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DEPARTMENT OF THE ARMY JUSTIFICATION OF ESTIMATES FOR FISCAL YE--ETC(U)
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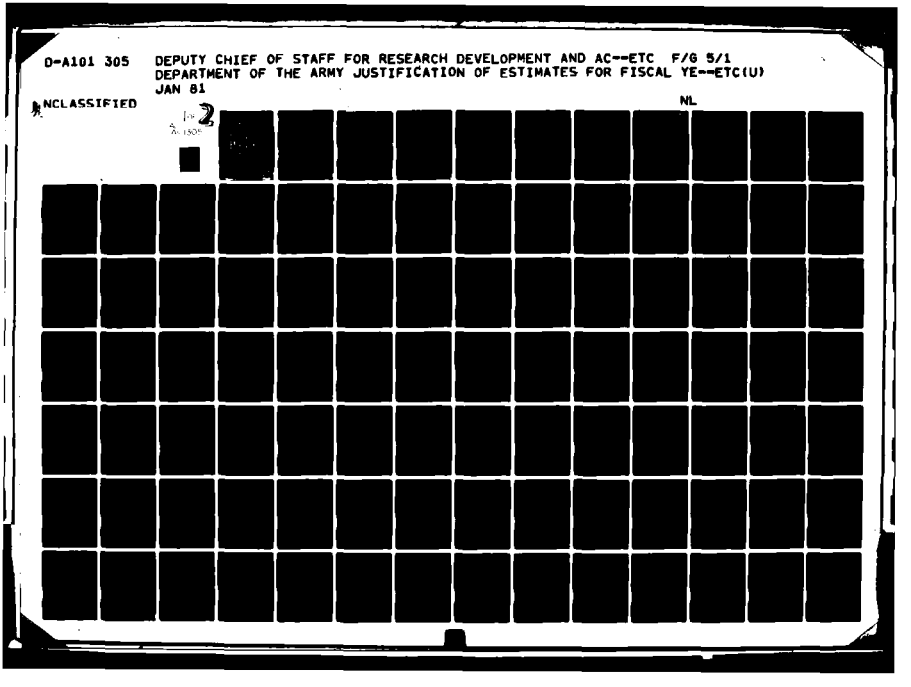

LEVEL III (1)

DEPARTMENT OF THE ARMY

JUSTIFICATION OF ESTIMATES FOR FISCAL YEAR 1982 (U)

Submitted to Congress

JANUARY 1981

RESEARCH DEVELOPMENT, TEST AND EVALUATION, ARMY

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--     1   OF    12
-- 1 -  AD NUMBER: A097382
-- 5 -  UNCLASSIFIED TITLE:     DEPARTMENT OF THE ARMY JUSTIFICATION OF
--      ESTIMATES FOR FISCAL YEAR 1982, SUBMITTED TO CONGRESS JANUARY 1981.
--      PART 5. OTHER PROCUREMENT ARMY.
--11 -  REPORT DATE:      JAN   , 1981
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--     2   OF    12
-- 1 -  AD NUMBER: A097381
-- 5 -  UNCLASSIFIED TITLE:     DEPARTMENT OF THE ARMY JUSTIFICATION OF
--      ESTIMATES FOR FISCAL YEAR 1982, SUBMITTED TO CONGRESS JANUARY 1981.
--      PART 4. AMMUNITION.
--11 -  REPORT DATE:      JAN   , 1981
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--     3   OF    12
-- 1 -  AD NUMBER: A097380
-- 5 -  UNCLASSIFIED TITLE:     DEPARTMENT OF THE ARMY JUSTIFICATION OF
--      ESTIMATES FOR FISCAL YEAR 1982, SUBMITTED TO CONGRESS, JANUARY 1981.
--      PART 3. WEAPONS AND TRACKED COMBAT VEHICLES.
--11 -  REPORT DATE:      JAN   , 1981
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--     4   OF    12
-- 1 -  AD NUMBER: A097379

-- 5 -  UNCLASSIFIED TITLE:     DEPARTMENT OF THE ARMY JUSTIFICATION OF
--      ESTIMATES FOR FISCAL YEAR 1982, SUBMITTED TO CONGRESS JANUARY 1981.
--      PART 2. MISSILES.
--11 -  REPORT DATE:      JAN   , 1981
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--     5   OF    12
-- 1 -  AD NUMBER: A097378
-- 5 -  UNCLASSIFIED TITLE:     DEPARTMENT OF THE ARMY JUSTIFICATION OF
--      ESTIMATES FOR FISCAL YEAR 1982, SUBMITTED TO CONGRESS JANUARY 1981.
--      PART 1. AIRCRAFT.
--11 -  REPORT DATE:      JAN   , 1981
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-- ESTIMATES FOR FISCAL YEAR 1981, SUBMITTED TO CONGRESS JANUARY 1980,
-- PROCUREMENT PROGRAMS, AIRCRAFT, MISSILES, WEAPONS & TRACKED COMBAT
-- VEHICLES, AMMUNITION AND OTHER PROCUREMENT, ARMY, PART 5.
--11 - REPORT DATE: JAN , 1980
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-- 7 OF 12
-- 1 - AD NUMBER: A082808
-- 6 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1981, SUBMITTED TO CONGRESS JANUARY 1980,
-- PROCUREMENT PROGRAMS, AIRCRAFT, MISSILES, WEAPONS & TRACKED COMBAT
-- VEHICLES, AMMUNITION AND OTHER PROCUREMENT, ARMY, PART 4.
--11 - REPORT DATE: JAN , 1980
--◆◆◆◆◆◆
-- 8 OF 12
-- 1 - AD NUMBER: A082807
-- 6 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1981, SUBMITTED TO CONGRESS JANUARY 1980,
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-- VEHICLES, AMMUNITION AND OTHER PROCUREMENT, ARMY, PART 3.
--11 - REPORT DATE: JAN , 1980
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-- 9 OF 12
-- 1 - AD NUMBER: A082806
-- 6 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1981, SUBMITTED TO CONGRESS JANUARY 1980,
-- PROCUREMENT PROGRAMS, AIRCRAFT, MISSILES, WEAPONS & TRACKED COMBAT
-- VEHICLES, AMMUNITION AND OTHER PROCUREMENT, ARMY, PART 2.
--11 - REPORT DATE: JAN , 1980
--◆◆◆◆◆◆
-- 10 OF 12
-- 1 - AD NUMBER: A082805
-- 6 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1981, SUBMITTED TO CONGRESS JANUARY 1980,
-- PROCUREMENT PROGRAMS, AIRCRAFT, MISSILES, WEAPONS & TRACKED COMBAT
-- VEHICLES, AMMUNITION AND OTHER PROCUREMENT, ARMY, PART 1.
--11 - REPORT DATE: JAN , 1980
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-- 11 OF 12
-- 1 - AD NUMBER: A082154
-- 6 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1981, SUBMITTED TO CONGRESS JANUARY 1980,
--11 - REPORT DATE: JAN , 1980
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-- 12 OF 12
-- 1 - AD NUMBER: A065299
-- 6 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1980, SUBMITTED TO CONGRESS JANUARY 1979,
-- PROCUREMENT PROGRAMS, AIRCRAFT, MISSILES WEAPONS AND TRACKED COMBAT
-- VEHICLES AMMUNITION AND OTHER PROCUREMENT, ARMY, PART 1 THRU 5.
--11 - REPORT DATE: JAN , 1979
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DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
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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; /$3,086,757/ $3,577,200, to remain available for obligation until September 30, /1982/ 1983. (10 U.S.C. 2353, 4503; Department of Defense Appropriation Act, 1980; additional authorizing legislation to be proposed.)

Army — Research, Development, Test, and Evaluation, Army — 15 JAN 81

Program and Financing (in thousands of dollars)

Identification code 21-2040-0-1-051	Budget plan (amounts for RDT&E actions programed)			Obligations		
	1980 actual	1981 est.	1982 est.	1980 actual	1981 est.	1982 est.
Program by activities:						
Direct:						
1. Technology base	462,432	505,607	616,710	460,502	500,600	609,500
2. Advanced technology development	140,164	166,316	207,556	134,992	167,800	204,700
3. Strategic programs	241,479	268,246	345,516	241,702	254,800	340,500
4. Tactical programs	1,470,398	1,527,643	1,614,332	1,478,349	1,516,796	1,605,754
5. Intelligence and communications	32,504	37,472	55,338	30,409	39,800	54,100
6. Defensewide mission support	499,454	581,473	737,748	498,551	574,700	727,500
Total direct	2,846,431	3,086,757	3,577,200	2,844,505	3,054,496	3,542,054
Reimbursable program (total)	608,695	562,300	552,500	560,670	600,818	554,000
10.0001 Total	3,455,126	3,649,057	4,129,700	3,405,175	3,655,314	4,096,054
Financing:						
Offsetting collections from:						
11.0001 Federal funds	-596,798	-539,450	-530,700	-580,827	-539,450	-530,700
13.0001 Trust funds	-1,100	-225	-225	-1,091	-225	-225
14.0001 Non-federal sources	-10,797	-22,625	-21,575	-10,575	-22,625	-21,575
17.0001 Recovery of prior year obligations, obl plan	.....	.....	.....	-1,573	.....	.....
Unobligated balance available, start of year:						
21.4001 For completion of prior year budget plans	.....	.....	.....	-232,216	-261,691	-255,434
21.4002 Available to finance new budget plans	-2,000	.....	.....	-2,000	.....	.....
21.4003 Reprograming from or to prior year budget plan	-5,847	.....	.....	.....	.....	.....
23.4001 Unobligated balance transferred to other accounts	2,000	.....	.....	2,000	.....	.....
24.4001 Unobligated balance available, end of year	.....	.....	.....	261,691	255,434	289,080
25.0001 Unobligated balance lapsing	5,847	.....	.....	5,847	.....	.....
39.0001 Budget authority	2,846,431	3,086,757	3,577,200	2,846,431	3,086,757	3,577,200
Budget authority:						
40.0001 Appropriation	2,853,331	3,086,757	3,577,200	2,853,331	3,086,757	3,577,200
41.0001 Transferred to other accounts	-10,100	.....	.....	-10,100	.....	.....
42.0001 Transferred from other accounts	1,200	.....	.....	1,200	.....	.....
43.0001 Appropriation (adjusted)	2,844,431	3,086,757	3,577,200	2,844,431	3,086,757	3,577,200
50.0001 Reappropriation	2,000	.....	.....	2,000	.....	.....
Relation of obligations to outlays:						
71.0001 Obligations incurred, net				2,812,682	3,093,014	3,543,554
72.4001 Obligated balance, start of year				1,084,466	1,185,992	1,338,006
74.4001 Obligated balance, end of year				-1,185,992	-1,338,006	-1,413,560
77.0001 Adjustments in expired accounts				-2,552	.....	.....
78.0001 Adjustments in unexpired accounts				-1,573	.....	.....
90.0001 Outlays				2,707,031	2,941,000	3,468,000

Research, Development, Test, and Evaluation, Army

Program and Financing (in thousands of dollars)

15 JAN 81

Identification code 21-2040-0-1-051

		Budget plan (amounts for RDT&E actions programed)			1979 Fiscal year program Obligations		
		1980 actual	1981 est.	1982 est.	1980 actual	1981 est.	1982 est.
	Program by activities:						
	Direct:						
	1. Technology base				20,199		
	2. Advanced technology development				5,224		
	3. Strategic programs				1,160		
	4. Tactical programs				76,960		
	5. Intelligence and communications				2,225		
	6. Defensewide mission support				23,518		
	Total direct				131,286		
	Reimbursable program (total)				80,454		
10.0001	Total				211,740		
	Financing:						
	Offsetting collections from:						
11.0001	Adjustment to py federal fund orders				15,971		
13.0001	Adjustment to py trust fund orders				9		
14.0001	Adjustment to non-federal sources				222		
17.0001	Recovery of prior year obligations, obl plan				-1,573		
	Unobligated balance available, start of year:						
21.4001	For completion of prior year budget plans	-2,000			-232,216		
21.4002	Available to finance new budget plans	-5,847			-2,000		
21.4003	Reprograming from or to prior year budget plan						
23.4001	Unobligated balance transferred to other accounts	2,000					
25.0001	Unobligated balance lapsing	5,847			2,000		
40.0001	Budget authority				5,847		

Army | Research, Development, Test, and Evaluation, Army | 15 JAN 81

Program and Financing (in thousands of dollars) | 1980 Fiscal year program

Identification code 21-2040-0-1-051	Budget plan (amounts for RDT&E actions programed)			Obligations		
	1980 actual	1981 est.	1982 est.	1980 actual	1981 est.	1982 est.
Program by activities:						
Direct:						
1. Technology base	462,432	.....	.....	440,303	22,129	.....
2. Advanced technology development	140,164	.....	.....	129,768	10,396	.....
3. Strategic programs	241,479	.....	.....	240,542	937	.....
4. Tactical programs	1,470,398	.....	.....	1,399,389	71,009	.....
5. Intelligence and communications	32,504	.....	.....	28,184	4,320	.....
6. Defensewide mission support	499,454	.....	.....	475,033	24,421	.....
Total direct	2,846,431	.....	.....	2,713,219	133,212	.....
Reimbursable program (total)	608,695	.....	.....	480,216	128,479	.....
10.0001 Total	3,455,126	.....	.....	3,193,435	261,691	.....
Financing:						
Offsetting collections from:						
11.0001 Federal funds	-596,798	.....	.....	-596,798	.....	.....
13.0001 Trust funds	-1,100	.....	.....	-1,100	.....	.....
14.0001 Non-federal sources	-10,797	.....	.....	-10,797	.....	.....
21.4001 Unobligated balance available, start of year	.....	.....	.....	.....	-261,691	.....
24.4001 Unobligated balance available, end of year	.....	.....	.....	261,691	.....	.....
39.0001 Budget authority	2,846,431	.....	.....	2,846,431	.....	.....
Budget authority:						
40.0001 Appropriation	2,853,331	.....	.....	2,853,331	.....	.....
41.0001 Transferred to other accounts	-10,100	.....	.....	-10,100	.....	.....
42.0001 Transferred from other accounts	1,200	.....	.....	1,200	.....	.....
43.0001 Appropriation (adjusted)	2,844,431	.....	.....	2,844,431	.....	.....
50.0001 Reappropriation	2,000	.....	.....	2,000	.....	.....

Army | Research, Development, Test, and Evaluation, Army | 15 JAN 81

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

Identification code 21-2040-0-1-051	Budget plan (amounts for RDT&E actions programed)			Obligations		
	1980 actual	1981 est.	1982 est.	1980 actual	1981 est.	1982 est.
Program by activities:						
Direct:						
1. Technology base	.....	505,607	.....	.....	478,471	27,136
2. Advanced technology development	.....	166,316	.....	.....	157,404	8,912
3 Strategic programs	.....	268,246	.....	.....	253,863	14,383
4. Tactical programs	.....	1,527,643	.....	.....	1,445,787	81,856
5. Intelligence and communications	.....	37,472	.....	.....	35,480	1,992
6. Defensewide mission support	.....	581,473	.....	.....	550,279	31,194
Total direct	.....	3,086,757	.....	.....	2,921,284	165,473
Reimbursable program (total)	.....	562,300	.....	.....	472,339	89,961
10.0001 Total	.....	3,649,057	.....	.....	3,393,623	255,434
Financing:						
Offsetting collections from:						
11.0001 Federal funds	.....	-539,450	.....	.....	-539,450	.....
13 0001 Trust funds	.....	-225	.....	.....	-225	.....
14.0001 Non-federal sources	.....	-22,625	.....	.....	-22,625	.....
21 4001 Unobligated balance available, start of year	.....	.....	.....	.....	.....	-255,434
24.4001 Unobligated balance available, end of year	.....	.....	.....	.....	255,434	.....
40.0001 Budget authority	.....	3,086,757	.....	.....	3,086,757	.....

Army — Research, Development, Test, and Evaluation, Army — 15 JAN 81

Program and Financing (in thousands of dollars) — 1982 Fiscal year program

Identification code 21-2040-0-1-051	Budget plan (amounts for RDT&E actions programed)			Obligations		
	1980 actual	1981 est.	1982 est.	1980 actual	1981 est.	1982 est.
Program by activities:						
Direct:						
1. Technology base	.....	.....	616,710	.....	.....	582,364
2. Advanced technology development	.....	.....	207,556	.....	.....	195,788
3. Strategic programs	.....	.....	345,516	.....	.....	326,117
4. Tactical programs	.....	.....	1,614,332	.....	.....	1,523,898
5. Intelligence and communications	.....	.....	55,338	.....	.....	52,108
6. Defensewide mission support	.....	.....	737,748	.....	.....	696,306
Total direct	.....	.....	3,677,200	.....	.....	3,376,581
Reimbursable program (total)	.....	.....	552,500	.....	.....	464,039
10.0001 Total	.....	.....	4,129,700	.....	.....	3,840,620
Financing:						
Offsetting collections from:						
11.0001 Federal funds	.....	.....	-530,700	.....	.....	-530,700
13.0001 Trust funds	.....	.....	-225	.....	.....	-225
14.0001 Non-federal sources	.....	.....	-21,575	.....	.....	-21,575
24.4001 Unobligated balance available, end of year	.....	.....	.....	.....	.....	289,080
40.0001 Budget authority	.....	.....	3,577,200	.....	.....	3,577,200

Army | Research, Development, Test, and Evaluation, Army | 15 JAN 81

Object Classification (in thousands of dollars)

Identification code 21-2040-0-1-051		1980 actual	1981 est	1982 est
	Direct obligations			
	Personnel compensation:			
111.101	Full-time permanent positions	294,635	384,836	359,000
111.301	Positions other than full-time permanent	2,607	3,000	3,000
111.501	Other personnel compensation	13,121	14,000	14,000
111.901	Total personnel compensation	310,363	401,836	376,000
112.101	Personnel benefits: civilian personnel	29,515	38,763	37,900
121.001	Travel and transportation of persons	20,936	32,200	35,300
122.001	Transportation of things	6,596	13,500	14,000
123.201	Communications, utilities and other rent	18,460	24,500	27,900
124.001	Printing and reproduction	692	2,700	3,500
	Other services:			
125.002	Purchases from industrial funds	248,500	270,000	312,800
125.003	Contracts	2,100,408	2,134,697	2,573,954
126.001	Supplies and materials	48,676	80,400	102,100
131.001	Equipment	59,243	54,700	57,400
141.001	Grants, subsidies, and contributions	1,116	1,200	1,200
199.001	Total direct obligations	2,844,506	3,054,496	3,542,054
	Reimbursable obligations:			
	Personnel compensation:			
211.101	Full-time permanent positions	139,000	98,100	105,200
212.101	Personnel benefits: civilian personnel	13,215	10,000	10,200
221.001	Travel and transportation of persons	12,331	10,900	12,100
222.001	Transportation of things	3,674	1,200	1,400
223.101	Standard level user charges	4,000	4,900	5,100
224.001	Printing and reproduction	400	600	600
	Other services:			
225.002	Purchases from industrial funds	83,300	44,800	105,900
225.003	Contracts	236,979	368,618	257,400
226.001	Supplies and materials	46,085	50,200	46,200
231.001	Equipment	21,686	11,500	9,900
299.001	Total reimbursable obligations	560,670	600,818	554,000
999.901	Total obligations	3,405,175	3,655,314	4,096,054

PERSONNEL SUMMARY

TOTAL NUMBER OF PERMANENT POSITIONS	18,658	19,425	18,800
TOTAL COMPENSABLE WORK YEARS:			
FULL-TIME EQUIVALENT EMPLOYMENT	19,562	20,050	19,143
FULL-TIME EQUIVALENT OF OVERTIME AND HOLIDAY HOURS	485	345	291
AVERAGE ES SALARY	50,112	50,112	50,112
AVERAGE GS GRADE	9.21	9.33	9.33
AVERAGE GS SALARY	23,312	25,433	25,433
AVERAGE SALARY OF UNGRADED POSITIONS	18,000	19,537	20,125

Section 2

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 except for FY 1980. FY 1980 in the Descriptive Summaries is restructured for comparability with the FY 1982 budget request.

A direct comparison of FY 1980, FY 1981, and FY 1982 data in this Program Element Listing with data submitted in the Program Element Listing dated January 1980 will reveal significant differences. Narrative explanation of these changes is included in the appropriate individual Program Element Descriptive Summary.

DEPARTMENT OF THE ARMY
FY 1982 R D T + E PROGRAM

EXHIBIT R-1

SUMMARY

DATE 15 JAN 1981

THOUSANDS OF DOLLARS

	FY 1980	FY 1981	FY 1982	FY 1983
SUMMARY RECAP OF RESEARCH CATEGORIES				
RESEARCH	130,701	144,577	179,203	212,003
EXPLORATORY DEVELOPMENT	331,731	361,030	437,507	492,980
ADVANCED DEVELOPMENT	631,150	701,441	921,950	1,367,639
ENGINEERING DEVELOPMENT	1,171,281	1,183,394	1,145,728	1,042,227
MANAGEMENT AND SUPPORT	448,323	534,627	687,561	739,686
RESEARCH AND DEVELOPMENT (FYDP PROGRAM 6)	2,713,186	2,925,069	3,371,949	3,854,535
OPERATIONAL SYSTEMS DEVELOPMENT	133,245	161,688	205,251	317,518
TOTAL RESEARCH DEVELOPMENT TEST + EVAL, ARMY	2,846,431	3,086,757	3,577,200	4,172,053
SUMMARY RECAP OF BUDGET ACTIVITIES				
TECHNOLOGY BASE	462,432	505,607	616,710	704,983
ADVANCED TECHNOLOGY DEVELOPMENT	140,164	166,316	207,556	324,991
STRATEGIC PROGRAMS	241,479	263,246	315,516	405,766
TACTICAL PROGRAMS	1,470,398	1,527,643	1,614,332	1,837,679
INTELLIGENCE AND COMMUNICATIONS	32,504	37,472	55,336	92,525
DEFENSEWIDE MISSION SUPPORT	499,454	581,473	737,716	802,109
TOTAL RESEARCH DEVELOPMENT TEST + EVAL, ARMY	2,846,431	3,086,757	3,577,200	4,172,053
SUMMARY RECAP OF FYDP PROGRAMS				
STRATEGIC FORCES			9,500	39,500
GENERAL PURPOSE FORCES	100,741	119,473	140,511	209,303
INTELLIGENCE AND COMMUNICATIONS	32,504	42,215	55,240	66,715
RESEARCH AND DEVELOPMENT (FYDP PROGRAM 6)	2,713,186	2,925,069	3,371,949	3,854,535
TOTAL RESEARCH DEVELOPMENT TEST + EVAL, ARMY	2,846,431	3,086,757	3,577,200	4,172,053

DEPARTMENT OF THE ARMY
FY 1982 R D T & E PROGRAM

EXHIBIT R-1

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY

DATE: 15 JAN 1981

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	FY 1980	FY 1981	FY 1982	FY 1983	SEC	DESCRIPTIVE SUMMARY PAGE NUMBER
				THOUSANDS OF DOLLARS					
1	61101A	IN-HOUSE LAB INDEPENDENT RESEARCH	1	17,151	19,[illegible]9	21,960	24,368	U	1-1
2	61102A	DEFENSE RESEARCH SCIENCES	1	113,[illegible]0	124,903	157,335	187,635	U	1-6
3	62105A	MATERIALS	1	12,315	11,525	11,5[illegible]5	12,557	U	1-90
4	62111A	ATMOSPHERIC INVESTIGATIONS	1	5,[illegible]7	5,711	6,840	6,[illegible]0	U	1-95
5	62120A	FUZE/NUCLEAR [illegible] EFFECTS/FLUIDICS	1	6,787	6,0[illegible]	7,030	9,765	U	1-101
6	62201A	AIRCRAFT WEAPONS TECHNOLOGY	1	1,901	[illegible]	[illegible],634	2,955	U	1-108
7	62202A	AIRCRAFT AVIONICS TECHNOLOGY	1	6,741	5,[illegible]4	7,405	3,155	U	1-113
8	62[illegible]A	AERONAUTICAL TECHNOLOGY	1	16,[illegible]	1[illegible],713	21,619	25,535	U	1-119
9	62213A	AIRDROP TECHNOLOGY	1	1,170	1,4[illegible]9	1,760	2,009	U	1-124
10	62[illegible]A	MISSILE TECHNOLOGY	1	28,[illegible]9	26,[illegible]7	[illegible],753	42,075	U	1-129
11	62[illegible]07A	HIGH ENERGY LASER TECHNOLOGY	1	1,320	1[illegible],[illegible]75	2[illegible],500	32,077	U	1-136
12	62601A	TANK AND AUTOMOTIVE TECHNOLOGY	1	12,152	12,9[illegible]	18,217	19,929	U	1-143
13	62603A	LARGE CAL AND NUCLEAR TECHNOLOGY	1	20,3[illegible]0	24,9[illegible]7				1-148
14	62617A	SMALL CAL AND FIRE CNTRL TECHNOLOGY	1	8,957	1[illegible],[illegible]21	10,704	12,7[illegible]	U	1-154
15	62618A	BALLISTICS TECHNOLOGY	1	16,176	17,[illegible]7	25,233	28,790	U	1-160
16	62622A	CHEMICAL MUNITIONS/CHEMICAL CMBT SPT	1	6,015	5,[illegible]	8,760	7,012	U	1-165
17	62701A	COMMUNICATIONS TECH	1	10,461	6,504	8,162	8,975	U	1-170
18	[illegible]A	CMBT SURV TARGET ACQ/ID	1	[illegible]	3,[illegible]	[illegible],533	4,599	U	1-178
19	62704A	MIL ENVIRONMENTAL CRITERIA DEV	[illegible]	3,127	3,163	2,815	2,900	U	1-183
20	[illegible]	ELECTRICAL AND ELECTRONIC DEVICES	1	1[illegible]	[illegible]	16,[illegible]79	18,2[illegible]	U	1-188
21	[illegible]A	CHEM BIOLOGICAL DEF TECH INVEST	1	11,740	11,411	1[illegible],3[illegible]	14,[illegible]	U	1-199
22	[illegible]A	MAPPING + GEODESY	1	4,[illegible]	5,070	6,627	6,9[illegible]	U	1-204
[illegible]	[illegible]	NIGHT VISION INVESTIGATIONS	1	10,[illegible]	1[illegible],7[illegible]	14,[illegible]	15,019	U	1-208

DEPARTMENT OF THE ARMY
FY 19[illegible] R D T & E PROGRAM

EXHIBIT R-1

APPROPRIATION 2040 A RESEARCH DEVELOPMENT TEST & EVAL ARMY

DATE: 15 JAN 19[illegible]

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	FY 1980	FY 1981	FY 1982	FY 19[illegible]	SEC	DESCRIPTIVE SUMMARY PAGE NUMBER
				THOUSANDS OF DOLLARS					
24	62715A	TACTICAL ELECTRONIC WARFARE TECHNOLOGY	1	[illegible]	[illegible]				1-213
25	62716A	HUMAN FACTORS ENGR IN SYS DEV	1	6,200	[illegible]	[illegible]	[illegible]	U	1-224
26	62717A	HUMAN PERFORMANCE EFFECT/SIMULATION	1	[illegible]	[illegible]	[illegible]	[illegible]	U	1-228
27	62719A	MOBILITY AND WEAPONS EFFECTS TECH	1	[illegible]	[illegible]	6,[illegible]	7,[illegible]	U	1-233
28	62720A	ENVIRONMENTAL QUALITY TECH	1	9,020	5,910	[illegible]	[illegible]	U	1-238
29	62722A	MANPOWER PERSONNEL TRAINING	1	5,[illegible]	5,1[illegible]	[illegible]	[illegible]	U	1-243
30	62723A	CLOTHING EQUIP AND SHELTER TECH	1	6,264	6,[illegible]	6,[illegible]	[illegible]	U	1-248
31	62724A	JT SVC FOOD SYS TECH	1	5,315	[illegible]	[illegible]	[illegible]	U	1-259
32	62725A	COMPUTER AND INFORMATION SCIENCE	1	1,[illegible]	1,[illegible]	1,[illegible]	[illegible],132	U	1-265
33	62726A	ARMY SUPPORT DARPA HOWLS	1	2,100				U	---
34	62727A	NON SYSTEM TRAINING DEVICES	1	2,[illegible]00	2,808	[illegible]	4,[illegible]	U	1-271
35	62730A	COLD REGIONS ENGINEERING TECHNOLOGY	1	[illegible],895	[illegible],312	[illegible],200	6,[illegible]	U	1-277
36	62731A	MILITARY FACILITIES ENGINEERING TECHNOLOGY	1	2,[illegible]66	[illegible],935	3,[illegible]	4,200	U	1-282
37	62732A	[illegible] SUPPORTING TECHNOLOGY	1	2,500	1,[illegible]45	2,890	3,600	U	1-287
38	62733A	MOBILITY EQUIPMENT TECHNOLOGY	1	12,009	11,[illegible]	12,619	15,899	U	1-294
39	627[illegible]A	MED DEFENSE AGAINST CHEM AGENTS	1	5,[illegible]	11,[illegible]97	17,032	19,[illegible]	U	1-301
40	62746A	TACTICAL ADP TECH	1		7,[illegible]	6,[illegible]	[illegible],618	U	1-307
41	62770A	MILITARY DISEASE HAZARDS TECH	1	10,982	1[illegible]	1[illegible]	1[illegible]	U	1-313
42	62771A	MIL PSYCHIATRY/MICROWAVE INJURY (H)	1	4,454				U	---
43	62772A	COMBAT CASUALTY CARE TECH	1	[illegible],553	[illegible],406	6,824	[illegible],595	U	1-326
44	62773A	HELICOPTER COMBAT CREW AEN MEDICINE	1	3,347				U	---
45	62775A	COMBAT MAXILLOFACIAL INJURY	1	1,255	610	1,491	1,653	U	1-331
46	62776A	MED DEF AGAINST BIOLOGICAL AGENTS	1	[illegible],310				U	---

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FY 1982 R D T & E PROGRAM

EXHIBIT R-1

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST & EVAL, ARMY

DATE: JAN 1981

Line No	Program Element Number	Item Nomenclature	Act	FY 1980	FY 1981	FY 1982	FY 1983	S/E/C	Descriptive Summary Page Number
				Thousands of Dollars					
47	62777A	SYSTEMS HEALTH HAZARD PREVENT TECH	1	6,572	12,310	18,112	20,612	U	I-335
48	62778A	COMBAT MEDICAL MATERIEL	1	457				U	---
49	62780A	MEDICAL SYSTEMS IN CHEMICAL DEFENSE	1	3,235				U	---
50	62781A	ENERGY TECH APPL FOR MILITARY FACIL	1		1,450	1,700	1,890	U	I-353
		TECHNOLOGY BASE		432,432	565,607	616,710	704,383		
51	63102A	MATERIALS SCALE-UP	2	2,900	2,925	5,535	9,966	U	I-357
52	63104A	FUELS AND LUBRICANTS	2	3,835	948	2,349	2,912	U	I-362
53	63201A	AIRCRAFT POWER PLANTS AND PROPULSION	2	8,450	4,351	3,019	26,761	U	I-366
54	63206A	AIRCRAFT WEAPONS	2	770	2,540	10,511	24,790	U	I-371
55	63207A	AIRCRAFT AVIONICS EQUIPMENT	2	1,557	2,320	4,190	7,300	U	I-380
56	63209A	AIR MOBILITY SUPPORT	2	302	1,856	1,842	3,201	U	I-385
57	63211A	ROTARY WING CONTROLS/ROTORS/STRUCTURES	2	5,067	12,921	27,025	41,084	U	I-390
58	63212A	TILT ROTAR RESEARCH ACFT (HI)	2	960				U	---
59	63216A	SYNTHETIC FLIGHT SIMULATORS	2	2,099	6,437	1,804	5,764	U	I-403
60	63218A	AIRDROP EQUIP AND TECHNIQUES	2	685	1,269	2,752	4,709	U	I-411
61	63221A	NOE AVIATION AND NAVIGATION EQUIPMENT	2		1,609	4,374	11,570	U	I-415
62	63305A	TERMINALLY GUIDED PROJECTILES	2	2,970	10,898	13,278	19,635	U	I-420
63	63313A	MSL/ROCKET COMPONENTS	2	2,029	6,419	317	530	U	I-428
64	63314A	HI-ENERGY LASER COMPONENTS	2	19,000				U	---
65	63602A	ADVANCED LAND MOB SYSTEMS CONCEPTS	2	17,915	34,428	9,421	16,614	U	I-432
66	63606A	LANDMINE WARFARE/BARRIER DEV	2	2,070	4,831	6,923	9,518	U	I-436
67	63607A	JOINT SERVICE SMALL ARMS PROGRAM (JSSAP)	2	700				U	---
68	63618A	COUNTERMINE AND BARRIER DEVELOPMENTS	2	1,782				U	---

DEPARTMENT OF THE ARMY
FY 1982 R D T + E PROGRAM

EXHIBIT R-1

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY

DATE: 15 JAN 1981

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS FY 1980	FY 1981	FY 1982	FY 1983	SEC	DESCRIPTIVE SUMMARY PAGE NUMBER
69	63621A	COMBAT VEHICLE PROPULSION SYS	2	5,810	4,590	13,186	19,514	U	I-441
70	63626A	ADVANCED DIESEL ENGINE	2	14,200				U	---
71	63631A	CMBT VEH TURRET AND CHASSIS SUBSYS	2	4,024	5,318	8,014	13,442	U	I-448
72	63702A	ELECTRIC POWER SOURCES	2	3,700	3,916	5,177	3,260	U	I-452
73	63710A	NIGHT VISION ADVANCED DEVELOPMENT	2	13,801	20,719	29,306	34,908	U	I-456
74	63725A	REMOTELY PILOTED VEHICLES/DRONES	2	3,329	4,905	4,943	7,333	U	I-465
75	63731A	MANPOWER AND PERSONNEL	2	3,085	3,065	4,675	6,360	U	I-470
76	63732A	COMBAT MEDICAL MATERIAL	2	111	132	191	225	U	I-475
77	63734A	COMBAT ENGINEERING SYSTEMS	2			269	358	U	I-478
78	63739A	HUMAN FACTORS IN TNG/OPER EFFECT	2	1,909	2,372	3,165	3,777	U	I-482
79	63742A	ADV ELECTRONIC DEVICES DEV	2	2,065		2 278	4,997	U	I-487
80	63743A	EDUCATION AND TRAINING	2	5,388	7,973	9,499	9,748	U	I-493
81	63744A	TRAINING SIMULATION	2	2,746	1,413	2,243	2,622	U	I-498
82	63747A	SOLDIER SUPPORT/SURVIVABILITY	2		3,276	3 181	3,307	U	I-502
83	63748A	ADV DEV OF AUTOMATIC TEST EQ/SYS	2	1,400	8,480	14,631	9,665	U	I-507
84	63749A	TECHNICAL VULNERABILITY REDUCTION	2	2,850	2,011	1 274	3,840	U	I-514
85	63750A	DRUG AND VACCINE DEVELOPMENT	2	2,545	4,786	5,184	7,781	U	I-519
86	63751A	MEDICAL DEFENSE AGAINST CHEM WARFARE	2			3,000	3,000	U	I-523

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APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY

DATE: 15 JAN 1981

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS FY 1980	FY 1981	FY 1982	FY 1983	SEC	DESCRIPTIVE SUMMARY PAGE NUMBER
87	63752A	DEMILITARIZATION CONCEPTS	2			4,000	7,000	U	I-527
		ADVANCED TECHNOLOGY DEVELOPMENT		140,104	166,316	207,556	324,991		
88	63304A	BMD ADVANCED TECHNOLOGY	3	119,854	123,391	129,690	146,623	U	II-1
89	63308A	BALLISTIC MSL DEF SYS TECH	3	120,814	144,855	215,826	263,143	U	II-6
90	63735A	WWMCCS ARCHITECTURE	3	811				U	---
		STRATEGIC PROGRAMS		241,479	268,246	345,516	409,766		
91	63215A	JOINT SURVIVABILITY INVESTIGATIONS	4	600	645	948	1,130	U	II-11
92	63303A	SURF-TO-SURF MSL ROCKET SYS	4	70,209	790	3,057	16,705	U	II-15
93	63307A	SHORT RANGE AIR DEF SELF PROT WPN	4		6,842			U	II-21
94	63316A	ADVANCED ROCKET CONTROL SYSTEM	4		27,100			U	---
95	63320A	CORPS SUPPORT WEAPON SYSTEM	4	9,400	14,294	20,000	73,764	U	II-22
96	63536A	ARMY STANDOFF JAMMER SUPPRESSION SYSTEM	4			4,000	6,000	U	II-27
97	63604A	NUCLEAR MUNITIONS AND RADIACS	4	1,677	1,724				II-30
98	63607A	JOINT SERVICE SMALL ARMS PROGRAM (JSSAP)	4			3,600		U	II-37
99	63608A	WEAPONS AND AMMUNITION	4	5,616				U	---
100	63612A	INF MANPORTABLE ANTI-ARMOR WPN SYS	4	2,000	19,731	52,972	105,993	U	II-42
101	63615A	LETHAL CHEMICAL MUNITIONS CONCEPTS	4	1,047	1,820	8,347	9,418	U	II-46
102	63619A	LANDMINE/BARRIER SYS	4	2,181	4,471	6,102	8,728	U	II-51
103	63623A	LANDMINE SYSTEMS	4	1,800				U	---
104	63627A	COMBAT SUPPORT MUNITIONS	4	2,815	2,334	6,275	4,029	U	II-55
105	63628A	FIELD ARTILLERY AMMO DEV	4	4,581	12,398	25,190	28,777	U	II-59
106	63629A	FIELD ARTILLERY CANNON SYSTEMS	4	3,646	5,862	2,074	15,556	U	II-70

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APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY

DATE: 15 JAN 1981

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS FY 1980	FY 1981	FY 1982	FY 1983	SEC	DESCRIPTIVE SUMMARY PAGE NUMBER
107	63632A	ARMORED CBT SPT VEHICLE FAMILY	4	3,700	2,224	103		U	II-75
108	63635A	ADVANCED MULTI-PURPOSE ARMORED SYSTEM	4			20,199	69,956	U	II-80
109	63705A	PHYSICAL SECURITY	4	3,375	3,100	3,087	5,956	U	II-81
110	63706A	IDENTIFICATION-FRIEND OR FOE DEV	4	4,045	406	7,647	4,194	U	II-88
111	63707A	COMMUNICATIONS DEVELOPMENT	4	6,703	4,075	6,451	8,370	U	II-96
112	63711A	ACFT SURV/EW SELF-PROTECTION	4	6,975	7,315	12,428	20,103	U	II-100
113	63712A	MAPPING AND GEODESY	4	2,094				U	---
114	63713A	JOINT TACTICAL INFO DISTRIBUTION SYSTEMS	4		20,477	19,087	41,233	U	II-108
115	63719A	SPECIAL PURPOSE DETECTORS	4				964	U	---
116	63721A	CHEMICAL DEFENSE MATERIEL CONCEPTS	4	14,088	21,231	20,476	16,956	U	II-113
117	63723A	TACTICAL AUTOMATION	4	8,964	12,075	22,379	27,182	U	II-129
118	63726A	COMBAT SUPPORT EQUIPMENT	4	7,528	6,032	6,824	8,303	U	II-140
119	63730A	TACTICAL SURVEILLANCE SYSTEM	4	11,720	10,933				II-146
120	63737A	ANTI-RADIATION MSL COUNTER MEASURES	4	4,540	4,622				II-150
121	63740A	DIV AIR DEFENSE COMD/CNTRL	4	3,000	14,085	13,378	12,562	U	II-156
122	63745A	TAC ELECTRONIC SPT MEASURE SYS	4	15,030	12,576				II-163
123	63746A	SINGLE CHANNEL GRD/ABN RADIO SUB-SYS	4	20,475	15,714	15,526	9,135	U	II-174
124	63755A	TAC ELEC C/M SYS	4	9,859	8,867				II-183
125	64201A	AIRCRAFT AVIONICS	4	1,748				U	---
126	64202A	AIRCRAFT WEAPONS	4	6,403	5,130	3,568	729	U	II-198
127	64203A	AERIAL SCOUT	4	7,450				U	---
128	64204A	AIR MOBILITY SUPPORT EQUIPMENT	4	250	1,187	3,064	3,958	U	II-202
129	64206A	UH-60A BLACKHAWK	4	2,259	5,046	4,242	3,110	U	II-208

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY
DATE: 15 JAN 1981

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS FY 1980	FY 1981	FY 1982	FY 1983	SEC	DESCRIPTIVE SUMMARY PAGE NUMBER
130	64207A	ADVANCED ATTACK HELICOPTER	4	176,036	172,946	94,027		U	II-212
131	64212A	COBRA TOW	4	945	8,515	20,074	8,561	U	II-226
132	64213A	CH-47 MODERNIZATION	4	22,480	576			U	---
133	64215A	UH-1 MODERNIZATION	4	200				U	II-231
134	64216A	AIRCRAFT PROPULSION SYSTEMS	4				11,772	U	---
135	64217A	SYNTHETIC FLIGHT TRAINING SYSTEMS	4	1,098		2,360	5,160	U	II-232
136	64218A	AIRDROP EQUIP DEVELOPMENT	4	823	2,533	3,184	4,656	U	II-236
137	64220A	ARMY HELICOPTER IMPROVEMENT PROG	4		25,939	39,373	45,876	U	II-240
138	64221A	SURVEILLANCE SYSTEM	4			4,000	13,200	U	II-245
139	64306A	STINGER	4	18,827	5,900	4,255	4,566	U	II-254
140	64307A	PATRIOT (SAM-D)	4	128,718	51,658	32,618	32,960	U	II-267
141	64308A	PRECISION LASER DESIGNATOR	4	3,600				U	---
142	64309A	ROLAND	4	11,299	12,758		12,439	U	II-293
143	64310A	HELIBORNE MISSILE-HELLFIRE	4	61,000	45,002	24,791	19,671	U	II-300
144	64311A	PERSHING II	4	145,765	147,378	154,107	106,895	U	II-319
145	64313A	GRASS BLADE	4	30,215	36,125	21,342	10,603	U	II-333
146	64314A	GENERAL SUPPORT ROCKET SYS	4		64,893	36,038	17,330	U	II-336
147	64316A	FIRE AND FORGET HELLFIRE	4		12,940	27,723	61,117	U	II-354
148	64318A	DIVISION AIR DEFENSE GUN	4	25,719	65,203	30,649		U	II-355
149	64321A	JOINT TACTICAL FUSION PROGRAM	4		10,260	7,699	39,430	U	II-356
150	64601A	INFANTRY SUPPORT WEAPONS	4	4,546	3,870	11,973	6,183	U	II-361
151	64602A	WEAPONS AND AMMUNITION (H)	4	1,841				U	---
152	64603A	NUCLEAR MUNITIONS	4	23,077	11,339				II-370

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FY 1982 R D T + E PROGRAM

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APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY

DATE: 15 JAN 1981

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS FY 1980	FY 1981	FY 1982	FY 1983	SEC	DESCRIPTIVE SUMMARY PAGE NUMBER
153	64606A	EXPLOSIVE DEMOLITIONS (H)	4	600				U	---
154	64608A	ARMY SMALL ARMS PROGRAM	4	1,485		400	400	U	II-385
155	64609A	COMBAT SUPPORT SYSTEMS	4	1,297	54[illegible]	3,102	2,[illegible]01	U	II-389
156	64610A	LETHAL CHEMICAL MUNITIONS	4	1,050		2,219	1,583	U	II-393
157	64612A	COUNTERMINE AND BARRIERS	4	3,008	1,765	3,081	5,2[illegible]	U	II-398
158	64614A	FLD ARTY WPNS/AMMO (155MM) (H)	4	8,215				U	---
159	64616A	FIGHTING VEHICLE SYS	4	24,637	42,130	57,865	45,391	U	II-405
160	64617A	VEH RAPID FIRE WPN SYSTEM-BUSHMASTER	4	4,102				U	---
161	64619A	LANDMINE WARFARE	4	8,742	9,572	8,310	9,940	U	II-420
162	64620A	TANK SYSTEMS	4	51,784	51,539	29,063	13,602	U	II-428
163	64621A	COPPERHEAD	4	9,035	6,091	3,362	2,077	U	II-441
164	64623A	VIPER	4	10,337	5,[illegible]75			U	---
165	64624A	HIGH MOBILITY MULTI-PURPOSE VEHICLE	4	1,300	2,[illegible]87	3,074	2,810	U	II-450
166	64626A	FIRE INTEGRATION SFT TEAM VEH	4	7,720	3,215	9,806	7,070	U	II-455
167	64628A	INDIRECT FIRE TRAINING MUNITIONS	4	1,09[illegible]	539	1,360	1,[illegible]71	U	II-460
168	64630A	TANK GUN COOPERATIVE DEVELOPMENT	4	40,226	62,091	74,[illegible]67	[illegible]4,219	U	II-464
169	64631A	FLD ARTY AMMUNITION	4		1,6[illegible]3	1,483	7,101	U	II-481
170	64632A	105MM TANK AMMUNITION	4		[illegible],[illegible]7	[illegible],[illegible]97	4,5[illegible]6	U	II-486
171	64701A	COMM ENGINEERING DEV	4	5,453	1,729	9,152	13,[illegible]18	U	III-1
172	64702A	JOINT TACTICAL INFO DISTRIBUTION SYSTEMS	4			16,[illegible]22	14,892	U	III-9
173	64704A	UNATTENDED GROUND SENSORS	4	3,[illegible]93	3,648			U	---
174	64705A	MODULAR INTEGRATED COMM AND NAVIGATION SYS	4			18,[illegible]00	6,[illegible]00	U	III-15
175	64706A	RADIOLOGICAL DEFENSE EQUIPMENT	4	5[illegible]5	3[illegible]0	312	[illegible]47	U	III-19

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APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST & EVAL, ARMY

DATE: [illegible] JAN 1981

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	PST	THOUSANDS OF DOLLARS FY 1980	FY 1981	FY 1982	FY 1983	E C	DESCRIPTIVE SUMMARY PAGE NUMBER
176	64709A	IDENTIFICATION FRIEND OR FOE (E)	4	900	3,010	2,473	5,242	U	III-24
177	61710A	NIGHT VISION DEVICES	4	3,000	5,778	5,434	5,495	U	III-28
178	64711A	AC/FT SURVIEW SELF-PROTECTION SYS	4	6,968	11,574	16,445	21,103	U	III-32
179	64712A	TACTICAL C3 SYSTEMS ENGINEERING	4	3,984	10,692	9,137	19,578	U	III-47
180	64713A	COMBAT FEEDING, CLOTHING AND EQUIPMENT	4		2,532	3,593	4,207	U	III-61
181	64714A	TACTICAL ELECTRICAL POWER SOURCES	4	4,400	5,342	2,172	1,636	U	III-66
182	64716A	MAPPING AND GEODESY	4	40				U	---
183	64717A	GENERAL COMBAT SUPPORT	4	6,903	11,350	12,231	14,531	U	III-71
184	64718A	PHYSICAL SECURITY	4	3,302	5,812	5,882	6,215	U	III-88
185	64723A	SPECIAL PURPOSE DETECTORS	4	150	647			U	---
186	64724A	BIOLOGICAL DEFENSE MATERIEL	4	4,950	2,701	1,056		U	III-94
187	64725A	CHEMICAL DEFENSE MATERIEL	4	17,107	17,659	38 555	43,095	U	III-99
188	64727A	COMMAND AND CONTROL	4	21,435	23,931	15 356	16,560	U	III-113
189	64728A	COUNTER MORTAR RADAR	4	1,100				U	---
190	61730A	MEDIUM TACTICAL VEHICLES	4	49,341	51,670	59,513	34,329	U	III-134
191	64731A	COUNTER BATTERY RADAR	4	3,147				U	---
192	64740A	TACTICAL SURVEILLANCE SYSTEM	4	2,291	3,432				III-151
193	64745A	TAC ELECTRONIC SPT MEASURE SYS	4	12,128	9,250				III-155
194	64746A	AUTOMATIC TEST SUPPORT SYSTEMS	4			5,097	9,016	U	III-160
195	64748A	STANDOFF TARGET ACQUISITION SYSTEM	4	60,585	55,675	71,735	79,290	U	III-161
196	64750A	TAC TELEC C/M SYS	4	23,916	24,277				III-176
197	64776A	NAVSTAR GLOBAL POS SYS (USER EQ)	4	15,495				U	---

DEPARTMENT OF THE ARMY
FY 1992 R D T & E PROGRAM

EXHIBIT R-1

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY

DATE: 15 JAN 1991

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	A.I	THOUSANDS OF DOLLARS FY 1990	FY 1991	FY 1992	FY 1993	SEC	DESCRIPTIVE SUMMARY PAGE NUMBER
198	61779A	JT INTEROPERABILITY TAC COND/CNTRL	4	24,963	21,522	31,334	30,563	U	III-185
199	63710A	JOINT CB CONTACT POINT AND TEST	4	824	729	1,428	1,423	U	III-204
200	23724A	HV ANTI-TANK ASSAULT WPN SYS (TOW)	4	26,197	29,574	6,721		U	III-209
201	23726A	ADV FIELD ARTY TAC DATA SYS	4		3,560	6,079	12,165	U	III-220
202	23730A	CHAPPARAL	4	6,052	23,172	20,074	14,617	U	III-227
203	23731A	SAM HAWK HAWK IMP PROG	4	9,505	7,432	30,156	35,607	U	III-245
204	23733A	LANCE (NUC) WARHEAD	4	1,038	1,05			U	---
205	23735A	COMBAT VEHICLE IMPROVS PROG	4	4,704	10,703	12,735	27,861	U	III-256
206	23739A	AN/TSQ-73 MODIFICATIONS	4		1,245	542		U	III-267
207	23740A	FORCE LEVEL : MANEUVER CTRL SYSTEM SIGMA	4		5,009	15,259	44,515	U	III-271
208	23741A	PROD IMPR VULCAN AIR DEF SYS	4		9,540			U	---
209	28010A	JT TACTICAL COMM PROG	4	31,785	33,822	43,944	71,738	U	III-276
210	33142A	SATCOM GROUND ENVIRONMENT	4		25,742	37,558	50,128	U	III-313
211	33143A	EUCOM C3 SYSTEMS	4		2,035	2,069	2,064	U	III-331
		TACTICAL PROGRAMS		1,470,398	1,527,603	1,614,332	1,637,079		
212	62712A	MAPPING AND GEODESY	5			1,062		U	III-335
213	64201A	AIRCRAFT AVIONICS	5		2,762	7,637	14,685	U	III-340
214	64716A	MAPPING AND GEODESY	5		10	100	3,611	U	III-344
215	64778A	NAVSTAR GLOBAL POS SYS (USER EQ)	5		19,056	21,426	14,206	U	III-350
216	12814A	SPECIAL PROGRAM	5						III-359
217	31022A	SCIENTIFIC AND TECH INTELLIGENCE	5	1,999				U	---
218	31307A	FOREIGN SCIENCE; TECH CENTER	5						III-360
219	33111A	STRATEGIC ARMS COMMUNICATIONS	5	561	645	804	831	U	III-365

DEPARTMENT OF THE ARMY
FY 1982 R D T & E PROGRAM

EXHIBIT R-1

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY

DATE: 15 JAN 1981

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS FY 1980	FY 1981	FY 1982	FY 1983	SEC	DESCRIPTIVE SUMMARY PAGE NUMBER
220	33126A	LONG-HAUL COMMUNICATIONS (DCS)	5	7,022	7,565	7,667	6,923	U	III-369
221	33142A	SATCOM GROUND ENVIRONMENT	5	22,080				U	---
222	33151A	WORLDWIDE M.L CMD AND CONTROL SYSTEMS (WWMCCS	5				731	U	---
223	33401A	COMMUNICATIONS SECURITY	5						III-373
		INTELLIGENCE AND COMMUNICATIONS		32,504	37,472	55,278	92,525		
224	63718A	EW VULNERABILITY/SUSCEPTIBILITY	6	17,880	21,556				III-377
225	63739A	NON SYSTEM TRAINING DEVICES	6	1,000	2,560	1,412	7,209	U	III-395
226	63747A	SOLDIER SUPPORT/SURVIVABILITY	6	2,139				U	---
227	64268A	ACFT ENGINE COMPONENT IMPROVE PROG	6	8,700	8,910	11,842	12,223	U	III-400
228	64713A	COMBAT FEEDING, CLOTHING AND EQUIPMENT	6	1,613				U	---
229	64715A	NON-SYSTEMS ENG DEVICES ENGR	6	9,554	11,812	13,245	8,193	U	III-404
230	64726A	METEOROLOGICAL EQUIPMENT SYSTEMS	6	6,075	2,687	2,143	2,223	U	III-414
231	65102A	TRADOC STUDIES AND ANALYSES	6	2,200	1,525	1,705	2,008	U	III-422
232	65201A	AVIATION ENGINEERING FLIGHT ACTIVITY	6	5,294	4,339	5,497	6,052	U	III-427
233	65301A	KWAJALEIN MISSILE RANGE	6	98,141	139,532	143,765	153,916	U	III-431
234	65702A	SUPPORT OF DEVELOPMENT TESTING	6	23,220	50,492	37,231	42,670	U	III-436
235	65705A	MATERIAL SYSTEMS ANALYSIS	6	10,426	9,911	14,693	15,143	U	III-452
236	65707A	SUPPORT OF OPERATIONAL TESTING	6	24,760				U	---
237	65709A	EXPLOITATION OF FOREIGN ITEMS	6	3,242	1,542				III-457
238	65712A	SUPPORT OF OPERATIONAL TESTING	6	11,613	39,046	14,708	52,921	U	III-462
239	65715A	DEFENSE SYSTEMS MANAGEMENT COLLEGE	6		1,157	207	207	U	III-482
240	65801A	PROGRAM WIDE ACTIVITIES	6	48,806	52,108	61,631	65,530	U	III-486
241	65802A	INTL COOPERATIVE RESEARCH AND DEV	6	590	645	900	1,059	U	III-495

DEPARTMENT OF THE ARMY
FY 1982 R D T + E PROGRAM

EXHIBIT R-1

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY

DATE: 15 JAN 1981

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	FY 1980	FY 1981	FY 1982	FY 1983	SEC	DESCRIPTIVE SUMMARY PAGE NUMBER
				THOUSANDS OF DOLLARS					
242	65803A	TECHNICAL INFO ACTIVITIES	6	3,[illegible]5	[illegible],134	4,720	5,379	U	III-499
243	65804A	DARCOM MAJOR RANGE/TEST FACIL	6	16[illegible],22C	[illegible]17,711	[illegible]	310,215	U	III-505
244	65805A	DOD MUNITIONS EFFECT/EXPLOSIVE SAFETY STAND	6	5,[illegible]	6,364	[illegible],242	8,510	U	III-529
245	65806A	DOD HIGH ENERGY LASER SYSTEMS TEST FAC	6		14,[illegible]	42,137	26,901	U	III-539
246	65[illegible]A	PRODUCTIVITY INVESTMENT FUNDING	6				1,500	U	---
247	65850A	INSTL AUDIOVISUAL SPT (R/D)	6			2,310	2,[illegible]50	U	III-546
248	65[illegible]	MGT HQ (RESEARCH/DEVELOPMENT)	5	26,901	[illegible]0,642	39,8[illegible]6	41,807	U	III-548
		DEFENSE WIDE MISSION SUPPORT		4[illegible],45[illegible]	[illegible]	7[illegible]	8[illegible]		
TOTAL		RESEARCH DEVELOPMENT TEST + EVAL, ARMY		2,846,[illegible]31	3,066,757	[illegible],577,20[illegible]	1,17[illegible],[illegible]3		

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 1980	FY 1981	FY 1982	FY 1983
1. For operation of installations of the reporting DOD Component Government operated	1,050,294	1,239,041	1,427,703	1,540,779
2. For operation of installations of the reporting DOD Component Contractor operated	59,068	67,100	77,001	87,976
3. For contracts directly in support of work actually performed at installations of the reporting DOD Component.	282,262	248,841	262,872	262,463
4. For work assigned to other Department of Defense activities	146,211	161,869	184,307	212,256
5. For work assigned to activities of other Government agencies	21,100	26,025	19,951	22,711
6. For work performed by industrial contractors ("profit" organizations).	1,199,216	1,232,573	1,480,980	1,904,743
7. For work performed by educational institutions.				
a. Designated Fed Contract Res Centers	24,470	30,243	33,278	36,629
b. Other Institutions.	43,164	50,713	62,827	72,350
8. For work performed by other "non-profit" organizations				
a. Designated Fed Contract Res Centers	7,487	8,592	10,041	11,882
b. Other Institutions.	13,159	21,760	18,240	20,264
9. Total Research, Development, Test and Evaluation, Army Appropriation.	2,846,431	3,086,757	3,577,200	4,172,053

Section 4

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

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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Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	Other Army	Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Paid From Other Funds	Mil. Pers. In RDTE Work	Other	Total
Army Industrial Fund Installations																	
1. *																	
Aberdeen	80	53465	14776	1878	793	70912	1480	18	72410	1936	268	-	[illegible]	-	81	1	2320
Proving	81	54968	15300	1775	800	72843	1843	21	74707	2316	268	-	[illegible]	-	87	1	2706
Ground, Aber-	82	68363	15600	1775	800	86538	1786	21	88345	2331	268	-	[illegible]	-	85	1	2685
deen, Maryland	83	73412	16100	1775	800	92087	1691	21	93799	2415	268	-	[illegible]	-	81	1	2765
2.																	
Armament	80	55418	35931	11478	-	102827	1516	238	104581	2823	660	-	[illegible]	-	83	13	3579
Research and	81	57594	33052	9910	-	100556	1822	-	102378	2641	660	-	[illegible]	-	86	-	3387
Development	82	70888	32850	7700	-	111438	1555	-	112993	2765	660	-	[illegible]	-	74	-	3499
Command,	83	77687	32700	7700	-	118087	1148	397	119632	2765	660	-	[illegible]	-	55	19	3499
Dover, New Jersey																	
3.																	
Army Material	80	13042	5236	465	2235	20978	311	-	21289	389	57	158	[illegible]	-	17	-	675
and Mechanics	81	13822	5529	553	2350	22254	360	-	22614	389	57	158	[illegible]	-	17	-	671
Research	82	15880	6352	635	2700	25567	357	-	25924	389	57	158	[illegible]	-	17	-	656
Center, Water-	83	20254	8102	810	3443	32609	355	-	32964	389	57	158	[illegible]	-	17	-	656
town, Massa- chusetts																	

1/ Exclusive of Military Personnel and Military Construction.

* ARRADCOM AIF located on the Aberdeen installation, includes Ballistic Research Laboratory and Chemical Systems Laboratory.

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Industrial Fund Installations																	
4.																	
Benet Weapons	80	2202	4612	-	-	6814	110	-	6924	81	54	-	-	-	6	-	141
Laboratory,	81	3164	4500	-	-	7664	127	-	7791	81	54	-	-	-	6	-	141
Watervliet,	82	4148	4800	-	-	8948	126	-	9074	81	54	-	-	-	6	-	141
New York	83	4403	4800	-	-	9203	125	-	9328	81	54	-	-	-	6	-	141
5.																	
Harry Diamond	80	12770	26468	7830	10874	57942	37	55	58034	787	160	218	-	-	2	3	1170
Laboratories,	81	14296	24291	7359	5134	51080	64	64	51208	886	168	119	-	-	3	3	1179
Adelphi,	82	19256	32059	6545	5331	63191	63	63	63317	952	120	101	-	-	3	3	1179
Maryland	83	19130	24930	7123	6345	57528	63	63	57654	898	144	131	-	-	3	3	1179
6.																	
Missile	80	73501	6533	853	-	80887	2522	-	83409	1424	23	-	-	-	138	-	1585
Research and	81	73750	8132	3870	-	85752	2648	-	88400	1213	58	-	-	-	125	-	1396
Development	82	60183	8860	3226	-	72269	2038	-	74307	1131	48	-	-	-	97	-	1276
Command,	83	53521	9932	2120	-	65573	1963	-	67536	1108	30	-	-	-	94	-	1232
Redstone Arsenal, Alabama																	
Subtotal Army	80	210398	93556	22504	13902	340360	5976	311	346647	7440	1222	376	88	-	327	17	9470
Industrial	81	217594	90804	23467	8284	340149	6864	85	347098	7526	1265	277	84	-	324	4	9480
Fund	82	238718	100521	19881	8831	367951	5925	84	373960	7649	1207	259	35	-	282	4	9436
	83	248407	96564	19528	10588	375087	5345	481	380913	7656	1213	289	35	-	256	23	9472

1/ Exclusive of Military Personnel and Military Construction.

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
7.																	
Aberdeen	80	51172	23994	197	67750	143113	12076	-	155189	1554	-	2194	82	224	805	-	4859
Proving	81	86611	16339	50	76631	179631	13959	-	193590	1378	-	2487	192	462	812	-	5331
Ground, Aber-	82	91667	18118	80	80313	190178	13975	-	204153	1241	-	2457	264	484	812	-	5258
deen, Maryland	83	98909	20102	65	89784	208860	13991	-	222851	1241	-	2457	278	522	812	-	5310
8.																	
Aeromedical	80	2916	582	-	1	3499	1283	-	4782	74	-	-	-		77	-	151
Research	81	2957	-	-	-	2957	1480	-	4437	65	-	-	-		77	-	142
Laboratory,	82	3449	-	-	-	3449	1474	-	4923	65	-	-	-		77	-	142
Ft. Rucker,	83	3687	-	-	-	3687	1471	-	5158	65	-	-	-		77	-	142
Alabama																	
9.																	
Air Defense	80	2391	1411	-	112	3914	1857	-	5771	85	-	-	-		117	-	202
Board, Ft.	81	3043	92	-	309	3444	2138	-	5582	85	-	-	-		117	-	202
Bliss, Texas	82	2520	32	-	95	2647	2133	-	4780	85	-	-	-		117	-	202
	83	2766	77	-	35	2878	2130	-	5008	85	-	-	-		117	-	202
10.																	
Airborne	80	1128	39	23	224	1414	1387	-	2801	40	-	-	-		87	-	127
Board, Ft.	81	1190	-	-	149	1339	1777	-	3116	39	-	-	-		97	-	136
Bragg, North	82	1000	-	-	220	1220	1774	-	2994	40	-	-	-		97	-	137
Carolina	83	1000	-	-	220	1220	1771	-	2991	40	-	-	-		97	-	137

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INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	Other Army	Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Other	Total	PERSONNEL (Man Years) Civil Service Paid From Army RDTE	Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Paid From Other Funds	Mil. Pers. In RDTE Work	Other	Total
Army Non Industrial Fund Installations																	
11.																	
Armor and	80	3581	3612	9	-	7202	3618	-	10820	102	-	-	-	-	227	-	329
Engineer	81	5607	9798	-	-	15405	4291	-	19696	102	-	-	-	-	236	-	336
Board, Ft.	82	5661	6700	-	-	12361	4350	-	16711	85	-	-	-	-	238	-	323
Knox, Kentucky	83	5486	545	-	-	6031	4345	-	10376	85	-	-	-	-	238	-	323
12.																	
Army Bio-	80	6468	363	-	26	6857	1041	-	7898	109	-	-			62	-	171
medical	81	8169	290	-	10	8469	1232	-	9701	140	-	-	-		67		207
Laboratory,	82	8463	-	-	-	8463	1282	-	9745	163	-	-	-		72	-	235
Aberdeen,	83	9247	-	-	-	9247	1277	-	10524	163	-	-	-	-	72	-	235
Maryland																	
13.																	
Army Communica-	80	353	-	-	-	353	23	-	376	11	-	-		-	2	-	13
tive Technical	81	525	-	-	-	525	111	-	636	13	-	-	-	-	6	-	19
Office, Ft.	82	500	-	-	-	500	69	-	569	13	-	-	-	-	4	-	17
Eustis,	83	450	-	-	-	450	55	-	505	11	-	-	-		3		14
Virginia																	

1/ Exclusive of Military Personnel and Military Construction.

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Civil Service Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
14.																	
Army Engineer Flight Activity, Edwards Air Force Base, California	80	5294	616	-	179	6089	-	828	6917	100	-	-	7	-	-	55	162
	81	4591	600	-	90	5281	-	1145	6426	100	-	-	8		-	66	174
	82	5199	800	-	-	5999	-	1145	7144	100	-	-	8		-	66	174
	83	5759	750	-	-	6509	-	1145	7654	100	-	-	8		-	66	174
15.																	
Army Institute of Dental Research, Washington, DC	80	1023	-	-	61	1084	1004	339	2427	22	-	2	-	-	60	20	104
	81	1213	-		-	1213	1160	392	2765	25	-	2	-		60	20	107
	82	1418	-	-	-	1418	1155	390	2963	25	-	2	-		60	20	107
	83	1483	-	-	-	1483	1151	388	3022	25	-	2	-		60	20	107
16.																	
Army Materiel Development & Readiness Command, Alexandria, Virginia	80	4618	-	-	-	4618	588	-	5206	115	-	-	-		39	-	154
	81	5786	-	-	-	5786	676	-	6462	118	-	-	-		39	-	157
	82	5943	-	-	-	5943	676	-	6619	118	-	-	-		39	-	157
	83	6914	-	-	-	6914	676	-	7590	118	-	-	-		39	-	157

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INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Civil Service Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
17.																	
Army Materiel	80	20661	1152	268	-	22081	1272	672	24025	285	8	32	-	-	85	45	455
Development &	81	15237	1120	335	-	16692	1278	514	18484	224	7	36	-	-	74	28	369
Readiness Com-	82	9467	1270	335	-	11072	1258	237	12567	161	4	-	-	-	72	12	249
mand, Program	83	9605	1343	335	-	11283	1241	235	12759	158	4	-	-	-	71	12	245
Managers, Various Locations																	
18.																	
Army Research	80	4257	-	-	-	4257	50	-	4307	94	-	-	-	-	2	-	96
Office, Re-	81	5412	-	-	-	5412	58	-	5470	94	-	-	-	-	2	-	96
search Tri-	82	5900	-	-	-	5900	57	-	5957	94	-	-	-	-	2	-	96
angle Park,	83	6370	-	-	-	6370	56	-	6426	94	-	-	-	-	2	-	96
North Carolina																	
19.																	
Atmospheric	80	10094	269	231	9	10603	5342	-	15945	193	2	-	-	-	356	-	551
Science Labor-	81	10900	150	100	-	11150	5937	-	17087	198	2	-	-	-	345	-	545
atory, White	82	11500	-	-	-	11500	5941	-	17441	199	2	-	-	-	345	-	546
Sands Missile	83	12100	-	-	-	12100	5947	-	18047	199	2	-	-	-	345	-	546
Range, Las Cruces, New Mexico																	

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Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Mil. Pers. Total	PERSONNEL (Man Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Contractor Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Mil. Pers. Total
Army Non-Industrial Fund Installations																	
20.																	
Aviation	80	6188	418	-	5399	12005	2198	-	14203	103	-	-	-	-	146	-	249
Development	81	7052	150	-	5213	12415	1515	-	13930	104	-	-	-	-	88	-	192
Test Activity,	82	7248	150	-	5613	13011	1516	-	14527	104	-	-	-	-	88	-	192
Ft. Rucker, Alabama	83	7676	150	-	5800	13626	1518	-	15144	104	-	-	-	-	88	-	192
21.																	
Aviation	80	21149	2181	76	2987	26393	683	338	27414	516	1	61	-	-	46	24	645
Research and	81	25841	2344	51	3696	31932	784	507	33223	511	-	72	-	-	46	25	654
Development	82	22432	2386	56	3540	28414	786	502	29702	435	-	75	-	-	46	25	581
Command, St. Louis, Missouri	83	23273	2539	60	3640	29512	510	501	30523	405	-	77	-	-	30	25	537
22.																	
Aviation Test	80	3397	817	-	-	4214	1254	-	5468	36	-	-	-		79		115
Board, Ft.	81	2325	-	-	-	2325	1721	-	4046	36	-	-	-		94		130
Rucker,	82	1633	-	-	-	1633	1718	-	3351	36	-	-	-		94		130
Alabama	83	1863	-	-	-	1863	1716	-	3579	36	-	-	-		94		130

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INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	Other Army	Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Paid From Other Funds	Mil. Pers. In RDTE Work	Other	Total
Army Non-Industrial Fund Installations																	
23.																	
Avionics Laboratory, Ft.	80	13599	17984	255	-	31838	228	120	32186	338	1	-	22	-	15	8	384
Monmouth,	81	16448	19219	2000	-	37667	275	138	38080	341	2	-	23	-	16	8	390
New Jersey	82	17499	19843	2500	-	39842	290	138	40270	343	2	-	24	-	17	8	394
	83	22364	19328	1500	-	43192	289	138	43619	343	2	-	20	-	17	8	390
24.																	
Ballistic Missile Defense	80	5184	-	-	-	5184	198	-	5382	103	-	-	-	-	8	-	111
	81	5707	-	-	-	5707	233	-	5940	103	-	-	-	-	8	-	111
Advanced Technology Center,	82	6040	-	-	-	6040	229	-	6269	103	-	-	-	-	8	-	111
	83	6764	-	-	-	6764	225	-	6989	103	-	-	-	-	8	-	111
Huntsville, Alabama																	
25.																	
Ballistic Missile Defense	80	487	-	-	-	487	298	-	785	13	-	-	-	-	12	-	25
	81	600	-	-	-	600	350	-	950	13	-	-	-	-	12	-	25
Program Office,	82	632	-	-	-	632	342	-	974	13	-	-	-	-	12	-	25
Alexandria,	83	673	-	-	-	673	338	-	1011	13	-	-	-	-	12	-	25
Virginia																	

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INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	Other Army	Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Paid From Other Funds	Mil. Pers. In RDTE Work	Other	Total
Army Non-Industrial Fund Installations																	
26.																	
Ballistic Missile Defense	80	5808	-	-	-	5808	260	-	6068	175	-	-	-	-	11	-	186
	81	8269	-	-	-	8269	304	-	8573	175	-	-	-	-	11	-	186
Systems	82	10472	-	-	-	10472	627	-	11099	200	-	-	-	-	23	-	223
Command, Huntsville, Alabama	83	11994	-	-	-	11994	618	-	12612	224	-	-	-	-	23	-	247
27.																	
Cold Regions	80	3828	373	156	5136	9493	256	-	9749	185	3	78	-	-	14	-	280
Research &	81	3985	600	200	5130	9915	297	-	10212	185	3	78	-	-	14	-	280
Engineering	82	6480	850	220	5020	12570	294	-	12864	185	3	78	-	-	14	-	280
Laboratory, Hanover, New Hampshire	83	7140	930	240	5520	13820	292	-	14112	185	3	78	-	-	14	-	280
28.																	
Cold Regions	80	4652	485	-	-	5137	4022	-	9159	22	-	-	-	-	268	-	290
Test Center,	81	5256	377	-	-	5633	4615	-	10248	22	-	-	-	-	268	-	290
Ft. Greely,	82	5290	391	-	-	5681	4617	-	10298	22	-	-	-	-	268	-	290
Alaska	83	5799	411	-	-	6210	4622	-	10832	22	-	-	-	-	268	-	290

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INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Contractor Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
29.																	
Combined Arms	80	209	-	-	11720	11929	29	-	11958	1	-	-	-	129	2	-	132
Test Activity,	81	676	-	-	15726	16402	69	-	16471	4	-	-	-	127	4	-	135
Ft. Hood,	82	824	-	-	-	824	69	-	893	4	-	-	-	-	4	-	8
Texas	83	824	-	-	-	824	69	-	893	4	-	-	-	-	4	-	8
30.																	
Communications	80	1314	-	-	115	1429	989	-	2418	31	-	-	-	-	62	-	93
and Electro-	81	1251	-	-	180	1431	1135	-	2566	31	-	-	-	-	62	-	93
nics Board,	82	1430	-	-	330	1760	1281	-	3041	31	-	-	-	-	70	-	101
Ft. Gordon,	83	1072	-	-	180	1252	1281	-	2533	31	-	-	-	-	70	-	101
Georgia																	
31.																	
Communications	80	70906	10768	77	6843	88594	1163	132	89889	903	45	99	186	191	78	9	1511
Research and	81	104510	10433	237	6510	121690	1321	235	123246	937	44	104	282	203	77	13	1660
Development	82	112254	8548	173	6111	127086	1323	248	128657	950	42	101	311	205	77	14	1700
Command,	83	139029	8997	173	6336	154535	1338	248	156121	946	42	107	283	205	78	14	1675
Ft. Monmouth,																	
New Jersey																	

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INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	Other Army	Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Other	Total	PERSONNEL (Man Years) Civil Service Paid From Army RDTE	Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Paid From Other Funds	Mil. Pers. In RDTE Work	Other	Total
Army Non-Industrial Fund Installations																	
32.																	
Computer	80	740	-	-	-	740	174	-	914	18	-	-	-		7	-	25
Systems	81	936	-	-	-	936	205	-	1141	24	-	-	-		7	-	31
Command,	82	802	-	-	-	802	171	-	973	21	-	-	-	-	6	-	27
Ft. Belvoir,	83	805	-	-	-	805	169	-	974	21	-	-	-		6	-	27
Virginia																	
33.																	
Construction	80	6222	5170	452	641	12485	73	-	12558	182	-	-	-		4	-	186
Engineering	81	8100	4424	432	539	13495	127	-	13622	182	-	-	-		6	-	188
Research	82	10142	3998	390	487	15017	168	-	15185	182	-	-	-		8	-	190
Laboratory,	83	9245	4317	421	527	14510	209	-	14719	182	-	-	-		10	-	192
Champaign, Illinois																	
34.																	
Corps of	80	437	-	-	-	437	18	-	455	11	-	-	-		1	-	12
Engineer RDTE	81	609	-	-	-	609	21	-	630	11	-	-	-		1	-	12
Headquarters	82	665	-	-	-	665	21	-	686	11	-	-	-		1	-	12
Activities,	83	666	-	-	-	666	21	-	687	11	-	-	-		1	-	12
Washington, DC																	

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INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Civil Service Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
35.																	
Dugway Proving Ground, Dugway, Utah	80	16138	7706	2095	293	26232	2641	-	28873	624	11	-	5	10	176	-	826
	81	22648	9396	1050	8	33092	2686	-	35778	617	11	-	74	10	156	-	868
	82	27108	10383	1100	10	38601	2688	-	41289	617	11	-	253	10	156	-	1047
	83	31364	13570	1200	12	46146	2690	-	48836	617	11	-	337	10	156	-	1131
36.																	
Electronic Proving Ground, Ft. Huachuca, Arizona	80	8882	5759	1053	211	15905	8512	2269	26686	131	38	45	171	65	567	151	1148
	81	11469	5705	1043	208	18425	9769	2604	30798	138	41	48	213	57	567	151	1215
	82	12232	5694	1042	208	19176	9773	2606	31555	138	41	48	213	57	567	151	1215
	83	12965	5722	1047	209	19943	9784	2608	32335	138	41	48	213	57	567	151	1215
37.																	
Electronics Research and Development Command HQs, Adelphi, Maryland	80	9662	480	-	30	10172	517	-	10689	221	-	-	-	-	34		255
	81	8783	525	-	-	9308	607	-	9915	222	-	-	-	-	35		257
	82	9893	525	-	-	10418	607	-	11025	222	-	-	-	-	35		257
	83	10101	525	-	-	10626	607	-	11233	222	-	-	-	-	35		257

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INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Contract or Paid From Other	Contract or Paid From RDTE	Contract or Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
38.																	
Electronics	80	94883	20596	2969	6166	124614	601	-	125215	475	23	123	50	-	40	-	711
Research and	81	82369	24550	4974	6630	118523	745	-	119268	492	24	129	40	-	43	-	728
Development	82	74231	25537	5034	6519	111321	745	-	112066	505	23	121	45	-	43	-	737
Command,	83	48217	25285	5030	6765	85297	745	-	86042	502	21	128	50		43	-	744
Ft. Monmouth, New Jersey																	
39.																	
Engineer Topo-	80	5676	2364	2548	-	10588	158	146	10892	135	129	-	-		7	8	279
graphic Lab-	81	6215	1963	2718	-	10896	180	169	11245	137	127	-	-	-	7	8	279
oratory,	82	7118	2145	2524	-	11787	181	168	12136	138	126	-	-	-	7	8	279
Ft. Belvoir, Virginia	83	7215	2375	2550	-	12140	182	167	12489	136	128	-	-		7	8	279
40.																	
Engineer	80	4631	5362	7234	1215	18442	91	-	18533	250	203	224	23	2	5	-	707
Waterway	81	5393	5615	7085	1144	19257	106	-	19363	256	208	228	38	2	5	-	737
Experimental	82	7143	6174	7120	1032	21469	105	-	21574	255	207	228	43	2	5	-	740
Center,	83	8066	6200	7200	1100	22566	104	-	22670	255	206	227	41	2	5		736
Vicksburg, Mississippi																	

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INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds: Mgmt Bureau	RDTE Funds: Other Army	RDTE Funds: Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers.: RDTE	Mil. Pers.: Other	Total	PERSONNEL (Man-Years) Civil Service: Paid From Army RDTE	Civil Service: Paid From Other RDTE	Paid From Other	Contractor: Paid From RDTE	Contractor: Paid From Other Funds	Mil. Pers.: In RDTE Work	Mil. Pers.: Other	Total
Army Non-Industrial Fund Installations																	
41.																	
Field	80	1495	28	-	217	1740	2087	-	3827	37	-	-	-	-	131	-	168
Artillery	81	1357	-	-	-	1357	2792	-	4149	37	-	-	-		152	-	189
Board, Ft.	82	1644	-	-	-	1644	2785	-	4429	37	-	-	-		152	-	189
Sill, Oklahoma	83	1395	-	-	-	1395	2782	-	4177	37	-	-	-		152	-	189
42.																	
Foreign	80	81	-	-	-	81	25	-	106	5	-	-	-	-	1	-	6
Science and	81	85	-	-	-	85	29	-	114	5	-	-	-	-	1	-	6
Technology	82	106	-	-	-	106	29	-	135	5	-	-	-		1	-	6
Center, Charlottsville, Virginia	83	111	-	-	-	111	28	-	139	5	-	-	-		1	-	6
43.																	
Infantry	80	1829	-	-	558	2387	1809	-	4196	55	-	-	-	-	114	-	169
Board,	81	1803	-	-	154	1957	2236	-	4193	55	-	-	-	-	122	-	177
Ft. Benning,	82	1945	-	-	90	2035	2230	-	4265	55	-	-	-	-	122	-	177
Georgia	83	2126	-	-	-	2126	2227	-	4353	55	-	-	-	-	122	-	177

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INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	Other Army	Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers RDTE	Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Paid From Other Funds	Mil. Pers. In RDTE Work	Other	Total
Army Non-Industrial Fund Installations																	
44.																	
Institute of	80	2268	-	-	714	2982	2506	-	5488	78	-	-	1	-	150	-	229
Surgical	81	2902	-	-	250	3152	2892	-	6044	81	-	-	1	-	150	-	232
Research, Ft.	82	2629	-	-	275	2904	2879	-	5783	81	-	-	1	-	150	-	232
Sam Houston, Texas	83	2839	-	-	275	3114	2870	-	5984	81	-	-	1	-	150	-	232
45.																	
Intelligence	80	1258	29	-	290	1577	1230	-	2807	21	-	-	-	-	77	-	98
and Security	81	3344	10	-	349	3703	1222	-	4925	17	-	-	-	-	66	-	83
Test Board,	82	3354	10	-	500	3864	1277	-	5141	24	-	-	-	-	69	-	93
Ft. Huachuca, Arizona	83	3761	11	-	1450	5222	1277	-	6499	24	-	-	-	-	69	-	93
46.																	
Kwajalein	80	61170	8875	11550	30	81625	754	-	82379	131	-	-	2617	346	32	-	3126
Missile Range,	81	70820	7555	9355	80	87810	884	-	88694	131	-	-	2655	313	32	-	3131
Marshall	82	77675	8840	12430	30	98975	868	-	99843	131	-	-	2651	306	32	-	3120
Islands	83	82586	9715	14480	-	106781	857	-	107638	131	-	-	2651	306	32	-	3120

1/ Exclusive of Military Personnel and Military Construction.

Section 4 (Contd) INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	Other Army	Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Paid From Other Funds	Mil. Pers. In RDTE Work	Other	Total
Army Non-Industrial Fund Installations																	
47.																	
Letterman Army	80	5137	729	-	100	5966	2627	-	8593	107	-	-	41	-	157	-	305
Institute of	81	5500	400	-	150	6050	3046	-	9096	125	-	-	41	-	158	-	324
Research, San	82	6235	600	-	250	7085	3032	-	10117	148	-	-	41	-	162	-	351
Francisco,	83	6985	600	-	250	7835	3107	-	10942	148	-	-	41	-	162	-	351
California																	
48.																	
Liaison Field	80	4777	-	-	-	4777	359	-	5136	124	-	-	-	-	17	-	141
Offices,	81	5863	-	-	-	5863	407	-	6270	124	-	-	-	-	17	-	141
Various	82	5965	-	-	-	5965	410	-	6375	124	-	-	-	-	17	-	141
Locations (ARI)	83	6074	-	-	-	6074	406	-	6480	124	-	-	-	-	17	-	141
49.																	
Liaison	80	534	-	-	-	534	-	46	580	15	-	-	-	-	-	4	19
Offices,	81	541	-	-	-	541	-	54	595	15	-	-	-	-	-	4	19
Various	82	783	-	-	-	783	-	54	837	15	-	-	-	-	-	4	19
Locations	83	896	-	-	-	896	-	54	950	15	-	-	-	-	-	4	19
(DARCOM)																	

1/ Exclusive of Military Personnel and Military Construction.

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
50.																	
Medical Bio-	80	3819	243	27	27	4116	569	-	4685	94	-	-	-	-	34	-	128
Engineering	81	4521	137	-	-	4658	656	-	5314	102	-	-	-	-	34	-	136
R&D Laboratory,	82	5207	140	-	-	5347	653	-	6000	102	-	-	-	-	34	-	136
Ft. Detrick,	83	7034	140	-	-	7174	652	-	7826	102	-	-	-	-	34	-	136
Maryland																	
51.																	
Medical R&D	80	2334	-	-	136	2470	957	-	3427	78	-	11	-	-	57	-	146
Command, Ft.	81	4784	25	-	-	4809	1104	-	5913	81	-	11	-	-	57	-	149
Detrick,	82	4575	25	-	-	4600	1099	-	5699	81	-	11	-	-	57	-	149
Maryland	83	5219	25	-	-	5244	1096	-	6340	81	-	11	-	-	57	-	149
52.																	
Medical	80	9051	313	-	14	9378	5192	169	14739	191	-	-	5	-	311	10	517
Research	81	9750	250	-	10	10010	5994	196	16200	199	-	-	5	-	311	10	525
Institute of	82	10802	275	-	13	11090	5967	195	17252	199	-	-	5	-	311	10	525
Infectious	83	11789	275	-	13	12077	5949	195	18221	199	-	-	5	-	311	10	525
Diseases, Ft. Detrick, Maryland																	

1/ Exclusive of Military Personnel and Military Construction.

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	Other Army	Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Paid From Other Funds	Mil. Pers. In RDTE Work	Other	Total
Army Non-Industrial Fund Installations																	
53.																	
Mobility	80	13809	6996	324	-	21129	1140	-	22269	750	3	433	-	-	76	-	1262
Equipment R&D	81	14118	9560	300	-	23978	1309	-	25287	793	3	422	-	-	76	-	1294
Command, Ft.	82	20741	7170	300	-	28211	1310	-	29521	883	-	335	-	-	76	-	1294
Belvoir,	83	23406	7170	300	-	29876	1311	-	31187	883	-	335	-	-	76	-	1294
Virginia																	
54.																	
Natick R&D	80	21528	1292	336	514	23670	1489	60	25219	784	11	18	-	-	99	4	916
Command,	81	32923	1408	200	560	35091	1709	82	36882	768	5	13	-	-	99	5	890
Natick,	82	34147	1493	212	560	36412	1709	83	38204	769	5	12	-	-	99	5	890
Massachusetts	83	33180	1582	212	560	35534	1712	82	37328	768	5	13	-	-	99	5	890
55.																	
Night Vision	80	13925	2351	685	5019	20980	480	-	21460	320	13	105	-	-	32	-	470
and Electro-	81	14206	2300	500	5000	22006	551	-	22557	328	9	101	-	-	32	-	470
Optics Labora-	82	17329	2300	500	5000	25129	552	-	25681	341	9	88	-	-	32	-	470
tory, Ft.	83	21007	2300	500	5000	28807	552	-	29359	355	9	74	-	-	32	-	470
Belvoir,																	
Virginia																	

1/ Exclusive of Military Personnel and Military Construction.

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Contractor Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
56.																	
Research	80	7938	6	-	64	8008	295	-	8303	193	-	-	-	-	14	-	207
Institute for	81	9287	5	-	-	9292	344	-	9636	193	-	-	-	-	14	-	207
Behavioral	82	9570	10	-	-	9580	340	-	9920	198	-	-	-	-	14	-	212
Sciences, Alexandria, Virginia	83	9746	-	-	-	9746	335	-	10081	208	-	-	-	-	14	-	222
57.																	
Research	80	4092	94	37	3	4226	1331	-	5557	95	-	-	-	-	80	-	175
Institute of	81	3656	60	25	-	3741	1536	-	5277	95	-	-	-	-	80	-	175
Environmental	82	4244	60	25	-	4329	1530	-	5859	95	-	-	-	-	80	-	175
Medicine, Natick, Massachusetts	83	3058	60	25	-	3143	1525	-	4668	95	-	-	-	-	80	-	175
58.																	
Research and	80	16033	4118	1816	20	21987	252	-	22239	536	-	-	-	-	17	-	553
Technology	81	18971	4883	2049	-	25903	288	-	26191	526	-	-	-	-	17	-	543
Laboratory,	82	20295	3660	519	-	24474	289	-	24763	526	-	-	-	-	17	-	543
Moffat Field, California	83	21225	4026	571	-	25822	290	-	26112	527	-	-	-	-	17	-	544

1/ Exclusive of Military Personnel and Military Construction.

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Civil Service Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil Pers. In RDTE Work	Mil Pers. Other	Total
Army Non Industrial Fund Installations																	
59.																	
Signal Warfare	80	17296	1467	17012	2774	38549	360	421	39330	70	33	8	138		24	28	301
Laboratory,	81	17035	4022	20964	2218	44239	512	496	45247	79	35	7	157		29	29	336
Vint Hill	82	29378	4172	28664	3842	66056	511	496	67063	79	35	7	202		29	29	381
Farms, Virginia	83	37932	2128	33997	4544	78601	511	497	79609	79	35	7	233		29	29	412
60.																	
Standard-	80	16	-	-	-	16	29	-	45	-	-	-	-		2	-	2
ization Group,	81	16	-	-	-	16	29	-	45	-	-	-	-		2	-	2
Australia	82	34	-	-	-	34	29	-	63	-	-	-	-		2	-	2
	83	42	-	-	-	42	29	-	71	-	-	-	-		2	-	2
61.																	
Standard-	80	42	-	-	-	42	29	-	71	2	-	-	-		2	-	4
ization Group,	81	48	-	-	-	48	29	-	77	2	-	-	-		2	-	4
Canada	82	73	-	-	-	73	29	-	102	2	-	-	-		2	-	4
	83	82	-	-	-	82	29	-	111	2	-	-			2	-	4

1/ Exclusive of Military Personnel and Military Construction.

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Contract Paid From Other	Contract Paid From RDTE	Contract Price Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
62.																	
Standard-	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ization Group,	81	120	-	-	-	120	55	-	175	1	-	-	-	-	3	-	4
Germany	82	164	-	-	-	164	56	-	220	1	-	-	-	-	3	-	4
	83	181	-	-	-	181	55	-	236	1	-	-	-	-	3	-	4
63.																	
Standard-	80	1025	-	-	-	1025	156	-	1181	15	-	-	-	-	10	-	25
ization Group,	81	1214	-	-	-	1214	180	-	1394	15	-	-	-	-	10	-	25
United Kingdom	82	1549	-	-	-	1549	180	-	1729	15	-	-	-	-	10		25
	83	1693	-	-	-	1693	179	-	1872	15	-	-	-	-	10		25
64.																	
Tank Auto-	80	13040	1149	4323	-	18512	528	-	19040	401	112	-	-		35		548
motive R&D	81	15683	1098	1320	-	18101	676	-	18777	461	49	-	-		39		549
Command,	82	17844	1365	363	-	19572	676	-	20248	487	35	-	-		39		561
Warren,	83	18736	491	-	-	19227	676	-	19903	499	9	-	-		39		547
Michigan																	

1/ Exclusive of Military Personnel and Military Construction.

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mpmt Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Contractor Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
65.																	
Test and	80	17177	159	-	-	17336	72	1417	18825	390	-	1	38	-	5	94	528
Evaluation	81	16288	159	-	-	16447	82	1627	18156	401	-	14	52	-	5	94	566
Command	82	19105	-	-	-	19105	83	1628	20816	401	-	14	78	-	5	94	592
Headquarters,	83	19249	-	-	-	19249	82	1628	20959	401	-	14	78	-	5	94	592
Aberdeen, Maryland																	
66.																	
Tri-Service	80	1304	-	2388	-	3692	168	-	3860	54	-	-	-	-	11	-	65
Tactical	81	1592	-	2730	-	4322	193	-	4515	54	-	-	-	-	11	-	65
Communications	82	1660	-	3018	-	4678	194	-	4872	54	-	-	-	-	11	-	65
Systems (TRI-TAC), Joint	83	1781	-	3325	-	5106	193	-	5299	54	-	-	-	-	11	-	65
Test Element, Ft. Huachuca, Arizona																	

1/ Exclusive of Military Personnel and Military Construction.

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	Other Army	Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Paid From Other Funds	Mil. Pers. In RDTE Work	Other	Total
Army Non-Industrial Fund Installations																	
67.																	
Tri-Service	80	6040	-	-	-	6040	312	-	6352	112	-	-		-	21	-	133
Tactical	81	7048	-	-	-	7048	358	-	7406	112	-	-		-	21	-	133
Communications	82	7266	-	-	-	7266	358	-	7624	112	-	-		-	21	-	133
Systems (TRI-TAC),	83	7487	-	-	-	7487	359	-	7846	112	-	-		-	21	-	133
Ft. Monmouth, New Jersey																	
68.																	
Tropic Test	80	2764	43	-	17	2824	1152	-	3976	77	1	1		2	77	-	163
Center, Panama	81	2923	48	-	55	3026	1322	-	4348	76	1	1		3	77	-	162
Canal Zone,	82	3181	40	-	37	3258	1310	-	4568	77	1	1	6	2	76	-	165
Panama	83	3474	41	-	34	3549	1298	-	4847	78	1	1	5	2	75	-	162
69.																	
Walter Reed	80	17606	527	284	131	18548	7528	569	26645	400	-	24	28	-	451	34	937
Army Institute	81	25724	190	56	3	25973	8762	656	35391	453	-	25	28	-	454	34	994
of Research,	82	26231	190	56	3	26480	8791	653	35924	476	-	25	28	-	458	34	1021
Washington, DC	83	29137	190	56	3	29386	8764	652	38802	476	-	25	28	-	458	34	1021

1/ Exclusive of Military Personnel and Military Construction.

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Civil Service Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
70.																	
White Sands	80	114314	20777	6044	9833	150968	12148	-	163116	2155	222	27	1043	-	810	-	4257
Missile Range,	81	139615	21996	6250	10240	178101	14041	-	192142	2228	230	27	1044	-	815	-	4344
Las Cruces,	82	159474	26588	7563	12372	205997	14128	-	220125	2229	230	27	1041	-	820	-	4347
New Mexico	83	168194	27186	7724	12613	215717	14227	-	229944	2196	227	27	1027	-	825	-	4302
71.																	
Yuma Proving	80	19869	12873	1334	2149	36225	5750	-	41975	823	-	10	110	-	383	-	1326
Ground, Yuma,	81	29711	16100	1340	1913	49064	5443	-	54507	833	-	10	176	-	316	-	1335
Arizona	82	30839	15047	2440	3019	51345	5445	-	56790	833	-	10	200	-	316	-	1359
	83	35023	15973	2176	887	54059	5450	-	59509	833	-	10	200	-	316	-	1359
Subtotal Army	80	778519	174570	63803	131728	1148620	105238	7526	1261384	15370	859	3496	4572	949	6731	491	32468
Non-Industrial	81	941121	183916	65364	143155	1333556	119843	8815	1462214	15512	801	3815	5033	1177	6659	495	33492
Fund	82	1018299	185529	76664	135489	1415981	120444	8543	1544968	15484	776	3640	5416	1066	6701	480	33563
	83	1085329	185079	83187	145757	1499352	120266	8538	1628156	15468	746	3641	5499	1104	6690	480	33628
Total,	80	988917	268126	86307	145630	1488980	111214	7837	1608031	22810	2081	3872	4660	949	7058	508	41938
In-House	81	1158715	274720	88831	151439	1673705	126707	8900	1809312	23038	2066	4092	5117	1177	6983	499	42972
	82	1257017	286050	96545	144320	1783932	126369	8627	1918928	23133	1983	3899	5451	1066	6983	484	42999
	83	1333736	281643	102715	156345	1874439	125611	9019	2009069	23124	1959	3930	5534	1104	6946	503	43100

1/ Exclusive of Military Personnel and Military Construction.

Section 5

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

	FY 1980 ACTUAL	FY 1981 ESTIMATE	FY 1982 ESTIMATE
Customer			
Department of the Army	486,289	420,128	426,622
Other Department of Defense Components			
Department of the Navy	34,296	39,960	14,562
Department of the Air Force	38,907	51,041	66,000
US Marine Corps	4,496	10,255	5,642
Other Defense Agencies	19,398	12,820	13,249
Subtotal	583,386	533,804	526,075
Activities Outside Department of Defense			
Department of Commerce	542	600	450
Department of Energy	2,433	4,653	3,157
Department of Treasury	433	200	200
Department of Health and Human Services	380	575	700
Department of Transportation	2,680	919	902
National Aeronautical and Space Administration	871	1,758	1,689
Department of Interior	403	620	710
Environmental Protection Agency	435	100	150
Trust Funds	436	225	225
Other	6,448	7,098	6,667
Nonfederal Sources	10,248	12,025	11,575
Subtotal	25,309	28,496	26,425
TOTAL	608,695	562,300	552,500

Section 5 (Contd)

ANALYSIS OF REIMBURSABLE PROGRAM

DESCRIPTION OF REIMBURSABLE WORK

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

a. Navy - Share of advancing blade concept helicopter high speed test program; Joint services small arms program; Joint cruise missile project; Fuel filter evaluation; Testing magazine protection enhancement program; Navy armor plate, decontamination-gas membrane; Armored combat vehicle technology support; Joint test element, Tri-Service Tactical Communications Systems Office; Mine neutralization studies; Surfzone transition analysis.

b. Air Force - Effect of munitions on hardened structures; Installation security systems; 105mm blank rounds; Anti-aircraft blast dissemination technology; Aerosol displacement profill test; Environmental control unit; Joint microwave landing system; Advanced fence sensor development program; Support to MINUTEMAN II and III firing missions, Advanced ballistic reentry system tests; Space detection and tracking system; Modifications to the ALTAIR radar; Develop litter patient decontamination shower; Evaluation of Air Force clothing; Signature calibration and thermal control verification; Threat models for intercontinental ballistic missile/sea launched ballistic missile geometry simulations; Side looking airborne radar imagery; Radar tracking; Global positioning systems tests; Infrared flyover services; Air Force armor plate.

c. Marine Corps - Support of the joint test element, Tri-Service Tactical Communications Systems Office; 100 gallon per minute fuel monitoring assembly; Tactical field fuel dispensing system; Solar power source program; 10 kilowatt generator engineering service; Mule program support; Medical field refrigerator modification; Studies of heat stress in carrier based personnel wearing chemical warfare clothing; Calibration in support of WEAPONEER devices; Department of the Navy share of survey of special foreign activities; 5 inch semi-active laser.

d. Other Defense Agencies:

(1) Defense Advanced Research Projects Agency - No tail rotor program; NAVSTAR ground positioning system; High altitude large optics program; Rail gun advanced indirect fire system.

(2) Defense Mapping Agency - Photogrammetric exploitation; Cartographic exploitation; Geodetic and geophysical support; Data base and data bank; Products and services.

(3) Defense Nuclear Agency - Scientific services program; Nuclear weapons effects; SILO test program; Shallow buried structures test; Ground motion studies; Material modeling; Grout development; Federal Republic of Germany road cratering tests.

e. Department of Energy - Conversion of cellulose to glucose; SEABED nuclear water disposal program closure studies; Grout studies; Borehole waste; Micro fracturing; Coal mine shafts; Food processing; Food waste recovery system.

f. National Aeronautical and Space Administration - Tape scoring; Developmental testing of electronic warfare equipment; Space shuttle program.

g. Nonfederal Sources - Canadian drone; Development of antitank 2 warhead for the Multiple Launched Rocket System in the Federal Republic of Germany; Treatment at the Institute of Surgical Research burn center; Fox tunnel, Yukon River budge project; Passive seismic investigation; Oil creek project.

Section 6

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

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 of 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 1982 FCRC requirements reflect an increase of $4.4 million when comparing FY 1982 to FY 1981.

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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	FY 1980 ACTUAL	FY 1981 ESTIMATE	FY 1982 ESTIMATE	FY 1983 ESTIMATE
AEROSPACE CORPORATION				
Research, Development, Test and Evaluation, Army				
6.21.05.A Materials	20	200	-	-
6.23.07.A Laser Weapons Technology	25	80	100	100
6.26.18.A Ballistics Technology	30	50	60	80
6.37.30.A Tactical Surveillance System	582	408	482	528
6.37.45.A Tactical Electronic Surveillance Systems	388	459	535	594
6.47.40.A Tactical Surveillance System	485	357	428	462
6.47.45.A Tactical Electronic Surveillance Systems	291	255	321	396
Total RDTE, Army	1,821	1,809	1,926	2,160
Total Aerospace Corporation	1,821	1,809	1,926	2,160

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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)

Remarks: The expertise and facilities of Aerospace Corporation are required to support the Army in FY 1982-1983 as follows:

1. Laser Weapons Technology. Aerospace will provide experimental and theoretical analysis of pulse chemical lasers. Requirements cover areas of basic research and determination of rate data and theoretical analysis of pulse chemical lasers. The Directed Energy Directorate of the Army Missile Laboratory has responsibility for the development of High Energy Laser Weapon Systems for the Army which includes the pulse chemical laser work. Program requirements call for completion of demonstration model during the 1983-1985 timeframe; therefore, data is needed immediately. Aerospace has the capability required to perform this effort in an expeditious manner.

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. The requested program will take advantage of the expertise available at Aerospace.

b. In FY 1980, the flow over a two-dimensional muzzle brake was computed using the three-dimensional, time dependent finite element code. Preliminary analysis of the geometry of a computationally acceptable three-dimensional brake was initiated. In FY 1981, computation of the prior year idealized three-dimensional brake will begin. Comparison with parallel experiments at Ballistics Research Laboratory will be performed. Consideration will begin on a geometry of a field muzzle brake. In FY 1982, computation of the flow through the first baffle chamber of a field muzzle brake will be conducted. In FY 1983 and outyears, computation of the flow through both the first and second chambers of a double baffle muzzle brake will be conducted. Muzzle brake efficiencies will be determined and compared with experiment. Consideration will be given to the computation of the muzzle blast propagation away from the region of the muzzle brake toward the crew members of the weapon. A scheme to couple the three-dimensional finite element code to a more efficient one or two-dimensional shock fitting model will be addressed. Following this, the problem of muzzle flow through a realistic geometry muzzle brake and propagation of the muzzle blast to the gun crew area will be finalized.

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)

3. Tactical Surveillance/Electronic Surveillance Systems. 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 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. In FY 1982, Aerospace efforts will be provided as follows:

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. Long range 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 evaluation on the need for Army unique space systems capabilities.

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT	FY 1980 ACTUAL	FY 1981 ESTIMATE	FY 1982 ESTIMATE	FY 1983 ESTIMATE
LINCOLN LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY				
Research, Development, Test and Evaluation, Army				
6.27.26.A Army Support to Defense Advanced Research Project Agency (DARPA) HOWLS	1,500 *	-	-	-
6.33.04.A Ballistic Missile Defense Advanced Technology Program	8,767	9,545	10,949	11,252
6.37.06.A IFF Developments (NATO)	2,000 **	1,800 **	1,700 **	1,300 **
6.53.01.A Kwajalein Missile Range (KMR)	3,535	3,785	4,560	4,760
6.58.04.A Whate Sands Missile Range (WSMR)	1,015	1,000	1,200	1,300
Total RDTE, Army	13,317	14,330	16,709	17,312
Total RDTE, Army Included in DARPA Ceiling	1,500	-	-	-
Total RDTE, Army Included in Air Force Ceiling	2,000	1,800	1,700	1,300
Total Lincoln Laboratory, Massachusetts Institute of Technology	16,817	16,130	18,409	18,612
Subcontract effort excluded from this amount	11,146	15,459	16,619	17,600

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

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

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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)

Remarks: Lincoln Laboratory technical effort is required to support the Army during FY 1982-1983 as follows:

1. Ballistic Missile Defense Advanced Technology Program. Lincoln Laboratory provides a unique research and development capability not duplicated in industry. They also provide an objective capability to evaluate industrial efforts. Lincoln Laboratory allows for high risk and high pay-off developments needed to advance the state-of-the-art. In prior years, Lincoln Laboratory has performed research effort in reentry discrimination, exoatmospheric discrimination and designation, large band digital signal processing, operation of the Army Optical Station at Kwajalein Missile Range, and requirements definition for advanced concepts in terminal and midcourse regimes. Effort will continue in the areas of discrimination techniques, signal processing, and advance radar components. Millimeter Wave instrumentation radar and monolithic Millimeter Wave transceiver module efforts will be completed in FY 1982. Specific areas of effort include:

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 at Kwajalein Missile Range, 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 Kwajalein Missile Range; and reduction and analysis of Army Optical Station data.

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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)

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 Non-Nuclear Defense Requirements for endo defense and the Forward Acquisition System Requirements in the exo region.

2. Identification Friend-or-Foe (IFF) Developments (NATO). Lincoln Laboratory efforts are required for continuation of 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. Previous analytic, experimental and crossboard efforts have resulted in a Strawman design for the system which is the US baseline for negotiations with NATO.

3. Kwajalein Missile Range (KMR). Continued Lincoln Laboratory support is required as outlined below:

a. The Kiernan Reentry Measurements Site radars which were developed by Lincoln Laboratory under Advanced Research Projects Agency sponsorship, and by direction of the Director, Defense Research and Engineering, were transferred to the Kwajalein Missile Range Directorate of the Ballistic Missile Defense Systems Command in 1968 to support the National Range mission.

b. The US possesses no other comparable facility capable of collecting exoatmospheric data and recording missile reentry phenomena than the Kiernan Reentry Measurement Site radar complex. The data collected by these instruments must be of the highest quality. High confidence in these test data leads to high confidence in missile development programs and ultimately in national strategic forces capabilities.

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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)

c. Lincoln Laboratory serves as Scientific Director of the Kiernan Reentry Measurements Site at Kwajalein Missile Range, and they are considered predominant experts for this particular task. They provide the technical management of the overall Kiernan Reentry Measurements Site 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 offsite mission test planning, radar systems engineering, and data reduction and reporting.

d. 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 the Kiernan Reentry Measurements Site 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.

e. In summary, Lincoln Laboratory effort includes direction of all activities required to assure readiness and optimum coverage of a mission by the Kiernan Reentry Measurements Site radars; also, upgrades to the radars to meet the changing and unique mission requirements generated by range user programs, to improve data quality and system reliability are responsibilities of Lincoln Laboratory system engineers and analysts. Kwajalein Missile Range 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.

4. White Sands Missile Range (WSMR). Continued Lincoln Laboratory support is required for the High Energy Laser Systems Test Facility which is being developed in response to congressional direction that a single DOD Tri-service High Energy Laser Systems Test Facility be established at the White Sands Missile Range. The instrumentation for the High

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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)

Energy Laser Systems Test Facility consists of sensing, data handling, data transmission, data processing, data analysis, command and control, beam diagnostics and communications equipment designed for integrated test and evaluation of High Energy Laser systems. The High Energy Laser Systems Test Facility in conjunction with the White Sands Missile Range Test Complex will provide a flexible capability for demonstration of High Energy Laser and other directed energy beam systems early in the development cycle. Integrated testing at White Sands Missile Range will permit cost effective capability evaluation and data base accumulation for accelerated development and reduced system life cycle costs. Lincoln Laboratory provides consulting services and technical expertise for education and analysis of High Energy Laser test requirements and in the conceptual design of High Energy Laser Systems Test Facility instrumentation.

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT	FY 1980 ACTUAL	FY 1981 ESTIMATE	FY 1982 ESTIMATE	FY 1983 ESTIMATE
MITRE CORPORATION				
Research, Development, Test and Evaluation, Army				
6.22.02.A Aircraft Avionics Technology	360	300	360	360
6.26.03.A Large Calibre and Nuclear Technology	-	-	290	330
6.27.01.A Communications Technology	791	966	890	1,320
6.27.03.A Combat Surveillance Target Acquisition/ID	44	-	300	318
6.37.07.A Communications Development	550	732	112	-
6.37.13.A Communications Development (PLRS-JTIDS Hybrid)	-	-	600	880
6.37.45.A Tactical Electronic Support Systems	-	480	480	480
6.37.49.A Tactical Vulnerability Reduction	310	-	-	-
6.47.01.A Communications Engineering Development	400	546	570	625
6.47.12.A Tactical Data Systems Interoperability	846	836	1,123	2,740
6.47.45.A Tactical EW1 C&C Support (BETA)	210	300	470	505
6.47.50.A Tactical Electronic E/W Systems	290	-	-	-
6.47.79.A JINTACCS	1,855	2,623	2,920	2,104
Total RDTE, Army	5,656	6,783	8,115	9,662

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT		FY 1980 ACTUAL	FY 1981 ESTIMATE	FY 1982 ESTIMATE	FY 1983 ESTIMATE
MITRE CORPORATION (Continued)					
Operations and Maintenance, Army					
202399	CENTAG CCIS	460	497	547	602
202399	USAREUR CCIS Implementation	950	1,100	1,200	1,200
208015	Army Command and Control Master Plan (AC^2MP)	-	-	400	750
393111	US Army Communications Command (AC^2MP & ABIC)	-	200	-	-
393111	US Army Communications Command (Transition Communication Planning)	-	-	90	210
393145	US Army Communications Command and Control Technical Support	630	675	857	995
395701	US Army Communications Command (ARBITS/WITS)	760	720	720	762
	Total Operations and Maintenance, Army	2,800	3,192	3,814	4,519
Total MITRE Corporation		8,456	9,975	11,929	14,181

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

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

1. Aircraft Avionics Technology.

a. MITRE will assist the US Army Aviation Research and Development Command in defining helicopter C^3 system requirements and in developing a methodology for identifying alternative configurations which satisfy these requirements for the post 1990 timeframe. At present, there is no methodology for determining future C^3 system architectural needs for Army aviation. Such a methodology is needed to provide a tie between the operational needs and processes and the hardware and software systems that support those needs. The ongoing MITRE effort provides such a methodology and can lead to the development of an overall C^3 system architecture for aviation.

b. In general, the MITRE method produces a detailed description of operational processes, time factors and information exchanges within and external to aviation elements. With this, capability gaps and system deficiencies can be exposed, and comparisons between current systems and proposed alternatives can be carried out. A synthesis of future C^3 architecture can then be carried out using advanced technology to redress system deficiencies and to meet future requirements.

c. During FY 1980, MITRE conducted work which began defining the time and event sequences and the information flow sequences of a typical anti-armor mission. The FY 1981 effort completed the anti-armor mission and extended the analysis across the other Army aircraft missions, i.e., logistics, reconnaissance, medevac. From this data base the methodology for defining the aviation C^3 architecture was developed and candidate architectures were described.

d. During FY 1982 and FY 1983 MITRE will concentrate on system architecture investigations, computer simulation, and laboratory breadboard of testbed elements as delineated in the following task areas:

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

(1) Development of Aviation Architecture. During FY 1982, the methodology development would be completed for determining the relationship between the mission operational needs and the future C^3 architecture. This methodology is needed not only for the development of future candidate architectures but also to help identify the technology areas of thrusts that should be pursued by the US Army Aviation Research and Development Command. Candidate aviation C^3 concepts such as the Executive Control Subordinate System. The architecture of the Executive Control Subordinate System is currently in the definition stage and information generated by the aviation architecture would help better define the interfaces between aviation elements and other Executive Control Subordinate System elements.

(2) C^3 Technology Assessment. During FY 1982 and FY 1983 this effort would be conducted in conjunction with the development of a candidate architecture. It is necessary to conduct this task so as to ensure the technology of *1990-2000*, which would be used by the elements of the Executive Control Subordinate System architecture, would also be incorporated into the aviation architecture. Recent technology surveys will be reviewed with focus on redressing any C^3 short falls of the current helicopter C^3 architecture and to meet the architectural requirements of the 1990's. Technologies would be identified with maximum payoff and minimum risk.

2. Large Calibre and Nuclear Technology. MITRE will provide analytical, modeling and general technical support to the Large Calibre Weapon Systems Laboratory, of the US Army Armament Research and Development Command, to assist the Large Calibre Weapon Systems Laboratory in the evaluation and development of advanced weapon systems such as Enhanced Self Propelled Artillery Weapons System. Other programs requiring assistance include guided projectiles and Improved Sensing Munitions. MITRE, for example, will provide a survivability module for the Enhanced Self Propelled Artillery Weapons System computer model used by the Large Calibre Weapon Systems Laboratory in order to investigate the advantages and disadvantages of tactics such as "shoot and scoot" and the dispersed battery: this may include the modification of MITRE's Stochastic Counter Artillery Model, if appropriate. In support of the Large Calibre Weapon Systems Laboratory guided projectile and Improved Sensing Munitions program, MITRE will provide and articulate the Command, Control, Communications, Intelligence data base for operational performance evaluations, as well as provide analytical support concerning the Command, Control, Communications, Intelligence issues as they develop.

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

3. Communications Technology. MITRE will provide system research, analysis, and engineering support as follows:

a. They will provide specialist system design and engineering support to the Communications Research and Development Command in the identification, definition, and analysis of advanced system concepts and information handling techniques to include consideration of measures for assuring continuity of operations and acceptable levels of system survivability. The MITRE work will provide the basis for follow-on exploratory development and/or advanced development programs pursued to experimentally verify the feasibility and adequacy of proposed C^3 system structures. During FY 1980, MITRE's work involved the initial identification and outline description of promising Army tactical C^3 system structures, potential information handling techniques, and advanced user input-output facilities. This initial effort will provide a foundation for the follow-on work on the definition of advanced system concepts.

b. They will provide specialist technical support to the Communications Research and Development Command in the application of automatic data processing to tactical spectrum management and engineering; specific efforts will include development of compatibility and vulnerability analysis models to address emissions in the electromagnetic part of the spectrum with special emphasis on the analysis of spread spectrum system impact. In 1979, the Communications Research and Development Command working in conjunction with the Electromagnetic Compatibility Analysis Center initiated an exploratory development program to consider alternative system solutions for the effective management of the Army's use of the frequency spectrum. The total program will address decentralization of spectrum management and engineering functions, integration of terrestrial and satellite management, evolution and integration with the TRI-TAC tactical communications control facilities, interoperability with the future Army all source analysis center, generation and electronic distribution of Communications-Electronics Operating Instructions, and interaction with Joint, NATO, and allied systems. A modern spectrum management system is vital to the effective deployment and operation of the future automated Army command, control, and communications systems. Initial MITRE effort involved the definition and analysis of a functional description of an interim benchmark Automated Battlefield Spectrum Management and Engineering System. The information aspect of the temporal, physical, electrical and procedural interfaces have been determined. Tables were prepared to portray the information required by the Spectrum Management System from other tactical systems.

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

c. MITRE personnel will participate as members of the Battlefield Information Distribution System working group in the detailed planning for and the conduct of the various phases of the corps level experiment. They will work with the US Army Training and Doctrine Command and US Army Materiel Development and Readiness Command representatives to determine the benefits of applying Battlefield Information Distribution System technology to closed loop systems which require data distribution capabilities. The Communications Research and Development Command, acting for the US Army Materiel Development and Readiness Command and in conjunction with the US Army Training and Doctrine Command, is presently involved in a program to refine the specifications and establish the potential for a digital data communications system for Army use on the battlefield. Specific applications include the transfer to digital data from sensors to command center computers and among Division and Corps command center computers to demonstrate tactical operational concepts such as the Corps Information Flow concept, expected to be implemented in the mid to late 1980's. This project was initiated in order to determine whether certain critical operational needs, difficult to satisfy by the classic point-to-point network, could be served more efficiently by an all-digital network. Implementation of intrusion proof fiber optic cable into the Battlefield Information Distribution System tested experiment will be investigated. MITRE has been assisting the Communications Research and Development Command by active participation in this corps experiment working group sessions. This included preparation of draft plans for Phase I and II of the experiment which have been successfully implemented, Phase III which is currently underway and the preparation of a long range tentative plan to cover FY 1981-1985 activity. In addition, MITRE has assisted the Communications Research and Development Command in an evaluation and assessment of Phase I and II results as a collateral task. MITRE provides on call, assessments of the characteristics and capabilities of various hardware candidates for investigation in concert with the corps experiment. This type tasking includes assistance to the Communications Research and Development Command in the preparation of Statements of Work, proposal evaluation and contract performance monitoring for procurement actions associated with the experiment, including the low Cost Packet Radio Effort. Prior to FY 1980, work was being done under the title, "Tactical Army Distribution (ADDS) Experiment". The project number remained the same. In FY 1980 MITRE produced a 5 year Master Plan for the Fort Bragg Experiment. This documentation provides detailed technical areas for investigation, and first cut funding requirements that will allow Army decision makers to select scenarios and topics that

Section 6 (Contd)

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

are of most interest. MITRE is also preparing an overall Communications Research and Development Command C^3 White Paper to more clearly focus on the Army C^3 problem and their potential solution. The main thrust of MITRE efforts during FY 1982-1983 will be the preparation of specific plans for the utilization and evaluation of the corps level testbed resources at Fort Bragg including a master long range schedule. MITRE personnel will work closely with the Communications Research and Development Command, US Army Materiel Development and Readiness Command, US Army Training and Doctrine Command, XVIII Airborne Corps, and Defense Advanced Research Project Agency representatives in the preparation of these documents. In addition, MITRE will determine a feasible method of integrating associated developmental testing (e.g., Field Artillery, Army Air Defense, Beta and BELBAT) with the corps level experiment.

d. MITRE will investigate the conceptual design of the Army Battlefield Information Distribution System network using results from FY 1979/1980 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. These algorithms, design principles/concepts will be investigated with the Network Management Algorithm Vehicle to investigate the performance of the Battlefield Information Distribution System network operating under a large set of control algorithms. MITRE will also investigate generic system level architectures such as slotted/non-slotted, synchronous/asynchronous TDMA, as well as control concepts for fully distributed, partially distributed and centralized networks to establish a basis for trade-off analysis. Realistic military scenarios will be used as a framework for the Battlefield Information Distribution System network design concepts. MITRE will implement the investigation with emphasis on general areas such as evaluation of a variety of distributed routing/flow control algorithms for Army tactical environment; determination of the required frequency of automatic network reconfiguration actions in mobile tactical scenario; evaluation of the performance of different channel access modes (e.g., pure ALOHA, carrier sense, reservation, etc.) and of single versus multiple channel operation (including various data rates), in tactical mobile operations in typical terrain; and, quantification of the tradeoff between increased computational capability of networks elements and decreased overhead traffic levels between network elements. The main thrust of MITRE efforts in FY 1982 and FY 1983 will be completion of an investigation of the hardware and software aspects of digital network management and control via analysis, and computer modeling/simulation. MITRE will provide technical management support, program formulation, planning, coordination with related activities, systems analysis, and engineering. This includes assistance with the VHSIC task with academic research tasks related to Network Management, and the Low Cost Packet Radio task.

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

4. Combat Surveillance Target Acquisition/Identification. MITRE support is required for analysis and research to provide detailed requirements and concepts for advanced Intelligence, Surveillance, Target Acquisition Systems and to guide Combat Surveillance and Target Acquisition developmental efforts for the next ten to twenty years.

a. The principal purposes of this task are to summarize the factors that drive Army Intelligence, Surveillance, Target Acquisition requirements, and identify the major issues which impact the formulation of an Intelligence, Surveillance, Target Acquisition architecture. The timeframe considered shall be the latter 1980's.

b. The contractor shall generally describe planned Army tactics for fighting a central European war, considering both conventional and tactical nuclear conflicts. Korean and Middle Eastern scenarios shall be addressed secondarily, from the viewpoint of how tactics in these areas would differ from those planned for Europe.

c. The contractor shall summarize the Army's Intelligence, Surveillance, Target Acquisition requirements, relating them to the planned tactics. The Intelligence, Surveillance, Target Acquisition needs described shall include not only the sensing functions, but also the links to distribute Intelligence, Surveillance, Target Acquisition information. Variations in scenarios or tactics which strongly affect the Intelligence, Surveillance, Target Acquisition requirements shall be identified. Coordination of this effort shall be accomplished with the US Army Training and Doctrine Command Headquarters and appropriate user agencies.

d. Intelligence, Surveillance, Target Acquisition equipments that are presently fielded or are in development by the services shall be catalogued and briefly described. The developing agency shall be identified, and the performance of each system shall be summarized. The contractor shall briefly assess the adequacy of these equipments to meet Army Intelligence, Surveillance, Target Acquisition requirements, and shall identify the major issues requiring resolution where a clear assessment is not possible. Recommendations for follow-on analyses to resolve these issues shall be provided. A framework shall be developed for investigations into relevant physical sciences and technology, including the current technology base and forecasts for its expansion.

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

e. Results of the above efforts shall be furnished in a report, which shall include a thorough bibliography of recent (past 5-10 years) publications on the topics described above. Additionally, the contractor shall compile a reference library of documents for delivery to the government, comprising the major recent publications in the areas of Intelligence, Surveillance, Target Acquisition architecture requirements, design, and analysis.

5. Communications Development. MITRE efforts are required for support of the Local Distribution Fiber Optic Cable System. The long-term objective of the Army fiber optic communications program is to field substantially improved cable systems as part of an overall modernization of tactical communications systems. Fiber optic technology promises much higher capacity as well as increased reliability and mobility relative to conventional metallic cable. In addition, Electro Magnetic Interference, Radio Frequency Interference, and crosstalk are essentially eliminated. There is also the potential that the increased reliability and reduced logistic requirements will result in significant economies on a life cycle cost basis. As an extension of the long haul program, MITRE has begun work on a Local Distribution Fiber Optic Cable System for the Army during 4th Quarter FY 1980. This effort was initiated under a temporary arrangement through Air Force. The Army plans to move the local distribution program into 6.4 by 1982. In order to meet this deadline an immediate 6.3 program must be initiated and MITRE support is essential to meeting this schedule. The MITRE role in this project will be that of System Research and Planning. In this role MITRE will provide both general and specific systems research on advanced fiber optic systems. This assistance will include the areas of application analysis, design tradeoff and life cycle cost analysis, specification and evaluation of optical components, preparation of demonstration systems and field support. Specific tasks to be performed by MITRE include local distribution cable analysis, design tradeoff and life cycle cost analysis, specification of otpical components, preparation of demonstration system, field support of demonstrations and evaluation.

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MITRE CORPORATION (Continued)

6. Communications Development (Position Location Reporting System - Joint Tactical Information Distribution System Hybrid). The Army has initiated the Position Location Reporting System - Joint Tactical Information Distribution System Hybrid Program to provide a data distribution and position location system for the Army battlefield in the late 1980's. A Letter of Agreement and an Operational and Organizational Concept have been approved on this System. A Study Report provided Office, Secretary of Defense approval and outlined an accelerated acquisition activity based upon product improving already developed Joint Tactical Information Distribution System and Position Location Reporting System terminals. MITRE was the Hybrid system engineer during the conceptual development of the Hybrid System. MITRE's support to the Hybrid in prior years was primarily associated with the Joint Tactical Information Distribution System portion of the Hybrid. In carrying out this task MITRE's efforts also were concerned with the overall Hybrid design and testbed planning. MITRE helped to define the testbed configuration and contractor roles in the testbed. MITRE provided technical inputs to the Position Location Reporting System net management design appraoch and simulation. The effort in FY 1982 and FY 1983 will expand on the previous effort to include increased emphasis on the whole Hybrid System rather than just the Joint Tactical Information Distribution System portion which is covered under Army's Joint Tactical Information Distribution System Joint Project Office Project. MITRE's previous involvement in the Hybrid conceptual work has provided it with an extensive background knowledge of the Army's operational requirements and it is in a good position to translate these into technical design requirements. In addition, information needed to perform this function is sensitive from a planning and funding standpoint. This type of information can be released to MITRE because its Federal Contract Research Center status.

7. Tactical Electronic Support Systems. MITRE efforts are needed for conduct of research aimed at improving Intelligence, Surveillance, Target Acquisition/Electronic Warfare processing techniques to support the Army tactical commander's needs for battlefield management, operations planning, enemy intentions, and targetting information. MITRE will conduct research, analysis, and experiments involving the automated processing, fusion, and display of mover, shooter, and emitter data for the purpose of developing efficient, automated techniques for identifying and locating critical nodes. The application of mover and emitter processing schemes in being or under development will be assessed for incorporation into the Technical Control and Analysis Center (Division) as a component of an interim All Source Analysis System. In addition, MITRE will design and support acquisition and installation of the Intelligence Processing Laboratory. The Intelligence Processing Laboratory will provide researchers with the facilities for conducting research and experimentation aimed at improving Intelligence, Surveillance, Target Acquisition/Electronic Warfare processing techniques.

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MITRE CORPORATION (Continued)

8. Communications Engineering Development. MITRE technical support is required for the Fiber Optics Transmission System (Long Haul) full-scale development program, to include system engineering, contract monitoring, economic analysis, reliability and maintainability analysis, and fiber optic component and interface equipment evaluation. In addition, MITRE will continue to conduct analyses and long-range planning toward the definition of cost effective application of fiber optic technology. The MITRE role is that of System Engineer for the fiber optic development effort. In this role, MITRE will continue to provide both general and specific system engineering activity assistance, some of which is a continuation of those tasks initiated in FY 1980. This assistance will include continuation of the design trade-off studies, life cycle cost analysis in support of the design trade-off studies, component evaluation, and nuclear hardening effects study. A multi-discipline support group capable of executing both technical and economical studies is required. They should be conducted by professional people experienced in military operations, communications and fiber optics. Such support is not available within this command due to current limitation in manpower. MITRE personnel have unique qualifications for the program planning and implementation of an engineering development program for Army long haul fiber optic programs. MITRE has been involved in the development of several fiber optic demonstration systems for potential military application under an Air Force sponsored Fiber Optics Technology Applications program.

9. Tactical Data Systems Interoperability. MITRE technical support is required as follows:

a. MITRE will provide system engineering and transition analysis support for the Army's work to specify the current baseline and near-term/mid-term transition of the Army Command, Control, and Communications systems employed at all Army tactical echelons. The Center for Systems Engineering and Integration at the Communications R&D Command serves as the Army's tactical Command, Control, and Communications System Engineer. The goal of the Center is to establish a cohesive, well-engineered, affordable, and evolutionary system design which effectively integrates the component fire control, air defense, Electronic Warfare/Intelligence, command information, combat service support, and communications facilities into a single overall system to provide for effective command and control of Army tactical forces at all echelons. A balanced near-term and far-term system design and engineering program is required to achieve those objectives; i.e., exploratory development efforts are

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MITRE CORPORATION (Continued)

required to derive and analyze the future goal-type system designs toward which the Army should evolve and near-term oriented system engineering efforts are required to address the integration of the equipments and systems that are now in development and production. MITRE will provide specialist system design and engineering support to the Communications R&D Command (Center for Systems Engineering and Integration) in the development of force element oriented system level specifications which technically define the Army's Command, Control, and Communications systems at each major organizational element of the Army; e.g., an Infantry Division. The work will include transition analyses to determine the best means for introducing the emerging new equipments and subsystems into the Army's tactical Command, Control, and Communications systems and the definition of the interoperability standards needed to integrate the tactical Command, Control, and Communications facilities into a single cohesive system and to interface the Army systems with the appropriate systems of the other military services and the US allies. MITRE support for the Center for Systems Engineering and Integration system engineering work associated with the design and integration of the Army's Position Location Reporting System - Joint Tactical Information Distribution System Hybrid System will be continued during FY 1982 and FY 1983.

b. MITRE will provide system engineering and transition analysis support for the Army's work to define a near-term and follow-on full implementation for the Army's Executive Control Subordinate System Concept for distribution of information among the functional elements of the Army's Command, Control, and Communications system. In FY 1980, the Army's System Architect, established an Executive Control Subordinate System Concept as their architecture for identifying the information needs/flows that must be accommodated between the Army Control Systems (i.e., fire control, air defense, combat service support, operations, and Electronic Warfare/Intelligence) and between the Commander and each of those Control Systems. The Center for Systems Engineering and Integration has the responsibility to determine the extent to which the identified information flow requirements can be satisfied in the near-term, the technical solution for the near-term, and an evolutionary or transitional approach to eventually provide for the full satisfaction of those objectives. In FY 1982-1983, MITRE will provide specialist system design, analysis, and engineering support to the Communications R&D Command (Center for Systems Engineering and Integration) in the development of the system design that will be established to satisfy the Executive Control

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MITRE CORPORATION (Continued)

Subordinate System requirements. This effort will involve the definition of a near-term solution which can be fielded early through use of the Army's Tactical Computer System and Tactical Computer Terminal equipments. The effort will include specification of interfaces, software expansion/modification, and system level procedures needed for near term fielding; follow-on efforts will be devoted to determining a proposed far-term implementation for the Executive Control Subordinate System concept and the transition path which will be followed to achieve that goal.

10. Tactical Electronic Warfare Intelligence Command and Control Support (BETA). In 1977 the BETA Project was established by OSD to demonstrate the feasibility and utility of prompt coupling of target acquisition sensor data into tactical combat situation displays and fire power systems. In June 1980 Congress requested that the role of the BETA Joint Project Office be expanded to take on the development of operational system prototype derivatives of the BETA Test Bed, namely the Army's All Source Analysis System and the Air Force's Tactical Fusion Division. The goal is to have the implementation of the operational systems under contract by October 1981, with an Initial Operational Capability planned for June 1984. To meet the requirements imposed by Congress and OSD, a program involving four parallel efforts is being developed. For FY 1981 the objectives are as follows:

a. To complete the evaluation of the initial Test Bed capability and identify improvements that should be included both in further evaluation of the Test Bed and in the procurement of the operational systems.

b. To complete the procurement cycle for acquiring an implementation contractor for the operational system, beginning with the preparation of a Request for Proposal and ending with a contract award by 1 October 1982.

c. To utilize the BETA Test Bed in a CONUS Command Post Execution in June 1981 and a European Field Training Execution in September 1981 for the purpose of learning to use the capabilities in an operational environment and identifying additional future improvements for the operational systems.

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d. To generate a dynamic tactical simulation capability for supporting Command Post Executions and for evaluating system capabilities.

MITRE will work in direct support of the Director, BETA/All Source Analysis System/Tactical Fusion Division Joint Project Office. Work plans and changes will be coordinated with the Director to assure they are matched to current priorities. MITRE personnel may be collocated with other Joint Project Office personnel at selected government facilities. MITRE will support the Joint Project Office in carrying out the four parallel efforts of its program which are BETA Test Bed Evaluation, Acquisition of All Source Analysis System/Tactical Fusion Division Operational Capabilities, Test Bed Demonstrations and Evaluations and Tactical Simulator Development.

11. Joint Interoperability of Tactical and Control Systems. MITRE technical support is required in two areas as follows:

a. MITRE will provide system research, analysis, planning, engineering, and technical management support to the Army Test Unit in all phases of its mission in support of the Joint Interoperability of Tactical and Control Systems testing program. This support will include requirements analysis, analysis and evaluation of current and programed capabilities to insure maximum effectiveness and interoperability configuration management, and test planning, conduct, data collection and analysis. MITRE will support the Army Test Unit by:

(1) Assisting in the preparation for and support of the Joint Interoperability of Tactical and Control Systems Compatibility and Interface test objectives, plans, procedures, conduct, data collection and analysis of Air Operations, Operations Control, and Fire Support Test Segments.

(2) Providing the technical support necessary to insure timely execution and completion of assigned Joint Interoperability of Tactical and Control Systems Compatibility and Interface testing to include support to Intelligence and Air Operations Operational Effectiveness Demonstration.

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MITRE CORPORATION (Continued)

(3) Defining the performance, design and test requirements of the Army Test Unit Interoperability Test Center configurations for the various Joint Interoperability of Tactical and Control Systems test segments. In addition, MITRE will assist the Army Test Unit with the Technical Controller functions associated with the Fort Monmouth Interoperability Test Center and its associated remote sites.

(4) Continuation of support to the Executive Test Center at Fort Leavenworth. This will require that MITRE maintain an additional site at Fort Leavenworth during FY 1981.

(5) Assisting the Army Test Unit in developing requirements for, and implementing Joint Interoperability of Tactical and Control Systems test support hardware and software including that necessary for on-line test support, data collection and analysis, and Joint Interoperability of Tactical and Control Systems message preparation aids.

(6) Analyzing and evaluating Compatibility and Interface tests to identify problems, correct deficiencies, recommend solutions, and plans for retesting.

(7) Accomplishing user Joint Interoperability of Tactical and Control Systems message interoperability requirements analyses and development of related engineering and software design criteria.

b. MITRE will provide system research, analysis, planning, engineering, and technical management support to the Center for Systems Engineering and Integration in all phases of its Army Command, Control, and Communications, Joint Interoperability of Tactical and Control Systems-related, systems engineering, architecture, and concept/design activities. This support will include requirements analysis and evaluation of current and programed capabilities to assure maximum effectiveness, interoperability, configuration management and test support. MITRE will support the Center for Systems Engineering and Integration by:

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MITRE CORPORATION (Continued)

(1) Accomplishing user interoperability requirements analyses and development of related engineering design criteria.

(2) Developing system interoperability validation methodology and test planning.

(3) Supporting NATO Rationalization, Standardization, and Interoperability planning and plan implementation and execution.

12. Central Army Group Command Control Information System.

a. MITRE provides systems engineering support to the US Army Element, Central Army Group Command Control Information System in determining the Headquarters, Central Army Group Command Control Information System requirements, systems characteristics and required capabilities directed towards the implementation of a Central Army Group Command and Control architecture for the current period through 1985. MITRE is also assisting the US Army Element in defining the Central Army Group requirements to the Allied Command Europe Command and Control architecture which will determine the Allied Command Europe wide Command and Control structure for the post 1985 period. MITRE provides the systems engineering and technical expertise required to assist in the analysis and technical action leading to the refinement of the Command and Control system concept for Headquarters, Central Army Group and the planning and implementation of the concept. MITRE provides a team consisting of analysts and technical specialists to work closely with, and under the direction of, the Central Army Group Command Control Information System Element. This team is located at the Central Army Group Headquarters, and as necessary, draws upon the support of specialists located at MITRE offices in the United States.

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MITRE CORPORATION (Continued)

b. Principal MITRE FY 1980 activities at the Central Army Group included: (1) support to the Central Army Group required inputs to the Supreme Headquarters Allied Powers Europe Command and Control Requirements Analysis tasking; (2) the preliminary analysis and documentation of the Central Army Group display requirements; (3) support during exercise CRESTED EAGLE 80 for the design, implementation and evaluation of a display distribution experiment using the Static War Headquarters Closed Circuit Television system; and (4) the establishment of a microprocessor based test bed to experiment with graphical display presentation and develop analytical tools or predictive analysis.

c. During FY 1981, MITRE is assisting the Command Control Information System/Command and Control Group in the integration of automatic data processing terminals into the Peace and War Headquarters operations. With respect to this effort, MITRE will provide overall planning guidance and assist in staff orientation. Also, development of the initial limited automatic data processing capabilities into an operational system will require MITRE assistance for the derivation and documentation of software specifications for applications programs. Continued MITRE support will be provided to the Command and Control Requirements Analysis effort; also, MITRE efforts will continue to refine and interpret in terms of meaningful graphical presentation the Central Army Group display requirements and investigate predictive analytical techniques ultimately resulting in software specifications for the Central Army Group Command and Control system. Additionally, MITRE will develop suitable engineering options for a viable Leapfrog concept (Alternate War Headquarters). It is anticipated that MITRE will prepare in the 1981 time frame working papers/technical information letters covering the following items: (1) Automatic data processing integration with the Central Army Group Command and Control, concepts of operations/procedures; (2) graphical display requirements specifications; (3) software specifications for the Central Army Group Command and Control applications; (4) planning and results of the liaison officer experiments; (5) possible hardware solutions for Alternate War Headquarters; and, (6) other topics concerning various aspects of the Central Army Group Command and Control system implementation necessary to document urgent problems/solutions.

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MITRE CORPORATION (Continued)

d. In FY 1982-1983, MITRE will support the Command and Control Information System/Command and Control Group principally in the following areas: (1) Continued integration of Command and Control subsystems at the Static War Headquarters as they become available, e.g., CAMPS, SCARS II terminals, and optimization of procedures for integration of all systems; (2) development of software specifications for Peace and Static War Headquarters; and, (3) planning and development of operational concepts in preparation for the dedicated Central Army Group Fourth Allied Tactical Air Force computer installation at the new Ruppertsweiler II Joint Static War Headquarters facility.

13. United States Army Europe Command and Control Information System Implementation.

a. MITRE is providing system engineering support to the United States Army Europe Command and Control Information System Project Office in the analysis and actions leading to the development and implementation of the US Army Europe Command and Control Information System. This support includes communication system design, technical support in the development of automatic data processing systems, test bed development and implementation, exercise planning and evaluation, technical monitoring of subcontractor support activities and documentation leading to final system implementation. MITRE provides a team consisting of analysts and technical specialists to work closely with, and under the direction of, the US Army Europe Command and Control Information System Project Office. This team is located at the US Army Europe Headquarters, and as necessary, draws upon the support of specialists located at MITRE offices in the United States. MITRE personnel will be assigned to Major Support Command Headquarters, as required, in the performance of their activities. The US Army Europe Command and Control Information System Program objectives are to develop a system which will: (1) Provide an effective system for the US Army Europe to perform its combat service support mission during wartime; (2) to achieve the best structure for wartime readiness during peacetime; and, (3) to develop an effective means of transitioning to the US Army Europe wartime NATO support role from its peacetime posture.

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MITRE CORPORATION (Continued)

b. During FY 1980 the first module of the Operations Subsystem, the Force Tracking System became operational and its effectiveness was demonstrated in a series of exercises. Another major program milestone was achieved with the publication of the initial set of the US Army Europe standard data elements to support interoperability with other systems. The FY 1981 program is based upon development and expanded testing of the various prototype subsystems. A major milestone in FY 1981 is the first demonstration of key attributes of the Command level system.

c. In FY 1982, MITRE will assist in the integration on newly acquired automatic data processing systems of software and hardware and the evaluation of test bed and exercise operations. A major milestone will be the demonstration of the prototype system during CRESTED EAGLE '82. Based upon the results of these tests, functional descriptions will be finalized for subsystem module and integration will begin of operating levels subsystems and command level system modules. The analysis of alternate communications network will be completed and formalized for submission to the 5th Signal Command. MITRE will assist in the review for selection of subcontractors to implement the design. A major task will be the development of formal evaluation procedure for the US Army Europe Command and Control Information System.

d. During FY 1983 efforts initiated in FY 1982 will be continued. Functional descriptions will be completed and support will be provided for the final system components. MITRE will prepare plans for system test, training and overall maintenance of the system. A major milestone will be the use of the integrated system in WINTEX '83. Technical support will be provided in monitoring contractor implementation of the final Command and Control Information System configuration.

14. Army Command and Control Master Plan.

a. The Army has recently promulgated the Army Command and Control Master Plan to provide a uniform understanding of total system requirements and to develop an integrated program plan for the development of command and control capabilities. The Army Command and Control Master Plan is to be a "living document" (updated annually) to guide the systems acquisition process and decisions on fielding new command and control capabilities over a five-year planning horizon.

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MITRE CORPORATION (Continued)

b. MITRE will provide technical support to the Command, Control, Communications, and Intelligence Directorate of the Combined Arms Combat Development Activity, Fort Leavenworth, Kansas. This support will consist of systems research and analysis to support the annual update of the Army Command and Control Master Plan. The initial effort will include documenting a methodology for annual updates which will allow this process to consider information requirements and command and control capabilities within a context of doctrine and tactics (using several levels of conflict expressed as Situations, Actions, and Missions) as well as tactical organizational structure. The methodology is to explicitly address system interface requirements. Integrated baseline system capabilities will be assessed to determine shortfalls in functional capabilities. In addition, longer term research and analysis will be carried out based upon the concept of a unified methodology for the Command, Control, Communications, and Intelligence, as developed by the Combined Arms Combat Development Activity. This will require the determination of an acceptable set of essential elements of analysis, which will include effectiveness-oriented quantitative measures such as measures of effectiveness, measures of performance, and measures of support; and a detailed description of the proposed analytic technique to be applied. Candidate force-on-force models capable of relating Command, Control, Communications, and Intelligence systems capabilities to force effectiveness will be identified and used (singly and jointly, as appropriate) on an interim basis. This overall research effort will be directed in the long run towards the development of a force-on-force simulation "kernel" by means of which individual models or subprograms relating to specific functions and mission areas may be exercised interactively as an evaluation tool. Within the constraints of available resources, attention also is to be directed towards the development of an analytic (to include a model of the information network at corps and below) means of investigating dynamic information loads and flows within the Command, Control, Communications, and Intelligence architecture (DYNATIC). This work is an extension of the current methodology used in generating the Technical Interface Concept.

c. The Army's publication of the Army Command and Control Master Plan established gaols and objectives for a continuing program of integrated planning in the development of cost-effective Command, Control, Communications, and Intelligence capabilities and placed a new priority on the acquisition of much needed capabilities by 1985. Achievement of these high priority goals requires a sustained effort of review and resource planning, as well as the refinement of methodologies appropriate to this task. Annual updates of requirements and the technical analysis of feasible program and system alternatives is an urgent, high priority task having significant impact on Army research, development, and procurement programs in the command, control, communications, and intelligence system area.

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MITRE CORPORATION (Continued)

15. Transition Communication Planning.

a. The US Army Communications Command is the combat developer and user for the Echelons Above Corps and Defense Communications System communications and responsible for the interoperability and connectivity between systems in the Theater Communication System. In addition the US Army Communications Command has a Special Transportable mission in support of the Joint Chiefs of Staff/Defense Communications System/Major Army Command Contingency or Operational Plans that requires that it interoperate with all the aforementioned systems. It is necessary that the operational architecture of these US Army Communications Command provided systems and indigenous systems in the Theater be compatible. Programs such as TRI-TAC, will provide most of the equipment to be fielded in the near future, and are of high level priority within the Department of Defense. There are known incompatibilities with current inventory of the US Army Communications Command and TRI-TAC equipment. Therefore it is advisable to utilize MITRE assistance since they have the required expertise in this area, in-part due to their involvement with the US Air Force in a similar situation.

b. MITRE efforts are required to advise and assist the US Army Communications Command Plans Division in developing and implementing actions to accommodate the new generation digital communication equipments into the Echelons Above Corps, the Army portion of the Defense Communications System and Special Transportable Missions. The effort will involve the preparation of technical analysis, specific engineering analysis, associated cost analysis and technical guidance. The Echelons Above Corps/Echelons Above Division, Defense Communications System/Joint Management Transmission Switching System, and Special Transportable (Contingency Plans and Operational Plans) concepts, doctrine, studies, plus associated equipment capabilities/limitations will be considered in this effort. This will insure that the various equipments to be used in these systems will efficiently and economically interoperate.

c. In FY 1982, MITRE will provide engineering expertise to advise, guide the transition of TRI-TAC developed equipment into the Echelons Above Corps and resolve interoperability problems in the Army portion of the Defense Communications System and for Special Transportable configuration (in support of the Joint Chiefs of Staff/Defense Communication System/Major Army Command contingency/operational plans). Requirements for this work are expected to continue at least through FY 1983.

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MITRE CORPORATION (Continued)

The following three areas will commence during this time frame:

(1) Study and project the trends of the Department of Defense and Army and Commercial Communications-Electronics networks and systems into the post-1985 time frame to determine the overall technical capabilities needed.

(2) Analyze the impact of domestic and foreign policies, the Joint Chiefs of Staff and Army objectives, industry research and development, and commercial network developments.

(3) Determine those key technical features of the US Army Communications Command assigned Communications-Electronics missions (e.g., Echelons Above Corps, Army Base Communications, Strategic Army Communications System, etc.) that are subject to being impacted adversely or favorably by external drivers.

16. US Army Communications Command Command and Control Technical Support.

a. The US Army Communications Command World-Wide Military Command and Control System Management Office has the responsibility for the World-Wide Military Command and Control System Selected Architecture as well as a support mission for other US Army Communications Command Command, Control, and Communications projects. These programs include the Joint Crisis Management Capability, Jam-Resistant Secure Communications, US European Command Static War Headquarters, Tactical Nuclear Forces Command, Control, and Communications Upgrades, Army Command and Control Master Plan, and other anticipated Command, Control, Communications, and Intelligence projects. MITRE has supported the World-Wide Military Command and Control System Management Office programs during the current and past fiscal years and the requirement for MITRE support will continue for the future years. These programs are of a high-level priority within the Department of Defense and program schedule constraints make it highly advisable to continue to employ the services of MITRE.

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MITRE CORPORATION (Continued)

b. During the past fiscal year MITRE provided support in the engineering design and analysis of the Tactical Nuclear Forces Command, Control, and Communications communication facilities and in the development of requirements and specifications for the Joint Crisis Management Capability and the Jam-Resistant Secure Communications terminals. In addition, MITRE participated in the Tactical Nuclear Forces Command, Control, and Communications planning efforts identifying the system analysis and technical criteria to be used in the selection and evaluation of the Tactical Nuclear Forces Command, Control, and Communications communication upgrades.

c. During FY 1982 and FY 1983, MITRE will continue to assist the US Army Communications Command World-Wide Military Command and Control System Management Office in their technical planning, engineering and direction efforts in support of US Army Command, Control, and Communications programs. The effort will involve the development of management and implementation plans, the preparation of technical analysis and associated cost estimates, specific engineering analysis, and technical guidance on the current and future command, control, and communications programs supported by the US Army Communications Command World-Wide Military Command and Control System Management Office. Specifically, emphasis will be on efforts in support of the Joint Crisis Management Capability, the Jam-Resistant Secure Communications, the Tactical Nuclear Forces Command, Control, and Communications, the Army Command and Control Master Plan, and European Theatre Command Centers.

17. Army Base Information Transfer System/Walter Reed Medical Center Information Transfer System.

a. MITRE efforts are required for continuation of support to the Army Base Information Transfer System/Walter Reed Medical Center Information Transfer System. In prior years, MITRE developed and implemented a patient registration system upgrade; monitored design of production engineering Bus Interface Units; provided testing, evaluation, and certification of production engineering Bus Interface Units; implemented technical control system; and assisted in design of high resolution for fluoroscopy video tests.

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MITRE CORPORATION (Continued)

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

c. During FY 1982-1983, MITRE will develop request for procurement documents to enhance current Bus Interface Units design; provide evaluation and design and implementation of the Tri-Service Medical Information System Automatic Data Processing system; develop Bus Interface Units software; assist in the design and installation of broadband communication systems; and, assist in the interface of multi-mode communication systems.

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TOTAL PROGRAM SUMMARY BY APPROPRIATION				
Research, Development, Test and Evaluation, Army	20,794	22,922	26,750	29,134
Operations and Maintenance, Army	2,800	3,192	3,814	4,519
Total Federal Contract Research Center Requirement	23,594	26,114	30,564	33,653
Subcontract effort excluded from this amount	11,146	15,459	16,619	17,600

Section 7

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

PART I. UTILIZATION OF SECTION 2353, TITLE 10 AUTHORITY

Specialized R&D facilities and/or equipment 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 U.C 2353, in 1956. This policy is executed through DOD Directive 4275.5. Under this policy, the Secretaries of the Military Departments or their designees, and the Directors of Defense Agencies may approve facilities projects up to $3,000,000; the Under Secretary of Defense Research and Engineering approves projects exceeding $3,000,000. The Congress is notified in advance of starting any project involving construction, regardless of the dollar amount. The table below provides a summary listing of all such projects accomplished in FY 1980 and planned in FY 1981, FY 1982, and FY 1983.

Facility/Equipment	RDTE Project Number	Contractor	Location	Total Obligational Authority (Thousands of Dollars) FY 1980	FY 1981	FY 1982	FY 1983
SECTION I							
Projects Accomplished or Underway							
Negative							
SECTION II							
Projects Planned or Projected							
Negative							

Section 7 (Cont'd) 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

The RDTE appropriation 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 1980 and planned in FY 1981, FY 1982, and FY 1983.

Facility/Equipment	RDTE Project Number	Location	Total Obligational Authority (Thousands of Dollars) FY 1980	FY 1981	FY 1982	FY 1983
SECTION I						
Projects Accomplished or Underway						
Anechoic Chamber for Microwave Research	612771.A805	Walter Reed Army Institute of Research, Building 40 WRAMC, Washington, DC	150	-	-	-
Building alterations to accommodate laser research	623710.DK70	Bldgs 317 and 357, Night Vision & Electro-Optics Laboratory, Fort Belvoir, Virginia	432	-	-	-

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

Facility/Equipment	RDTE Project Number	Location	Total Obligational Authority (Thousands of Dollars) FY 1980	FY 1981	FY 1982	FY 1983
		SECTION II				
		Projects Planned or Projected				
Computer Room Air Conditioning	611102.B52C 612707.A855	US Army Engineer Topographic Laboratory, Building 2592 Fort Belvoir, Virginia	-	250	-	-
Installation of 29 Built-in Sterilizers (Replacement)	665801.MM32	USA Medical Institute of Infectious Diseases, Building 1425 Fort Detrick, Maryland	-	-	516	516

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 Appropriations 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 1980, and the estimated amounts planned for FY 1981, FY 1982, and FY 1983. All minor construction must result in a complete and usable facility. In no event is two or more minor construction projects or minor and major construction projects to be contrived to form a usable facility.

SUMMARY OF MINOR CONSTRUCTION FUNDED BY RDTE, ARMY

FY 1980	FY 1981	FY 1982	FY 1983
3,136	3,725	2,977	2,674

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

RDTE INSTALLATION PROJECT FACT SHEET
(Supporting Projects Over $400,000)

I. Facility/Equipment: Alter Buildings 317 and 357 to include partitions, recessed lighting, suspended ceiling, provisions for air, gas, and chemical piping, repair walls, install workbenches, sinks, fumehoods and exhausts, repair floors. Install warning lights and electrical safety devices.

II. R&D Program Element: 6.37.10.A

III. R&D Project Number: DK70

IV. Location: Night Vision and Electro-Optics Laboratory, Fort Belvoir, Virginia

V. R&D Funds Programed: FY 1980 $432,000

VI. Other Funds: None

VII. Relationship to R&D Program Element: This construction alterations, equipment installation, maintenance and repair are required to provide modern laboratory facilities for research, development, experimentation, technical data recording, experimental fabrication and testing for various types of laser devices to be utilized for distance ranging, fire control and target designation/signature.

VIII. Rationale for Funding Effort in R&D: Less than $75,000 of this effort is for construction, the remainder is for installation of equipment in place. This facility is used solely for R&D missions and is fully supported and operated with R&D funds.

Section 7 (Contd)

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

RDTE INSTALLATION PROJECT FACT SHEET
(Supporting Projects Over $400,000)

I. Facility/Equipment: Replace 29 built-in sterilizers.

II. R&D Program Element: 6.58.01.A

III. R&D Project Number: MM32

IV. Location: US Army Medical Research Institute of Infectious Diseases, Building 1425, Fort Detrick, Maryland

V. R&D Funds Programed: $2,064,000 for four-year period beginning FY 1981

VI. Other Funds: None

VII. Relationship to R&D Program Element: This program element is used to fund activities which benefit all R&D projects supported in R&D laboratories.

VIII. Rationale for Funding Effort in R&D: This facility and equipment is used solely for R&D missions.

Section 8

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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