering Laboratory, Hanover, New Hampshire	79	3454	57	262	5812	9585	198	-	9783	127	7	96	-	-	-
	80	4062	60	280	6000	10402	254	-	10656	132	12	100	-	-	-
	81	4302	65	300	6200	10867	244	-	11111	132	12	100	-	-	-
	82	4516	70	320	6400	11306	228	-	11534	132	12	100	-	-	-
29. Cold Regions Test Center, Ft Greely, Alaska	79	4349	563	-	43	4955	3971	-	8926	22	-	-	-	-	-
	80	4442	346	-	51	4839	4035	-	8874	22	-	-	-	-	-
	81	4810	247	-	50	5107	3912	-	9019	22	-	-	-	-	-
	82	5203	-	-	118	5321	3890	-	9211	22	-	-	-	-	-
30. Combat Development Experimentation Lab, Ft Ord, California	79	352	-	-	-	352	-	-	352	-	-	-	-	-	-
	80	520	-	-	-	520	-	-	520	-	-	-	-	-	-
	81	400	-	-	-	400	-	-	400	-	-	-	-	-	-
	82	400	-	-	-	400	-	-	400	-	-	-	-	-	-
31. Combined Arms Test Activity, Ft Hood, Texas	79	724	-	-	-	724	27	-	751	1	-	-	-	-	-
	80	1046	-	-	-	1046	30	-	1076	1	-	-	-	-	-
	81	3100	-	-	-	3100	30	-	3130	-	-	-	-	-	-
	82	3101	-	-	-	3101	30	-	3131	1	-	-	-	-	-

^{1/} Exclusive of Military Personnel and Military Construction.

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INSTALLATION ANALYSIS - IN-HOUSE

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Installation and Location FY		TOA (\$ in Thousands)										PERSONNEL (Man-Years)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		RDTE Funds					All		Mil. Pers.			Civil Service					Contractor					Mil. Pers.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
		Mgmt		Other		Sub- Funds 1/ Total	Other	RDTE	Other	Total	Paid	From	RDTE	Other	RDTE	From	Paid	From	In	RDTE	Other	Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
		Bureau	Army	DOD	Funds																		Total	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE	Other	RDTE

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		TOA (\$ in Thousands)					PERSONNEL (Man-Years)									
		RDTE Funds			All Other Funds ^{1/}		Civil Service			Contractor			Mil. Pers.			
		Mgmt Bureau	Other Army	DOD	Sub-Total	Mil. Pers.		Paid	From Army	Paid	From Other	Paid	From Other	In RDTE	Total	
FY																
Installation Location and Army Non-Industrial Installations																
35.																
79	Construction	6771	3290	582	289	10932	33	-	10965	182	-	-	-	2	184	
80	Engineering	8974	3468	567	350	13339	33	-	13372	182	-	-	-	2	184	
81	Research Lab-	10466	4250	637	426	15779	35	-	15814	182	-	-	-	2	184	
82	oratory, Champaign, Illinois	10785	4535	678	300	16298	33	-	16331	182	-	-	-	2	184	
36.																
79	Corps of Engineers	496	-	-	-	496	16	-	512	11	-	-	-	1	12	
80	RDTE	487	-	-	-	487	16	-	503	11	-	-	-	1	12	
81	Headquarters	487	-	-	-	487	17	-	504	11	-	-	-	1	12	
82	Activities, Washington, DC	507	-	-	-	507	16	-	523	11	-	-	-	1	12	
37.																
*79	Dugway Proving Ground,	12311	3982	1000	1946	19239	1389	-	20628	608	29	18	55	187	897	
81	Dugway, Utah	13133	4842	4400	485	22860	2790	-	25650	608	29	18	83	187	925	
82	Dugway, Utah	13504	5000	1000	12045	31549	2766	-	34315	608	54	18	83	187	950	

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		TOA (\$ in Thousands)				PERSONNEL (Man-Years)											
		RDTE Funds			All Other Funds	Sub-Total	Mil. Pers.		Civil Service			Contractor			Mil. Pers.		
		Mgmt Bureau	Other Army	DOD			RDTE	Other	Total	Paid From Army	RDTE	Other	Paid From RDTE	Other	Paid From RDTE	Other	
Installation and Location	FY																
Army Non-Industrial Fund Installations																	
38. Electronic Proving Ground, Ft Huachuca, Arizona	79 80 81 82	7251 7940 10287 9535	6081 6723 7537 8102	1227 1357 1519 1635	18 20 25 25	14577 16040 19368 19297	7982 9098 9521 9140	2126 2241 2229 2233	24685 27379 31118 30670	127 127 127 127	37 37 37 37	44 44 44 44	213 244 244 244	57 65 65 65	568 668 618 618	151 151 151 151	1197 1336 1286 1286
39. Electronics Research and Development Command HQs, Adelphi, Maryland	79 80 81 82	6755 7366 7366 7366	- - - -	- - - -	- - - -	6755 7366 7366 7366	266 281 281 281	- - - -	7021 7647 7647 7647	130 130 130 210	- - - -	- - - -	- - - -	- - - -	19 19 19 19	- - - -	149 149 149 229
40. Electronics Research & Development Command, Ft Monmouth, New Jersey	79 80 81 82	15396 16104 16088 16571	17193 19326 19280 19921	687 635 552 656	5438 5261 6242 6271	38714 41326 42162 43419	155 606 1048 1050	563 599 590 592	39432 42531 43800 45061	593 606 601 601	6 6 6 7	54 54 59 58	- - - -	- - - -	11 71 71 71	40 40 40 40	704 777 777 777
41. Engineer Topographic Laboratory, Ft Belvoir, Virginia	79 80 81 82	5069 6220 6081 6299	2117 2160 1814 1862	2806 2686 2552 2600	- - - -	9992 11066 10447 10761	198 254 260 243	- - - -	10190 11320 10707 11006	128 129 127 128	107 106 108 107	- - - -	- - - -	- - - -	12 15 15 15	- - - -	247 250 250 250

1/ Exclusive of Military Personnel and Military Construction.

UNCLASSIFIED

Section 4 (Contd)

UNCLASSIFIED

INSTALLATION ANALYSIS - IN-HOUSE

		TOA (\$ in Thousands)				PERSONNEL (Man-Years)											
						Civil Service		Contractor		Mil. Pers.							
		RDTE Funds		All Other Funds ^{1/}		Sub-Total		Mil. Pers.		Paid From Army RDTE		Paid From Other RDTE		Paid From Other RDTE		Total	
FY		RDTE Funds		All Other Funds ^{1/}		Sub-Total		Mil. Pers.		Paid From Army RDTE		Paid From Other RDTE		Paid From Other RDTE		Total	
Installation and Location		RDTE Funds		All Other Funds ^{1/}		Sub-Total		Mil. Pers.		Paid From Army RDTE		Paid From Other RDTE		Paid From Other RDTE		Total	
Army Non-Industrial Fund Installations		RDTE Funds		All Other Funds ^{1/}		Sub-Total		Mil. Pers.		Paid From Army RDTE		Paid From Other RDTE		Paid From Other RDTE		Total	
42.	Engineer Water-79	6416	6000	5285	392	18093	198	-	18291	237	220	195	13	-	12	-	677
	way Experi-80	6525	5300	5750	1050	18625	254	-	18879	270	222	240	42	-	15	-	789
	mental Center, 81	7178	6050	6200	1130	20558	209	-	20767	270	229	233	40	-	12	-	784
	Vicksburg, 82	7425	6650	6500	1300	21875	195	-	22070	263	236	233	43	-	12	-	787
	Mississippi																
43.	Facility	155	-	-	-	155	-	-	155	8	-	3	-	-	-	-	11
	Engineer	650	-	-	-	650	-	-	650	8	-	-	-	-	-	-	11
	Support Agency, 81	655	-	-	-	655	-	-	655	8	-	3	-	-	-	-	11
	Ft Belvoir, 82	700	-	-	-	700	-	-	700	8	-	3	-	-	-	-	11
	Virginia																
44.	Field	1365	51	-	356	1772	2248	-	4020	35	-	-	-	-	152	-	187
	Artillery	1251	-	-	-	1251	2409	-	3660	35	-	-	-	-	152	-	187
	Board, Ft	1253	-	-	-	1253	2415	-	3668	35	-	-	-	-	152	-	187
	Sill, Oklahoma 82	1253	-	-	-	1253	2414	-	3667	35	-	-	-	-	152	-	187
45.	Foreign	33	-	-	-	33	14	-	47	2	-	-	-	-	1	-	3
	Science &	38	-	-	-	38	15	-	53	2	-	-	-	-	1	-	3
	Technology	40	-	-	-	40	15	-	55	2	-	-	-	-	1	-	3
	Center, 82	42	-	-	-	42	15	-	57	2	-	-	-	-	1	-	3
	Charlottesville, Virginia																

1/ Exclusive of Military Personnel and Military Construction.

UNCLASSIFIED

Section 4 (Contd)

UNCLASSIFIED

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location		TOA (\$ in Thousands)										PERSONNEL (Man-Years)															
		RDTE Funds					All Other Funds/					Civil Service					Contractor										
		Mgmt Bureau		Other Army		DOD		Sub-Total		Mil. Pers.		Paid From Army RDTE		Paid From Other RDTE		Paid From In		Paid From Other RDTE		Paid From In		Paid From Other RDTE					
		FY		FY		FY		FY		FY		FY		FY		FY		FY		FY		FY		FY			
Army Non-Industrial Fund Installations																											
46.																											
Infantry	79	1455	-	-	-	-	224	1679	1834	-	3513	55	-	-	-	-	-	-	-	-	-	-	-	-	179		
Board, Ft	80	1935	-	-	-	-	586	2521	1964	-	4485	55	-	-	-	-	-	-	-	-	-	-	-	-	179		
Benning, Georgia	81	1619	-	-	-	-	85	1704	1968	-	3672	55	-	-	-	-	-	-	-	-	-	-	-	-	179		
	82	1619	-	-	-	-	90	1709	1967	-	3676	55	-	-	-	-	-	-	-	-	-	-	-	-	179		
47.																											
Institute of	79	2114	-	-	-	-	225	2339	2339	-	4678	81	-	-	-	-	-	-	-	-	-	-	-	-	234		
Surgical	80	2129	-	-	-	-	225	2354	2493	-	4847	81	-	-	-	-	-	-	-	-	-	-	-	-	230		
Research, Ft	81	2580	-	-	-	-	225	2805	2456	-	5261	81	-	-	-	-	-	-	-	-	-	-	-	-	230		
Sam Houston, Texas	82	2678	-	-	-	-	225	2903	2450	-	5353	81	-	-	-	-	-	-	-	-	-	-	-	-	230		
48.																											
Intelligence	79	1175	-	-	-	-	-	1175	1376	-	2551	16	-	-	-	-	-	-	-	-	-	-	-	-	109		
and Security	80	1882	-	-	-	-	-	1882	1473	-	3355	16	-	-	-	-	-	-	-	-	-	-	-	-	109		
Test Board,	81	1605	-	-	-	-	-	1605	1476	-	3081	16	-	-	-	-	-	-	-	-	-	-	-	-	109		
Ft Huachuca, Arizona	82	1605	-	-	-	-	-	1605	1476	-	3081	16	-	-	-	-	-	-	-	-	-	-	-	-	109		
49.																											
Kwajalein	79	59870	6285	7015	-	-	20	73190	685	-	73875	131	-	-	-	-	-	2602	309	32	-	-	-	-	3074		
Missile Range,	80	64581	8210	10115	-	-	-	82906	739	-	83645	131	-	-	-	-	-	2604	349	32	-	-	-	-	3116		
Marshall	81	68602	7560	6670	-	-	-	82832	741	-	83573	131	-	-	-	-	-	2607	303	32	-	-	-	-	3073		
Islands	82	68602	7000	6000	-	-	-	81602	733	-	82335	131	-	-	-	-	-	2607	303	32	-	-	-	-	3073		

1/ Exclusive of Military Personnel and Military Construction.

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Section 4 (Contd)

UNCLASSIFIED

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location Army Non-In- Industrial Fund Installations	FY	TOA (\$ in Thousands)				PERSONNEL (Man-Years)											
		RDTE Funds				Civil Service				Contractor				Mil. Pers.			
		Hqat Bureau Army DOD				Paid From Army RDTE				Paid From RDTE				Paid From In			
		RDTE	Other	Sub-	Mil. Pers.	RDTE	Other	Total	RDTE	Other	RDTE	Other	Funds	Work	Other	Total	
				Total													
50. Letterman Army 79		6422	67	68	6557	2599	-	9156	122	-	-	-	-	170	-	292	
Institute of 80		4672	50	132	4854	2788	-	7642	122	-	-	-	-	170	-	292	
Research, San 81		6743	50	110	6903	2818	-	9721	122	-	-	-	-	172	-	294	
Francisco, 82		7122	50	110	7282	2828	-	10110	137	-	-	-	-	172	-	309	
California																	
51. Liaison Field 79		4357	-	-	4357	684	-	5041	126	-	-	-	-	37	-	163	
Offices, 80		4830	-	-	4830	605	-	5435	133	-	-	-	-	28	-	161	
Various 81		5169	-	-	5169	606	-	5775	133	-	-	-	-	28	-	161	
Locations (ARI)82		5529	-	-	5529	599	-	6128	133	-	-	-	-	28	-	161	
52. Liaison 79		761	-	-	761	-	56	817	15	-	-	-	-	-	4	19	
Offices, 80		535	-	-	535	-	59	594	15	-	-	-	-	-	4	19	
Various 81		564	-	-	564	-	59	623	15	-	-	-	-	-	4	19	
Locations 82		588	-	-	588	-	59	647	15	-	-	-	-	-	4	19	
(DARCOM)																	
53. Medical Bio- 79		3538	202	215	4090	459	-	4549	92	-	-	-	-	30	-	122	
Engineering 80		3461	140	120	3721	558	-	4279	92	-	-	-	-	34	-	126	
R&D Laboratory, 81		4209	140	120	4469	560	-	5029	92	-	-	-	-	34	-	126	
Ft Detrick, 82		4517	140	120	4777	559	-	5336	92	-	-	-	-	34	-	126	
Maryland																	

1/ Exclusive of Military Personnel and Military Construction.

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UNCLASSIFIED

INSTALLATION ANALYSIS - IN-HOUSE

Section 4 (Contd)

Installation and Location		TOA (\$ in Thousands)				PERSONNEL (Man-Years)																																																																																																																																																																																																																																																																																																
		RDTE Funds		All Other Funds	Sub-Total	Mil. Pers.		Civil Service		Contractor																																																																																																																																																																																																																																																																																												
		Mgmt Bureau	Other Army			DOD	RDTE	Other	Total	Paid From Army RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE	Paid From Other RDTE

1/ Exclusive of Military Personnel and Military Construction.

UNCLASSIFIED

Section 4 (Contd)

UNCLASSIFIED
INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA (\$ in Thousands)				PERSONNEL (Man-Years)											
		RDTE Funds		All Other Funds/ Sub-Total		Mil. Pers.		Civil Service		Paid		Contractor		Paid		Mil. Pers.	
		Mgmt Bureau	Other Army	Other DOD						From Army	From RDTE	Paid From	Paid From	From RDTE	From Other	In	Total
Army Non-Industrial Fund Installations																	
57.																	
Matlack	79	20569	1802	656	695	23722	1056	-	24778	799	-	-	-	-	-	75	-
Research and Development	80	23060	1509	200	816	25585	1670	-	27255	799	-	-	-	-	-	150	-
Command, Matlack, Massachusetts	81	27648	1748	220	766	30382	2274	-	32656	799	-	-	-	-	-	150	-
	82	30276	1992	240	788	33296	2219	-	35515	799	-	-	-	-	-	150	-
58.																	
Night Vision and Electro-optics Laboratory, Ft Belvoir, Virginia	79	10848	2542	599	4712	18701	535	-	19236	326	12	112	-	-	-	28	-
	80	11629	1820	600	3957	18006	488	-	18494	332	12	80	-	-	-	38	-
	81	13275	1891	600	3780	19546	562	-	20108	344	12	80	-	-	-	38	-
	82	13544	1787	646	3500	19477	562	-	20039	349	13	80	-	-	-	38	-
59.																	
Operational Test & Evaluation Agency, Falls Church, Virginia	79	500	-	-	6322	6822	402	1608	8832	-	-	14	-	-	-	28	112
	80	800	20	-	5686	6306	427	1708	8641	-	-	24	-	-	-	28	112
	81	750	-	-	4706	5456	429	1716	7601	-	-	24	-	-	-	28	112
	82	750	-	-	4706	5456	427	1708	7591	-	-	24	-	-	-	28	112

1/ Exclusive of Military Personnel and Military Construction.

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INSTALLATION ANALYSIS - IN-HOUSE

Section 4 (Contd)

Installation and Location		TOA (\$ in Thousands)										PERSONNEL (Man-Years)																													
		FY					RDTE Funds					All Other Funds					Sub-Total					Mil. Pers.					Civil Service					Contractor					Mil. Pers.				
		RDTE		Funds		Other	DDO	RDTE	Other	Total	RDTE	Other	Total	RDTE	Other	Total	RDTE	Other	Total	RDTE	Other	Total	RDTE	Other	Total	RDTE	Other	Total	RDTE	Other	Total										
		Mgmt Bureau	Army	Other	Other																											Other	Other	Other	Other	Other	Other	Other	Other	Other	Other
FY																																									
60.																																									
79	Research Institute for Behavioral Sciences, Alexandria, Virginia	7350	-	-	-	83	7433	259	-	-	7692	187	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	196									
80		7904	-	-	-	98	8002	300	-	-	8302	184	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	198									
81		8442	-	-	-	79	8521	302	-	-	8823	184	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	198									
82		9023	-	-	-	-	9023	301	-	-	9324	184	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	198									
61.																																									
79	Research Institute of Environmental Medicine, Natick, Massachusetts	3884	50	-	-	55	3989	1239	-	-	5228	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	171									
80		4148	50	-	-	-	4198	1378	-	-	5576	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	171									
81		4322	50	-	-	-	4372	1335	-	-	5707	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	171									
82		4535	50	-	-	-	4585	1332	-	-	5917	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	171									
62.																																									
79	Signal Warfare Laboratory, Vint Hill Farm, Virginia	1921	-	1520	-	793	4234	296	99	-	4629	60	45	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	153									
80		2479	-	1788	-	899	5166	370	-	-	5536	55	43	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	148									
81		2610	-	1850	-	899	5359	413	-	-	5772	55	43	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150									
82		2127	-	1876	-	899	4902	355	-	-	5257	55	43	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	143									

1/ Exclusive of Military Personnel and Military Construction.

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INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location FY	RDTE Funds Mgmt Bureau	RDTE Funds Other Army	RDTE Funds DOD	All Other Funds	Sub- Total	Mil. Pers. RDTE	Other RDTE	Total	PERSONNEL (Man-Years)									
									Civil Service					Contractor				
									Paid	From	From	From	From	Paid	Paid	From	In	
									RDTE	Army	Other	RDTE	RDTE	Other	RDTE	Funds	Work	Total
63. Standard- ization Group, 80 Australia	79 80 81 82	17 16 17 19	- - - -	- - - -	17 16 17 19	27 30 30 30	- - - -	44 46 47 49	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	2 2 2 2	2 2 2 2
64. Standard- ization Group, 80 Canada	79 80 81 82	40 42 44 46	- - - -	- - - -	40 42 44 46	27 30 30 30	- - - -	67 72 74 76	2 2 2 2	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	2 2 2 2	4 4 4 4
65. Standard- ization Group, 80 United Kingdom	79 80 81 82	800 900 1100 1200	- - - -	- - - -	800 900 1100 1200	137 148 148 148	- - - -	937 1048 1248 1348	15 15 15 15	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	10 10 10 10	25 25 25 25
66. Tank Auto- motive Research & Development Command, Warren, Michigan	79 80 81 82	18219 19025 19402 21026	1137 204 370 1466	1128 1662 2391 214	9 20493 20891 22163	- - - -	437 482 487 489	20930 21373 22650 23195	401 404 404 404	82 78 39 38	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	31 33 33 34	514 515 476 476

1/ Exclusive of Military Personnel and Military Construction.

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INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA (\$ in Thousands)				PERSONNEL (Man-Years)											
		RDTE Funds		All Other Funds	Sub-Total	Mil. Pers.		Civil Service		Paid From Army		Paid From RDTE		Paid From Other		Paid From RDTE	
		Mgmt Bureau	Other Army			RDTE	Other	Total	RDTE	Other	Total	RDTE	Other	Total	RDTE	Other	Total
Army Non-In-Industrial Fund Installations																	
67.																	
Test and Evaluation	79	14683	108	-	-	14791	1379	-	16170	383	-	-	-	1	-	-	99
Command Headquarters, Aberdeen, Maryland	80	15508	159	-	-	15667	1833	-	17500	376	-	-	-	1	-	-	149
	81	12629	159	-	-	12788	2082	-	14870	385	-	-	-	1	-	-	128
	82	12881	-	-	-	12881	1893	-	14774	385	-	-	-	1	-	-	128
68.																	
Tri-Service Tactical Communications	79	5850	-	2246	-	8096	451	-	8547	164	-	-	-	-	-	-	32
	80	6260	-	2490	-	8750	473	-	9223	164	-	-	-	-	-	-	32
	81	5750	-	2600	-	8350	472	-	8822	164	-	-	-	-	-	-	32
	82	5964	-	2730	-	8694	473	-	9167	164	-	-	-	-	-	-	32
Systems (TRI-TAC), Ft Monmouth, New Jersey																	
69.																	
Tropic Test Center, Panama, Canal Zone	79	2333	71	7	26	2437	1111	-	3548	76	-	-	-	-	-	-	80
	80	2491	68	7	25	2591	1182	-	3773	74	-	-	-	-	-	-	80
	81	2504	77	-	25	2606	1181	-	3787	74	-	-	-	-	-	-	80
	82	2445	75	-	25	2545	1183	-	3728	74	-	-	-	-	-	-	80
70.																	
Walter Reed Army Institute of Research, Washington, DC	79	19370	152	56	1007	20585	6590	-	27175	411	-	-	-	-	-	-	431
	80	20282	100	25	420	20827	7302	-	28129	420	-	-	-	-	-	-	437
	81	26770	100	25	420	27315	7225	-	34540	424	-	-	-	-	-	-	439
	82	28802	100	25	420	29347	7214	-	36561	435	-	-	-	-	-	-	439

1/ Exclusive of Military Personnel and Military Construction.

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Section 4 (Contd)

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INSTALLATION ANALYSIS - IN-HOUSE

		TOA (\$ in Thousands)										PERSONNEL (Man-Years)									
Installation and Location	FY	RDTE Funds				All		Sub-		Mil. Pers.		Civil Service		Contractor		Mil. Pers.					
		Mgmt Bureau	Other Army	Other DOD	Total	Funds ^{1/}	Total	RDTE	Other	RDTE	Other	Paid	From Army	Paid	From RDTE	Paid	From In	RDTE	Other	Total	
Army Non-Industrial Installations																					
71. White Sands	79	110958	15847	5719	8565	141089	8686	42	149817	2444	91	160	941	64	618	3	4321				
Missile Range,	80	116282	18951	5424	8615	149272	11082	44	160398	2440	94	160	950	75	869	3	4591				
Las Cruces,	81	118468	18893	5786	8020	151167	12771	44	163982	2611	95	165	1012	70	861	3	4817				
New Mexico	82	156097	18973	5794	8020	188884	12750	44	201678	2728	96	165	1012	70	861	3	4935				
72. Yuma Proving Ground, Yuma, Arizona	79	19611	8699	1187	1214	30711	5434	-	36145	808	-	-	15	-	387	-	1210				
	80	20662	8608	1500	2102	32872	5794	-	38666	343	-	-	201	-	397	-	941				
	81	25588	8998	1700	1202	37488	5831	-	43319	343	-	-	233	-	389	-	965				
	82	21954	7509	969	1010	31442	5753	-	37195	343	-	-	233	-	389	-	965				
Subtotal Army	79	627088	102122	36366	59892	825468	85498	6043	917009	13020	663	1425	4010	430	5846	427	25821				
Non-Industrial Fund	80	769062	135546	39786	136252	1080646	105549	6393	1192588	14859	684	3673	4468	489	7715	431	32319				
	81	861206	132883	42094	122234	1158417	117123	6144	1281684	16665	663	2029	4690	438	7527	392	32404				
	82	905318	130251	35896	126041	1197506	115575	5834	1318915	16894	707	1849	4677	438	7502	390	32457				
Total, In-House	79	885716	196037	63671	89993	1235417	91651	6439	1333507	19517	1234	3156	4071	430	6249	453	35110				
	80	976621	210754	65122	151750	1404247	112843	6946	1524036	21717	1069	5237	4474	489	8236	474	41696				
	81	1067953	208077	67039	138100	1481169	125208	6811	1613188	23789	1034	3592	4692	438	8048	435	42028				
	82	1096688	207287	59508	142104	1505587	123648	6501	1635736	24065	1051	3392	4679	438	8023	433	42081				

^{1/} Exclusive of Military Personnel and Military Construction.

* Transition of AIF to Non-AIF in FY 80.

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DEPARTMENT OF THE ARMY RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY ANALYSIS OF REIMBURSABLE PROGRAM (\$ in Thousands)

Section 5

	FY 1979 ACTUAL	FY 1980 ESTIMATE	FY 1981 ESTIMATE
<u>Customer</u>			
Department of the Army.	335,888	333,400	338,400
<u>Other Department of Defense Components</u>			
Department of the Navy.	33,654	38,400	38,400
Department of the Air Force	68,648	34,300	34,300
US Marine Corps	2,204	3,700	3,700
Other Defense Agencies.	6,457	24,600	24,600
Subtotal.	110,963	101,000	101,000
<u>Activities Outside Department of Defense</u>			
Department of Commerce.	7,038	7,200	7,200
Department of State	893	900	900
Department of Treasury.	686	700	700
Department of Health, Education and Welfare	129	200	200
Department of Transportation.	6,689	6,700	6,700
National Aeronautical and Space Administration.	1,085	1,100	1,100
Department of Interior.	995	1,000	1,000
Environmental Protection Agency	264	300	300
Energy Research and Development Administration.	110	100	100
Trust Funds	876	1,200	1,200
Other	3,898	4,000	4,000
Nonfederal Sources.	1,323	2,200	2,200
Subtotal.	23,986	25,600	25,600
TOTAL	470,837	460,000	465,000

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Section 5 (Contd)

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ANALYSIS OF REIMBURSABLE PROGRAM

DESCRIPTION OF REIMBURSABLE WORK

A large percentage of the Research, Development, Test and Evaluation (RDTE) reimbursable program is for intra-Army (both inter/intra-appropriation) work or services performed under automatic reimbursement procedures. RDTE efforts also support requests received from other Federal and Nonfederal agencies on a reimbursable basis. Major areas of support (items over a million dollars) include:

- a. Navy - 5" and 8" Semi-Active Laser Guided Projectile Program; Technical assistance for Remotely Piloted Vehicle, STARFLEX Hub Evaluation, Composite rear fuselage; thermo-plastics secondary airframe; composite tail section and flex beam tail rotor; proximity warning device; radar profiling of sea ice; optical properties of sea ice; mine neutralization studies; surfzone transition analysis; 7600 computer support; 30mm ammunition development; ground launcher missile; integrated inertial navigation systems; verify the signal interface and adequacy for quick fix.
- b. Air Force - Fabrication, installation and testing of AN/TSC-100 satellite; engineer and performance study of Dye sites; investigate anti-icing coating; effects of munitions on hardened structures; installation security systems; Missile X support; Missile X component tests; pavement analysis and evaluation; MINUTEMAN II and III firing missions; advanced ballistics reentry systems tests; space detection and tracking; tactical C2 distributed processing system; space and missile systems organization.
- c. Marine Corps - High Survivability Test Vehicle Ground Laser Locator Designator support; AN/TSC-86 Satellite Communications Terminal Fabrication, Installation and Testing; Target Activated Mine Systems; 8" Semi-Active Laser Guided Projectile Program.

d. Other Defense Agencies:

- (1) Defense Advanced Research Projects Agency - Laser technology; Crystals and Films; Micron Photocathodes; Nuclear Weapons Effects; HIMAC-A Study; Design Feasibility Study; Advance Combat Vehicle Technology; Accelerated 75mm Gun Feeder and Ammunition.
- (2) Defense Mapping Agency - Development of Ground Positioning Satellite Software; Photogrammetric Exploitation; Cartographic Exploitation; Geodetic and Geophysical Support; Data Base/Data Bank; products and services; PSEUDO Package Upgrade for the Diode.
- (3) Defense Nuclear Agency - Nuclear Weapons Effects; SILO Test Program; Shallow Buried Structures Test; Ionosphere Plume Experiment; Ground Motion Studies; Materiel Modeling; Grount Development; Road Cratering Tests; Support Nuclear Weapons Effect Technology program.

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Section 5 (Contd)

ANALYSIS OF REIMBURSABLE PROGRAM

- e. Department of Commerce - Measure of Spectrosubstrates, Dynamics of Near Shore Sea Ice, Permafrost, Flood Protection.
- f. Department of Transportation - Develop Math Model; Haul Road Study.
- g. National Aeronautical and Space Administration - Mars Water Analysis; Construction of Mobile Laser Facility; Trading Support for NASA.
- h. Department of Interior - Laser Distance Measuring System; Development of Mathematical Models; Exploration Drilling Sites; Tundra Recovery.
- i. Other - Antarctic Sea Ice Dynamics, Ship Test and Trail Service, Ice Deflector Test to Expedite Ships Through Ice, Soil Liquefaction Analysis, Calibration of Distance Measuring Equipment for Precise Mensuration of Dams, Global Positioning System Study.
- j. Nonfederal Sources - Beryllium in Greenland ice deposits; inertial motions observed; service of Munis; Gow; Ice Drilling Test; Permafrost Tunnel.

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DEPARTMENT OF THE ARMY RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY FEDERAL CONTRACT RESEARCH CENTERS

Section 6

Federal Contract Research Centers (FCRCs) are those organizations primarily engaged in providing specialized technical and scientific effort necessary to supplement that available in the Army. The centers listed are those sponsored by the Department of Defense which provide technical and management services in the management of the Army's programs. These centers provide independent, specialized, technical and scientific capabilities to supplement that available within the Department of the Army.

FCRCs have been established to permit more organizational flexibility, and greater availability of technical and scientific personnel. These research centers possess unique skills and capabilities resulting from the development of highly specialized professional staff intimately acquainted with the many facets of the Army's mission. This capability results from long association and practical experience with the Army. The in-depth background provides the Army with a research capability that cannot be immediately obtained elsewhere. Long association with the Department of Defense enables these centers to render quick response technical advisory service as well as to perform detailed research and analysis. This long association has tailored these research centers to be compatible with Army interests, procedures and operational requirements.

While the Army no longer sponsors an FCRC it will be necessary to continue research and development effort at FCRCs sponsored by the Department of Defense and the other services. These research and development contracts provide timely and innovative products and techniques appropriate to current and long-range Army missions and plans.

The requested FY 1981 FCRC requirements reflect an increase of \$2.4 million when comparing FY 1981 to FY 1980.

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Section 6 (Contd)

FEDERAL CONTRACT RESEARCH CENTERS

The following summary identifies the estimated work, excluding subcontract effort, to be placed with each Federal Contract Research Center (FCRC) from the Research, Development, Test and Evaluation, Army appropriation and from the other Army appropriations.

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT (\$ in Thousands)				
FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT				
AEROSPACE CORPORATION				
Research, Development, Test and Evaluation, Army	FY 1979 ACTUAL	FY 1980 ESTIMATE	FY 1981 ESTIMATE	FY 1982 ESTIMATE
6.21.05.A Materials.	-	100	200	200
6.26.18.A Ballistics Technology.	30 *	30	50	-
6.33.04.A Ballistic Missile Defense Advanced Technology Center	250	-	-	-
6.33.08.A Ballistic Missile Defense Systems Technology	993 *	1,043 *	-	-
6.33.14.A High Energy Laser Components	70	70	80	85
6.37.30.A Tactical Surveillance System	644	582	408	482
6.37.45.A Tactical Electronic Surveillance Systems	368	388	459	535
6.47.40.A Tactical Surveillance System	506	485	357	428
6.47.45.A Tactical Electronic Surveillance Systems	276	291	255	321
Total RDTE, Army	2,114	1,946	1,809	2,051
Total RDTE, Army Included in Air Force Ceiling	1,023	1,043	-	-
Total Aerospace Corporation	3,137	2,989	1,809	2,051

* Program funded by Army but supported with Air Force ceiling.

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Section 6 (Contd)

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

AEROSPACE CORPORATION (Continued)

Remarks: The expertise and facilities of Aerospace Corporation are required to support the Army as follows:

1. Materials. Aerospace Corporation efforts are required for technical research and development support to the US Army Materials and Mechanics Research Center (AMMRC) in the following areas:
 - a. Metal Matrix Composites. Technical, consultive and advisory support in helicopter drive systems and bridging. Aerospace will apprise the Army of new developments in this technology.
 - b. High Performance Gear and Bearing Materials. Technical laboratory support continuing the evaluation of the core toughness of advanced candidate materials and occasional materials review and consultive support in this technology area.
 - c. High Density Materials for Penetrators. Technical and advisory support in the area of tungsten and depleted uranium. Of particular importance is the processing technology as related to the national capability to produce the required quantity and quality of high density materials for the Army's production needs.

2. Ballistics Technology.

a. Aerospace Corporation has personnel who have developed and utilized computer models of the muzzle flow field. Additionally, at Aerospace there is a significant computational gasdynamics capability which has developed in response to Air Force requirements regarding analysis of rocket and space systems.

b. The objective of the requested program is to take advantage of the expertise existing at Aerospace for the calculation of the propellant gas flow field which develops at the muzzle of a gun subsequent to shot ejection. The problem is similar to some rocket plume problems which have been analyzed by Aerospace for the Air Force. The approach would be to use existing numerical models, in particular finite element techniques for the solution of the time-dependent Navier-Stokes equations, to compute a realistic three-dimensional flow over a weapon equipped with a muzzle brake. The problem is of direct interest to the Army as the muzzle blast problem relates to current problems with fielded systems such as the M109 and M198 Howitzers.

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

AEROSPACE CORPORATION (Continued)

- (1) In FY 1980, Aerospace will complete effort to adapt existing three-dimensional, time-dependent finite element code to the calculation of the muzzle flow field which began in FY 1979. Analysis will continue into the flow over a fully three-dimensional muzzle device similar to that on a 155mm cannon giving consideration to the effects of multiple baffles.
- (2) In FY 1981, Aerospace will analyze the internal flow within the muzzle device and the flow external to the device would be begun. Particular attention would be given to the coupling between the flow within the device and the development of the muzzle blast flow field.

3. Ballistic Missile Defense Systems Technology. As directed by Department of Defense, the Space and Missiles System Organization (SAMSO) of the Air Force System Command is the procuring agency for the Systems Technology Reentry Experiments Program (STREP) targets. Through FY 1980 SAMSO will use Aerospace Corporation for technical support in this effort. The justification and manpower requirements for Aerospace personnel are established by SAMSO based on projected STREP target requirements. The technical support for STREP includes preparation of contractual documents, proposal evaluation, program planning, in-house studies, and providing technical direction to SAMSO contractors. During FY 1980, Aerospace support is required in conducting two MINUTEMAN-I launches to deliver payloads designed to meet Ballistic Missile Defense Systems Command (BMDS COM) requirements. This will include providing technical direction to Air Force contractors responsible for payload to booster integration testing and the booster launch effort. The two primary reentry vehicles for these missions will be manufactured to BMDS COM requirements. Aerospace will provide the necessary technical direction for accomplishing this effort. They will conduct booster performance analysis for various MINUTEMAN-I booster configurations. Different booster configurations are being considered for delivering targets for the Homing Overlay Experiment. They will define flight certification tests necessary to insure high reliability of the MINUTEMAN-I booster and payload. Aerospace will continue to support the identification and delivery of government furnished equipment (MINUTEMAN-I first and second stage and ground support equipment) to meet BMDS COM established delivery schedules.

4. High Energy Laser Components. Aerospace will provide consultation to the US Army Missile Command in the areas of laser physics, optics, fluid mechanics, stress and thermal analysis. The corporation will perform detailed diagnostic measurements appropriate to these areas as necessary to validate analytical techniques. Aerospace will perform Cavity/Resonator Analysis to specify spectrally resolved phase and intensity outputs from chemical warfare chemical lasers.

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

AEROSPACE CORPORATION (Continued)

5. Tactical Surveillance/Electronic Surveillance Systems. Aerospace Corporation provides General Systems Engineering and Technical Direction (GSE/TD) support to the Air Force in the management of complex space and missile systems. This work encompasses a wide spectrum of technical activities from initiation of a system concept through development, testing, and operational evaluation. Specifically, activities include advanced mission planning, definition of system requirements and detailed breakdown of segment specifications and overall systems engineering. The Army has tactical requirements that current, programmed, and new space systems can satisfy if proper trade-off studies are performed and if equipment, communications, personnel and interfaces necessary to integrate the functions to these systems with other, more conventional systems are identified and acquired. *Aerospace efforts are required for continued support to the Army's program in the following areas:*

- a. General System Support will be provided. Studies, both conceptual and hardware oriented, will be identified, scoped and performed according to established milestones. Aerospace will help develop a comprehensive system concept defining the functions, equipment, communications, personnel and interfaces necessary to integrate space system support into ground force operations. Longrange planning and briefing support, both personnel and material will be provided.
- b. General System Engineering/Technical Direction in support of simulation development and documentation and in support of other contractor efforts to be defined will be provided.
- c. Aerospace will modify and exercise several simulation programs to evaluate the support of potential advanced space systems to the tactical commander.
- d. Aerospace will provide technical support and perform system studies in support of Army Field evaluations.
- e. Aerospace will provide technical support and perform system studies in support of Army evaluations on the need for Army unique space systems capabilities.

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Section 6 (Contd)

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT	FY 1979 ACTUAL	FY 1980 ESTIMATE	FY 1981 ESTIMATE	FY 1982 ESTIMATE
<u>LINCOLN LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY</u>				
<u>Research, Development, Test and Evaluation, Army</u>				
6.27.26.A Army Support to Defense Advanced Research Project Agency (DARPA) HOWLS.	3,000 *	1,500 *	-	-
6.33.04.A Ballistic Missile Defense Advanced Technology Program.	8,114	8,560	9,355	10,300
6.33.08.A Ballistic Missile Defense Systems Technology	300	300	325	325
6.37.06.A IFF Developments (NATO).	-	2,000 **	1,800 **	1,600 **
6.53.01.A Kwajalein Missile Range (KMR).	3,335	3,400	3,900	4,100
6.58.04.A White Sands Missile Range (WSMR)	850	1,057	750	750
Total RDTE, Army	12,599	13,317	14,330	15,475
Total RDTE, Army Included in DARPA Ceiling	3,000	1,500	-	-
Total RDTE, Army Included in Air Force Ceiling	-	2,000	1,800	1,600
Total Lincoln Laboratory, Massachusetts Institute of Technology	15,599	16,817	16,130	17,075
Subcontract effort excluded from this amount.	11,794	11,459	12,281	13,180

* Program funded by Army but supported with Advanced Research Project Agency (ARPA) ceiling.

** Program funded by Army but supported with Air Force ceiling.

Remarks: Lincoln Laboratory technical support is required to support the Army as follows:

1. Army Support to DARPA HOWLS. Army funded portion of joint ARPA/Army effort at Lincoln Laboratories supports the following tasks:

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT (\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

LINCOLN LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY (Continued)

- a. Define the performance and utility of a netted battlefield radar system.
- b. Conduct studies, investigations, measurements and experiments leading to new techniques for detecting and accurately locating hostile artillery, mortars, and rockets in both firing and non-firing modes (HOWLS).
2. Ballistic Missile Defense Advanced Technology Program. Lincoln Laboratory efforts are required in the following areas:
 - a. Discrimination Technology: Discrimination technology effort includes work in reentry discrimination, bulk discrimination, exoatmospheric designation and discrimination engineering and radar data analysis and interpretation. Discrimination techniques utilizing millimeter wavelength radars and passive optics will be evaluated.
 - b. Radar Technology: Radar technology effort includes work in millimeter-wave components, laser components, large bandwidth digital signal processing, and surface wave technology. It also includes the procurement and installation of a millimeter wave instrumentation radar at Kwajalein for data collection.
 - c. Optics Technology: Optics technology effort includes: Operation of the Army Optical Station (AOS) at Kwajalein Missile Range (KMR), which includes two passive optical sensors and one laser sensor, obtaining signature measurements on targets-of-opportunity and conducting handover experiments between these sensors and the radars at KMR; and reduction and analysis of AOS data.
 - d. Terminal and Midcourse Defense Technology: Effort includes continuation of terminal and midcourse defense technology requirements definition for advanced concepts; with specific efforts in assessing the Low Altitude Defense (LoAD) Non-Nuclear Defense Requirements for endo defense and the Forward Acquisition System (FAS) Requirements in the exo region. Requirements to be addressed include probe/D3 functions and handover, battle management and engagement logic for FAS; and critical technology issue identification and assessment of relevant technology programs in support of LoAD Non-Nuclear Kill and other endo concepts.

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Section 6 (Contd)

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

LINCOLN LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY (Continued)

3. Ballistic Missile Defense Systems Technology. Lincoln Laboratory (LL) efforts are required for continued support to the Homing Overlay Experiment (HOE) program for accomplishment of the following general type tasks. LL's experience in operating the Kiernan Reentry Measurement Site (KREMS) at Kwajalein Missile Range (KMR) makes them singularly capable of performing these types of tasks:
 - a. The capabilities and constraints associated with KREMS when used to support the HOE will be analyzed to determine its ability to acquire and track both the interceptor and target and also to aid in assessing the kill of the target after intercept.
 - b. The simulation model(s) that will be used as part of the Homing Overlay Experiment Mission Simulation (HOMS) will be developed for use during both CONUS ground tests and KMR Pre-and post-flight test programs.
 - c. The data resulting from this task will be used in the HOE test program, which will reduce the risk of an in-flight failure by ground testing of applicable missile-borne equipments.
4. Identification Friend-or-Foe (IFF) Developments (NATO). Lincoln Laboratory efforts are required for technical support to the US Army Electronics Research and Development Command related to the Army portion of the Joint Service Effort to design the NATO Identification System for both air defense and battlefield IFF applications.
5. Kwajalein Missile Range (KMR). Continued Lincoln Laboratory support is required as outlined below:
 - a. The KREMS radars which were developed by Lincoln Laboratory under Advanced Research Projects Agency (ARPA) sponsorship, and by direction of the Director, Defense Research and Engineering (DDRE), were transferred to the Kwajalein Missile Range Directorate (KMRD) of the Ballistic Missile Defense Systems Command (BMDSOM) in 1968 to support the National Range mission.

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Section 6 (Contd)

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

LINCOLN LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY (Continued)

b. Lincoln Laboratory serves as Scientific Director of the Kiernan Reentry Measurements Site (KREMS) at Kwajalein Missile Range (KMR), and they are considered predominant experts for this particular task. They provide the technical management of the overall KREMS instrumentation system which includes three very unique and complex radar sensors and their associated display, control, and recording equipments in support of mission operations. Additionally, they perform the on-site mission test planning, radar systems engineering, and data reduction and reporting.

c. Their overall efforts are pursuant to the objective of providing an integrated operation with multiple sensors whose total spectrum of capabilities will allow the collection of data for both strategic offensive and defensive weapon system development and which will function as an extremely flexible test bed for experiments on Advanced Ballistic Missile system techniques. The instrumentation system at KREMS is a continually evolving one due to the emphasis on using, in real time, the capabilities of the individual sensors to maximize the total effectiveness for data collection.

d. KMR does not have the in-house capability to perform this effort. If the effort were sought from other contractual sources, the expertise gained at Lincoln Laboratory and nurtured during the last 15 years at government expense would be sacrificed and an unacceptable degradation in the quality and efficiency of support provided testing programs would occur.

6. White Sands Missile Range (WSMR). Continued Lincoln Laboratory support is required for establishment of the Tri-Service High Energy Laser (HEL) test capability. Work is to be performed in the following areas:

- a. Design of a beam diagnostic system.
- b. Definition of HEL data acquisition and analysis systems.
- c. Coordination of test requirements between Tri-Service users and US Army White Sands Missile Range.
- d. Determining availability of HEL instrumentation.

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
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MITRE CORPORATION

Research, Development, Test and Evaluation, Army

6.22.02.A Aircraft Avionics Technology						
6.27.01.A Communications Technology						
6.37.07.A Communications Development (JTIDS)	180	791	160	160	890	
6.37.22.A Tactical Operations System	433 *	550	966	966	890	
6.37.45.A Tactical Electronic Support Systems	-	-	-	-	-	
6.47.01.A Communications Engineering Development	-	610	320	320	320	
6.47.12.A Tactical Data Systems Interoperability	155	400	480	480	480	
6.47.45.A Tactical EMI C&C Support (BETA)	-	846	950	950	1,200	
6.47.79.A JINTACCS	135	210	300	300	300	
6.57.13.A Battlefield Systems Integration	895	1,855	2,623	2,623	2,120	
	1,350	-	668	668	700	
Total RDTE, Army	2,973	5,622	6,983	6,983	7,861	
Total RDTE, Army Included in Air Force Ceiling	175	-	-	-	-	

* Includes \$175 thousand Air Force ceiling.

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

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MITRE CORPORATION (Continued)

Operations and Maintenance, Army

	FY 1979 ACTUAL	FY 1980 ESTIMATE	FY 1981 ESTIMATE	FY 1982 ESTIMATE
202399 CENTAG CCIS.	300 *	460	497	547
202399 USAREUR CCIS Implementation.	440	950	1,100	1,200
393145 EUROM C-3	424	630	675	722
395701 US Army Communications Command (ARBITTS).	472	794	720	720
Total Operations and Maintenance, Army	1,485	2,834	2,992	3,189
Total Operations and Maintenance, Army Included in Air Force Ceiling.	151	-	-	-
Total Army	4,458	8,456	9,975	11,050
Total Army Included in Air Force Ceiling	326	-	-	-
Total MITRE Corporation	4,784	8,456	9,975	11,050

* Includes \$151 thousand Air Force ceiling.

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MITRE CORPORATION (Continued)

Remarks: MITRE Corporation expertise and technical support is required by the Army as follows:

1. Aircraft Avionics Technology. MITRE efforts are required for systems engineering support to the US Army Aviation Research and Development Command to define Army Airborne Communications systems requirements and in identifying alternative configurations which satisfy these requirements for the post 1990 timeframe. During FY 1981 and FY 1982, MITRE will concentrate on the following task areas:
 - a. Army Airborne Communication requirements study and identification of future Army airborne interoperation with other services in the categories of voice command and control, tactical air-to-air, tactical air-to-ground, data distribution, air traffic control (civil and military), and special purpose.
 - b. Communications Technology Assessment of advances in narrowband voice techniques, spread spectrum devices and other digital technologies.
 - c. System Synthesis to satisfy the above areas to include evaluation of tradeoffs of technical parameters with cost, doctrinal, interoperability, operational and programmatic factors.
 - d. Sub-Systems Characteristics with emphasis on anti-jammers and secure modes of operation.
2. Communications Technology. MITRE systems engineering support is required for Communications Technology missions as follows:

- a. Army Data Distribution System (ADDS) Conceptual Design and Distribution Experiment - investigate the conceptual design of an ADDS network using results from FY 1979 basic research in the area of development of a set of computer programs as a vehicle for development of algorithms for large, dynamic data networks. MITRE will also investigate system level architectures such as slotted/non-slotted, synchronous/asynchronous TDMA, as well as control concepts for fully distributed through partially distributed networks as exemplified by the Advanced Research Project Agency Packet Radio Network. MITRE will assist the ADDS working group in the detailed planning for and the conduct of the various phases of the corps level experiment and will determine the benefits of applying ADDS technology to closed loop systems which require data distribution capabilities.

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MITRE CORPORATION (Continued)

b. C3 Systems Engineering - systems engineering, analysis, and development planning to provide Army tactical data system interoperability concepts, requirements analyses, and interface performance requirements. MITRE will also assist in preparation of interoperability program planning, management, and system engineering documentation such as the BILP, Technical Feasibility and Cost Tradeoff Analysis, Candidate Interface Standards List, Coordinated Test Plans, and Technical Interface Design Plans.

c. Integrated Frequency Spectrum Engineering Optimization - system engineering support in planning and developing automated battlefield spectrum management/engineering facilities. Participation in development as an ABCA/NATO effort; review US/UK algorithms, and review of NSA/USACC CEOI roles.

3. Tactical Operations System (TOS). MITRE efforts are required to produce a comprehensive list of systems with which TOS must interoperate and design the interoperability criteria. Investigation will include as a minimum: Software protocols, thesori, data item dictionaries, hardware interfaces, COMSEC interfaces and production of test schedules.

4. Tactical Electronic Support Systems. MITRE efforts are required for systems engineering and experimental support in the development of automated templating procedures combining both mover and emitter data:

a. Electronics Research and Development Command is developing a number of systems (e.g. ASAS, TCAC(D), SOTAS) which collect or correlate battlefield information. The Army Command and Control Master Plan (AC²MP) defines enhancements needed to the correlation systems to provide the battlefield commander with timely analysis of the enemy situation. Of particular importance is the development of algorithms which will incorporate data on moving targets (from SOTAS) into the developing emitter templating programs. These algorithms are urgently needed to provide required enhancements to ASAS and TCAC(D) and to upgrade the SOTAS software.

b. The proposed program is an Army-specific outgrowth of the Joint Service BETA program. MITRE has provided engineering and management support of the BETA program, including evaluation of alternative correlation algorithms. The proposed program will build on the BETA program modules (algorithms), to develop improved correlation and analysis techniques for use in TCAC(D) and ASAS. The knowledge and experience gained in the BETA program are required to provide a cost-effective transition from a test-bed program (BETA) to systems useful to the battlefield commander. MITRE will provide a unique capability to this effort, incorporating not only the knowledge gained in the BETA program, but also their experience in the systems engineering and integration of other Army and Air Force data collection and processing systems.

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FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

c. MITRE will provide support in the development of emitter/mover templating procedures, including development and testing of mathematical algorithms, and systems engineering of improved methods of portraying these templating procedures to the battlefield commander.

5. Communications Engineering Development. MITRE efforts are required for engineering development support as follows:

a. Fiber Optics for Long Haul Tactical Communications - MITRE will continue to provide both general and specific system engineering activity assistance to include design trade-off studies and life cycle cost analysis in support of such studies. The general system engineering will entail performance under tasks associated with the monitoring and evaluating of contractor performance to include both system analysis updates and long range planning. MITRE will complete an evaluation of Army developing prototype connectors. This task will be performed in conjunction with RADC sponsored project 6320 under which MITRE is evaluating long wavelength sources and detectors, strengthened optical fibers, optical switches and multi-terminal access couplers.

b. MITRE will perform system engineering of the Joint Tactical Information Distribution System (JTIDS) portion of the Army Data Distribution System (ADDS). MITRE will design and adapt the JTIDS to meet unique Army battlefield data distribution and position location needs. Specifications will be prepared for contractor actions. Analysis and design of net management schemes for ground terminal use will be performed. Technical monitoring of ASIT test planning and test conduct will be performed.

6. Tactical Data Systems Interoperability. MITRE systems engineering support in the planning, development and testing of interoperability solutions for Battlefield Automation Systems as required by the Army Battlefield Interface Concept approved by Headquarters, Department of the Army, 29 December 1978.

7. Tactical EW/C Support. MITRE will function as task engineer for the BETA project and support special functions of the Joint Project Office. The technical area being pursued by BETA is at the leading edge of technology. MITRE is uniquely qualified to provide the required support because of their previous participation in the development of the concept and technical requirements for the BETA test bed effort including development of the RFP for the program. The combination of the experience gained during this process and the objectivity that their role as a Federal Contract Research Center bring to the effort is particularly critical because of the extensive coordination that must be accomplished with operational and technical agencies under the duress of an extremely tight program schedule.

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SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
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FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

8. Joint Interoperability of Tactical and Control Systems (JINTACCS). MITRE will provide system research, analysis, planning, engineering and technical management support in all phases of the Army C3 program. The Army Compatibility and Interface (CAI) testing with the Joint Interface Test Force is scheduled to continue through the mid-1980s. MITRE support is vital to this effort and will include:

- a. Assisting in the preparation for and support of JINTACCS and Army interoperability test objectives, plans, and procedures.
- b. Technical support necessary to insure timely execution and completion of assigned JINTACCS interoperability testing.
- c. Defining the performance, design and test requirements of the Army Test Center complex in support of JINTACCS testing.
- d. Analyzing and evaluating CAI tests to identify problems, correct deficiencies, recommend solutions and plans for retesting.
- e. Accomplishing user interoperability requirements analyses and development of related engineering design criteria.
- f. Developing system interoperability validation methodology and test planning.
- g. Accomplishing frequency engineering optimization analysis and modeling.
- h. Supporting NATO RSI planning and plan implementation and execution.

9. Battlefield Systems Integration (BSI).

- a. The MITRE Corporation battlefield system integration program, begun in FY 1976, consists of creative, interdisciplinary design work treating the Army in the field as a total and cohesive system, integrated so that combat subsystems

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FEDERAL CONTRACT RESEARCH CENTERS

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SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
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NITRE CORPORATION (Continued)

such as ground forces, organic aerial units and appropriate components of the Tactical Air Command of the US Air Force work in a common framework, with each element configured to maximize total system capabilities. There are three complimentary thrusts of activity carried on simultaneously and which must be resumed after our FY 1980 hiatus due to lack of funding.

(1) The first is the analysis of the functional areas of combat and support on the battlefield in a detailed and thorough manner to catalog all materiel systems and their interrelationships, as they are expected to be employed on the battlefield of 1986 and beyond. The data, once analyzed, will be stored and manipulated in an interactive data base to provide a baseline and central resource for future analytic work. The data gathering and analysis will include the identification of integration gaps and overlaps, proposed corrective actions and prospective new initiatives in systems and doctrine which would result in significant integration improvements. Development of the data base began with analysis of 1979 period data to prototype the system and applications. FY 1980 efforts were deferred due to lack of funds; experimentation with earlier data continuing. All mission areas (Close Combat; Fire Support; Air Defense; Command; Intelligence, Surveillance, and Target Acquisition; Combat Surveillance; other Combat Support, etc.) must be completed by the end of FY 1981. Future years will include update of data, extension to other target years and projection back from the Heavy Division to Corps and Echelons Above Corps, plus incorporation of other "type" units (i.e., Light Division).

(2) A second line of effort focuses on near term improvements to the Army's combat capability by optimizing integration within functional systems. Problem areas, gaps and potential solutions identified by the analyses described above or field reports are selected for concentrated effort based on potential payoff in combat effectiveness. Teams of engineers and analysts will develop fully documented program recommendations to give higher priority to certain research and development program elements, modify or terminate others, provide details for product improvements and input to research and technology development. Specific program areas include tactical air reconnaissance and close support integration with ground commander nodes, tactical communications structure and surveillance/fusion systems.

(3) The third thrust looks beyond any single combat function and addresses integration needs across multiple branches, functions and services. The objective is seek highest payoffs by exploiting new data generation and handling technology which permits rapid information interchange when the need for integration is recognized and designed into new systems. Examples of past contributions include a refined concept for Army Distributed Data Systems (ADDS) and Army/Air Force Position Location and Strike System (PLSS) interface. Planned efforts include engineering of interoperability on a system basis between Army tactical

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FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

data nodes, development of the necessary information interchange to implement timely airspace management in a high intensity environment and improved integration of tactical air reconnaissance for Army application.

b. The requested FY 1981 level of \$2.6 million is 55 percent of the Battlefield Systems Integration (BSI) program element. The balance of program element funds are applied to Army laboratories for analysis and both Army laboratories and private sector firms for solution and demonstrations to solve integration problems. A similar ratio is expected to prevail in future years. The relationship between MITRE and the BSI program has enabled MITRE to develop a professional core staff which is part of the Army Battlefield Systems Integration effort. A shift of the effort to in-house capability would force the redevelopment of personnel and preclude the flexibility of drawing upon a wider manpower pool of experienced technical staff for specific tasks. Use of competitive and other procurement procedures are used extensively to focus expertise on specific problems identified from initial analysis typically performed by MITRE. Procurement procedures and lead time dictate gaps in coverage and problems in continuing support which the Federal Contract Research Center, in part, overcomes. Substitution of other contractual support would preclude such consistency and result in higher costs due to the need to develop a knowledgeable staff.

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FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

10. Central Army Group (CENTAG) Command Control Information System (CCIS).

a. MITRE efforts are required to assist the Command and Control Group (CCG) of the Central Army Group in the analysis/assessment of CENTAG C2 requirements and the implementation of supporting concepts/systems. Three major milestones impact the CENTAG C2 effort: (1) CENTAG Peace Headquarters collocation with 4ATAF (1980); (2) initial CENTAG War Headquarters collocation with 4ATAF, Ruppertsweiler RI+ (modified facilities) (1981); and (3) the Joint Static War Headquarters (JSMHQ), Ruppertsweiler RI (new facilities) (1985). MITRE support to the CCG is a continuing effort. Work commenced in FY 1978 resulted in the documentation of a C2 concept to handle the CENTAG wartime requirements (conventional and initial tactical nuclear scenarios). Efforts in FY 1979 refined the earlier analysis and led to the design and implementation of automatic data processing terminal experiments for C2 support in the WINTEX '79 exercise as well as the application of wartime traffic volume estimates to the sizing of a joint (CENTAG-4ATAF) switch intercom system for secure voice and the determination of the number and distribution of terminals for message processing support. Work in FY 1980 continues the analysis/refinement of CCIS information requirements, in particular, supporting the CENTAG required input to the ACE C2 architecture, initiated in late 1979. Continuing system engineering, analytical efforts are required in FY 1981 and FY 1982 to support the CENTAG C2 system implementation.

b. Faced with the problem of having to integrate and use a number of NATO C2 subsystems programmed for the early to mid-1980's, as well as the potential of interfacing with a variety of National Systems, HQ CENTAG in 1978, at the direction of the Commander (COM) CENTAG, formed the CCG and initiated a study to evaluate the requirements of the CENTAG C2 system. MITRE assistance was provided as a US contribution to the study effort by the Office of the Deputy Chief of Staff of the Army for Operations and Plans. Similarly, the Ministry of Defense-Bonn (MOD BONN), Germany, provided assistance to the effort by assigning two officers from the German Army, General Staff. The methodology for the study was similar to the approach used in the ACE Command and Control Integration Plan and resulted in a multi-volume report. MITRE provided systems engineering assistance to the CCG by contributing to Volume II, "The Definition of the Functional Baseline System"; preparing a "Strawman" for Volume V, "Desired CENTAG C2 Characteristics"; preparing an interim report on CENTAG C2 shortfalls and recommended solutions, and developing the executive summaries of each of the volumes of the CENTAG C2 Integration Plan.

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SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT (\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

c. Based on the advocacy of the Commander, Central Army Group (COMCENTAG), in his dual role as Commander-in-Chief, United States Army Europe (CINCUSAREUR), to Headquarters, Department of Army, continued US assistance (MITRE) was obtained for the years 1979 and 1980 to support the CENTAG Command and Control Group (CCG) in their follow-on implementation efforts. The Ministry of Defense-Bonn also continues their support to the CENTAG CCG. MITRE assists the CENTAG CCG in a configuration management type role: The planning and integration of new C2 systems into the CENTAG environment requires frequent review and updating of the C2 system information as well as the development of concepts of operation and procedures for using the equipment. MITRE, providing the technical expertise in the design and utilization of sophisticated communications and information systems, is supporting these activities.

d. In FY 1981-1982, MITRE will support the CCG principally in the following areas: (1) Developing plans for CENTAG C2 system flexibility and survivability; (2) optimization procedures for the integration of C2 subsystems; and (3) systems analysis of CENTAG requirements to assist the ACE architecture effort. As outlined in the CENTAG C2 Five Year Plan - technical expertise is required to develop a viable C2 system to support the CENTAG LEAPFROG elements (Alternate War Headquarters) and the CENTAG Tactical Command Post (TCP). In particular, solutions to the issues of the C2 communications and automatic data processing survivability must be addressed. Further, technical assistance is required to determine the optimal functional procedures to take maximum advantage of the in-place C2 subsystems and to ensure their effective integration, e.g., CCIS ADP system, message processing system, CCTV system, etc. Continued system analysis support to refine the CENTAG requirements for the post 1985 period will be needed by the CCG for the ACE architecture task.

11. United States Army Europe (USAREUR) Command Control Information System (CCIS) Implementation.

a. MITRE efforts are required for continuance of engineering support to the USAREUR CCIS Project Office in the analysis and actions leading to the development and implementation of the USAREUR CCIS. This support includes communication system design, technical support in the development of ADP systems, test bed development and implementation, technical monitoring of subcontractor support activities and documentation leading to final system implementation.

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FEDERAL CONTRACT RESEARCH CENTERS SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT (\$ in Thousands)

Section 6 (Contd)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

b. The United States Army Europe Command Control Information System (USAREUR CCIS) effort was initiated in July 1976 at the specific request of the Commander-in-Chief, USAREUR. This effort resulted, in FY 1977, in a detailed study of C2 concepts and requirements, a series of recommendations, and a Master Plan for the implementation of a CCIS system. The final study report and Master Plan were forwarded to and approved by the Department of the Army for implementation. During FY 1978 and FY 1979 control and direction of the CCIS effort has been performed at USAREUR Headquarters, and assigned to a special CCIS Project Office. It represents the lead program in USAREUR's efforts to upgrade its command and control system in support of US ground forces in Europe.

c. The USAREUR role in wartime is to provide combat service support to US combat forces chopped to Allied Command Europe (ACE) and US units remaining under US command. The system which is required by USAREUR must interface with the US Component Commands, ACE forces, and multinational agencies which make up the NATO community. A major objective is to promote and ensure interoperability with interfacing systems.

d. The system concept as outlined in the original CCIS study, and which is currently being definitized, is based upon a distributed data system, and the conservation of communications resources. Currently available technology and resources to be made available in Europe in the near-term represent a major constraint in the early implementation of the system. Therefore, a principal systems design effort is to provide for the orderly growth and evolution of the system to integrate technology improvements as they become available in the European theater.

e. The FY 1980 program continues the effort initiated in FY 1979. A major effort will be designing and implementing a series of test bed operations. The major milestone for FY 1980 is the implementation of a large scale demonstration during CRESTED EAGLE. Initial delivery of hardware and software are anticipated in preparation for expanded demonstrations during WINTEX '81. Planning for demonstrations during WINTEX '81 will be a major effort the latter portion of FY 1980.

f. In FY 1981, MITRE will assist in the integration of software and hardware at the various sites in preparation for test bed operations. A major milestone will be the demonstration of the prototype system during WINTEX '81. Based upon the results of these tests, functional descriptions will be completed for additional subsystem modules and integration of subsystem and command system modules. MITRE will assist in the review for selection of subcontractors to implement the design.

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MITRE CORPORATION (Continued)

g. During FY 1982 effort initiated in FY 1981 will be continued. Functional descriptions will be completed and support will be provided for the final system components. MITRE will develop plans for system test, training and overall maintenance of the system. Technical support will be provided in monitoring contractor implementation of the final Command Control Information System (CCIS) configuration.

12. United States European Command (EUCOM) C-3. A requirement exists for MITRE to provide engineering analysis, technical integration and planning support to the design and implementation of World-Wide Military Command and Control Systems (WMCCS) Selected Architecture programs and the Nuclear Weapons Storage (NWS) Communications Program. During the current fiscal year, MITRE has supported HQ USEUCOM and the Army in plans for the USEUCOM Static War Headquarters (SWHQ) and the Joint Crisis Management Capability (JCWC) project. A need is identified for MITRE to support the US Army Communications Command (USACC) in its role as Executive Agent for the Army to implement the Improvements of Communications Facilities in Support of NMS sites. A requirement exists for MITRE to provide technical planning support, engineering analysis, and technical integration for the Tactical Nuclear Forces Command, Control and Communications (TNFC) project. In addition, MITRE support is anticipated for the Jam-Resistant Secure Communications (JRSC) and other anticipated Command, Control, Communications and Intelligence (C3I) projects. Specific MITRE support efforts required are as follows:

- a. USEUCOM SWHQ. This objective of MITRE effort is to assist USACC by independently reviewing the evolving technical issues surfaced by program participants and making recommendations as necessary. Ongoing political actions may influence future implementation concepts for this project. MITRE, under direction of USACC, will assist in the evaluation of the impact of any decisions in this regard.
- b. JRSC. Provide technical support in risk assessment and benefit analysis of emerging technical issues.
- c. TNFC. Summarize the rules, regulations in the Department of Defense and Nuclear Regulatory Commission that require positive control of nuclear weapons. Perform special, quick, turnaround engineering analysis support as required. Provide technical planning support, and technical integration of program activities.

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SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
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FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

- d. Joint Crisis Management Capability (JCMC). MITRE will, on a task basis, provide system engineering and technical assistance by independently evaluating current and planned communication assets that can support mobile/transportable command center concepts.
- e. Anticipated Command, Control, Communications and Intelligence (C3I) Projects. Initiatives are occurring that could result in significant participation by the US Army Communications Command in defining, validating the implementing command, control, and communications projects in the European area. Also, the US Army Communications Command (USACC) is involved in planning the Army's C3 programs. MITRE's previous experience and Federal Contract Research Center (FCRC) status would provide invaluable support to these efforts.
13. US Army Communications Command (ARBITTS). MITRE efforts are required for continued support to the Army Base Information Transfer System/Walter Reed Medical Center (WRAMC) Information Transfer System (ARBITTS/WITS) as outlined below:
- a. MITRE has provided systems engineering support to ARBITTS/WITS resulting in the feasibility of providing integrated multimedia interactive Communication-Electronics (C-E) systems to meet Army needs, a system design of testbed facilities, a definition of test scope, evaluation criteria resource requirements, a Subsystem Project Plan (S/PP), and a cost benefit/risk analysis.
- b. MITRE has performed program definition support, technical risk assessment of potential testbeds, testbed system engineering, coated and designed a coaxial cable network for the new Walter Reed Army Medical Center (WRAMC), and published a S/PP for the WRAMC mini-testbed. Results were used to begin system specifications for the WRAMC testbeds. MITRE also provided technical support to update the S/PP, prepared additional program management documentation, and detailed design applications for the mini-testbed, began the first phase implementation of the testbed at WRAMC, and published a plan for advanced communications systems in medical treatment facilities. MITRE has performed system engineering technical support to the Army for testbed implementation at WRAMC provided general and specific engineering support for the technical performance of the testbed system within the parameters established by the Army, technical initiative required for complete systems procurement for testbed implementations, assisted in preparing requests for proposals evaluation criteria, source selection team support to WRAMC in negotiations and review of contractors design efforts for hardware and software. MITRE has provided assistance to Army agencies and commands in the procurement, installation, operations, and tests and evaluations of the testbeds.

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FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

c. In FY 1981, MITRE will provide continuing System Engineering (SE) support to Walter Reed Medical Center (WRAMC), the Army Medical Department (AMEDD), and the Tri-Service Medical Information System (TRIMIS) in the implementation and interfacing of communications systems. The communications systems to support the medical Automatic Data Processing (ADP) systems within the AMEDD will be an integrated multi-made communications systems typified by the Walter Reed Information Transfer System (WITS) installed and tested at WRAMC under the Army Base Information Transfer System/Walter Reed Information Transfer System (ARBITS/WITS) project over the last two years. Work to be performed by MITRE during budget year 1981 is to (1) provide continuing technical support in interfacing the major Hospital Information System (HIS) onto the WITS cable at WRAMC, (2) provide the design, installation, testing, and monitoring of a technical control/performance monitoring system at Brooke Army Medical Center (BAMC), Fort Sam Houston, Texas, (3) continue to provide support in interfacing ADP medical systems such as the patient appointment system, record tracking system, and the clinical laboratory system onto the WITS cable at WRAMC, (4) continue to provide technical support in interfacing ADP medical support systems such as the inpatient accounting system, physiological monitoring system, clinical laboratory system, record tracking system, patient appointment system with the HIS at WRAMC, (5) continue to provide support in designing, implementing, and/or upgrading integrated communication systems at Army Medical Treatment Facilities to support TRIMIS, local ADP, and other communications requirements, (6) provide support in the operational use of the production Bus Interface Units (BIU), (7) continue to assist TRIMIS-Army in implementing and interfacing TRIMIS systems and communication requirements into Army Medical Treatment Facilities, (8) continue to specify changes to and provide technical assistance in upgrading communications in Army Medical Treatment Facilities to take advantages of new technology in the BIU and broadband multimode communication techniques.

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FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

TOTAL PROGRAM SUMMARY BY APPROPRIATION

	FY 1979 ACTUAL	FY 1980 ESTIMATE	FY 1981 ESTIMATE	FY 1982 ESTIMATE
Research, Development, Test and Evaluation, Army.	17,686	20,885	23,122	25,387
Operations and Maintenance, Army.	<u>1,485</u>	<u>2,834</u>	<u>2,992</u>	<u>3,189</u>
Total Federal Contract Research Center Requirement.	19,171	23,719	26,114	28,576
Subcontract effort excluded from this amount.	11,794	11,459	12,281	13,180

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DEPARTMENT OF THE ARMY RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY MAJOR IMPROVEMENTS TO AND CONSTRUCTION OF GOVERNMENT-OWNED FACILITIES FUNDED BY RDTE, ARMY APPROPRIATION

Section 7

PART 1. UTILIZATION OF SECTION 2353, TITLE 10 AUTHORITY

Specialized R&D facilities determined to be necessary for the performance of a contract for a Military Department for research and development, may be constructed by or furnished to the contractor and funded from appropriations available for research, development, test and evaluation. The Congress enacted this legislation, now 10 USC 2353, in 1956. This policy is executed through DOD Directive 4275.5. Under this policy, construction of R&D projects for contractors up to \$500,000 is normally approved by the Major Command concerned; the Service Secretary or such delegate as he may authorize approves projects up to \$1,000,000; and the Under Secretary of Defense for Research and Engineering approves projects over \$1,000,000. The table below provides a summary listing of all such projects accomplished in FY 1979 and planned in FY 1980, FY 1981 and FY 1982.

Facility/Equipment	RDTE Project Number	Contractor	Location	Total Obligational Authority (Thousands of Dollars)			
				FY 1979	FY 1980	FY 1981	FY 1982

SECTION I

Projects Accomplished or Underway

Negative

SECTION II

Projects Planned or Projected

Negative

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Section 7 (Contd)

MAJOR IMPROVEMENTS TO AND CONSTRUCTION OF GOVERNMENT-OWNED FACILITIES FUNDED BY RDTE, ARMY APPROPRIATION

PART 2. UTILIZATION OF RDTE APPROPRIATION FOR FACILITIES AT GOVERNMENT-OWNED/GOVERNMENT-OPERATED INSTALLATIONS

Chapter 251 (which was approved by the GAO as DOD Instruction 7220.5) provides that RDTE appropriations may finance the development, design, purchase and installation (including directly related foundations, shielding, environmental control, weather protection, structural adjustments, utilities and access) of equipment or instrumentation required for research, development, test and evaluation activities. The table below provides a summary listing of all such projects for the installation of equipment, where the cost of installation is \$100,000 or more, accomplished in FY 1979 and planned in FY 1980, FY 1981 and FY 1982:

Facility/Equipment	RDTE Project Number	Location	Total Obligational Authority (Thousands of Dollars)			
			FY 1979	FY 1980	FY 1981	FY 1982

SECTION I

Projects Accomplished or Underway

Provide Emulator Systems Hardware Expansion and Army CAMO Emulations for the Teleprocessing Design Center	1X464779D309	Hexagon Ft Monmouth, NJ	305	-	176	300
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SECTION II

Projects Planned or Projected

Negative

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MAJOR IMPROVEMENTS TO AND CONSTRUCTION OF GOVERNMENT-OWNED FACILITIES FUNDED BY RDTE, ARMY APPROPRIATION

Section 7 (Contd)

PART 3. UTILIZATION OF RDTE APPROPRIATION FOR MINOR CONSTRUCTION

For in-house installations, construction projects in support of R&D for \$100,000 or less are funded from RDTE appropriations. Such expenditures are authorized by 10 USC 2674 and the applicable provisions of the current DOD Appropriation Act. Under this procedure, project approval at this level is authorized by the Major Command concerned, or delegated to R&D installation commanders as appropriate. The table below provides a summary total of such minor construction accomplished in FY 1979, and the estimated amounts planned for FY 1980, FY 1981 and FY 1982. All minor construction must result in a complete and usable facility. In no event are two or more minor construction projects of minor and major construction projects to be contrived to form a usable facility.

SUMMARY OF MINOR CONSTRUCTION FUNDED BY RDTE, ARMY

<u>FY 1979</u>	<u>FY 1980</u>	<u>FY 1981</u>	<u>FY 1982</u>
1,245	2,249	2,048	1,336

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Section 7 (Contd)

MAJOR IMPROVEMENTS TO AND CONSTRUCTION OF GOVERNMENT-OWNED FACILITIES FUNDED BY RDTE, ARMY APPROPRIATION

RDTE INSTALLATION PROJECT FACT SHEET (Part 2, RD-4)

I. Facility/Equipment/Cost of Equipment: This effort is to provide Emulator System hardware expansion and Army CAMO Emulations for the TDC. Contractor is Control Data Corporation.

II. R&D Program Element: 6.47.79.A

III. R&D Project Number: 1X464779D309

IV. Location: Hexagon, Ft Monmouth, New Jersey

V. Summary of R&D funds programmed by fiscal year identified to the project number:

FY 79	\$305K
FY 80	-
FY 81	176K
FY 82	300K

VI. Summary of other funds by fiscal year identified in the project, claimant or P-1 line item level: None

VII. Describe the relationship of the installation project to the R&D program element funding the effort: Not Applicable

VIII. Provide rationale for funding effort in R&D rather than Military Construction or O&M Appropriations: The equipment and facilities are required to emulate ADP systems compatibility and interoperability. These functions are funded by the RDTE appropriation.

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DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
PROJECT DATA FOR CONSTRUCTION AT GOVERNMENT-OWNED
FACILITIES FUNDED BY RDTE, ARMY APPROPRIATION

NOT APPLICABLE

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1. REPORT NUMBER		N/A	
2. GOVT ACCESSION NO.			
3. RECIPIENT'S CATALOG NUMBER			

4. TITLE (and Subtitle)		Department of the Army Justification of Estimates for Fiscal Year 1981 Submitted to Congress January 1980	
5. TYPE OF REPORT & PERIOD COVERED		Army RDT&E Budget Justification FY 1981	
6. PERFORMING ORG. REPORT NUMBER			

7. AUTHOR(s)		Department of the Army	
8. CONTRACT OR GRANT NUMBER(s)			
9. PERFORMING ORGANIZATION NAME AND ADDRESS		HQDA, Office of the Deputy Chief of Staff for Research, Development, & Acquisition (DAMA-PPR-B), Washington, DC 20310	
10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS			

11. CONTROLLING OFFICE NAME AND ADDRESS		HQDA, Office of the Deputy Chief of Staff for Research, Development, & Acquisition (DAMA-AOA-S), Washington, DC 20310	
12. REPORT DATE		January 1980	
13. NUMBER OF PAGES		79	
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15. SECURITY CLASS. (of this report)		UNCLASSIFIED	
15a. DECLASSIFICATION/DOWNGRADING SCHEDULE			

16. DISTRIBUTION STATEMENT (of this Report)		Approved for public release, distribution unlimited.	
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)			
18. SUPPLEMENTARY NOTES			

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		Army Research, Development, Test and Evaluation Budget Justification Book for justification of estimates submitted to Congress in January 1980 for Fiscal Year 1981.	
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)			

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