Department of the Army Historical Summary

Fiscal Year 1987

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Department of the Army Historical Summary

Fiscal Year 1987

by
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DEPARTMENT OF THE ARMY HISTORICAL SUMMARY

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1

Introduction

Secretary of the Army John O. Marsh, Jr., and Army Chief of Staff General John A. Wickham, Jr., announced in mid-January 1987 that the Army's theme in 1987 would be the Constitution of the United States:

> Those of us in the Total Army who take an oath of service have sworn to "support and defend the Constitution of the United States." By doing so, we stand shoulder to shoulder with the framers of the Constitution who mutually pledged their lives, their fortunes and their sacred honor. We do this freely because it is the Constitution which gives the Army its very purpose for being. It is the Constitution which guarantees all citizens the rights and obligations which are the essence of being an American. And it is the Constitution that our Comrades have, in other times and in other places, sacrificed to preserve.
>
> The history of the Army is intertwined with the history of our Constitution. Before our young nation could even be in a position to draft a constitution, her freedom had to be won. It was won with the courage and blood of the first American soldiers. Once our liberty was secured, these same soldiers became the citizens upon whose commitment and hard work a great nation would be built.
>
> This year marks the 200th anniversary of the signing of the United States Constitution. Our entire nation will be celebrating the Bicentennial as we focus on stimulating an appreciation and understanding of our national heritage. We urge each of you to become a better citizen by reading the Constitution and by finding ways to rededicate yourselves, your families, and your fellow professionals to the spirit of that document.

The Constitution was the seventh in a series of annual themes initiated in 1981 by Secretary Marsh to focus attention on issues of vital concern to the Army. A winning spirit, physical fitness, excellence, families, leadership, and values—each of these in turn has been featured as an essential subject for emphasis. Continuing programs and policies developed around each theme have sought to promote the emotional, mental, and physical well-being of the Army, improving its ability to carry out its missions and responsibilities around the world.

Besides emphasizing the individual soldier's as well as the Army's institutional responsibility to support the Constitution of the United States, this year's theme activities stressed the oath of service, the relationship between each soldier or Army civilian and

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the Constitution, the close tie between theme activities and official observance of the Bicentennial of the Constitution, and the involvement of the entire Army family in the theme. These activities included incorporating instruction on the Constitution in Army school curricula; publishing articles on the Constitution in journals, newspapers, and newsletters; reaffirming enlistment, commissioning, and government service oaths; promoting the links between the Constitution, the professional Army ethic, and individual values; and supporting state and local Bicentennial events. The U.S. Army Center of Military History (CMH), in support of the theme, published *Soldier-Statesmen of the Constitution*, a work containing a five-chapter treatise on the Constitution and biographical essays on each of the twenty-three Army veterans of the Revolutionary War who represented their states at the Constitutional Convention.

Throughout Fiscal Year (FY) 1987, the Army continued to emphasize the Total Army concept, improving all aspects of its many and varied components. Major objectives for the year were to recruit and retain soldiers of high quality in the Active Army, the Army National Guard (ARNG), and the U.S. Army Reserve (USAR); to field balanced, flexible, properly sustained, and modern forces trained to fight across the entire spectrum of conflict; to improve joint and combined efforts among the military services and between U.S. and allied forces; to increase combat capability through the conversion of low-priority support forces into combat forces while maintaining stabilized, authorized strength levels; and to exercise strong stewardship over the Army's human and materiel resources.

In 1987 Army leadership continued a management modernization effort, charted in 1986 by the Army Chief of Staff in support of the Total Army concept. This initiative was called the Civilian Personnel Modernization Project (CPMP) and was given the broad mission to "define a civilian personnel system which optimally supports the Army mission and develop a transition plan to achieve that system."

The major thrust of the CPMP included strengthening civilian leadership; empowering leaders with authority commensurate with their responsibility; providing them with the required knowledge of Civilian Personnel Management (CPM) and holding them fully accountable; and ensuring that Army leaders are supported by responsive, understandable personnel systems.

In April 1987 the CPMP published its report documenting the wide range of information required to form a model CPM system and institute a transition plan for achieving an ideal system. The Army worked toward modernizing its CPM system during the year.

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Organizational matters loomed large in FY 1987, as the Army, its sister services, and the Department of Defense (DOD) acted to comply with provisions of the Goldwater-Nichols Department of Defense Reorganization Act of 1986. This legislation, which became law on 30 September 1986, mandated significant changes in the nation's joint military command structure. The act planned to correct command and control problems encountered in the Iranian hostage rescue attempt in 1980; the 1983 bombing of the U.S. Marine Headquarters in Beirut, Lebanon; and the 1983 U.S. military intervention in Grenada. In addition to expanding the authority of the chairman of the Joint Chiefs of Staff and the commanders-in-chief of the unified and specified commands, the law created a joint specialty for officers who will fill all critical joint billets and who will occupy at least one-half of all joint-duty positions.

The 1986 DOD Reorganization Act also required the military departments to consolidate certain administrative functions performed by the staffs of military chiefs and civilian secretaries and to reduce the military and civilian strengths of department and major field command headquarters by 10 to 15 percent. In complying with these requirements, the Army on 4 March 1987 announced that headquarters would undergo a "sweeping" reorganization. Army Chief of Staff Wickham described this reorganization as "the largest since the end of World War II."

As a result of the reorganization, Headquarters, Department of the Army (HQDA), declined by 15 percent, from 3,563 positions to 3,105, representing a loss of 458 positions. Of the two HQDA components, the Army Staff was greatly reduced while the Army Secretariat actually grew, increasing from 11 percent of the total HQDA strength to approximately 30 percent. This reallocation reflected the movement of several key procurement and budgetary functions from the Army Staff to the Secretariat.

Programs developed and fine-tuned over the last several years to attract and retain highly qualified young men and women successfully enabled the Army to meet its overall manpower goals. At the end of the fiscal year, strength levels stood at 780,815 in the Active Army; 790,400 in the Selected Reserve (462,800 guardsmen and 327,600 reservists); and 336,127 in the Individual Ready Reserve (IRR). The policy of transferring to the IRR those personnel leaving the Active Army and the Selected Reserve with time remaining on their Military Service Obligation (MSO) continued to improve IRR capabilities, as did the program granting reenlistment bonuses to IRR members. Beginning in FY 1990, there will be substantial increases in IRR strength due to congressional action extending the

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MSO from six to eight years. The favorable results obtained from the new G.I. bill, a key element in the Army's plan to use educational incentives and bonuses to boost enlistments, prompted Congress to make the law permanent in May 1987. (Without congressional action the bill's education benefits would have expired on 30 June 1988, upon completion of a three-year test.)

A major Army concern during the fiscal year was the reduction of commissioned and warrant officer strength mandated by the National Defense Authorization Act of 1987 without causing undue loss in readiness and combat capabilities. The act called for a 6 percent reduction over a three-year period throughout DOD—1 percent in FY 1987, an additional 2 percent in FY 1988, and a final 3 percent in FY 1989. Secretary of Defense Caspar W. Weinberger directed the Army to bear a larger part of the 1987 cuts than its proportionate share—1.5 percent, for a total of 1,575 officers. To implement these reductions, the Army is adopting more rigorous screening methods to retain a smaller officer corps of exceptional quality, while infusing the Selected Reserve with additional skilled and experienced officers. Army plans included rescheduling known officer losses from FY 1988 into FY 1987 through an early retirement plan and slightly reduced officer accessions.

The first significant reductions since the end of the Vietnam era in total officer end strength were implemented in FY 1987. From end FY 1986 to end FY 1987 *actual* officer strength was reduced from 109,757 to 107,964 (−1,793 or 1.6 percent). The reduction was accomplished through a variety of programs to include the following:

1. Early release of captains twice nonselected for promotion (i.e., rescheduling of promotion boards).
2. Early release of first lieutenants twice nonselected for promotion (i.e., early approval of board results).
3. Selective early retirement of Veterinary Corps and Medical Service Corps officers.
4. Reduced accessions (below sustainment level).
5. Other adjustments (deny Conditional, Voluntary, Indefinite status, reduced special branch accessions).

Closely related to the congressionally imposed officer reduction were the Army's ongoing efforts to correct its chronic shortage of available officers needed to fill authorized positions in its staffs and units. The imbalance was particularly severe in the warrant officer structure. As a panacea, the Army Staff and the U.S. Army Training and Doctrine Command (TRADOC) identified 10,000 officer and

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4,000 warrant officer positions for possible elimination, enlisted conversion, or conversion to civilian positions. In May 1987 General Wickham began the process of determining how many of these positions to eliminate or convert. He announced that 1,071 commissioned officer spaces and 2,010 warrant officer spaces would be cut from FY 1989 manning documents and that eight warrant officer specialties would be dropped. At fiscal year's end, however, final decisions on elimination and conversion had not been reached.

During the year Army training activities continued to emphasize the use of technologically advanced training devices and simulators in an integrated training strategy that also relied on maneuvers, live fire exercises, and other traditional methods of preparing soldiers and units for combat. TOW (tube launched, optically tracked, wire command–link guided) and Dragon missile simulators were fielded to the reserve components, with the Active Army scheduled to receive them in FY 1989. In National Guard armories throughout the United States, installation of Guard Fist I began a training program to improve tank gunnery skills used in conjunction with the Mobile Conduct of Fire Trainer. Fielding of the Tank Weapons Gunnery Simulation System (TWGSS) continued, as did expansion of the Multiple Integrated Laser Engagement System (MILES) to all components of combined arms training. The Army also moved forward with development of the Electronic Information Delivery System (EIDS) to provide complex, real-time, video-simulation testing at a fraction of the cost of more expensive graphic simulators.

Other Army training initiatives taken during the year focused on improving the structure and curricula of Army schools, implementing a vigorous field training and command post exercise program in cooperation with other U.S. and allied forces, expanding the Advanced Collective Training Facilities program to cover low- and mid-intensity conflicts, and establishing more stringent physical training and fitness standards. Major milestones included the successful completion of Operation KEEN EDGE, the first combined air, sea, and ground exercise involving U.S. and Japanese self-defense forces; the opening of the Chemical Decontamination and Training Facility at Fort McClellan, Alabama, in March 1987; and the participation of a U.S. counterterrorism unit, with its British and West German counterparts, in a combined exercise designed to promote the possibility of multinational responses to future terrorist acts.

In the area of force structure, the Army continued to mold its heavy, light, special operations, and support units into the optimum balance required to execute AirLand Battle doctrine in Europe; to meet contingencies along a broad spectrum of potential conflicts in

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other parts of the world; and to employ the technologically advanced weapon and support systems resulting from current modernization programs. In the Active Army, armored and mechanized heavy divisions continued their conversion and the organization of two new divisions, the 6th Infantry Division and the 10th Mountain Division, proceeded according to plan. The 82d Airborne Division began conversion to a lighter, more modern design, and the 25th Infantry Division completed conversion to a light infantry design. The Army pursued the support structure reorganization and transferred additional nondivisional support missions to the ARNG and the USAR in 1987. Among the units transferred were a combat support hospital, two ambulance companies, a medical clearing company, two personnel and administration battalion headquarters detachments, and a single cable company.

Emphasis on Special Operations Forces (SOF) continued in 1987. The Army formed a new SOF aviation brigade, established a Special Forces branch, and made plans to organize several more SOF units in FY 1988. At a higher level, Congress mandated the creation of the U.S. Special Operations Command (USSOCOM), a new unified command that would include special operations forces of the armed forces. Congress also provided for the establishment of the position of Assistant Secretary of Defense for Special Operations and Low Intensity Conflict.

While Active Army strength remained stable, an increase of almost 30,000 in Ready Reserve strength heightened the Army's reliance on reserve forces to meet wartime needs. As of September 1987, the Army force authorizations mixture, by percentage of combat function, was programmed as indicated in *Table 1.*

TABLE 1—FORCE AUTHORIZATION BY PERCENT OF COMBAT FUNCTION

	Active Army	National Guard	Army Reserve	Total
Combat	49	44	7	100
Support	48	19	33	100

By percentage of function within each component:

	Active Army	National Guard	Army Reserve
Combat	52	71	19
Support	48	29	81
Total.....	100	100	100

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Reserve component force structure changes carried out in FY 1987 supported the ongoing organization of a new ARNG light division, conversion of heavy divisions to new tables of organization and equipment (TOE), transfer of nondivisional support missions from the Active Army to the reserve components, and expansion of the round-out program. Programmed conversions during the year involved 12 reserve brigade or division headquarters, 22 infantry and armor battalions, 6 attack helicopter battalions, 6 maintenance battalions, and 6 combat support battalions.

The Army's request of $24.2 billion to fund procurement, research, development, testing, and evaluation activities for FY 1987 sufficed to improve near-term readiness and total force modernization, support near- and long-term research and development efforts, and sustain continued progress toward the goal of equipping the Total Army with the weapons and support systems it needs to maintain a qualitative edge over probable opponents. Although budgetary constraints continued to force the Army to slow its modernization efforts, it made significant progress toward long-range objectives. By the end of the fiscal year, for example, the Army expected to have fielded more than one-half of the combat systems initiated in the late 1970s. These included such advanced weapons as the M1 Abrams tank, the M2/M3 Bradley fighting vehicle (BFV), the Stinger missile, the UH–60 Black Hawk and AH–64 Apache attack helicopter, and the multiple launch rocket system (MLRS).

Details of the year's highlights described above, and other important events for the Army in FY 1987, are presented in the chapters that follow.

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Staffing the Army

Programmed strength levels for the Active Army remained relatively stable during the fiscal year. The Army began to implement cuts in officer strength mandated by the DOD Reorganization Act of 1986 and the National Defense Authorization Act of 1987. The 6 percent reduction, to be completed by the end of FY 1989, would reduce Active Army officer and warrant officer strength by 6,975 and would negate the 11 percent gain in commissioned officer and warrant officer strength that had been registered between 1980 and 1985. Programmed Selected Reserve and IRR strength continued to rise, but actual strength did not keep pace. Civilian strength leveled off following a sharp decline in FY 1986. Total Army programmed and actual strength is shown in *Table 2.*

TABLE 2—TOTAL ARMY END STRENGTH

	Programmed	Actual
Active Army	780,800	780,815
Army National Guard Selected	463,181	462,143
Reserve	(452,681)	(451,858)
Inactive National Guard	10,500	10,285
Army Reserve	663,727	601,097
Selected Reserve	(327,600)	(313,638)
Individual Ready Reserve	(336,127)	(287,459)
Total Military End Strength	1,918,208	1,854,340
Total Civilian End Strength	412,200	417,889

Recruitment and Retention

In FY 1987, the Army's recruitment program felt the continuing pressures of a declining youth labor pool, an improving economy with attendant lower unemployment, and renewed calls to reinstate the draft or establish universal national service as a means of reducing military personnel costs. In such circumstances, the Army pushed forward with an aggressive program to attract the numbers

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of young men and women needed to maintain the service at authorized strength. The Army also sought to maintain quality goals that it had established and met in the previous two years. These targets were the recruitment of at least 90 percent high school diploma graduates; a minimum of 63 percent in the top three categories of the Armed Services Vocational Aptitude Test; and a maximum of 10 percent in test category IV, the lowest acceptable category. The success of the Army's efforts is indicated in *Table 3*, which shows the results of the recruitment effort for FY 1987, as well as the figures for the FY 1985 and FY 1986 recruiting drives.

The 1987 recruiting effort, like that of the previous two fiscal years, was built around the effective use of multimedia advertising to reach potential enlistees; an expanded effort to tap college-bound youth through the new G.I. bill and Army College Fund programs; the judicious granting of enlistment bonuses to attract highly qualified young people into critical career fields; and continued emphasis on staffing the recruiting force with professional soldiers. This year's recruiting drive received a significant boost when Congress made the G.I. bill permanent legislation. Without congressional action the program would have expired in 1988.

TABLE 3—ACTIVE ARMY ENLISTED ACCESSIONS
(In thousands)

	FY 1985		FY 1986		FY 1987	
	Goal	Actual	Goal	Actual	Goal	Actual
Prior Service.....	6.3	6.3	8.4	8.4	12.5	12.5
NPS[1].....	119.0	119.1	126.9	127.1	119.5	120.5
Male.....	103.8	103.7	111.6	111.7	103.4	104.2
(I–IIIA).....	64.6	63.8	69.1	69.2	66.2	69.0
(HSDG)[2]	92.7	92.6	100.0	100.1	91.6	93.5
(HSDG I–IIIA)	53.5	53.8	57.5	57.6	54.3	58.8
Female.....	15.2	15.4	15.3	15.4	16.1	16.3
(I–IIIA).....	10.1	10.1	10.9	11.0	10.6	11.3
(HSDG)	15.2	15.4	15.3	15.4	16.1	16.3
(HSDG I–IIIA)	10.1	10.1	10.9	11.0	10.6	11.3

[1] Nonprior Service.
[2] High School Diploma Graduate.
NOTE: Numbers may not add due to rounding.

But there were disquieting developments as well. During fiscal year 1987, reduced funding levels for enlistment bonuses and the Army College Fund threatened to hamper the effectiveness of these two key features in the Army's recruitment effort. Recruiting

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violations, notably in Minnesota and New Jersey, involved irregularities, such as falsifying test scores, permitting surrogates to take entrance exams for applicants, forging high school diplomas, and ignoring criminal charges in the records of potential recruits. These offenses tarnished the recruiting force's otherwise solid accomplishments during the year.

The Army dropped N. W. Ayer, Inc., its advertising agency for the past nineteen years, in the wake of accusations of improper timekeeping and subcontracting by the firm. In January 1987 the Army signed a contract with the Young and Rubicam agency for print and broadcast advertising to include recruitment in the Army, the Army Reserve, and the Reserve Officers' Training Corps (ROTC). The contract, which costs about $100 million, includes annual renewable options through FY 1991.

Officer Accessions

The Army planned to induct 9,013 commissioned and warrant officers to maintain a budgeted end strength objective of 109,757. To meet FY 1987 congressionally mandated officer strength reductions (1,635 Army spaces), the Army limited the number of actual accessions to 8,139 and offered early outs to selected lieutenants and captains. The Army also reduced the number of officer positions, primarily from the nontactical/support base, the foundation of the Army's ability to sustain, train, mobilize, and move to a wartime footing.

ROTC continued to serve as the primary source for officer accessions in the Army. Senior ROTC enrollment increased slightly and graduates receiving commissions numbered almost 8,300, enough to meet Active Army needs, but insufficient to overcome the shortfall in the reserve components. Officer accessions in the Active Army for FY 1986 and FY 1987 are shown in *Table 4.*

Stability and Cohesion

Implementation of the New Manning System, which was created to increase combat effectiveness by reducing turbulence and enhancing cohesion, progressed during the year. The system is composed of COHORT (cohesion, operational readiness, and training units [traditional and sustained]), a unit replacement system (supplemented by the existing individual replacement system) designed to achieve stability and cohesion, and a regimental system to enhance cohesion and esprit.

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TABLE 4—ACTIVE ARMY OFFICER ACCESSIONS

	FY 1986		FY 1987	
	Programmed	Actual	Programmed	Actual
Basic Branch	6,000	6,040	5,700	5,214
Chaplain	123	143	160	131
Judge Advocate General's Corps	167	154	190	152
Medical Corps	464	501	530	435
Dental Corps	189	132	150	102
Veterinary Corps	35	37	50	48
Army Nurse Corps	583	536	550	537
Army Medical Specialist Corps	45	38	50	47
Medical Service Corps	471	445	570	437
Total Commissions	8,077	8,026	7,950	7,103
Warrant Officers	1,396	1,125	1,265	1,036
Total Officers	9,473	9,151	9,215	8,139

Under COHORT regimentally recruited groups of first-term enlistees undergo initial entry training as a unit. Then they report as a unit to a U.S. Forces Command (FORSCOM) installation to join a company-level cadre of leaders for a stabilized three-year unit life cycle. The units complete collective training and remain in FORSCOM for 18 months if deploying to a long-tour area, such as Europe; for 24 months if the unit's assignment is to a short-tour area, such as Korea; or for 36 months if the unit does not have an overseas assignment. Upon completion of its overseas tour, the COHORT unit is replaced by another unit deployed from the continental United States. COHORT units had deployed overseas (11 to Europe, 7 to Korea, and 1 to Alaska) by the close of FY 1984. Initial assessments suggest that keeping first-term soldiers and their leaders together for a three-year period establishes a greater sense of cohesion, belonging, and unit pride between soldiers and leaders. COHORT units displayed higher personnel stability, lower attrition rates, and higher skill qualification test scores than the norm generally applied to Army units. During FY 1987, the Army planned to increase the number of COHORT company- and battery-size units from 76 to 77 and to reorganize 13 battalions as COHORT units.

The U.S. Army Regimental System is based on groupings of similar battalions under one regimental flag or "color." The 64 regiments authorized under the system are nontactical organizations.

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They play a vital role in fostering cohesion, esprit, and identification by providing soldiers with a regimental home throughout their military service. By the close of FY 1984, the Army had designated 15 regiments. Additional designations were not expected until a review of the system, begun in January 1985, was completed and the Army Chief of Staff, General Wickham, made a decision regarding the future of the program to return combat arms regiments to the Army.

Quality of Life

Quality of Life benefits involve programs, facilities, and services that improve the living and working conditions of soldiers and their families. Quality of Life issues run the gamut from physical fitness programs to family support services, from recreation activities to the Army's commissary program, and from family housing to dining facility construction and modernization. The success of the Army's Quality of Life initiatives bears directly on job satisfaction, esprit, and the Army's ability to attract and retain quality soldiers.

Family Support Services were enhanced during the fiscal year by lowering the grade level at which employment preference could be given to family members of active duty military personnel in filling DOD jobs at home and overseas. Reserve component members and their families began enjoying commissary privileges in March, and the Dependent Dental Insurance Plan went into effect in August. The Family Child Care Program continued to grow, and by the end of the fiscal year 6,659 homes were registered under the program.

Morale, Welfare, and Recreation (MWR) funded activities, such as physical fitness, library, and child development services, which continued to receive strong support. Activities supported largely by nonappropriated funds (NAF) generated by sales to soldiers and their families, including youth centers, hobby shops, clubs, and bowling centers, were beset by a loss of revenues due to lagging sales of liquor at post stores. To increase NAF revenues to support these services, the Army's Community and Family Support Center developed a lottery plan that would be tested overseas and would offer a top prize of $25,000. The plan was dropped in March 1987 as a result of public outrage and insufficient congressional support.

Family housing gains during the year included upgrading 453 substandard units into 340 adequate units, constructing 3,022 new housing units (558 in Europe, 2,338 in the continental United States [CONUS], and 126 in Kwajalein), and building 108 mobile home spaces. Build-to-lease and rental guarantee programs, which

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were approved in FY 1984 to provide additional housing at CONUS locations, moved forward during the year. The Section 801 program was extended to two years, and 1,000 more units were approved. The Section 802 program was modified and extended for four years, and 600 additional units were approved.

Women and Minorities

Since 1972 the Army has been trying to increase career opportunities for women. The number of women in the Army has increased from 4,200 officers and 8,300 enlisted soldiers in FY 1970 to about 10,200 officers and 66,700 enlisted solders. Current plans call for increasing the number to approximately 13,100 officers and 69,300 enlisted soldiers by the end of FY 1989. Reserve component figures show the same trend: 6,950 women officers and 37,700 enlisted soldiers comprise over 16 percent of USAR strength, while 2,697 women officers and 22,622 enlisted soldiers make up 6 percent of the ARNG's strength.

Under the Direct Combat Probability Coding policy, women soldiers may not be assigned to jobs in units that routinely would engage in direct combat with the enemy. The policy excludes women from 49 of 351 military occupational specialties (MOSs).

Racial and ethnic minorities compose one-third of today's Army. This represents a slight decrease as compared to the recent past, but indicates a trend toward bringing the Army's composition more in line with the makeup of the general U.S. population. Recognizing that soldiers' confidence in their peers and leaders, and the basic fairness of the Army as an institution, are vital elements of readiness, the Army pursued a vigorous equal opportunity program. During FY 1987 the Army leaders focused on providing fair and equitable treatment for all its personnel.

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Training

Training is the cornerstone of combat readiness and the means by which the Army prepares to fight and win in combat. Training is the process by which the Army melds its soldiers, doctrine, and equipment into combat-ready units capable of mobilizing, deploying, fighting, and sustaining combat operations in unified action with its sister services and allies. Demanding training under realistic circumstances is the Army's responsibility to its soldiers and leaders in preparation for future combat.

In recent years, the Army has complied with its obligation to thoroughly train forces in spite of current fiscal austerity. The continued success of the Army training program is the direct result of the Army's successful redesign and improvement of training programs to ensure individual and unit proficiency. The following describes the progress made during this fiscal year in this area.

Individual Training

Training is not only the rightful concern of leaders, it is their obligation. Thus, the Army sought to enhance leadership competency during the fiscal year by directing individual training efforts toward every level, from the junior noncommissioned officer (NCO) to the general officer. Central features of this effort were the upgrading of combat support and combat service support training, the standardization of leadership training offered under the Noncommissioned Officer Education System (NCOES), and the institution of a requirement to perform certain MOS tasks considered critical to a specified standard of proficiency for that particular military skill.

Efforts also got under way to develop the Total Warrant Officer System (TWOS) and to provide more effective use of warrant officer expertise through progressive career development programs and broader work experience. Under the proposed system, there would be a three-level skill hierarchy to code position requirements in authorization documents as warrant officer, senior warrant officer, and master warrant officer. The program's objective would be to measure technical and tactical skills at each career phase, allowing the

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individuals and commanders to gain a broader base of professional experience and develop relevant independent study programs.

Meanwhile, the Army continued to rely on its school systems in its quest to develop highly qualified soldiers and leaders with tactical and technical expertise in combat and combat support missions. To enhance its standard curricula, the Army is redesigning its formal school structure to allow for the progressive development of warfighting and technical skills necessary for today's modern battlefield environment. In general, school curricula are structured around a common core of warfighting skills that are appropriate to the grade or rank of the students. The common core of subject matter is supplemented with professional study of topics, such as the art of war and specialized instruction for the development of tactical and technical competence for future assignments. Recent innovations include Ranger 3000, restructure of the NCOES, and the Combined Arms Services Staff School (CAS[3]). *The Posture of the United States Army for Fiscal Year 1987* (hereafter identified as the FY 1987 Posture Statement) describes these courses as follows:

1. **Ranger 3000.** The Ranger course is a mix of dynamic instruction and challenging experience. Instruction sets the stage for experiential learning of tactics, combat techniques, night training, leadership skills, physical endurance, and geographical indoctrination.

   Recent initiatives increase the required Ranger positions in the Army from less than 1,000 to a projected total of almost 7,000 by FY 1987. These needs translate to an annual training requirement of over 3,000 soldiers. By FY 1987, the Army will increase the available training opportunities for Rangers from 2,300 to over 3,000 slots annually.

2. **Restructure of the Noncommissioned Officer Education System.** The NCOES is being restructured to provide sergeants in combat support and combat service support branches with the same type of leader development–oriented professional training afforded their counterparts in combat branches.

   With the realignment of NCOES, noncommissioned officer training follows a common track. Training for NCOs focuses initially on leadership in the Primary Leadership Development Course. The next step is the Basic Noncommissioned Officer Course (BNCOC) that contains standard leader training required throughout the Army and skill training that addresses directly the requirements of soldiers serving in each branch of

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the Army. The principal purpose of BNCOC is to produce highly trained and motivated NCO section or squad leaders. The increased emphasis on soldier skills and common understanding of tasks taught in these NCOES courses serves to bond the NCOs of all branches. The NCO will continue professional training in the Advanced Noncommissioned Officers Course. The capstone of the NCOES is the highly selective and challenging Sergeants Major Course taught at the U.S. Army Sergeants Major Academy (USASMA).

3. **Combined Arms and Services Staff School.** Located at Fort Leavenworth, Kansas, the school provides an intense nine-week course, designed to provide captains with essential professional skills required to serve successfully as staff officers at battalion, brigade, and division levels. Studies of officer professional education and training recognized a critical need for training in unit staff skills. During FY 1987, the training load is expected to increase to approximately 4,500 students, providing all captains with the opportunity to gain this highly effective training experience.

Little progress marked the year regarding the establishment of a permanent home for the U.S. Army School of the Americas, temporarily located at Fort Benning, Georgia, or the consolidation of the Intelligence School at Fort Huachuca, Arizona. The new Army Management Staff College, located at present on the campus of the Maritime Institute of Technology, Linthicum Heights, Maryland, opened its doors on 6 July 1987 to the first of two pilot classes of students (forty-two civilians and eight officers). The college is designed to offer key civilians and their military counterparts training comparable to that offered by the military staff and senior service colleges.

Training Facilities and Devices

Begun in 1982, the Army Range Modernization Program has matured into an effective management system of field range systems in support of modernized weapons and training requirements. The Multipurpose Range Complex is the keystone facility, which provides challenging live fire qualification and sustainment training for tank and mechanized infantry units up to battalion level. Eleven of the fourteen planned ranges will be under construction or completed by FY 1987. This fiscal year, the Army Range Modernization Program registered gains when a Multipurpose Range Complex opened at Fort Polk, Louisiana, and another at Gowen Field, Idaho,

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neared completion. Military Operations on Urbanized Terrain (MOUT) facilities are under construction at Fort Drum, New York; Fort Ord, California; and Hohenfels, West Germany; but funding for range modernization has declined appreciably since its peak in FY 1984, and several important projects have not been funded. These include the upgrade of Range 201 at Grafenwoehr to meet critical gunnery requirements in BFV training.

The MOUT facilities provide individual and collective training for combat operations in built-up and congested urban centers. Twelve MOUT complexes are planned; two additional facilities will be completed or under construction during FY 1987. The Army's investment in range construction is as follows: $107 million in FY 1984; $76 million in FY 1985; $112 million in FY 1986; and $63 million in FY 1987.

Three important training facility programs for the reverse components (RC) are: Regional Training Center (RTC), Regional Maintenance Training Site (RMTS), and Regional Training Site–Medical (RTS–MED). The RTC, planned for Fort Dix, New Jersey, will be a test-bed facility for developing combat arms, combat support, and combat service support soldier and leader skills through a device-based training strategy. The RMTSs will be located in areas with a high density of nondivisional maintenance units. Pilot RMTSs are scheduled for Camp Shelby, Mississippi, and Fort Bragg, North Carolina, during FY 1986. Twenty-one RMTSs will become operational between FY 1986 and FY 1990. The RMTS will be the keystone in transition and sustainment training for the RC nondivisional light and heavy equipment maintenance personnel on the repair of current and force modernization equipment. For many units, the RMTS will provide the only opportunity they will have to train on modern equipment before deployment to the theater of operations. The RTS–MED will provide ARNG medical units with complete sets of deployable medical systems hospital equipment for training.

Also during this fiscal year, the first class to enter the Army's Chemical Decontamination Training Facility at Fort McClellan, Alabama—30 students enrolled in the Chemical Officer Advanced Course—began training on 2 March 1987. About 5,000 soldiers will be trained at the facility each year in chemical decontamination operations using actual chemical warfare agents.

The National Training Center (NTC) at Fort Irwin, California, the first of the Army's three Advanced Collective Training Facilities to become operational, has the mission of training mechanized and armor battalion task forces. Currently NTC is operating as planned, with twenty-eight battalions receiving training each year. In 1987

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two more ARNG round-out battalions trained at the NTC, continuing the pattern of the previous four years. A Five-Year Plan was inaugurated to improve the high quality training offered at NTC. The brigade headquarters and support elements of battalions trained at the center will be more fully integrated into NTC exercises and evaluations. Air Force close air support will be augmented through the development of a laser engagement system for tactical aircraft, and follow-on systems will enable forces on the ground to conduct active instrumented air defense against opposing air forces.

Long-term development of the second component of the Army's Advanced Collective Training Facility strategy, the Combat Maneuver Training Complex at Hohenfels Training Area, West Germany, began this year. Completion of the instrumented maneuver training complex is expected in 1991 and will provide the same training opportunities for U.S. Army, Europe, maneuver battalion task forces that their counterparts in the CONUS experience at the NTC.

The Joint Readiness Training Center (JRTC) is the third of the Army's Advanced Collective Training Facilities. JRTC will provide Army and Air Force active and reserve component contingency forces with the opportunity to conduct simulated combat under conditions of low- to mid-intensity conflict similar to those they might expect to face on the battlefield. The center will be located at Fort Chaffee and Little Rock Air Force Base, Arkansas. The first battalion to be trained is scheduled for rotation to Fort Chaffee in October 1987. An additional six battalions will be trained during the remainder of FY 1988, and the center should be performing at planned levels of thirteen battalions trained per year by FY 1989.

The FY 1987 Posture Statement described device-based training. The Army has developed and fielded technology-based training devices, simulators, and simulations which are revolutionizing the way soldiers and units train. These tools permit commanders to sustain higher levels of unit proficiency at less cost and provide training feedback previously not available. These devices are increasingly integrated into initial entry and unit sustainment training programs, with special emphasis on providing simulations to the RC.

Many of the recent investments in training technology do not provide an absolute tradeoff in OPTEMPO, i.e., the established number of training miles for a unit's major equipment systems, or their allocated operating tempo. This technology serves to improve training effectiveness and to compensate for increased operating costs of modernized systems. For instance, the MILES and the instrumentation at the NTC allow objective evaluation of opposing

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units and permit critique of individual and collective tasks—areas of increasing importance and technical complexity.

OPTEMPO was decreased from a level of 1,000 miles per tank per year in FY 1984 and earlier to approximately 850 miles since FY 1985. This reduction is based on a number of factors, including investing in simulators, budget constraints, and refining modeling techniques; however, assets for simulators have concentrated more on procurement accounts such as ammunition than on operating and support costs. Simulators that offer potential as OPTEMPO surrogates are now beginning to be fielded. These include Unit Conduct of Fire Trainer (UCOFT) and Army Training Battle Simulation System (ARTBASS). The UCOFT, a computer-driven visual scene simulator for training gunnery skills, provides the best example of OPTEMPO saving through the use of simulators. Two years after UCOFT is fielded to an M1 tank battalion, each tank's annual ammunition allotment is expected to be reduced by thirty-four main-gun rounds. *Table 5* shows the savings from firing fewer rounds per tank.

TABLE 5—UCOFT COST AVOIDANCE
(In thousands)

Type of Round	Rounds Required Per Tank Per Year	Cost Per Round[1]	No. Tanks Per Battalion	Cost Avoidance Per Battalion Per Year
105-mm.				
TP–T	14	$132	58	$107,184
DS–TP	20	$168	58	$194,880
				$302,064
120-mm.				
TP–T	14	$1,278	58	$1,037,736
TPCSDS–T	20	$854	58	$990,640
Total				$2,028,376

[1] FY 1986 projected costs as more 120-mm. rounds are produced. Production will become more economical and unit costs will decline.

Annual savings in fuel and maintenance outlays through the use of UCOFT are estimated at approximately $320,000 per battalion. Furthermore, the use of simulators provides firsthand training that was not previously in the field. Savings gained from the use of simulators will pay for the soldiers' use of live ammunition during field training exercises.

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The family of flight simulators illustrates the savings possible through the intelligent integration of this technology in aviation training. A comparison of potential savings by using simulators versus the cost of using traditional aircraft is reflected in *Table 6.*

TABLE 6—COST COMPARISON: AVIATION SIMULATORS VS. AIRCRAFT

Device	Simulator Cost Per Hour	Aircraft Cost Per Hour[1]	Ratio of Simulator Cost Per Hour To Aircraft Cost Per Hour (percent)
UH–1	$40.00	$491.00	8.1
UH–60	117.00	1,509.00	7.7
AH–64	275.00	3,714.00	7.4
AH–1	407.00	1,240.00	32.8

[1] FY 1985 rates.

Other training devices that conserve scarce resources are the Remote Target System, which is the target mechanism component of the Army Range Modernization Program; the Air Ground Engagement System, MILES for aircraft and air defense weapon systems; and MILES for M1/M2/M3 tanks. Several emerging training simulators appear to have tremendous potential for more efficiently enhancing unit proficiency. As an example, the TWGSS is a precision laser device used with tanks and BFVs. It will allow tankers and infantrymen to practice gunnery by firing a precision laser beam at targets rather than expending live ammunition.

MILES has been a success in training tactics. While MILES has provided unparalleled opportunities for realistic, two-sided, tactical training worldwide, true combined arms tactical engagement training is being sought. The Army is planning to simulate the effects of nuclear, biological, and chemical (NBC) warfare incorporated with field artillery indirect fire and mines into MILES exercises. The completed exercise is expected to enhance tactical training.

Simulation Networking (SIMNET) is strongly supported by the Army in an effort to make up training shortfalls caused by reductions in the OPTEMPO of maneuver forces. SIMNET will interconnect large numbers (up to battalions) of low-cost combat vehicle simulators in two-sided, free-play, tactical engagement simulation.

Battle simulations provide an efficient method of training soldiers, unit commanders, and staffs. At present simulations available to commanders are either manually driven or labor-intensive automated systems. There are no standard, computer-driven simulations

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at corps or division level. Brigade through crew simulations are inefficient and often do not operate as rapidly as some require. Improvements in battle simulation are under way. Fielding has begun of ARTBASS, a computer-driven simulation which provides a highly realistic environment to train battalion commanders and their staffs in the control and coordination of combined arms operations.

Exercises

The FY 1987 Posture Statement detailed the Army Exercise Program including joint, combined, and unilateral exercises. Major joint and combined exercises maybe scheduled for either the Joint Chiefs of Staff (JCS) or unified commands and are centrally sponsored and coordinated through the JCS Exercise Program. Unilateral Army exercises are conducted at corps level or below.

The JCS Exercise Program provides Army units with valuable total force training in wartime missions. To the extent possible, the program integrates active Army and reserve component units into joint exercises according to CAPSTONE alignments. (A procedure aligning reserve component units scheduled for Europe with their wartime chain of command.) During FY 1987, the Army participated in forty-nine exercises that were either directed or coordinated by the JCS. Of that number, reserve component units or staffs participated in thirty-four.

Deployment training for Army units based in CONUS is provided through the JCS program. Under this program troops and equipment are deployed and exercised in Europe, Southwest and Southeast Asia, Korea, the Pacific, and Central America. Among the more important CONUS training exercises conducted this fiscal year were BRIM FROST, LOGEX, TEAM SPIRIT, ULCHI FOCUS LENS, RENDEZVOUS, BRIGHT STAR, BLAZING TRAILS, and REFORGER. The following is a synopsis of these exercises:

Exercise BRIM FROST was a large-scale JCS-directed Commander-in-Chief, U.S. Readiness Command (USCINCRED)–sponsored command post and field training exercise that was conducted in Alaska from 18 to 29 January 1987. The October 1987 edition of *Army* magazine reports that approximately 24,000 Army, Navy, Air Force, and Coast Guard personnel of both active and reserve components from all services participated in this exercise that included a contingent of the Special Operations Forces. The major FORSCOM unit participating was the 6th Infantry Division (Light). The objectives of the activity were to exercise Joint Task Force Alaska and supporting forces in command, control, commu-

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nications, and sustainment operations and to provide joint training for participating active and reserve component forces in an arctic environment.

Exercise LOGEX 87 was a JCS-coordinated command post exercise that was sponsored by the U.S. Army Logistics Center at Fort Pickett, Virginia, from 12–24 July 1987. Simulating a Korean scenario, LOGEX 87 was designed to teach command and staff procedures by emphasizing interdependence among the joint service components. The exercise was also intended to teach early deploying reserve component units about the principles of wartime Modification Table of Organization and Equipment and to demonstrate the importance of logistics. Participants in this exercise were the I Corps and its affiliates, as well as the 311th Corps Support Command, the 388th Civil Affairs Brigade, and its major elements.

Exercise TEAM SPIRIT 87 was conducted in the Republic of Korea to improve the combat readiness of the Republic of Korea and U.S. forces through joint and combined training exercises. Specific objectives included execution of deployment and redeployment plans, employment of combined air-land-sea doctrine by Combined Forces Command (CFC), and execution of the applicable reception and staging plans. The field training portion of the exercise was conducted from 28 March to 9 April 1987 and included a fully equipped division, in addition to elements of the Eighth Army and Korean forces. Major FORSCOM participants included I Corps, the 7th Infantry Division (Light), the 311th Support Command, the 35th Air Defense Artillery Brigade, and the 1st Special Forces Group.

Exercise ULCHI FOCUS LENS 87 was a JCS-coordinated U.S. Pacific Command (USPACOM) and CFC–sponsored exercise that was held in conjunction with the annual Korean national mobilization exercise in the Republic of Korea from 17–28 August 1987. The purpose of the exercise was to test and evaluate plans, procedures, and communications systems for the combined and joint defense of the Republic of Korea. Specific objectives included practicing for an anticipated transition from peace to war; integrating U.N. Command and CFC components, subordinate, and supporting command war plans; augmenting CFC with U.S. and mobilized Korean forces; integrating combined unconventional warfare operations into CFC strategy; and deterring chemical warfare and exercising chemical retaliatory operations.

Exercise RENDEZVOUS was a JCS/U.S. Readiness Command–sponsored combined training exercise for the defense of Canada and the United States that convened at Camp Wainwright, Canada,

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from 20 April through 12 May 1987. The purpose of this division-size joint and combined field training exercise was to emphasize all-arms training in a general scenario; to practice and improve U.S./Canadian interoperability and readiness; and to practice deploying CONUS-based joint forces. The exercise consisted of four separate training phases, with U.S. forces participating in two: PRAIRIE VIPER at Canadian Force Base Suffield and BOLD WARRIOR at Camp Wainwright and associated ranges. During the field training exercise, a U.S. Army battalion task force was attached to the Canadian Forces Mobile Command's Special Service Force.

Exercise BRIGHT STAR was a JCS-directed, U.S. Central Command (USCENTCOM)–sponsored joint and combined training exercise that was conducted at various USCENTCOM locations from 8 July to 15 September 1987. The purpose of the exercise was to demonstrate U.S. ability to deploy and mobilize rapidly. Specific objectives included practicing to protect air and sea lines of communication; testing the relationship between joint and combined communications; examining U.S. mapping and charting procedures; evaluating Army and Navy port operations procedures; examining all-source intelligence support to the joint command; and exercising realistic logistical support in the USCENTCOM area of responsibility. Participants included the Third U.S. Army, which deployed a cross-section of the Southwest Asia CAPSTONE force and conducted combined and joint operations within the territories and adjacent waters of Egypt, Jordan, and Somalia. FORSCOM participation consisted of 216 active and reserve component units headed by the Third U.S. Army.

Exercise BLAZING TRAILS was a JCS-directed, U.S. Southern Command (USSOUTHCOM)–sponsored combined field training exercise that was conducted in Honduras and Ecuador in two task forces designated 364 and 1169, respectively. Task Force 364 went to Honduras with engineer, logistical, signal, medical, security, and aviation units from the Fourth U.S. Army area during the period 12 December 1986 through 31 May 1987. Their mission was to rebuild and construct roads between the towns of Puentecita and Jocon. Task Force 1169 went to Ecuador with similar units from the Second U.S. Army area and conducted similar road-building and bridge construction missions in the Napo Province from 3 April to 3 October 1987.

Exercise REFORGER 87 was the nineteenth strategic mobility exercise conducted under the 1967 London Tripartite Agreement between the United States, the United Kingdom, and the Federal Republic of Germany. The agreement, which was concluded at the peak of the Vietnam War, allowed for the annual redeployment of

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the division base and two of three brigades of the 24th Infantry Division. It further stipulated that the division would draw its equipment from pre-positioned materiel configured to unit sets (POMCUS) stock, rejoin its third brigade (which had remained in Germany), and participate in a European field training exercise. In 1970, during REFORGER II, the 1st Infantry Division replaced the 24th Division, making the former the designated REFORGER division. As POMCUS materiel increased, the annual REFORGER strategic deployment increased to include a mixture of combat and combat support units as well as reserve components from CONUS.

REFORGER 87 introduced several innovations to the exercise. These included the deployment of the III Corps from Fort Hood, Texas, and the use of air and seaports in the Netherlands. In addition, this year's REFORGER was the first such exercise to be conducted by an American unit (III Corps Group) under the operational command of NATO's (North Atlantic Treaty Organization) Northern Army Group (NORTHAG). Finally, REFORGER 87 introduced a number of new weapon and support systems, including the AH–64 Apache attack helicopter.

As in previous years, the purpose of REFORGER has remained constant: to demonstrate U.S. willingness and ability to reinforce NATO during an emergency. Specific objectives of III Corps included demonstrating the deployment and warfighting capabilities of a mobile armored corps; assessing the plans and procedures which enable the mobile armored corps to reinforce Europe; training individuals, crews, units, and staff organizations for war under the most realistic conditions; and challenging the affected organizations and installations to support the deployment of corps units.

The use of ARNG troops on training missions in Central America, close to the fighting in Nicaragua between the Sandinistas and Contra rebels, was opposed by a number of state governors. On 14 November 1986, President Ronald Reagan signed into law a measure that prohibited governors from withholding consent to training assignments for ARNG units outside the U.S. unless the units were needed for local emergencies. Led by Governor Rudy Perpich of Minnesota, the opposed governors initiated a lawsuit challenging the constitutionality of the law. The lawsuit was still in the courts at the close of the fiscal year.

Within CONUS, in early November 1986, the 82d Airborne Division completed its most extensive large-scale maneuver in fifteen years. The division's 14,000 paratroopers spent two weeks in parachute jumps, airdrops of heavy weapons, helicopter movements, and tactical drills that included live fire in a training exer-

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cise to prepare for combat in Central America. Because of the increasing importance of the reserve component to the Army, the USAR concentrates on training both the organization and the individual. Organizational training is conducted under a unit configuration in which troop program units (TPUs) are part of the Total Army force structure inventory. These units usually perform inactive duty training (IDT) one weekend each month and annual training (AT) two weeks each year. The second form of training is under an individual soldier configuration in programs designated individual mobilization augmentation (IMA) and IRR. Participants in the IMA program are ARNG soldiers who perform two weeks of annual training, usually in association with an active component (AC) organization with whom they would serve upon mobilization. While IRR soldiers are not regularly affiliated with a single AC organization, the group usually receives two weeks of active duty training (ADT) where appropriate training opportunities exist to enable them to sustain their military skills. All ARNG soldiers are required to complete appropriate professional development education in addition to participating in other training.

The CAPSTONE Program orients RC commanders with their wartime organization and provides them the opportunity to train with active counterparts. The overseas deployment training (ODT) program enables high-priority RC units to train in their contingency areas with their wartime gaining command. The ODT program has increased from 26 units and cells in 1976, the first year of the program, to over 1,900 units and cells for FY 1985. Selected units trained up to 26 days in JCS exercises working alongside their AC counterparts. In FY 1987 approximately 55,000 RC soldiers participated in ODT, representing approximately 2,200 RC units and unit cells, in 25 major exercises in over 50 countries and territories.

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4

Structuring the Force

To operate effectively in varied and distant geographic settings, the Army is continuously restructuring its forces to capitalize on technology and to improve its ability to conduct AirLand Battle doctrine. With a fixed active corps end strength of 780,000, the Army strives to create a balanced but streamlined force of heavy, light, and special operations units that ensure flexibility, mobility, and rapid response to contingencies or sustained combat operations. In response to a broadening spectrum of threats and responsibilities, the Army is also committing a portion of its limited resources to force modernization, readiness, and sustainability demands. The Army's multiple national and international obligations compel it to integrate reserve component (RC) units with the active component (AC) force to achieve a "Total Army" concept that is consistent with the "Army of Excellence" (AOE) requirement.

Corps

The Army is redesigning its largest tactical organization—the corps—by equipping its commanders with essential assets for achieving operational objectives of fighting, controlling, and sustaining operations. Future modifications may include increasing the strength of the corps signal brigade; transferring division Chaparral and adding Hawk missile battalions to the corps air defense artillery brigade; strengthening the military police brigade; providing intelligence capability; transferring eight-inch field artillery cannons; converting cannon artillery battalions to three eight-gun batteries; adding an MLRS battalion and a target acquisition battalion with remotely piloted vehicles to artillery; and adding attack helicopter battalions to the corps aviation brigade.

Divisions

Following the 1983 review of force structure, national strategy, and the changing world situation, a light infantry initiative was introduced in 1984, primarily to deal with contingency missions. The

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initiative resulted in restructuring the 7th and 25th Infantry Divisions and organizing to the light design the 6th Infantry and the 10th Mountain Divisions as well as the 29th Infantry Division (ARNG) to enable the National Command Authority to deploy units rapidly during the first critical days of a crisis.

During this fiscal year, the Army resumed a series of activations and consolidations to transform the five divisions to a lighter design. One, the 6th Infantry Division, which was activated as a light division in March 1986 and collocated at Forts Wainwright and Richardson, Alaska, is organizing by using the already existing 172d Infantry Brigade as a nucleus. This year the 6th Division activated a field artillery battalion and a division support command and planned using the 205th Separate Infantry Brigade (USAR) in Minnesota to round out the division.

The 10th Mountain Division (Light Infantry), another of the five light divisions, continued restructuring by forming a division artillery headquarters and headquarters battery, as well as a field artillery battalion. The division, which was activated in FY 1985 at Fort Drum, New York, added a fifth light infantry battalion and a combat aviation company during the year. Rounded out by the 27th Infantry Brigade, New York Army National Guard, the 10th Mountain is expanding at Fort Drum as post housing facilities become available.

Meanwhile, the 25th Infantry Division, which is located in Hawaii, completed its conversion to light design in November 1986, following the COHORT arrival of the 5th Battalion, 14th Infantry. Another element, the 155th Field Artillery Battery, later added to the division table of organization, is scheduled for activation on 16 October 1987. Personnel and equipment acquisition for the battery are proceeding as scheduled.

In other divisional restructuring efforts this year, the Army continued implementing its 1984 plan to convert airborne and air assault divisions to light design. Having begun converting the assault divisions in FY 1986, the Army is in the process of converting the 82d and 101st Airborne Divisions to the lighter and more flexible design during this fiscal year. Accomplishing this mission is expected to improve tactical mobility, enhance reconnaissance and communications capability, and augment the units' ability to conduct operations in a nuclear, biological, and chemical (NBC) environment.

Also during this year, the 2d Infantry Division activated an organic attack helicopter battalion in Korea. The additional battalion will lend added support to the forward-deployed division by increasing its firepower without increasing manpower and thereby overextending the personnel spaces to which the division is entitled.

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The Army also continued refining its heavier force designs to provide for an armored division of about 16,800 officers and enlisted personnel organized in six tank and four mechanized infantry battalions. A mechanized infantry division would have about 17,100 personnel in five tank and five mechanized infantry battalions.

The design retains the increase from three to four in the number of tank and infantry companies assigned to maneuver battalions. The companies are being equipped with Abrams tanks and BFVs. The division support command provides a forward support battalion to each brigade and a main support battalion within the division rear area. The divisional cavalry squadron has a long-range surveillance detachment. Infantry squads and 155-mm. howitzer sections have been reduced to nine men each. The eight-inch howitzer batteries have been moved to corps and a battery of MLRS has been retained as a divisional general support weapon. During FY 1987 heavy forces in both Europe and CONUS continued their conversion to the refined unit designs as associated new equipment was fielded and post facilities became available. Reserve component round-out units also converted to new unit designs about the same time as their associated AC unit.

The 9th Infantry Division was tasked to develop innovative tactics and equipment that would evolve into an interim design for a motorized division with 3 infantry brigade headquarters, 5 heavy combined arms battalions, 2 combined arms battalions, 2 light attack battalions, and 1 combat aviation brigade. The division's tactics and equipment emphasize high tactical mobility combined with extensive firepower, while retaining strategic mobility more comparable to the light than heavy division.

Special Operations Forces

In support of the national effort to strengthen its special operations forces (SOF) and pursuant to congressional mandate, the Army established Special Forces as a separate career branch on 9 April 1987. The decision underscored the Army's commitment to revitalize Special Forces by providing for the systematic management of Special Forces leaders throughout their careers.

The Army's renewed focus on special operations closely paralleled the national concern about special forces. On 15 April 1987, Secretary of Defense Weinberger announced the establishment of a unified command, USSOCOM. The new command assumed responsibility for all special operations units as well as the special operations schools of the Army Special Warfare School at Fort Bragg,

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North Carolina; the Air Force Special Operations School at Hurlburt Field, Florida; and the Naval Special Warfare Center at Coronado, California.

On 8 May 1987, the 1st Special Operations Command was designated as the Army component of USSOCOM. As the Army element to USSOCOM, the 1st Special Operations Command exercises peacetime control over all active and USAR special operations forces within CONUS. The unit is also responsible for evaluating the training and monitoring the combat readiness of the Army National Guard SOF.

In FY 1987 the groundwork was complete. Secretary of Defense Weinberger assigned Army and Air Force active and reserve component Psychological Operations (PSYOP) and Civil Affairs units to the U.S. Special Operations Command.

Strengthened PSYOP staff elements provided a formal structure to review the unit's plans and operations, incorporate PSYOP into war plans, and review national PSYOP policy, which had been developed by the Joint Staff. As a result, requirements for the 1985 PSYOP Master Plan were implemented in 1987 and fully integrated into DOD plans and operations. By the end of 1987, U.S. Southern Command (USSOUTHCOM) and U.S. Pacific Command (USPACOM) had developed PSYOP plans for assisting host nations and countering peacetime terrorism and insurgency.

Psychological Operations was strengthened as a viable career path by creating Functional Area 39 for officers and Military Operational Specialty 37F for enlisted personnel. A joint senior PSYOP course was developed for general officers, colonels, and senior executive service equivalents by the Air Force Special Operations School to assist key decision makers in the use of PSYOP capabilities. Joint staff officer–level courses were also developed. In addition, the Army developed a graduate degree program in international relations, a language qualification course, a regional studies course, and the PSYOP Officer Orientation Course. A substantial amount of the Army's SOF is found in the USAR which contributes 80 percent of the Special Forces and 96 percent of the Psychological Operations and the Civil Affairs units. To improve the warfighting capability of the RC SOF, the Army plans to modernize equipment for the group and increase its manpower level by allowing for special call-up authority during emergencies.

Reserve Components

Current Army strategy continues to place unprecedented emphasis on the role of the reserve component as an integral part of

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the Active Army's combat potential. The active force cannot meet its current worldwide commitments without the help of the reserves. Consequently, the Army has closely integrated its active and reserve components. Current mobilization plans exemplify the use of reserve units to round out active ones with the skills and manpower required to go to war. During this year, five reserve component brigades and six maneuver battalions will round out eight active component divisions, including two light divisions.

Major USAR force structure actions in FY 1987 included the continued restructuring of the 29th Infantry Division. Activated in October 1985, this ARNG division was established from two ARNG brigades from Virginia and Maryland and is reorganizing into the light infantry design. In other Army restructuring activities, the Army activated and/or converted 13 aviation units, 1 military police company, 2 chemical decontamination companies, 1 signal battalion, 3 equipment maintenance companies, 5 light equipment maintenance companies, 10 military intelligence companies, and 7 combat electronic warfare and intelligence battalions.

Fiscal Year 1987 saw ARNG units proceed with their pattern of converting to the AOE Division 86 design. The ARNG units activated 1 brigade headquarters for the 42d Infantry Division and 5 combat aviation brigades for the 5 ARNG infantry divisions. To complete the 35th Mechanized Infantry Division, 1 armor battalion and 2 support squadrons within the 2 ARNG armored cavalry regiments were converted to AOE design. Additionally, the ARNG activated 1 Hawk missile battalion, 1 long-range surveillance company, 2 mobile army surgical hospitals (MASHs), 5 attack helicopter battalions, and 64 combat and combat service support units. Two armored cavalry regiments (ACRs), the 116th and the 163d, were converted to heavy separate brigades as the Army directed.

In other force structure actions, the Secretary of the Army approved the activation of United States Army, South (USARSO), as a major Army command effective 4 December 1986. USARSO will provide a more streamlined chain of command for Army elements, like the 193d Infantry Brigade, that are already stationed in Panama but that lack the capability to support a unified command such as USSOUTHCOM. The reassignment of the 193d Infantry Brigade from FORSCOM is a major realignment in the command's assets, but the change is expected to enhance Army support of USSOUTHCOM.

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5

Modernizing and Equipping the Army

During this year the U.S. Army continued modernizing and equipping its forces with the weapons systems designed to provide a qualitative edge over the Soviet threats. The current Army modernization effort began about fifteen years ago in response to Soviet development and deployment of new weapons systems. The rate of the Soviet effort indicated their intention to establish numerical superiority in modern battlefield weaponry over the United States and its NATO allies. Throughout the mid-1970s, Soviet forces and their Warsaw Pact allies held a numerical advantage over NATO, although the Pact's equipment remained technologically inferior to that of the western alliance.

To counter this potential threat and to refocus its effort after Vietnam, the U.S. Army embarked on an ambitious program to modernize five aging weapons systems that it identified as crucial to battlefield success. The results are the M1 Abrams tank, as replacement for the M60 tank; the M2 and M3 BFVs which will eventually displace the M113 Armored Personnel Carrier (APC); the AH–64 Apache and UH–60 Black Hawk attack helicopters to replace the AH–1G and the UH–1H helicopters, respectively; and the Patriot surface-to-air missile system which replaced the Nike-Hercules and will eventually displace the Hawk missile system. Development and fielding of these weapon systems and their complementary technology progressed in FY 1987.

The Army Staff recently concluded a brief study that identified those warfighting capabilities that are required to fight and win on any battlefield. The study established priorities for the Army's acquisition of weapons systems; identified the programs and technologies necessary as basic operational requirements to determine essential weapons systems, programs and technologies in accordance with the annual program, planning, budgeting, and execution cycles. Army leaders concluded that the essential operational capabilities for warfighting are reconnaissance, surveillance, and target acquisition; command, control, and communications; battlefield lethality; battlefield sustainment; and soldier and unit performance enhancement. Based on this study, the Army developed

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its policy for developing and fielding weapons into the year 2000 as doctrine led technology.

In 1982, the Army adopted the AirLand Battle doctrine to implement its operational capabilities in the joint nature of modern warfare. The doctrine emphasizes the importance of seizing the initiative by moving rapidly to destroy the enemy's second or follow-on echelons of attack through the use of sophisticated weaponry and technology. These so-called deep operations assumed greater significance because the Soviets pushed to equip their numerically superior forces with equally advanced weaponry. The U.S. Army relies on AirLand Battle doctrine to synchronize its combat effort and thereby offset the potentially devastating combination of being outnumbered in manpower and equipment and outmatched in technology. This unified effort is expected to harness the manpower and technological expertise needed to wage the close, deep, and rear operations that characterize all engagements. The following section focuses on several of the major weapons systems and technological developments that have reached fruition during this fiscal year in relation to their spatial employment in operations.

Close Operations

Close operations consist of the fight between the committed forces and the readily available tactical reserves of both combatants. Its principal elements are the coordinated plans for maneuver and fire support that rely on the integrated support of all arms and services. At the tactical level, corps and smaller units maneuver to attack the enemy's flanks, rear, or supporting formations while being covered by direct and indirect firepower. During such operations, the commander assigns the main effort of the attack to one of his subordinate elements, which he then supports.

The close combat mission area relates to weapons and equipment that are used to bring direct, line-of-sight fire upon the enemy. Usually infantrymen or frontline troops are assigned to this job and given the task of engaging and destroying the enemy. One way in which these soldiers accomplish their mission is with superior equipment that allows them to gain an edge over their adversaries. The weapons for the close combat mission include tanks, antitank and antiarmor weapons, helicopters, rifles, and mortar systems. Among these, the following major weapons systems have undergone improvements during this fiscal year.

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Tanks

The tank is the main offensive and defensive ground weapon of both the United States and the Soviet armies. In a combined arms effort, tanks can and are expected to dominate the battlefield by spearheading the offensive, destroying other tanks, devastating soft targets, and driving through defensive positions with massive momentum. The main battle tank is the M1/M1A1 Abrams tank. Already in its eighth year of production, the sixty-ton Abrams is the most powerful combat vehicle ever fielded in the U.S. Army. Agility and mobility provide the four-man crew with greater protection than any other contemporary tank. If hit by enemy fire, the Abrams has a number of revolutionary safety features that enhance the survivability of the crew and the vehicle. These include an automatic fire detection and extinguishing system and armored compartments that separate the fuel tanks and main-gun ammunition from the crew. A thermal imaging laser sighting system allows the Abrams to locate targets at night and through dust, haze, fog, and smoke without disclosing the tank's position. The vehicle's 1,500-horsepower turbine engine doubles the speed of its diesel-powered predecessor, the M60. This year the M1A1 model continued to be improved by adding the German-designed, U.S. manufactured 120-mm. smoothbore gun and an improved nuclear, biological, chemical microclimatic cooling system. The addition of the 120-mm. gun system ensures that U.S. tanks remain competitive with Soviet main-gun improvements over the next decade. This year the Army continued to field the Abrams to Regular Army units and began deliveries to the reserve components, a North Carolina National Guard armored battalion. This action underscored the Army's commitment to modernize its reserve units. The FY 1987 budget provides for 840 M1A1 Abrams tanks.

Bradley Fighting Vehicles

Complementing the Abrams on the battlefield is the Bradley fighting vehicle. The 25-ton Bradley has a top road speed of fory-two miles per hour while lending firepower and protection to the mechanized cavalry squad for its screening, reconnaissance, and security missions. Available in both infantry fighting vehicle (IFV) and cavalry fighting vehicle (CFV) models, the Bradley has the McDonnell Douglas M242 helicopter's 25-mm. automatic cannon as its primary armament. It fires either a high-explosive or armor-piercing round. The former is designed to destroy unarmored ground targets at distances of 2,500 meters, while the latter is intended for use against its most

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likely target, the Soviet infantry fighting vehicle. Since the gun's dual-feed mechanism can accommodate any combination of ammunition, the gunner can switch instantly to the type best suited to destroying a particular target.

The Bradley's secondary weapons consist of the 7.62-mm. coaxial machine gun and the TOW antitank missile launcher. The vehicle carries 800 ready rounds for the coaxial gun and stores 1,540, in addition to the 2,200 rounds M60 machine gun of the infantry squad transported in the Bradley.

Both the infantry and the cavalry models share identical missions and similar features, but vary slightly in their ability to bring firepower of the carried infantry to targets. For example, the infantry model has six 5.56-mm. firing ports that are positioned along the sides and rear of the vehicle. It carries a nine-man squad that consists of the vehicle commander, its gunner and driver, in addition to six squad members. The Bradley includes individual firing ports or vision blocks through which the squad members can survey the battlefield and fire their M16A1 rifles while on the move. Externally, the cavalry model is identical to the IFV, but the unit has internal modifications to accommodate its equipment and leave room for a crew of five. Both models are capable of swimming rivers at the rate of 4.5 miles per hour. They are also air transportable in either the C–141 or C–5A aircraft.

This year the Bradley underwent a major modification to add the more lethal TOW–2 missile system into models M2A1 and M3A1. To date, Bradleys have been delivered to the 2d Armored Division and the 1st Cavalry Division in Fort Hood, Texas; the 3d Infantry Division; the 11th Armored Cavalry Regiment in Germany; and two ARNG battalions.

Attack Helicopters

The attack helicopter is another essential element of the U.S. Army combat capability. First used in force by U.S. forces during the Vietnam War, Army helicopters are now advanced sufficiently to provide a highly mobile, long-range, day/night lethal antiarmor fire capability that is coupled with the use of cannon and 2.75-inch rockets. Helicopters also offer heretofore undreamed of battlefield mobility. They assume increasing importance because of their ability to rapidly transport troops in Europe from one point to another in response to a potential Soviet attack as well as in inaccessible areas determined by contingency requirements.

The U.S. Army's primary attack helicopter, the AH–64, was fielded in April 1986. Currently, the Army has 184 Apache heli-

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copters and plans to buy 573 more. The twin-engine helicopter is armed with laser-designated Hellfire missiles, 30-mm. cannon and Hydra 70 rockets. Its maximum flight speed is 188 miles per hour or 164 knots, endurance is 1.83 hours, service ceiling is 20,000 feet, and its self-deployment range is over 800 nautical miles. The aircraft is also equipped with the target acquisition designation sight and pilot night vision sensor that provides day/night laser designation and infrared night vision. These technologies allow the two-man crew to operate in adverse weather conditions to destroy, disrupt, or delay enemy advances with unprecedented accuracy.

Following a fatal crash at Fort Rucker, Alabama, on 21 August 1987, the Apache helicopter was temporarily grounded while the Army thoroughly investigated the cause of the accident. The evidence revealed that a defective bearing in the tail rotor swash plate, which regulates the rotor blades' pitch, caused the accident. The Army promptly ordered the Army Aviation Systems Command in St. Louis, Missouri, to replace the defective part on all airframes and to provide pilots with additional training designed to enhance flying safety. Priority repair was given to helicopters that were scheduled to be dispatched to Europe, and the remaining AH–64 helicopters were scheduled to have the swash plate assemblies in the tail rotors replaced and resume flying in early FY 1988.

Complementing the Apache is the AH–1S Cobra. This single-engine helicopter was mated with the TOW antitank missile in 1977. Since that time, the Army has continually upgraded the AH–1S to improve its operational capabilities, safety, and survivability rates in combat. The Cobra is also characterized by a 44-foot in diameter rotor with two fiberglass blades, as well as an 8.5-foot diameter tail rotor. The helicopter may optionally include a combination of the following weapons for a maximum weight of 3,402 pounds: 8 TOW missiles, 2.75-inch rockets, and 20-mm. cannons up to a maximum gross weight of 10,000 pounds. The Cobra can perform at a maximum sea-level speed of 171 knots or at a normal cruise speed of 123 knots for a maximum range of 362 nautical miles. The vehicle has an endurance capacity of 2.6 hours and can climb vertically at a rate of 1,580 feet per minute. Nevertheless, the Cobra is not regarded as optimally effective because it fires the wire-guided TOW missile. Wire guidance requires the helicopter to remain exposed to hostile fire while guiding the missile to the designated target. This also limits the Cobra to performing only during daylight and in fair weather. To increase its usefulness, the Army started the Cobra Fleet Life Extension Program (C–FLEX), which incorporates a number of helicopter life extension modifi-

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cations, including rotor improvements, blue-green cockpit lighting, improved TOW, and upgraded radios. As part of the C–FLEX program, Army Chief of Staff Wickham temporarily grounded 750 of the 1,084 Cobra fleet in the Army inventory, pending inspection and possible replacement of the connectors that were on the main rotor blades in November 1986. Upon completion of inspection, the entire Army inventory of Cobras returned to operational status. Meanwhile the Army continues to equip approximately 500 Cobras with a forward-looking infrared system that allows the helicopters to operate at night.

Scout helicopters seek and select targets which, in turn, enable attack helicopters to conserve their fuel and ammunition, while the commander concentrates his antitank capability at critical points. After locating targets, the scouts position the attack helicopters, determine the distribution of fires, laser-designate targets for the Hellfire missile, and coordinate artillery fires throughout the battle area. During the battle, scouts provide battlefield intelligence about the enemy and the targets destroyed. Scout helicopters also refine intelligence from other sources and integrate various types of firepower against the target.

The Army Helicopter Improvement Program (AHIP) aims to upgrade part of the Scout fleet into improved observation helicopters. Enhanced engine performance and rotor refurbishments now allow the AHIP to operate on very hot days and at high altitudes. The mounted sight incorporates a laser designator and a forward-looking, infrared capability for use at night and during adverse weather conditions. The sight also allows the helicopter to hover behind hills or other elevations while the sight remains exposed and tracks targets. The AHIP uses artillery fire to locate and destroy enemy forces. It can also acquire and designate targets for Copperhead and other Army or Air Force precision-guided munitions. During this fiscal year, the AHIP programs will finance the conversion of forty-eight aircraft.

Among the Army's major design projects for the next century is the Light Helicopter Family (LHX), the Army's general rotocraft. The LHX will replace the current fleet of some 7,000 aging (Vietnam vintage) AH–1, UH–1, OH–58, and OH–6 helicopters, which were becoming expensive to maintain and repair. The LHX design will consist of two basic configurations in the 8,000-pound class—a scout/attack (SCAT) and a transport/utility (UTIL) design—to replace and or complement the UH–1, AH–1, OH–58, OH–6A and OH–64A Apache, and the UH–60. Plans for the SCAT model envision the aircraft with the Hellfire antitank missile system, air-to-air

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Stinger missiles, and an automatic gun that features multiple target acquisition. The LHX also will have a minimum cruise speed of 170 knots and possess the ability to climb vertically at a rate of 500 feet per minute even in inclement weather.

Except for its minimum dash speed of 160 knots, the assault aircraft will have the same capabilities as the SCAT. The assault version is scheduled to carry eight fully equipped combat troops, plus internal and external cargo. SCAT currently requires two crew members, but is being redesigned for operation by a single pilot. As a result of its advanced technology and sophisticated weaponry, the LHX will conduct effective close and deep operations. Completion of this program, however, carries a high price tag. Anticipating a period of fiscal austerity, Under Secretary of the Army James R. Ambrose recommended that the Army delay the LHX program. No substantive action has been taken to eliminate the system during FY 1987.

Missile and Weapon Systems

Hellfire is an antiarmor missile guided by a laser seeker. It is the main armament of the AH–64 Apache helicopter. The missile weighs 99 pounds, is 64 inches long, and has a 7-inch diameter warhead. Hellfire homes in on a laser spot projected onto the target by ground observers, other aircraft, or the launching aircraft's own designator. This enables it to attack targets indirectly, in some situations without ever having seen the target.

Initially the ground laser designator was designed for use on a stationary tripod; however, lasers have been gaining mobility since their incorporation into the Army's fire support vehicles, where these highly mobile forward observers can direct the Army's second category of Hellfire missiles, which consist of modular laser equipment. To date these Hellfire missiles have been used exclusively by the Marine Corps. Hellfire's greater lethality, increased firing rates, improved range, versatility, and greater speed make it a marked advancement over the older TOW missile.

In spite of more advanced technology, TOW remains the most powerful antitank weapon available to the infantry. TOWs can destroy enemy armor, bunkers, and crew-served weapons. They also have a limited self-defense capability against helicopters. With a range of 3,750 meters, TOW automatically corrects the missiles' flight course through two thin wires that unwind from the missiles while linking them to the launcher.

The TOW program has four distinct missiles: the basic TOW, Improved TOW (ITOW), TOW–2, and TOW–2A. Each can be

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launched from BFVs, the High Mobility Multipurpose Wheeled Vehicle (HMMWV), M113 armored personnel carriers, M151 jeeps, and the AH–1S Cobra helicopter.

The basic TOW first appeared in the Army in 1970 and was later adopted by the Marine Corps and thirty-nine foreign countries. Since 1970 various improvements have enhanced the weapon. Phase I produced the ITOW to meet current and near-term threats. Phase II introduced TOW–2, and it is continuously being redesigned to meet armor threats of the future. The latest improvements to TOW–2 include a six-inch warhead with an extended probe and an improved missile guidance system. They permit a gunner to track targets despite poor visibility caused by smoke, fog, and other battlefield obscurants. Ongoing improvements to the TOW–2 produced the TOW–2A. This enhanced TOW–2 has a tip and main charge added to the probe that is designed to detonate a tank's reactive armor and thus allow the warhead to penetrate the tank's main armor.

In September 1987, development began on a warhead and sensor system that allows the missile to fly over its intended target and fire down into the more vulnerable tank turret. Called TOW–2B, it includes a completely new warhead section with sensor and associated hardware.

This year Army officials are considering procurement of a heavy advanced antitank weapons system (AAWS–H) and a medium advanced antitank weapons system (AAWS–M), to replace the TOW and the Dragon, respectively. The AAWS–H is a joint U.S. Marine Corps and U.S. Army program. The weapon will replace the current TOW antiarmor system as the mainstay of the infantry against tanks. The Army is also considering AAWS–H on the BFV, the HMMWV, the ITOW, and as a possible replacement on the Cobra and attack helicopter fleet.

Other weapon system concepts under consideration for antitank roles are the kinetic energy missile, an advanced missile system–heavy, and the dual-purpose fiber optic–guided missile (FOG–M), which is both an air defense and an antitank missile. Extensive, realistic testing of these proposed weapons will allow the Army to select the best weapon based on test results and research data. AAWS–H development promises to alter radically existing tank warfare doctrine, thereby completely revamping the nature of the modern battlefield.

The AAWS–M will replace the current Dragon and remedy deficiencies of that older system. Modifications promise greater lethality, extended range, and decreased gunner vulnerability. The

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goal of AAWS–M is to enable the soldier to destroy the heavily armored, modern battlefield tanks that are expected to characterize future battlefields. This portable system will consist of a missile and throwaway launch tube with a reusable command and launch unit (CLU). The CLU will include a day/night sight capability and remain operable for several hours before the batteries that power it need replacement. The U.S. Army Missile Command (MICOM) has awarded contracts to two companies to test laser beam and infrared seeker technology. The laser beam riding concept permits the gunner on the AAWS–M to direct the flight of the missile to its target along the path of the beam. The FOG–M employs the infrared seeker. In this instance, the CLU is connected to the seeker through a fiber optic cable. The fire-and-forget missile locates and destroys targets, allowing the gunner freedom of movement while the missile is in flight.

The Lightweight Multipurpose Weapon M136 (AT4) is a portable, short-range assault weapon that fires an 84-mm. cartridge from an expendable tube that also serves as the weapon launcher. It is a Swedish-manufactured shoulder-fired recoilless weapon used against light armor and materiel targets. It incorporates a disposable launcher and a cartridge case that contains a fin-stabilized, high-explosive, shaped-charge projectile. The weapon weighs 14.6 pounds and has a lethal effective range of more than 300 meters. It replaces the less powerful and shorter range Light Antitank Weapon (LAW) M72. Production is under way in Sweden, and initial fielding to U.S. Army units began in early 1987. Production in the United States is expected to commence during FY 1988.

Firearms

The Army has a new standardized combat rifle. The newcomer is the M16A2 rifle, the improved version of the M16A1. The latest model of the semiautomatic rifle is a lightweight (8.9 pounds), air-cooled weapon that has already become the Army's primary combat rifle. Its improvements include iron sights; pistol grip; and optical, infrared, and thermal sights on the same visual axis as the iron sights. The weapon's accuracy was improved by replacing the full automatic capability with a three-round burst control; incorporating an improved muzzle compensator and heavier barrel; and using heavier 5.56-caliber ammunition. The Army issued the M16A2 to frontline troops in November 1986. The remainder of the Army will continue to use the earlier model M16A1 until stocks are depleted or the older weapons wear out. Henceforth the Army will purchase only the M16A2, and in FY 1987 the Army purchased 76,235 such rifles.

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In April 1985, the Beretta-USA Corporation of Accokeek, Maryland, received an Army contract to produce 315,930 9-mm. pistols to replace the older .45- and .38-caliber pistols and revolvers of the military services. The Beretta-manufactured 9-mm. Personal Defense Weapon (PDW) began replacing the older handguns in 1986. Improvements in the semiautomatic pistol included increased firepower of fifteen rounds and improved accuracy at ranges of 50–100 meters.

This year the Army fielded the 120-mm. mortar program as a nondevelopmental (procured off the shelf) item to replace the obsolete M30 4.2-inch mortar system. The 120-mm. will be added to the 60-mm. and 81-mm. mortar systems currently in units. The 120-mm. mortar system will be available in both a towed carriage and in a carrier version. The system improves range, weight, mobility, smoke and illumination performance, and high explosive lethality. Total procurement will be slightly over 2,600 weapons. Fielding this program includes development of an enhanced family of 120-mm. mortar ammunition.

The United States and the United Kingdom agreed to collaborate in producing an improved version of the M252, 81-mm. mortar system for both the U.S. Army and the U.S. Marine Corps. The M252 provides indirect fire capability for armor, mechanized infantry, airborne, and light infantry forces. Most notable are its increased range and greater lethality compared to the older M29 system, 81-mm. mortar. Nevertheless, recent reductions in the Army budget may prevent the service from meeting its agreement with the British to purchase 4,000 mortars and 2.1 million high explosive rounds or their monetary equivalent for use in establishing a domestic production base. Procurement delays will deny the Army indirect fire support at the company level in standard and mechanized infantry units in the new light infantry divisions. Since training exercises at the present rate will deplete war reserves by the next fiscal year, the effect of the delayed production cycle is expected to retard significantly both training and combat readiness.

Deep Operations

Deep operations project combat power behind enemy lines to destroy or disrupt the second- and third-echelon enemy reinforcements. Deep attacks isolate the battlefield and confine the battle to participants who are engaged actively in close combat. They accomplish this through the use of weapons that deny the enemy the ability to reorganize, move reserves, or escape. The major objectives of

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these deep operations are to separate and disrupt attacking echelons, to protect the defender's freedom to maneuver, and to degrade the enemy's fire support, command, control, and communications capabilities as well as his combat support and combat service support.

At present, U.S. Army forces do not have the full capability to execute the deep operations as envisioned by the AirLand Battle doctrine. Thus the Army and the Air Force are jointly developing programs that are designed to fulfill the two services' war requirements for such operations.

The first requirement for deep operations is that of surveillance and target acquisition in enemy rear areas. To accomplish this, the Army and the Air Force have entered full-scale development of the Joint Surveillance and Target Attack Radar System (Joint STARS). It is a battle management and target attack control system that will detect, track, classify, and assist in attacking moving and stationary targets beyond the forward line of troops. Joint STARS will share information with other intelligence and fire support systems.

The Air Force has sole responsibility for the development of the prime mission equipment that consists of an airborne platform as well as radar and data links. Target information will be transmitted through the secure data links that are mounted on a militarized Boeing 707 airframe to multiple ground stations. The Army is responsible for the Ground Station Module (GSM) and the Downsized Ground Station Module (DGSM). The GSM/DGSM are tactical data processing and evaluation distribution centers that link the airborne radar to various Army command, control, communications, and intelligence (C3I) systems at corps and division headquarters, corps and division artillery headquarters, and multiple launch rocket battalion headquarters. In theory these commanders will be able to act on near-real-time data.

Today's battlefield requires the commander to survey enemy rear reinforcements and weaponry that acquire the data necessary to assess the operational situation, identify targets, and designate appropriate weaponry to annihilate or dissipate the enemy's force. Unmanned aerial vehicles (UAVs) improve the commander's ability to accomplish these missions. The UAVs generally fall into three categories: Tactical Acquisition/Designation Aerial Reconnaissance System (TADARS), General Purpose, and Expendable. The latter two UAV members are now operational in the U.S. Army and are included in the General Purpose Corps Intelligence Electronic Warfare UAV.

The Aquila is a militarized system that identifies targets and adjusts artillery and laser designators during heavy combined arms

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engagement where electronic jamming and countermeasure are one. The Aquila can also fly over heavily defended enemy zones and collect intelligence on the strength of the enemy, thereby conserving manned reconnaissance aircraft. Aquila began full-scale flight testing in July 1982. Since that time, there have been more than 278 flights testing for launch, recovery, and navigation ability, as well as telemetry of TV video, endurance, and long-range free flight between ground control stations. Additionally, Aquila has laser designated stationary and moving targets. The success rate of these tests has averaged 92 percent.

Army leaders anticipate developing a UAV system consisting of air vehicles, modular mission payloads, data link systems, mission planning control station, and ground support equipment. When operational the UAV will allow Army commanders to make decisions based on the latest information gained through aerial reconnaissance and surveillance over enemy terrain.

The Army is also bringing its sensor system into the twenty-first century. Although contemporary sensors are capable of providing massive volumes of raw intelligence data, this information is still being collected, correlated, integrated, and interpreted manually. This slow dissemination of the data to the tactical commander hinders him from providing a rapid analysis of the enemy battlefield and determining appropriate courses of action. In brief, manual processing of intelligence data is too time-consuming for an air-land battle deep attack environment where effective employment of new weapons systems depends on timely and accurate information on enemy activity. The Army and the Air Force's cooperatively produced automated tactical intelligence fusion system, the Joint Tactical Fusion Program (JTFP), remedies this situation. The Army system, the All Source Analysis System (ASAS), will provide automated assistance to intelligence processing (fusion) and support related areas, such as target development, collection, and mission management of intelligence and electronic warfare systems and operational security. The Air Force's Enemy Situation Correlation Element (ENSCE) will perform similar tasks. Both services plan to share the technology and intelligence information derived from tactical and strategic sensors, including a number of smart munitions that use microelectronics to identify, locate, and attack specific targets behind enemy lines.

Joint STARS will provide wide area surveillance of the battlefield. Specifications call for a moving and a fixed target capability that will permit commanders to detect and locate such targets as stationary and mobile vehicles, command posts, assembly areas,

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and low-flying helicopters and fixed-wing aircraft. Joint STARS will broadcast the intelligence simultaneously to multiple ground stations at division and corps levels. The ground modules that precede the deployment of the Joint STARS are being delivered to Europe during this fiscal year.

The MLRS is another Army weapon that fires smart munitions during deep operations. MLRS uses a thirteen-foot-long, nine-inch-wide rocket that may be mounted on a mobile tracked vehicle. Each rocket has twelve multiple warheads to strike enemy artillery, armored vehicles, or troops in open areas. The MLRS tracked carrier vehicle is a derivative of the BFV with the same mobility and armor protection for its three-man crew. The MLRS launcher can fire rockets either individually or in rapid succession to a range of more than thirty kilometers in less than a minute. Besides the multinationally produced M77 warhead, the MLRS also can deliver the West German–developed AT2 scatterable mine warhead. The MLRS is being delivered on schedule, with batteries already fielded in Europe and South Korea as well as to active and ARNG units within the United States.

Recognizing the need to engage in and/or be prepared for NBC warfare, Congress and the U.S. Army continue to address this issue. While the United States is generally committed to the policy of no first use, the devastating potential of such weapons must be considered. In spite of its decision to limit the defense budget, the House and the Senate continued funding for an NBC requirement as deterrence. The Senate bill approved the limited production of binary chemical weapons, including the Bigeye nerve-gas bomb, while the House bill continued the restrictions on the production of new chemical weapons, but required the U.S. to retain its existing stocks of nerve gas that were already in West Germany. Under the terms of a fiscal 1986 budget accord, Congress agreed not to fund binary weapons until the administration certified that NATO allies agreed on the deployment of such weapons to their respective nations.

The U.S. had halted the production of chemical weapons in 1969, but on 22 May 1987, NATO defense ministers approved a U.S. plan to resume the production of chemical weapons. The binary weapons are composed of two chemicals that are nontoxic by themselves but, in combination, create a lethal nerve gas for bombs or artillery shells.

The basic plan required that the binary weapons be stored in the United States and transported to West Germany only in the event of a military crisis in Europe. When critics of the plan complained that U.S. resumption of nerve-gas production would en-

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courage the Soviets to increase their own production, Congress compromised by authorizing $35 million for the Bigeye binary chemical bomb, but prohibited production of this weapon before the beginning of the next fiscal year on 1 October 1987. Congress also agreed to fund the binary artillery shell, but banned its production before the first day of the new fiscal year.

Rear Operations

Rear operations include all actions that occur behind the friendly lines and in support of forces that are in direct contact with the enemy. These include assembling, moving, and positioning reserves; positioning long-range fire support and field artillery; moving, stockpiling, and distributing war materiel; maintaining field services; establishing and maintaining lines of communication; defending against air, ground, and missile attacks; and regulating and controlling traffic. In effect, they are the defense against the enemy's deep operations. Several of the more important systems that the U.S. Army is retaining and modernizing for use in rear operations are discussed below.

This year the Army has continued modernization of the various combat and combat support systems necessary to achieve its goal of assembling, moving, and positioning the reserves for commitment to the battle at the proper time and place. Two of the major weapons systems are the UH–60 Black Hawk and the CH–47D Chinook helicopters. The 20,250-pound Black Hawk can carry its three-man crew plus eleven fully equipped combat troops or an equally heavy cargo load into most geographical environments. Recent improvements to the Black Hawk enhance overall mobility; for example, the helicopter can reposition a 105-mm. howitzer, its six-man crew, and thirty rounds of ammunition in a single mission. Critical components and systems are armored so that the helicopter can withstand multiple small arms hits while performing its mission. The airframe is designed to deform gradually, not burst apart on impact. This affords the crew better protection in a crash. Eventually the Black Hawk will replace the UH–1 Huey and shoulder its air assault, air cavalry, and aeromedical evacuation missions. The Black Hawk has been employed successfully under demanding tactical conditions in field exercises and was used extensively in combat in Grenada. The Army has fielded Black Hawks to units within CONUS, Korea, Panama, Europe, and the U.S. Army Western Command (WESTCOM). At present the Army is delivering Black Hawks to the ARNG and USAR units and

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to the U.S. Army, Europe (USAREUR), and FORSCOM. This year the Army purchased seventy-eight Black Hawks.

Like several other weapons systems, the medium-lift CH–47D Chinook helicopter serves several purposes including transporting, positioning, and distributing reserve troops and war materiel. The CH–47D has two T55–L–712 turboshaft engines and tandem three-blade counterrotating fiberglass rotors that are sixty feet in diameter. The helicopter weighs 23,149 pounds when empty; has an overall length of 98 feet, 11 inches; height of 18 feet, 11 inches; and a fuel capacity of 1,034 gallons. At its full-mission weight of 50,000 pounds, the Chinook can transport 33 soldiers and a 15,000–22,000 pound payload at speeds above 150 knots. With the D model in its seventh year of production, the Army continued the Chinook modernization program by redesigning 472 CH–47A, B, and C models to conform to the D configuration. At the end of this fiscal year, 190 CH–47Ds had been delivered to Army units in the field.

To defend the rear area and support the forward-deployed troops, the Army is improving its long-range fire support or field artillery systems. Besides the aforementioned MLRS, these weapons include the Army tactical missile system; the joint tactical missile system; the Pershing II; and several classes of howitzers.

The Army tactical missile system (TACMS) is a semiballistic missile system designed to be fired from a modified MLRS launcher. TACMS gives fire support for deep attacks into the enemy second-echelon forces conducted at ranges beyond the capability of existing cannon and rocket firepower. A truck carries the launcher and two missiles. TACMS relies on an inertial system to guide the missile accurately over the target area where it dispenses submunitions from its warhead. Originally TACMS was intended to strengthen conventional forces and U.S. Army units in Europe, but Congress is considering an Army request to arm the missiles with nuclear warheads.

The Pershing II missile system is a modular, revolutionary improvement to the earlier Pershing Ia (PIa) ballistic missile. The United States and the FRG developed the older version and deployed it to NATO forces in 1965. The newest system, the Pershing II, improves accuracy tenfold over the PIa and doubles the previous range. Greater accuracy results from radar area correlation. It adjusts the missile's flight path by comparing radar reflections from the target area with the images that were stored in its computer prior to missile launch. This truck-mounted system is highly mobile and capable of rapid deployment and missile launch. Under terms of the recent U.S.-Soviet Intermediate Range Nuclear

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Forces (INF) Treaty, both the Pershing II missiles and the launchers are currently in the process of being withdrawn from Europe for supervised destruction.

The M109A2/A3 Self-Propelled Howitzer/Howitzer Improvement Program (HIP) improves the M109 self-propelled howitzer that the Army fielded in the early 1960s. The M109A3 is a modified M109A1 with the same capabilities as the M109A2. The M109 is the primary indirect fire support weapon available to the maneuver brigades of armored and mechanized infantry divisions. A C–5 can fly the M109A2/A3 to its destination. The howitzer fires both conventional and nuclear munitions. In October 1985, the Army initiated HIP. Modifications to the howitzers include adding new cannon tubes and mounts, automotive improvements, crew nuclear/chemical/biological protection, drivers' night vision capability, secure communications, ballistic computer and navigation systems, and built-in test equipment. The additions will significantly improve the howitzer's responsiveness, survivability, reliability, and range; for example, the howitzers' range will be increased by at least thirty kilometers. The vehicles will also be lighter (total weight of 55,000 pounds fully loaded), therefore easier to transport by air. The Army took final delivery of this improved howitzer this fiscal year.

Rear area combat operations also require the same timely communications support as areas of the battlefield. In short, staff elements, headquarters, and units must be able to communicate with each other. To improve the communications system, Under Secretary of the Army Ambrose and Army Chief of Staff Wickham gave tentative approval to a plan to standardize approximately $29 billion in tactical communications systems into a system based on a single computer terminal. Army officials downplayed the risks of relying on a single computer terminal by asserting that the lack of competition could be offset by the many advantages the common terminal offered. Advocates suggest that advantages include increased training opportunities, ease of operation, and maintenance of the system plus enhanced readiness capability.

Improving rear area communication links is also expected to be enhanced by the Single Channel Ground and Airborne Radio System, (SINCGARS). As the Army's latest secure VHF–FM combat net radio, SINCGARS operates in voice and data transmission modes despite enemy jamming. The radio hops across 2,320 channels in a frequency range of 30–87 megahertz and has a range of 8–25 kilometers. SINCGARS are available in vehicular, pack, and airborne models, and all the services are procuring the communications system.

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Recently the Army reviewed its communications architecture to ensure that it was obtaining the proper combination of equipment for its battlefield requirements. In particular, experts studied the Joint Tactical Communications Program (TRI–TAC), a joint service and DOD program for developing and fielding tactical, multichannel switch communications. The TRI–TAC family consists of automated digital telephone and message switches, secure and unsecured telephones, multichannel radio transmission equipment, automated control facilities, tactical data and facsimile terminals, and a variety of associated items that are required to replace the obsolete, unsecured, manpower-intensive, manual communications equipment currently in the field.

To achieve a measure of interoperability with TRI–TAC, combat net radios, commercial telephone, and NATO systems, the Army is fielding a secure static and mobile voice/data/facsimile service to principal commanders and key staff officers. The system, the Mobile Subscriber Equipment (MSE), is an area communications system that will enable division commanders to communicate with command and control troops on the battlefield on a secure, flexible, mobile communications system. The FY 1987 MSE request is for equipment destined for the first operational corps and division units at Fort Hood, Texas. The MSE acquisition program shortens the acquisition cycle by using a nondevelopmental strategy. Instead of an extensive research and development (R&D) effort, full use is made of existing, proven technology developed by our NATO allies. This avoids the significant costs in time and money involved in the R&D phase of acquisition.

The Army is updating its Maneuver Control System (MCS) for its deep operations. This automated command and control system allows tactical commanders and their staffs to employ computers in their decision-making process. With secure, automated assistance, the intelligence officer and other principal staff members will be able to meet the informational needs of commanders expeditiously.

The Defense Satellite Communications System (DSCS) was established to provide global transmission media to satisfy unique and vital communications requirements. DSCS is acquiring automated equipment to implement the DSCS operational control segment (DOCS), which will enhance overall system performance. The Army's contribution to the joint program will consist of developing and procuring ground terminals, control systems, and ancillary equipment.

The Army is modernizing its air, ground, and missile systems to defend corps and theater areas and protect the forward-deployed

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units. The cancellation of the division air defense (DIVAD) program resulted in a major reassessment of air defense requirements in the forward area. The lessons learned from the DIVAD experience indicated that one weapon alone, or even multiple weapons acting independently, cannot defeat the air threat. The Forward Air Defense System (FAADS) is an integrated program of complementary systems which will provide Army divisions with dedicated air defense artillery (ADA) and integrated joint and combined arms efforts to counter the threat. Ongoing Army programs are being combined with new technology to blend weapons, sensors, and a command, control, and intelligence architecture in a single system designed to counter the entire spectrum of the air threat to the forward area into the next century. The FAADS concept is designed to fortify the division area by depriving the enemy of its preferred attack options. The strategy relies on nondevelopmental items (NDI) and preplanned product improvements (P3I) to compensate for deficiencies in air defense.

FAADS consist of five components: Line of Sight–Forward Heavy (LOS–F–H), the Air Defense Anti-Tank System (ADATS); Line of Sight–Rear (LOS–R), the Avenger missile system; Non-Line of Sight (NLOS); FAAD command, control, and intelligence (FAAD C2I); and combined arms initiatives (CAI). The LOS–F–H is designed to destroy enemy fixed-wing and rotary-wing aircraft before they can engage friendly forces. Martin Marietta's ADATS was selected through competitive testing to fill the LOS–F–H role.

LOS–R is a missile/gun system mounted on the HMMWV. LOS–R provides a weighted, area defense against the air threat to the brigade and division rear areas. Also known as Pedestal Mounted Stinger, this system uses the proven Stinger missile and a .50-caliber machine gun. Boeing's Avenger, selected to perform this role, provides a shoot-on-the-move, soldier-friendly solution to the LOS–R requirements.

The NLOS weapon is a precision guided missile that depends on a fiber optic cable to transmit seeker images to aid and control the vehicle and transmit commands to the missile. The FOG–M enables the system to operate its long-range antihelicopter, antitank system that can eliminate hidden targets.

FAAD C2I integrates FAADS components into a synergistic system by providing targeting information, air situational intelligence, and information on air/battle management.

CAI provides ground and aerial combat elements an enhanced capability for self-defense against enemy helicopters. Air-to-air Stinger is in production for the OH–58C/D. The BFV sight reticle

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enhancement was incorporated into production in May 1987. Engineering development continues to concentrate on upgrading 120 tank ammunition to provide it with antihelicopter capability.

Stinger is a shoulder-fired, infrared homing missile system. Its mission is to provide air defense coverage to combat units. The basic Stinger model weighs approximately thirty-five pounds and replaces the older Redeye missile system because of its ability to attack faster moving targets and destroy aircraft by homing in on the heat emitted from the target. Like the Redeye, the Stinger is issued as a certified round of ammunition in a sealed, disposable launch tube requiring neither field testing nor maintenance.

A Stinger crew visually locates its target, electronically interrogates it to ascertain its status as friend or foe, and transmits the information to the gunner who locks in on the target. Ejecting Stinger from the launch tube is accomplished by pulling a trigger and activating a small launcher motor. Stinger travels a safe distance from the gunner, ignites the main engine, and propels itself toward the target.

Stinger variants are the Stinger-POST (passive optical seeker technique) and Stinger-RMP (reprogrammable microprocessor). The former has improved capabilities against infrared countermeasures. Produced in FY 1983, Stinger-POST was fielded September 1986. Stinger-RMP enhances further Stinger's infrared countermeasure capabilities and permits the guidance algorithm to be changed in response to the target. Stinger-RMP was developed in September 1984 and delivered in July 1987. This fiscal year, the Army purchased 4,000 Stinger-RMP missiles and completed development.

The Patriot is the Army's newest air defense system and the centerpiece of air and tactical ballistic missile defense. Patriot's fast reaction capability, great firepower, and ability to operate despite severe electronic countermeasures are the most innovative features of the missile system. The Patriot's simpler design allows it to fulfill its mission with less equipment and fewer people and repair parts than existing air defense systems. The automated system combines high-speed digital processing with various software to control airspace over the battleground. The single radar, using phased array technology, functions for airspace surveillance, target detection and tracking, and support of missile guidance. The only manned element of the fire unit during an air battle is the engagement control station, which provides for manual adjustment of automated operations. Each launcher contains four missiles, sealed in canisters, that serve as both shipping containers and launch tubes.

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To date, five Patriot battalions have been deployed with the Army in Europe with a sixth scheduled to deploy in early 1988. Germany and Holland acquired Patriots in a NATO-sponsored program to improve overall air defense. The first Patriots delivered to NATO units arrived in 1986, and discussions continue with other NATO allies who are interested in the system. A memorandum of understanding was concluded with Japan, which requested twenty-six fire units. The Japanese received their first deliveries in June 1987.

The mainstay of the Army's low- to medium-altitude air defense is the Hawk missile system, although Patriot will replace some Hawk units. Hawk is a mobile, all-weather, medium-range, surface-to-air guided missile that uses pulse and continuous-wave radar, navigation guidance, and semiactive terminal homing to defend against low- to medium-altitude enemy aircraft. First fielded in 1960, Hawk is a mobile, all-weather missile system providing vital air defense for critical installations and maneuver forces. Hawk units are being reorganized into a more streamlined and efficient fighting organization. Each firing platoon is composed of a platoon command post, an acquisition radar, a tracking radar, an optical tracking system, an Identification Friend or Foe (IFF) system, and three or four launchers each with three missiles. Hawk's latest improvement will provide a low-altitude, simultaneous engagement capability and enhanced electronic counter-countermeasures. Modifications to the Hawk have resulted in redesigned acquisition, tracking, and fire control equipment to enhance operator control. The revamped Hawk operates better than its predecessor against electronic countermeasures. The supply of data to the AN/TSQ–73 Missile Minder air defense command and control system has been improved to make target tracking more accurate. Increased firepower and reduced requirements for logistics support result from the modifications.

Chaparral is one of the Army's short-range air defense (SHORAD) surface-to-air missile systems. The self-propelled system is effective against all types of aircraft at low altitudes and provides protection for corps, theater rear, and division areas. Initially fielded in 1969, the Chaparral has been the beneficiary of an extensive improvements program, particularly a forward-looking, infrared (FLIR) night sight or a target acquisition device. The FLIR gives the gunner day, night, and some adverse weather acquisition capability at significant ranges. Its tracked carrier provides excellent cross-country mobility. The launch station can be removed from the carrier and operated from a ground emplacement. The

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missile itself has undergone frequent improvements, the latest of which is the rosette scan seeker (RSS) missile, which entered production this fiscal year. The RSS improved guidance system makes it 50 percent more effective against infrared countermeasures. Other improvements include a target-detecting IFF subsystem, smokeless rocket motors, hardened optics, and reliability improvements. In 1985 a towed version for the light forces was introduced. During the interval the ARNG received Chaparral as a part of its modernization program. Improvements to the system are continual, and the system is expected to remain in the inventory into the twenty-first century.

The Product Improved Vulcan Air Defense System (PIVADS) was developed to enhance tracking, correct sight anomalies, and increase maintainability and availability of the existing 20-mm. Vulcan air defense gun. Improved director sights and the analog computer with digital fire control electronics enhance weapon performance. A contract for 2,585 PIVADS kits was signed, and modifications began this fiscal year.

The M9 Armored Combat Earthmover (ACE) is a highly mobile tracked, amphibious, armored earthmoving vehicle that can move, survive, and work with the flow of battle. In rear area operations, ACE assembles and moves troops and prepares positions on the modern battlefield. Empty, the M9 ACE weighs 36,000 pounds; loaded 54,000 pounds, with a speed of thirty miles per hour. The C–130, C–141B, or C–5B aircraft can transport the earthmover.

The ACE can destroy enemy obstacles, create obstacles to enemy maneuver, prepare fighting positions for combat forces, and maintain roads and supply routes for friendly forces. ACE's role is to assure that friendly force momentum is maintained, that enemy forces are slowed, channelized, and more susceptible to friendly fire in the defense, while providing protected positions from which troops can fight. The mobile (tracked), amphibious, light armored capabilities empower the earthmover with the ability to fight with the infantry while maintaining the speed required to move with the tanks. This fiscal year, the Army purchased 21 ACEs, deploying 3 to TRADOC in September 1986 and 7 to the 7th Infantry Division (Light) in November 1986. The full complement of vehicles is scheduled to be delivered in February 1988.

Using the variety of technological innovations described in this section, the Army has continued its quest to equip itself with a balanced program in preparation for warfare with its most formidable rival, the Soviet Union. No attempt has been made to outproduce the USSR. Instead the Army has striven to improve the quality of

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its weapons to equip its personnel with state-of-the-art weaponry. Thus, the Army has improved the lethality, mobility, surveillance, and target acquisition of its weapons and, in the process, has moved toward an electronic battlefield that demands that the individual soldier's responsibilities increase together with a greater, yet more effective, span of control.

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6

Mobilizing, Deploying, and Sustaining the Army

The success of the Army in staffing, training, and equipping combat and support forces to the high degree of proficiency needed to deter or to defeat potential enemies must be matched by the Army's ability to mobilize, deploy, and sustain those forces in the field. The following discussion describes briefly the Army's progress in mobilizing, deploying, and sustaining its troops during this fiscal year.

Mobilizing for war or national emergency involves planning and continually refining the policies and procedures to ensure that adequate manpower and logistics arrive in theater at the required place and the proper time. Included in the mobilization process are the obligation to support and provide adequate manpower through the use of the augmentation and preassignment programs as well as the Retiree Mobilization Preassignment and Recall Program (recall program); participating in and preparing for mobilization exercises; and improving mobilization and training bases.

A major mobilization concern continues to be the availability of trained active and reserve Army units in sufficient quantities which will fulfill Army requirements during the early days of deployment. The U.S. Army retiree, the IRR, and IMA program are key elements in satisfying this requirement.

Army retirees (Regular Army, Army of the United States, USAR, ARNG) are assigned to three categories. Category I consists of persons (nondisability) under age 60 (62 for warrant officers) who have been retired for less than five years. Category II consists of persons with the same qualifications as Category I who have been retired longer than five years. Category III includes persons who retired as a result of a physical disability as well as retirees who are unqualified for either Category I or II. Of the more than 532,000 retirees, over 232,000 are assigned to categories I and II and are eligible to receive *involuntary* mobilization preassignment (hip pocket) orders under the recall program. These preassignment orders tell the retirees when and where they are to report for active duty during a national emergency and a mobilization of the

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forces. The selection of retirees to receive hip pocket orders is based on the grade and skill requirements at the 56 mobilization stations in the United States. Not all eligible retirees receive orders, as there are more retirees than there are requirements at the installations. The program also allows the retiree to volunteer for assignment to an installation of his or her choice, provided there is a suitable vacancy at the installation. Of the more than 232,000 retiree assets, over 122,000 have been issued preassignment orders. This figure includes more than 6,700 volunteers from all three categories and over 3,400 retirees who reside overseas and are assigned to reporting stations in Europe and Korea.

To evaluate the health and measure the proficiency of its Retiree Recall Program, the Army conducted its third annual test of the group during October and November 1986. This examination, Exercise CERTAIN SAGE 87, tested the readiness of approximately 1,000 retirees at 18 installations and activities within CONUS. During the exercise, retirees were processed into the Army, physically examined, and assigned to duty positions where they worked and were evaluated for 3 to 12 days in a job compatible to their MOS and comparable to a job in which they would be assigned during an actual emergency. Basing their evaluation on their performance, the Army updated the personnel files to reflect changes in retirees' job skills and availability. Other objectives of CERTAIN SAGE were to allow participating installations internal evaluation of their management of the retiree recall program; rate the in-processing procedures at the installation level; test the post-mobilization training of recalled retiree; and assess the medical condition of the recalled retirees. FORSCOM participants in this exercise included 180 retirees and 10 installations that included First U.S. Army and Fort Meade, Maryland; Second U.S. Army and Fort Gillem, Georgia; Fourth U.S. Army and Fort Sheridan, Illinois; Sixth U.S. Army and the Presidio of San Francisco, California; and such separate installations as Fort Hood, Texas; Fort McPherson, Georgia; Fort Ord, California; and Fort Polk, Louisiana.

The IRR is the largest source of trained manpower that the Army expects to mobilize during an emergency. This year, the Army screened its 287,459 IRR members to determine their availability and readiness. In the first mandatory mobilization tests of this group, the Army required personnel to report to the nearest of approximately 2,000 recruiting stations across the country for one day of testing, during the birth month of the individual member. Before the IRR screen, participants were obligated to inform the Army only about changes in their address or status. Three categories were exempted: (1) members within 120 days of ending

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their service obligation, (2) members living overseas, and (3) members who lived more than 100 miles from the nearest recruiting station. By the end of this year, more than 105,000 IRR soldiers were tested and their records revised to reflect additional civilian education or changes in their job skills. Of those examined, more than 95 percent or 99,750 of the 105,000 met medical standards.

The third and final group of military trained reserves who will be mobilized during an emergency are Selected Reserve members in the IMA. The program developed from the old Mobilization Designation Program in October 1981 when IRR members were reassigned to the Selected Reserve. As Selected Reservists, members were subject to be recalled to active duty by the president during a national emergency or declared war. Plans for recalling these persons or IMA participants to active duty require their incorporation into the various active component organizations much like the Selective Service System and the Federal Emergency Management Agency (FEMA).

In the meantime, IMA members are preassigned to AC units and organizations. Participants also receive professional development training to develop or increase their proficiency. This year, IMA membership showed a slight increase from 13,060 in 1986 to 13,139.

In accordance with the Total Army force structure, the Army also expects to continue to rely on the ARNG during emergencies. The pool of 452,000 citizen-soldiers is becoming increasingly more valuable to the Total Army effort. Currently they provide the following proportions of the Army's total force: (1) combat divisions: 36 percent; (2) separate brigades: 67 percent; (3) engineer battalions: 41 percent; (4) special forces groups: 25 percent; (5) infantry battalions: 50 percent; (6)armored battalions: 44 percent; (7) armored cavalry regiments: 57 percent; (8) field artillery battalions: 50 percent; (9) air defense artillery battalions: 20 percent; and (10) attack helicopter battalions: 39 percent.

As an integral part of the Army, the ARNG has been participating in a multifaceted mobilization and deployment exercise program since 1978. This year's funds provided for over 700 mobilization and deployment exercises in which ARNG units were tested and evaluated on mobilization preparedness.

Deployment Capabilities

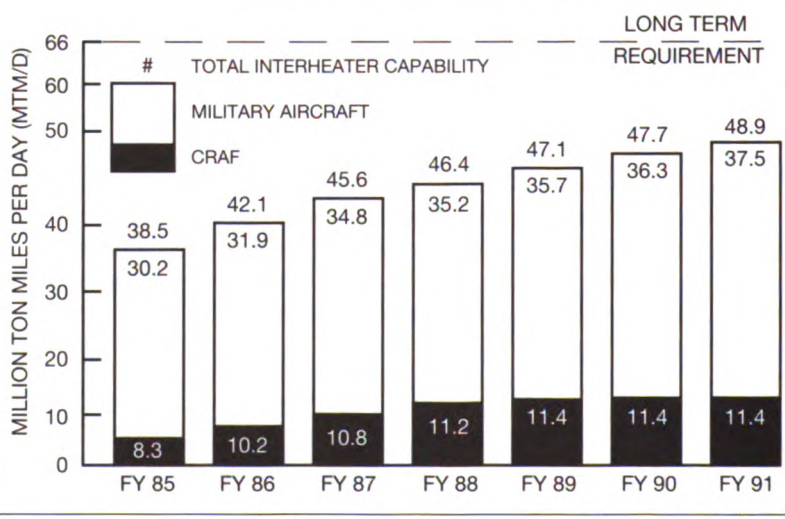
To counter the Warsaw Pact's growing ability to launch simultaneous offensives in Europe, Southwest Asia, and the Pacific, the United States' national long-term goal is the concurrent deployment of adequate forces to those three regions using air, sea, and

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rail transportation as necessary to move the force. For such occasions, the U.S. military services plan calling for mutual assistance to achieve strategic mobility and thus to deploy well-equipped and well-trained troops to the scene of battle. Memorandums of Agreement among the services embody these arrangements. As a result of these joint efforts, the Navy is fielding fast sealift ships, flatracks and seashed, the auxiliary crane ships, and the heavy lift pre-positioning and expanding the Ready Reserve force shortfalls, which the Army is programming discharge capability to match the Navy's delivery profile and satisfy the minimum logistics-over-the shore (LOTS) requirement. The Army program includes modernization and upgrading of the Army's watercraft and tugboat fleet and the joint acquisition with Navy of causeway systems designed to make watercraft more useful in those areas of the world where shallow beach gradients limit LOTS operations. Despite these coordinated efforts, progress in resolving the insufficient strategic lift capability remains slow, complicated, and expensive. U.S. Army efforts are further compounded by the continuing decline in the capability of the civil sector, primarily the U.S. Merchant Marine, to support wartime needs.

Adequate strategic airlift is most critical in the early days of a war or crisis. *Chart 1* illustrates projected strategic airlift program capabilities through FY 1991, expressed in millions of ton miles per day (MTM/D).

CHART 1—INTERTHEATER AIRLIFT

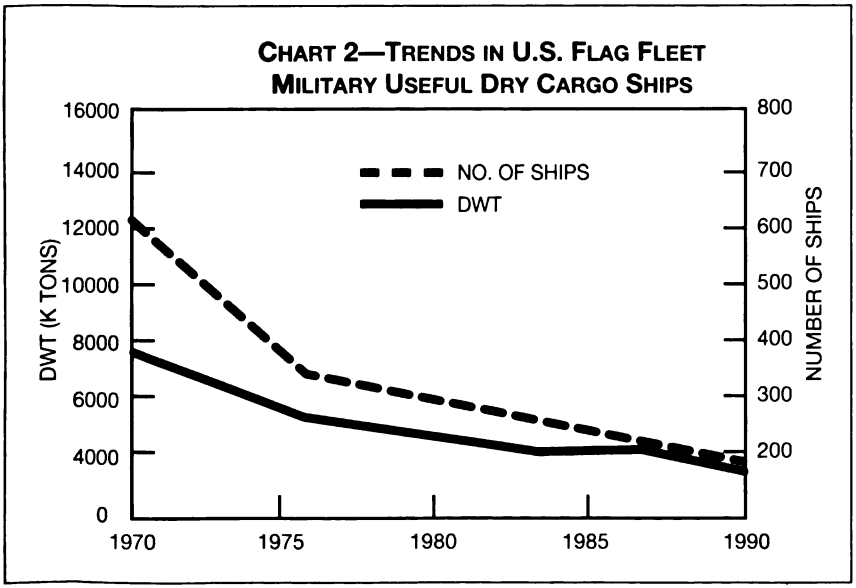


Source: *The Posture of the United States Army for Fiscal Year 1987.*

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The FY 1991 program will result in approximately 48 MTM/D of capability against a recognized extended requirement of 66 MTM/D. The resulting shortfall of approximately 18 MTM/D will be reduced significantly by fielding the C–17 aircraft which is scheduled for initial operating capability in FY 1992. In addition to reducing the overall strategic airlift capability, the aircraft will provide essential airlift capability, reduce the intratheater airlift shortfall, provide a needed replacement for the C–141, and augment the C–130 fleet. Future airlift capability will be improved by rewinging the C–5A fleet; acquiring 48 C–5Bs and 44 additional KC–10s; improving wartime aircraft utilization rates; extending the service life of existing aircraft; and limiting enhancement capabilities of the Civil Reserve Air Fleet.

Strategic sealift is critical to the deployment of Army forces and sustaining resupply of these forces. The decline of the Merchant Marine fleet, and the industry's trend toward containerization and away from more militarily useful roll-on/roll-off (RO/RO) and breakbulk shipping, require that the Army reevaluate the strategic sealift programs. *Chart 2* illustrates the decreased and diminished capacity of the Merchant Marine's militarily useful general cargo ship capacity from 1970 to 1987, with projections for subsequent years. With the Army's support, the Navy is responding to the Merchant Marine's quandary by using a combination of programmed

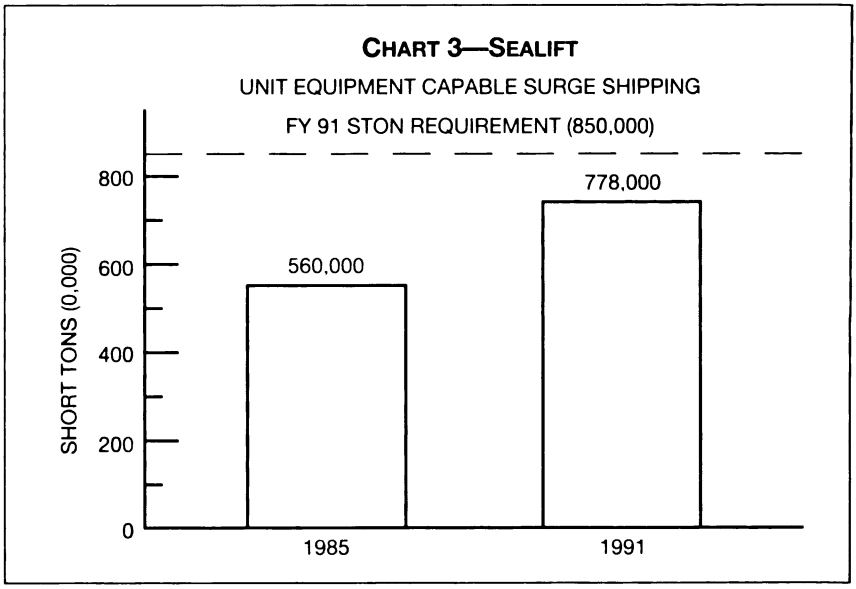


Source: *The Posture of the United States Army for Fiscal Year 1987.*

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increases for the Ready Reserve and enhancement programs which will allow container ships to modify and move unit equipment.

Chart 3 illustrates the potential impact of these programs on shipping by FY 1991. Two significant points must be noted. First, the Army is incapable of meeting its total surge requirement. Second, unless the Merchant Marine fleet's demise is halted, reversed, or new ideas are developed, the Army's capability will decline further.



Source: *The Posture of the United States Army for Fiscal Year 1987.*

Army programs are also intended to have a positive effect on overall mobility requirements. Most important in this category is the light division initiative. The light divisions are designed to be air deployable in fewer C–141B sorties than the standard infantry division design. Their rapid deployability and high combat-to-support ratio are characteristics that may permit the service to avoid deploying a larger, more expensive force in later years. The Army is aware also of the need to consider ease of transportability as a critical factor in new equipment design. Modernized equipment, regardless of its capabilities, is ineffective unless it can be transported efficiently to the necessary locations.

By decreasing the overall quantity of materiel requiring shipment, the Army's land- and sea-based pre-positioning program helps reduce the service's lift requirement. Pre-positioning combat

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service support equipment afloat in Southwest Asia was identified in a 1984 DOD Sealift Study as the only practical means for reducing early strategic lift requirements. Some of the afloat pre-positioning equipment will be configured to unload early arriving equipment and supplies being delivered by ships pre-positioned in the Indian Ocean as well as from ships arriving from CONUS. Most of this capability is provided by large, heavy equipment that is difficult to transport and therefore is pre-loaded on a heavy lift pre-positioning vessel. Such pre-positioned equipment provides a prompt LOTS necessary to unload materials in areas where port facilities are limited or nonexistent. The foregoing is designed to improve Army readiness to meet force closure requirements in the Southwest Asia region.

Finally, working under the auspices of an Army/Navy Memorandum of Agreement (MOA), programs to balance Navy strategic sealift and Army/Navy offload and discharge systems are well under way. Navy fielding of fast sealift ships, flatracks and seasheds, the auxiliary crane ships, the heavy lift pre-positioning ship, and the expansion of the Ready Reserve force have contributed to reducing strategic sealift shortfalls. These joint efforts produce efficient systems economically.

Failure to fund strategic mobility programs and cargo offload systems will restrict the United States' ability to meet its global commitments in a timely manner. Without significant strategic lift, Army effectiveness, as an instrument of national security policy, is greatly inhibited.

In addition to POMCUS, which has been described previously, the Army expects to use the Joint Deployment System (JDS) during a crisis. JDS is a crisis execution system specifically designed to support coordinated, time-sensitive deployment planning and execution. It has been developed in response to critical deficiencies identified in 1978 during major mobilization and deployment exercises that focused on the need for centralized deployment management.

The baseline JDS was released worldwide in September 1985. This marked the transition of JDS from a prototype to an operational system, and concluded a four-year developmental effort. Fielding the operational JDS provides the military with a powerful new capability to control and monitor the deployment of military forces. However, it also places additional manpower demands on commands and agencies involved in deployment planning and execution. Future demands for additional resources are expected as experience in JDS increases.

A major challenge exists to maximize peacetime, mobilization, and wartime transportation automation capabilities. As a result, a

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number of new transportation systems have been developed. Recent progress has seen the successful testing of the Transportation Coordinator Automated Command and Control Information System (TCACCIS) prototype, the Software Acceptance Test for the DA Standard Port System-Enhanced (DASPS–E), the initial capability for the Installation Transportation Office (ITO) and Military Transportation Management Command (MTMC) interface module of the MTMC's Crisis Action Management System (CAMS), and the beginning development of the Container Management System.

Fiscal year 1987 initiatives will focus on systems that will generate timely, critical management information and will reduce manpower requirements within the logistics arena. Both objectives will be served by the continued development of the TCACCIS, the Army standard version of the Automated Air Load Planning System (AALPS), the deployment of the Container Management System, the fielding of MTMC's Computerized Deployment System, the completion of the remaining modules of MTMC's CAMS, and the development of the DA Movements Management System-Redesign (DAMMS–R). Full funding of these programs during their development is critical to ensure continuity and timely fielding.

Sustainment

Sustainment is the Army's ability to marshal, transport, and distribute large quantities of materiel and equipment to maintain units engaged in hostilities. The ability of the Army to sustain combat operations depends on various factors that encompass multiservice and international obligations. These include commitment of national war reserves; host nation support (HNS); distribution of bulk petroleum; and depot maintenance.

War Reserves

The United States has established its war reserve stocks in strategic locations around the world to provide its NATO allies with an immediate supply of munitions, fuel, and other essential equipment and items that are necessary to wage a war during the initial days of battle when resupply can be arranged from CONUS. Although war reserve stockpiles have increased by almost 50 percent during the last few years, funding constraints coupled with a growth in requirements have prevented the Army from meeting its war reserve goals.

Army modernization and changes to the Army force structure require constant monitoring and adjustment of war reserve stock

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levels. Modernization provides newer, more effective equipment that enhances the weapons arsenal, but the changing equipment causes a need for a different variety of support items. The collection of new weapons, the maintenance of older equipment, and the need to sustain support items for both demand additional resources. Recent funding constraints, coupled with increasing and changing requirements, have prevented the Army from meeting its goal despite an improved war reserve posture.

One additional day of war reserve stocks costs about $1 billion. To achieve total war reserve stockage objectives based on funding alone, an overall investment of more than fifteen times the current funding is required. Such an outlay is clearly impossible without reductions throughout the rest of the force.

Host Nation Support

Sustainment is an important aspect of HNS, which includes much of the sealift needed to offset the continued decline in U.S. commercial sealift assets. To alleviate an extreme crisis in resupply during an emergency, NATO members have promised the United States a maximum of 600 ships for use in the rapid reinforcement of Europe. The Republic of Korea (ROK) has pledged to provide an additional forty-five ships to meet sustainment obligations on that peninsula.

Illustrative of HNS is the U.S./German wartime support arrangement that the two nations continued to develop in accordance with the implementation of a military technical agreement of 13 June 1986. As a result of this agreement, the Germans are activating their reserve units on schedule and will complete activation of 86 of the 100 reserve units or 43,662 of the approximately 50,000 mobilized personnel agreed upon by 1 January 1988. The U.S. Army also purchased several major weapons and equipment for the German units: 1,448 machine guns (7.62) with accessories, 21,071 camouflage systems, and most essential unit equipment sets to support activations through FY 1988. To date, the U.S. Army has spent $181.1 million on the agreement.

In the late 1970s, analysis of the evolving threat to Europe's Central Region concluded that NORTHAG would be defending against the most probable main attack of the Warsaw Pact. As a result, the United States agreed to reinforce this area outside the traditional U.S. area of operations. Concurrently, we made a national commitment to develop the capability to reinforce NATO with ten divisions within ten days. The Reichel Logistics Facility is ideally lo-

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cated and suited to provide a cost-effective logistical support coordination center necessary to accomplish reinforcement objectives in the NORTHAG region.

Congress has appropriated funds to transport and pre-position war materiel in the NORTHAG area and has authorized purchase of the Reichel facility. However, approval for obligation of funds has been withheld until completion of a study to determine the feasibility of closing or consolidating selected overseas facilities. Failure to purchase this facility precludes its full use and impedes the total process of development of the war plan. The Reichel facility also serves as a community support base for approximately 5,000 military personnel and family members in and around the Rheinberg community area. Present community facilities are woefully inadequate and Army personnel are experiencing substantial hardships. This project remains USAREUR's highest priority for military construction funding.

Distribution of Bulk Petroleum

Distribution of bulk petroleum is one of the most critical elements of readiness and sustainment. The Army is responsible for distributing petroleum to all services in every theater. One of the Army's missions related to this function is to maintain a flow of bulk fuels from a combination of offshore and pier-side tanker discharge systems through a network of onshore storage and distribution systems.

Petroleum distribution equipment in the Army Facilities Component System (AFCS) is 30 to 40 years old, labor intensive, and no longer commercially available. The Army is updating the AFCS and has programmed funds to improve petroleum products offload and inland distribution through use of commercially available equipment. The easily installed equipment is expected to increase unit productivity and reduce force structure shortfalls.

An Army-Navy work group has been established to coordinate joint procurement and field a common offshore petroleum discharge system including required documentation, doctrinal development, and integrated logistics support.

Testing of ship-to-shore undersea pipeline and commercially available single anchor leg mooring systems was completed successfully in July 1985. A full system demonstration, including timed test, was completed successfully in October 1985. The Army has budgeted for acquisition of these systems in FY 1986–87.

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Depot Maintenance

Depot maintenance activities provide for materiel overhaul, conversion, modification, repair, and renovation, as well as maintenance engineering, technical assistance, update of publications, and new equipment training for the Army. The unfinanced requirements (backlog) associated with the materiel portion of the program are defined as that portion of the total executable requirement that cannot be funded with available resources. This backlog of the current year is cumulative and becomes an integral part of the following year's requirement. There is no backlog, as such, related to the maintenance support activities portion of the program, which requires the restructuring of its total requirement yearly. The Army has made every effort to bring the depot maintenance activities program to a zero unfinanced requirement. This was achieved for the depot materiel maintenance program in FY 1982 and again in FY 1986. However, constraints in funding have made this goal unaffordable for FY 1987. Through the five-year period to FY 1991 the Army is attempting to achieve a minimum of 93 percent of the executable program requirements throughout these program years. The depot materiel maintenance unfunded requirements are strictly a function of funding versus requirements. There are no backlogs in the FY 1987–91 period generated by manpower shortfalls. The unfinanced requirements consist primarily of major end items. This is done to protect the repair of secondary items. The repair of secondary items provides more near-term readiness by ensuring that major items which can be repaired below depot level do not remain unserviceable for lack of major components. The FY 1987 budget holds the depot materiel maintenance unfinanced requirement at $93 million, 5.4 percent short of total requirement. The maintenance support activities are held at $340 million or 34 percent short of its FY 1987 total requirement. As new and more sophisticated equipment continues to be added to the Army's inventory to increase combat readiness and effectiveness, the total depot maintenance activity requirement continues to grow.

Failure to meet any of these obligations can make the difference between victory and defeat. Thus, to fight effectively with any combination of units, Army forces must field and service a well-operated combat service and support system that can be mobilized and deployed expeditiously and sustained indefinitely.

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7

Organization, Management, and Budget

On 1 October 1986, the enactment of the DOD Reorganization Act launched the most comprehensive reorganization of the Defense Department since 1947. Four of the six chapters imposed or recommended a variety of organizational and procedural changes upon the military establishment to strengthen civilian authority; improve military advice to the President, the National Security Council, and the Secretary of Defense; improve joint officer management policies; and otherwise enhance the effectiveness of the DOD administration. Titles IV, V, and VI of the law addressed Joint Officer Personnel Policy, clarified the roles of the respective service secretaries and chiefs of staff, provided for changes in the headquarters staffs of the military departments, and required the various offices to eliminate duplicative staff work. Title IV created a new officer classification of Joint Specialty Officer (JSO), which was to fill critical positions on the Joint Duty Assignment List (JDAL) of JSO members and nominees. The Army share of JDAL was 390 of a total of 1,000. The new law provided the Secretary of Defense with specific criteria by which to measure the quality of officers being assigned to the Joint Staff, including the directive that service in a joint duty assignment was a prerequisite for promotion to brigadier general rank. Exceptions, however, were authorized by the Secretary of Defense under certain conditions. In the meantime, the law provided milestones for the two-year transition period (1 January 1987–1 October 1988) that addressed tour lengths, Joint Professional Military Education, promotions, JDAL, career guidelines, and Secretary of Defense authority to award JSO under waiver provisions. Enactment of Title IV transformed the Army's method of managing its officers such that some areas, like the combat arms, an already rigorous schedule was further laden with the requirement to include extra joint service work in order to remain competitive and to qualify as future general officers.

Title V clarified the roles of the respective service secretaries and chiefs of staffs. This section mandated a 15 percent reduction of headquarters personnel (including general officers) by 1 October 1988. Title VI identified personnel cuts for management head-

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quarters activities in the military departments, combatant commands, and Defense Department agencies and field activities that also must be implemented by October 1989, and outlined certain changes to the headquarters staffs of the military departments.

Included in the DOD Reorganization Act was the stipulation that the services centralize the management of eight functional areas—public affairs, legislative liaison, inspector general, auditing, acquisition, research and development, comptroller (financial management), and information management—within their secretariats. The law required that these areas be integrated into the service secretariats by 1 April 1987 and that the armed services report to Congress on other particulars of the law by 1 May 1987.

To comply with these deadlines, Secretary of the Army Marsh established the Secretary of the Army Reorganization Commission (SARC) to develop a plan to implement the many changes that were either required or implied by the 1986 Reorganization Act. Secretary Marsh and General Wickham appointed SARC's cochairmen, the Honorable Michael P. W. Stone, Assistant Secretary of the Army (Financial Management) (ASA[FM]), and Lt. Gen. Max W. Noah, Comptroller of the Army (COA). The chairmen selected the following principal commission members: Mr. Jack E. Hobbs, Office of the Assistant Secretary of the Army for Research, Development, and Acquisition (ASA[RDA]), to direct the reorganization study group; Col. Theodore (Ted) G. Stroup, Executive to the Army Vice Chief of Staff and deputy to Mr. Hobbs; Mr. Milton H. Hamilton, Administrative Assistant to the Secretary of the Army, as director of the group to deal with Titles I through IV of the law; and Brig. Gen. Lynn Hooper, Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS), deputy to Mr. Hamilton.

To conform with its congressional tasking, SARC created the Headquarters, Department of the Army, Study Group consisting of Secretary Marsh, General Wickham, Mr. Stone, General Noah, Mr. Hobbs, and Colonel Stroup along with nine officers and five civilians from the Secretariat and the Army Staff. Its task was to identify the pertinent functional areas and design implementation plans for restructuring the Army in accordance with the act.

After extensive analysis and deliberation by SARC and the study group, Secretary Marsh and General Wickham determined how best to restructure the Army in harmony with the act. The following sections outline the Army's effort to comply with its congressional mandate using the advice of SARC and the study group.

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Organization

As a result of the 1986 DOD Reorganization Act, the Army is instituting a new managerial structure that is expected to significantly improve Army efficiency and effectiveness. Army conformity with the act required the centralization of eight functional areas under the Secretariat. Because the offices of Public Affairs and Legislative Liaison already resided on the Secretariat, no change in their status was necessary. Both the Inspector General and the Auditor General were moved from the Army Staff to the Secretariat without any major change in internal organization or function. However, more fundamental changes were required in other areas. For example, in the area of acquisition and research and development, the Army merged the Office of the Deputy Chief of Staff for Research, Development, and Acquisition (ODCSRDA) into ASA(RDA). This move resulted in the redesignation of ODCSRDA as the military deputy to the ASA(RDA). In addition, the Under Secretary of the Army became the Army Acquisition Executive (AAE) with responsibility for implementing the Program Executive Officer (PEO) System for the management of Army materiel acquisition programs.

In the area of financial management, the Office of the Comptroller of the Army (OCA) merged with the ASA(FM). The comptroller retained the title of Comptroller. In the enlarged office, the ASA(FM) retained most of the earlier functions and absorbed all those formerly performed by the Comptroller's Office, except for efficiency programs, information management, and installation management. To improve the Army's budget process, the Secretary of the Army and the Army Chief of Staff approved the establishment of a consolidated Army Budget Office in December 1986.

The Assistant Chief of Staff for Information Management (ACSIM) moved from the Army Staff to the Secretariat and acquired the title of Director of Information Systems for Command, Control, Communications, and Computers (DISC4). The DISC4 assumed two functions formerly held by the ASA(FM): (1) formulation of the information management strategic direction and management plan; and (2) the acquisition of information management technology and services.

After shifting responsibility from the Army Staff to the Secretariat in the aforementioned functional areas, the Department of the Army made other organizational changes in response to the act. Administrative support for the Offices of the Secretary of the Army and the Army Chief of Staff were combined under the Administrative Assistant in the Army Secretariat. The action consolidated the agencies' budgets for civilian personnel management, in-

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formation management, mailroom, and staff action control office operations. In another change to the staff, General Wickham transferred the Army Safety Office and the Army Safety Center from the Office, Deputy Chief of Staff for Personnel (ODCSPER), to the Office, Chief of Staff of the Army. Subsequently, the Director of Army Safety also became the Commander of the Army Safety Center.

Upon being transferred to the Army Secretariat, the Comptroller of the Army relinquished primary Army Staff responsibility for installation management policy to the Management Directorate, Director of the Army Staff. The Army also moved the Army Reserve Forces Policy Committee from the Army Staff to the Secretariat and transferred the Procurement, Fraud, and Litigation divisions of the Office of the Judge Advocate General (OTJAG) to the Army Legal Services Agency.

In keeping with the Reorganization Act's reaffirmation of the service secretaries' authority over intelligence activities, the Army upgraded the position of Assistant Chief of Staff for Intelligence (ACSI) to Deputy Chief of Staff for Intelligence (DCSINT) and reassigned current intelligence from the Directorate of Foreign Intelligence, Office of the Deputy Chief of Staff for Intelligence (ODCSINT), to the Army Intelligence Agency (AIA).

Because the act separated the functional areas of acquisition and logistics under the Army Staff, the Army transferred its Contracting Directorate from the Office of the Deputy Chief of Staff for Logistics (ODCSLOG) to ASA(RDA). Management of conventional ammunition was centralized at Headquarters, Army Materiel Command (AMC).

In the realm of personnel management, the U.S. Army Military Personnel Center (MILPERCEN) was a field operating agency of ODCSPER. MILPERCEN is commanded by a major general and consists of five directorates—enlisted, officer, civilian, personnel service support, and mobilization and operations. The Secretary of the Army and the Army Chief of Staff also disestablished the Adjutant General Center (TAGCEN) and reassigned its remaining responsibilities to the Armed Forces Courier Service, the Joint Service Environmental Support Group, and control of Army unit designation to other Defense Department agencies. The title of The Adjutant General (TAG), however, continued in the person of the Chief, Personnel Services Support Directorate of MILPERCEN. These moves completed the realignment of the Adjutant General's functions begun prior to the passage of the DOD Reorganization Act.

Institutional training and training support activities changed from ODCSOPS to TRADOC. This shift was in keeping with the Re-

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organization Act's general goal of limiting headquarters organizations to policy formulation and oversight while shifting operational and policy execution matters to the field. Included in this transfer was responsibility for the training career program, the training literature program, audiovisual support for training, officer course quota management, interservice training review organization, joint training for command and control systems, and the automated instructional management system. Similar concerns over the division of responsibility between HQDA and the field led the Army to transfer one-third of the Surgeon General's staff to field agencies, while the Corps of Engineers (COE) transferred some of its technical aspects of housing and facilities management to field operating agencies within the Military District of Washington (MDW).

In continuing the congressionally mandated realignments, the Army instituted a number of changes involving its forces in the field. Certain changes included the reassignment of the unified and specified commands which the *Department of Defense Dictionary of Military and Associated Terms* (JCS Pub. 1), 1 June 1987, defines as follows:

unified command—(DOD) A command with a broad continuing mission under a single commander and composed of significant assigned components of two or more Services, and which is established and so designated by the President, through the Secretary of Defense with the advice and assistance of the Joint Chiefs of Staff, or, when so authorized by the Joint Chiefs of Staff, by a commander of an existing unified command established by the President.

specified command—(DOD) A command that has a broad continuing mission and that is established and so designated by the President through the Secretary of Defense with the advice and assistance of the Joint Chiefs of Staff. It normally is composed of forces from but one Service.

A major change for the Army included designating FORSCOM as a specified command. The change altered both the scope and the nature of FORSCOM which continued to serve as a Major Army Command (MACOM) while assuming its new position as a specified command. Thus, as a MACOM, FORSCOM continued to perform all of the following missions:

1. To maintain combat-ready Active Army and USAR units in the United States.
2. To supervise training and monitoring the readiness of the Army National Guard units.
3. To serve as the Army component of the U.S. Atlantic Command (USLANTCOM), the unified command with responsibility for defense of the Atlantic region.

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4. To provide the Third U.S. Army element as the Army component of the USCENTCOM, which has area responsibility for Southwest Asia.

As a newly created specified command, FORSCOM added the following missions:

1. To provide a general reserve of combat-ready conventional Army forces for the strategic reinforcement of other unified and specified commands worldwide.
2. To provide for the joint training of designated forces.
3. To provide for contingency planning and forces to assist civil authorities in protecting key CONUS assets, facilities, and functions that are essential to mobilize, deploy, and sustain U.S. military forces.
4. To plan for military support of civil defense, the land defense of Alaska (excluding the Aleutians), the combined land defense of the United States and Canada, and the land defense of the continental United States.

FORSCOM Commander, General Joseph T. Palastra, Jr., assessed his command's new duties as follows:

> This new role calls for FORSCOM to assume a joint command relationship with the continental U.S. armies (CONUSAs) and the state area commands (STARCs) of the reserve components, particularly in the preparation and implementation of operational plans for the land defense of most of North America. There is also clearly an increase in our interaction with the other services, particularly as we inherit the responsibility from REDCOM to conduct joint training exercises. Joint operations, while important before, are even more critical for FORSCOM's new role as a specified command.

In support of these missions, FORSCOM continues to manage widespread and extensive resources. FORSCOM's real estate includes nineteen major installations and twenty-one subinstallations in CONUS, Alaska, Puerto Rico, and the Virgin Islands. In the area of personnel, it is responsible for the mobilization readiness and training of nearly one million soldiers, including the Active Army, the Army Reserve, and Army National Guard.

The major active component strength of the command includes Third U.S. Army; 5 CONUSAs (First, Second, Fourth, Fifth, and Sixth U.S. Army); 1st Special Forces Command; 3 corps; 12 divisions; and 4 separate brigade-size units. They are organized as follows:

Third U.S. Army is an operational field army commanded by the deputy commanding general of FORSCOM. As such, it is the

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Army component headquarters for the USCENTCOM, responsible for military operations in the Southwest Asian theater.

The continental U.S. armies(CONUSAs) are the extension of the command chain from Headquarters, FORSCOM, to all USAR elements in CONUS, Alaska, Puerto Rico, and the Virgin Islands. Additionally, they supervise and evaluate the training and monitor the readiness of the ARNG units within their geographic areas of responsibility.

The 1st Special Operations Command (1st SOCOM), mentioned elsewhere in this summary, remains a major subordinate command of FORSCOM, with command of Active Army SOF and operational control (OPCON) of USAR SOF. Under joint command guidelines, FORSCOM retains command of Army SOF, including the ARNG, upon mobilization.

The three corps are I Corps at Fort Lewis, Washington; III Corps at Fort Hood, Texas; and XVIII Airborne Corps at Fort Bragg, North Carolina. Each corps force package is a complete entity and is based on the most likely threat to be confronted in its intended theater of operations. The corps exercise training and operational supervision of the divisions and separate brigades within their respective force packages during peacetime.

The Army also took the opportunity during the reorganization of 1986–87 to clarify the roles and missions of headquarters agencies. For example, the Secretary of the Army and Army Chief of Staff reaffirmed the role of the ODCSOPS as coordinator of the force development and integration function and authorized additional personnel to properly administer the area. In addition, the Army defined the role of the Deputy Under Secretary of the Army, Operations Research, as the proponent on the Secretariat for policy and oversight of operational testing by having these duties specified in Army Regulation (AR) 10–5, *Headquarters, Department of the Army, Organization and Functions.* Finally, the Reorganization Act bestowed statutory authority upon the position of Department of the Army General Counsel.

The adjustments in organization brought about by the Reorganization Act were accompanied by significant personnel changes. Title V set the maximum strength of civilian and military personnel in the Secretariat and Army Staff at 3,105 spaces. This represented a 15 percent reduction greater than previous levels. Commissioned officer active duty strength for the Secretariat and Army Staff was limited further to 1,865 during peacetime. Congress also directed other personnel cuts at management headquarters throughout DOD in Title VI of the act. The object of these reduc-

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tions was to streamline management overhead and to encourage the movement of operational duties out of headquarters organizations and into the field. Thus, Congress hoped to focus the attention of military headquarters on policy concerns and not day-to-day operational details.

Major personnel changes that were made during this fiscal year included the retirement of General Wickham on 22 June 1987. He had served as Army Chief of Staff since 23 July 1983. His successor, General Carl E. Vuono, assumed the position of U.S. Army Chief of Staff on 23 June 1987. In other personnel changes, General Bernard W. Rogers, commander of U.S. and NATO forces, retired on 30 June 1987. His replacement is General John R. Galvin, the commander of the USSOUTHCOM. Other significant personnel changes included General Louis C. Menetrey's replacement of General William Livesey as commander of the U.S./South Korean forces in June 1987; and promotion of Julius W. Gates to Sergeant Major of the Army (SMA) on 1 July 1987, replacing SMA Glen E. Morrell who retired after twenty-eight years of service.

Management

The 1986 Reorganization Act expanded the management role of the service secretaries, giving them sole managerial responsibility in seven areas: acquisition, auditing, comptroller and financial management, information management, inspector general, legislative affairs, and public affairs. Gains were made in each of these areas, and major improvements came in the realms of acquisition and information management.

The Department of Defense's mismanagement of the acquisition process had already attracted national attention as a result of a series of procurement scandals. To examine the problems and explore solutions, the President established a Blue Ribbon Commission on Defense Management (commonly known as the Packard Commission), which concluded that the DOD procurement/acquisition function was unduly laden with a host of other problems that could be remedied by streamlining acquisition organizations and procedures; employing technology to reduce costs; and balancing costs and performance.

President Reagan responded to the Packard Commission's call for change with his National Security Decision Directive 219 of 1 April 1986, creating an Under Secretary of Defense for Acquisition, who would supervise the acquisition process.

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Improving the acquisition function was further addressed in Title V of the Reorganization Act which mandated that acquisition be separated from research, development, and logistics and placed under the sole custody of the Secretary of the Army.

The Army's implementation of the PEO system began with DOD's plans to introduce some thirty-two initiatives that will foster competition in procurement. They will also maintain a fixed price with contractors rather than permit the annual negotiation of prices that are frequently regulated by rising inflation and labor costs. Thus, the Army expects to realize savings by negotiating contracts at a minimum of every other year.

The Army's acquisition process is also expected to benefit from its newly instituted plan to appoint 20–25 PEOs to oversee the Army's various acquisition programs. The PEOs will be the link between program managers and the service's Acquisition Executive, Under Secretary Ambrose, and Deputy Acquisition Executive, Jay Richard Sculley, who is currently the Assistant Secretary for Research, Development, and Acquisition. PEOs reporting to Dr. Sculley and Mr. Ambrose will be designated along functional lines, including armaments, aviation, and tactical missiles.

To prevent abuses and further enhance the acquisition process, the Defense Department and the Army in particular are broadening the list of contractors to attract a wider variety of competitive bidders. The Army is also expecting to reap financial benefits from its newly enacted policy of purchasing spare parts directly from the manufacturers and by buying off-the-shelf items instead of customizing items according to detailed specifications to ensure greater durability in combat. As a result of criticism by the Packard Commission and congressional agreement, the 1987 Authorization Act requires DOD to buy off-the-shelf products when possible. This change is expected to result in substantial savings without compromising unit efficiency or readiness.

The Army acted also to strengthen its information management capability. Thus, the Army has joined its sister services in inaugurating a new DOD policy requiring that computers controlling U.S. weapons use a single software to program new armament systems. Institution of this language, dubbed Ada, will cost the Army approximately $100 million over a five-year period. The contractor for the program is TRW, Inc., Federal Systems Division, who has agreed to convert the Army's 8 million lines of Fortran and Cobol to Ada for use in the service's Worldwide Military Command and Control System (WWMCCS). TRW plans to design and test a subsystem, setting the foundation for deployment of Ada

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into WWMCCS. Completion of the project then will require construction of an entirely new WWMCCS operating environment that will make Ada more user friendly.

The Army's information management system expects to benefit from the agency's recent acquisition of its second Cray–2 manufactured super computer in two years. The Cray Research, Inc., super computers will be operational at the Ballistic Research Laboratory (BRL), Aberdeen Proving Ground, Maryland, in August 1987 and at the Tank Automotive Command (TACOM), Warren, Michigan, in March 1988, respectively. Since 3 November 1986, the Army has leased the Cray XMP48 for BRL using FY 1986 research, development, test, and evaluation (RDTE) funds. Like the Cray XMP48, both of the other super computers will be used in weapons and automotive design, battlefield simulation, and civil engineering. Using its extraordinary capacity to operate at a speed of 840 million instructions per second (each unit contains 750,000 individual chips) the Cray–2 computers are expected to provide the Army with greater processing speed and more interactive graphics capabilities than the Army has previously enjoyed. Funding for this program will cost the Army approximately $23.6 million of its FY 1987 funds.

To improve the information management system in Europe, the Army exported its Tactical Army Combat Service Support Computer System (TACCS) to the 1st Armored Division in Germany. This powerful microcomputer system provides the unit with the computing power that is usually available only using a fixed site minicomputer system. Prior to this fielding, TACCS was available only to the 24th Infantry Division, Fort Stewart, Georgia; 7th Infantry Division (Light) Fort Ord, California; and 9th Infantry Division and I Corps, Fort Lewis, Washington.

The Assistant Army Chief of Public Affairs for Resource Management is the principal civilian adviser to the Army Chief of Public Affairs and the Secretariat on civilian issues and public affairs appropriations and information management systems. This officer is responsible for developing specific public affairs initiatives and formulating policy for career management of both military and civilian personnel. Additionally, the officer serves as the chief Secretary of the Army, Public Affairs (SAPA), representative for the career management program of the Public Affairs and Communications Media (PACM) Career Program; IMA manager; and supervisor of the Administrative and Professional Development branches.

During FY 1987, the Resource Management Chief attempted to resolve the issue of control and management of the career pro-

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gram for civilians in the audiovisual field and non–public affairs publications, technical writing, and editing fields. These positions were formerly the responsibility of PACM, but currently their functions fall under the newly created ACSIM. The Chief of Public Affairs and the other functional chiefs of the affected programs tentatively agreed that a separate career program should be established to cover several job series like those mentioned above that are related to information management. All agreed that affected civilians should be allowed to enter the new Information Management Program when it is established and can provide the same services currently offered under PACM.

The Army is seeking to develop ways to more safely and efficiently dispose of its chemical and hazardous materials that it currently stores in various sites. Portions of this waste material include nerve gases and various munitions that are still in the Army's chemical weapons inventory. Appropriate disposal of hazardous waste at Rocky Mountain Arsenal, Colorado, is being reviewed by a steering committee composed of representatives of the Department of the Army, the State of Colorado, the U.S. Environmental Protection Agency (EPA), and Shell Oil Company. The committee convened as a result of litigation between the federal government and Shell, and between the federal government and the State of Colorado. These actions are an important part of the contamination cleanup at the arsenal where cleanup costs are estimated at between $700 million and $1 billion.

Transporting hazardous waste continues to be a major concern to environmentalists who are troubled about whether the Army should destroy chemicals in their current sites or transport them to areas that include Johnston Atoll in the South Pacific for storage or destruction. A major element of the controversy stems from whether the chemicals can be moved safely through the sixteen to twenty states through which the chemicals must travel en route to the Pacific Coast for shipment to Johnston Atoll.

Budget

Fiscal year 1987 witnessed the effect of the cuts mandated by the Balanced Budget and Emergency Deficit Control Act of 1985 (the Gramm-Rudman-Hollings Act). This year the Army budget was $75 billion, almost $5 billion below the amount the Army requested. The most controversial cuts in the Army budget came from the elimination or curtailment of several of the Army's automatic data processing (ADP) programs. Additional Army budget

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cuts were made by eliminating almost three-fourths of the Army's Advanced Field Artillery Tactical Data System (AFATDS)—an automated system that, along with MCS, constitutes a major part of the Army Command and Control System.

During FY 1988, the Army is requesting funding for the purchase of additional super computing capacity to support the mission areas of high energy laser development, wargame simulation, force modeling, and earthquake analyses. Funding for these programs will allow the service to continue to meet its full potential in defending our national and international commitments.

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Special Functions

Civil Works is the collective title for the Corps of Engineers' program regulating water resources. The program includes a variety of activities that consist of planning, designing, constructing, operating, and maintaining facilities and managing real estate to develop the nation's essential water resources and improve its rivers, harbors, and waterways for navigation, flood control, hydroelectric power, recreation, fish and wildlife, and related purposes that are useful in both peace and wartime execution of its mission.

Significant Legislation

The Army's role in civil construction can be traced to 1824, when Congress, acting upon the recommendation of President James Monroe, passed the first Rivers and Harbors Act appropriating funds for COE use in clearing the Ohio and Mississippi rivers. Since that time, the development and maintenance of inland waterways and harbor channels has remained one of the Army's primary civil missions.

In addition to its civil construction function, the Civil Works program regulates the Corps' dredging activities. In 1972 and 1977, the 1899 law was broadened under the Clean Water Acts to include supervising the emission of dredged or fill material in wetlands and other aquatic environments. As a result of the Clean Water legislation, the Corps has dredging responsibility in a total of 400 ports in some of the nation's largest cities.

In 1986 the most significant law passed on behalf of the Civil Works program, Public Law (PL) 99–662, the Water Resources and Development Act, became effective. In addition to redefining the criteria for evaluating COE projects, the act established rules for sharing financial and intellectual (engineering) responsibility for COE projects with the private sector. The latter provision set a precedence for cost sharing with the community in recognition of mandatory federal budgetary constraints and the corresponding requirement for private dollars from communities that require COE assistance. Defined and described as cost sharing, the law generally designates the types of projects and percentage of cash that civilian sponsors are required to pay

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for COE constructed or maintained projects; for example, community sponsors are responsible for 100 percent of projects done exclusively for the community. These include the construction of hydroelectric power projects and municipal and industrial water supply projects.

Significant Accomplishments During FY 1987

The Corps continues its work of operating about 225 locks and maintaining some 12,000 miles of channels on the inland waterways, which carry one-tenth of the total U.S. intercity cargo. The agency is also responsible for building and maintaining channels at 105 major commercial harbors (2 million or more tons of commerce annually) and about 400 smaller harbors.

The Corps also operates a fleet of 19 dredges (4 seagoing) and over 2,000 other vessels, and contracts with private industry dredges to move annually about 350 million cubic yards of dredged material for construction and maintenance of navigation channels. This fiscal year, Civil Works performed approximately 270 million cubic yards of maintenance dredging at a cost of approximately $440 million. This includes dredging for the Mississippi River and Tributaries water resources development program in the Lower Mississippi Valley. Major new dredging construction starts this year include Baltimore Harbor, Maryland; Norfolk Harbor, Virginia; Kings Bay, Georgia; Kill Van Kull, New York; Mississippi River in Louisiana; and Mobile Harbor, Alabama.

Because of its navigation and flood control responsibility, COE projects produce annually almost 30 percent of the nation's hydropower or 3.5 percent of its total electric energy, at 70 locations. This year the Corps continued to maintain the 115 lakes for which the agency is responsible. Water from these lakes stores 275.2 million acre-feet of water for use in agricultural, municipal, and industrial pursuits. Additionally, COE continued operating the more than 2,000 recreation areas at its projects, while maintaining the leases on a vast number of properties that are being used by state, local, and private park developers.

In the performance of its responsibility to participate in reimbursable international technical projects, the Corps is assisting the Republic of Korea (ROK) by developing the Han River for navigational purposes. Authorization for such projects is granted under the 1961 Foreign Assistance Act and administered by the Department of State and the Agency for International Development. For such projects, the COE is technically an employee of the state government for which it works.

This year the Corps continued to discharge its obligation to provide emergency relief to civilians by administering emergency

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assistance and cooperating with federal, state, and local authorities during the flood of 1987. To prevent flooding by controlling the water distribution in the surrounding areas during this emergency, the reservoirs of the Corps' New England Division closed the gates on thirty-five of its dams on five major river basins. On two similar occasions this year, also as a result of two spring storms within five days, the New England Division's reservoirs stored nearly 275 billion gallons of water to prevent flooding to surrounding areas.

The thirty-six districts of the COE are authorized to assist civilian authorities during emergencies or natural disasters (i.e., floods, hurricanes, volcanic eruptions). During FY 1987, the Corps responded to a total of 48 flood-related situations and carried out 136 emergency repair operations at a combined cost of $31 million.

In connection with its flood control activities, the Corps dedicated a massive $206 million structure, which it constructed to regulate the flow of the Mississippi River into the nearby Atchafalaya River in May 1987. Known as the Old River Auxiliary Control Structure, the edifice reinforces the original control structures that regulate water distribution between the two rivers by channeling 70 percent of the water down the Mississippi River and funneling the remaining 30 percent up the Atchafalaya.

Appropriations for the Civil Works program in FY 1987 totaled $3.1 billion, an increase of $401 million from FY 1986. *Table 7* identifies the funding by title. A majority of the budget was allocated to specific projects identified under the category "General Investigations and Construction and Operation and Maintenance." *Tables 8–10* identify the projects for which this money was allocated.

TABLE 7—FY 1987 APPROPRIATIONS FOR CIVIL WORKS PROGRAM
(In millions)

	Amount
General Investigations	136.2
Construction, General	1,148.9
Operation and Maintenance, General	1,389.97
General Expenses	118.2
Flood Control, Mississippi River and Tributaries	310.8
Flood Control and Coastal Emergencies	10.0
Permanent Appropriations	10.9
Revolving Fund	12.0
Total	$3,136.97

SOURCE: *Secretary of the Army's Report on Civil Works Activities*, Fiscal Year 1987 (1 Oct 86–30 Sep 87), Vol I, p. 6.

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TABLE 8—GENERAL INVESTIGATIONS APPROPRIATION ACCOUNT
(In millions)

Individual Program Activity	FY 87 & Supplemental Appropriations
Surveys	58.1
Preconstruction Engineering and Design	42.4
Review for Deauthorization	0
Collection and Study of Basic Data	11.1
Coordination with Other Agencies	6.6
Research and Development	18.0
Total	136.2
River and Harbors Contributed Funds	8.0
Total	$144.2

SOURCE: *Secretary of the Army's Report on Civil Works Activities*, Fiscal Year 1987, Vol I, p. 7.

TABLE 9—CONSTRUCTION, GENERAL ACCOUNT
(In millions)

Program/Activity	Amount
Regular Construction	1,007.6
Major Rehabilitation, Dam Safety, Deficiency Correction	43.2
Continuing Authorities	54.8
Aquatic Plant Control	7.7
Employee Compensation	10.5
Inland Waterways Trust Fund	25.1
Total	$1,148.9

SOURCE: *Secretary of the Army's Report on Civil Works Activities*, Fiscal Year 1987, Vol I, p. 7.

TABLE 10—OPERATION AND MAINTENANCE, GENERAL
(In millions)

Activity	Amount
Navigation	812.6
Channels and Harbors	(557.4)
Locks and Dams	(255.2)
Flood Control	215.7
Reservoirs	(202.7)
Channel Improvements	(13.0)
Multiple Purpose	283.7
Protection of Navigation	70.2
National Emergency	0
National Emergency Preparedness Program	7.7
Total	$1,389.9

SOURCE: *Secretary of the Army's Report on Civil Works Activities*, Fiscal Year 1987, Vol I, p. 7.

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Security Assistance

In accordance with congressional legislation in effect at the time, the Army trained Nicaraguan commanders of contra troops on small unit tactics and weaponry at various locations in Central America and the United States.

Increased military cooperation between the United States and the People's Republic of China characterized Secretary of Defense Weinberger's visit to that country this year. Subsequent visits from the Chiefs of Staff of the respective U.S. Armed Forces followed.

Support to Other Agencies and Foreign Governments

This year the nation commemorated the 200th anniversary of the signing of the U.S. Constitution by convening a joint session of Congress in Philadelphia, Pennsylvania, from 15–16 July 1987. Moving both legislative houses to Philadelphia for the commemoration event required significant support from DOD. The Secretary of the Army was named the DOD Executive Agent for this activity, and the Directorate of Military Support (DMS) became the Executive Action Agent responsible for coordinating the logistics for the move with the other military services and the USAR representatives as well as for generally assisting Congress with transportation, security, communications, medical, and aviation resources.

In FY 1987, the Department of the Army contributed to the success of the Pan American Games by providing housing for the athletes at Fort Benjamin Harrison, Indiana, and subsequently serving as Executive Agency. The ASA(I&L) had oversight responsibility, while the Director of Military Support, DCSOPS, served as action agent whose primary responsibility was to assist law enforcement officials. Following the completion of the games and the departure of the athletes, over 60,000 pieces of equipment were recovered and transported to various federal organizations.

The Army continued to cooperate with national and international agencies to support U.S. drug interdiction efforts. In South and Central America, the United States extended its efforts to prevent drug traffickers from reaching the U.S. by committing approximately 150 U.S. Army personnel, including support personnel and six UH–60 helicopters, to Bolivia on 14 July 1986. Support for the Bolivian effort came from the USSOUTHCOM in Panama at the invitation of the Bolivian government and the behest of the U.S. Drug Enforcement Agency (DEA). The troops were expected to remain in Bolivia until 15 November 1986. The mission of these troops was to eradicate major cocaine production areas by fighting

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defoliation and transporting Bolivian Army troops to the northern and central parts of Bolivia.

Legislation authorizing DOD to support the drug interdiction effort became effective on 27 October 1986 under the Anti-Drug Abuse Act of 1986. The act authorized $40 million for use in purchasing eight UH–60 Black Hawk helicopters to be loaned to U.S. Customs. Of the amount appropriated, $18 million was used to provide four helicopters for this purpose. While implications of the statute are still evolving under the guidance of its lead agency, JCS, the law requires the Secretary of Defense to provide a list of additional assistance and a plan for lending appropriate equipment by 27 January 1987. The Secretary of Defense's list of support areas will include surveillance, reserve components, communications, intelligence, aviation, marine vessels, and land vehicles. Input to the Secretary of Defense's supported agencies will identify specific requirements, equipment availability, and readiness impacts that cannot be determined without this assistance. The report will demonstrate the cost of sealing U.S. borders to drugs in terms of its impact on readiness.

During this fiscal year, aviation elements of the Army continued to support Operation Bahamas (OPBAT) and Turks/Caicos Islands on a 24 hours per day, 7 days per week basis. OPBAT was initiated in 1982 when the Royal Bahamian Police Force requested assistance from the U.S. Government to stem the flow of drugs through the Bahamas. The operations consist of the Royal Bahamian Police Force, DEA, U.S. Customs Service, U.S. Coast Guard, and Turks and Caicos Islands Police with transportation assistance from U.S. Army UH–60 helicopters. The mission requires that these helicopters be furnished overwater equipment. DEA and Coast Guard personnel directed the OPBAT helicopter operations and coordinated all other interdiction operations in the Bahamas from the U.S. embassy in Nassau.

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Glossary

AAE	Army Acquisition Executive
AALPS	Automated Air Load Planning System
AAWS–H	Advanced antitank weapons system–heavy
AAWS–M	Advanced antitank weapons system–medium
AC	Active component
ACE	Armored combat earthmover
ACR	Armored cavalry regiment
ACSI	Assistant Chief of Staff for Intelligence
ACSIM	Assistant Chief of Staff for Information Management
ADA	Air defense artillery
ADATS	Air Defense Antitank System
ADP	Automatic data processing
ADT	Active duty training
AFATDS	Advanced Field Artillery Tactical Data System
AFCS	Army Facilities Component System
AHIP	Army Helicopter Improvement Program
AIA	Army Intelligence Agency
AMC	Army Materiel Command
AOE	Army of Excellence
APC	Armored personnel carrier
AR	Army Regulation
ARNG	Army National Guard
ARTBASS	Army Training Battle Simulation System
ASA (FM)	Assistant Secretary of the Army (Financial Management)
ASA (RDA)	Assistant Secretary of the Army (Research, Development, and Acquisition)
ASAS	All Source Analysis System
AT	Annual training
BFV	Bradley fighting vehicle
BNCOC	Basic Noncommissioned Officer Course
BRL	Ballistic Research Laboratory
CAI	Combined arms initiative

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CAMS	Crisis Action Management System
CAPSTONE	A procedure aligning reserve component units scheduled for Europe with their wartime chain of command
CAS^3	Combined Arms Services Staff School
CFC	Combined Forces Command
C–FLEX	Cobra Fleet Life Extension program
CFV	Cavalry fighting vehicle
CLU	Command and launch unit
CMH	Center of Military History, U.S. Army
COA	Comptroller of the Army
COE	Corps of Engineers
COHORT	Cohesion, operational readiness, and training units (traditional and sustained)
CONUS	Continental United States
CONUSA	Continental U.S. armies
CPM	Civilian personnel management
CPMP	Civilian Personnel Modernization Project
DA	Department of the Army
DAMMS–R	Department of the Army Movements Management System–Redesign
DASPS–E	Department of the Army Standard Port System–Enhanced
DCPC	Direct combat probability coding
DCSINT	Deputy Chief of Staff for Intelligence
DCSOPS	Deputy Chief of Staff for Operations and Plans
DCSPER	Deputy Chief of Staff for Personnel
DCSRDA	Deputy Chief of Staff for Research, Development, and Acquisition
DEA	Drug Enforcement Agency
DGSM	Downsized ground station module
DISC4	Director of Information Systems for Command, Control, Communications, and Computers
DIVAD	Division air defense
DMS	Directorate of Military Support
DOCS	DSCS operational control segment
DOD	Department of Defense
DSCS	Defense Satellite Communications System
EIDS	Electronic Information Delivery System
ENSCE	Enemy situation correlation element
EPA	Environmental Protection Agency

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FAADC2I	FAADS command, control, and intelligence
FAADS	Forward Air Defense System
FEMA	Federal Emergency Management Agency
FLIR	Forward-looking infrared
FOG–M	Fiber optic–guided missile
FORSCOM	Forces Command, U.S. Army
FRG	Federal Republic of Germany
FY	Fiscal year
GSM	Ground station module
HIP	Howitzer Improvement Program
HLPS	Heavy lift pre-positioning ships
HMMWV	High mobility multipurpose wheeled vehicle
HNS	Host-nation support
HQ	Headquarters
IDT	Inactive duty training
IFF	Identification friend or foe
IFV	Infantry fighting vehicle
IMA	Individual mobilization augmentation
INF	Intermediate range nuclear forces
IRR	Individual ready reserve
ITO	Installation transportation office
JCS	Joint Chiefs of Staff
JDAL	Joint duty assignment list
JDS	Joint Development System
Joint STARS	Joint Surveillance and Target Attack Radar System
JRTC	Joint Readiness Training Center
JSO	Joint specialty officer
JTFP	Joint Tactical Fusion Program
LAW	Light antitank weapon
LHX	Light helicopter family
LOGC	Logistics Center, U.S. Army
LOS–F–H	Line of sight–forward heavy weapon
LOS–R	Line of sight–rear weapon
LOTS	Logistics-over-the-shore
MACOM	Major army command
MASH	Mobile army surgical hospital
MCS	Maneuver Control System
MDW	Military District of Washington

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MICOM	Missile Command, U.S. Army
MILES	Multiple Integrated Laser Engagement System
MILPERCEN	Military Personnel Center
MLRS	Multiple Launch Rocket System
MOA	Memorandum of agreement
MOS	Military occupational specialty
MOU	Memorandum of understanding
MOUT	Military operations on urbanized terrain
MSE	Mobile subscriber equipment
MSO	Military service obligation
MTMC	Military Traffic Management Command
MTM/D	Millions of ton miles per day
MTOE	Modified Table of Organization and Equipment
MWR	Morale, welfare, and recreation
NAF	Nonapproriated funds
NATO	North Atlantic Treaty Organization
NBC	Nuclear, biological, and chemical
NCO	Noncommissioned officer
NCOES	Noncommissioned Officer Education System
NDI	Nondevelopmental item
NLOS	Non–line of sight
NORTHAG	Northern Army Group
NTC	National Training Center
OASA (FM)	Office of the Assistant Secretary of the Army (Financial Management)
OASA (RDA)	Office of the Assistant Secretary of the Army (Research, Development, and Acquisition)
OCA	Office of the Comptroller of the Army
ODCSINT	Office of the Deputy Chief of Staff for Intelligence
ODCSLOG	Office of the Deputy Chief of Staff for Logistics
ODCSOPS	Office of the Deputy Chief of Staff for Operations and Plans
ODCSPER	Office of the Deputy Chief of Staff for Personnel
ODCSRDA	Office of the Deputy Chief of Staff for Research, Development, and Acquisition
ODT	Overseas deployment training
OPBAT	Operation Bahamas and Turks/Caicos Islands
OPCOM	Operational command
OPCON	Operational control
OPTEMPO	The established number of training miles for a unit's major equipment systems, or their allocated operating tempo

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OTJAG	Office of the Judge Advocate General
PACM	Public Affairs and Communications Media Career Program
PDW	Personal defense weapon
PEO	Program executive officers
PIP	Product Improvement Program
PIVADS	Product Improved Vulcan Air Defense System
PL	Public law
POMCUS	Pre-positioned materiel configured to unit sets
POST	Passive optical seeker technique
PPBES	Program, Planning, Budgeting, and Executive System
PSYOP	Psychological operations
P3I	Preplanned product improvements
R&D	Research and development
RC	Reserve component
REDCOM	Readiness Command (See also USCINCRED)
RMP	Reprogrammable microprocessor
RMTC	Regional maintenance training center
RMTS	Regional maintenance training site
ROK	Republic of Korea
RO/RO	Roll-on/roll-off shipping
ROTC	Reserve Officers' Training Corps
RSS	Rosette scan seeker
RTC	Regional training center
RTS–MED	Regional training site–medical
SAPA	Secretary of the Army, Public Affairs
SARC	Secretary of the Army Reorganization Commission
SHORAD	Short-range air defense
SIMNET	Simulation networking
SINCGARS	Single Channel Ground and Airborne Radio System
SMA	Sergeant Major of the Army
SOCOM	Special Operations Command
SOF	Special operations forces
STARC	State area command
TACCS	Tactical Army Combat Service Support Computer System
TACMS	Tactical Missile System
TACOM	Tank Automotive Command
TADARS	Tactical Acquisition/Designation Aerial Reconnaissance System

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TAGCEN	The Adjutant General Center
TCACCIS	Transportation Coordinator Automated Command and Control Information System
TOE	Tables of Organization and Equipment
TOW	Tube launched, optically tracked, wire command-link guided
TPU	Troop program units
TRADOC	Training and Doctrine Command, U.S. Army
TRI-TAC	Joint Tactical Communications Program
TWGSS	Tank Weapons Gunnery Simulation System
TWOS	Total Warrant Officer System
UAV	Unmanned aerial vehicle
UCOFT	Unit conduct of fire trainer
USAR	U.S. Army Reserve
USAREUR	U.S. Army, Europe
USARSO	U.S. Army, South
USASMA	U.S. Army Sergeants Major Academy
USCENTCOM	U.S. Central Command
USCINCRED	U.S. Commander in Chief, Readiness Command
USLANTCOM	U.S. Atlantic Command
USPACOM	U.S. Pacific Command
USPS	United States Postal Service
USSOCOM	U.S. Special Operations Command
USSOUTHCOM	U.S. Southern Command
WESTCOM	Western Command, U.S. Army
WWMCCS	Worldwide Military Command and Control System

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Appendix A

Army Training and Readiness Improvements, Fiscal Years 1980–88

Quality Personnel Enlisted (with High School Diploma)	FY 80	FY 88
Active Component (AC)	54%	93%
Reserve Component (RC)	56%	91%

Testing in Lowest Category	FY 80	FY 88
AC	52%	4%
RC	18%	7%
Total RC Strength:	+183,000	
Training Improvements		
Battalions Thru Combat Training Centers	+183	
RC Personnel Training Overseas	+232,000	
Unit Conduct of Fire Trainers	+159	
Battalions with Laser Tag Devices (Miles)	+280	
War Reserves		
Pre-positioned Equipment	+100%	
Major Equipment	+207%	
Equipment Components	+78%	
Munitions	+24%	
Modern Equipment Fielded		
Abrams Tank	+6,473	4,928
Bradley	+4,883	2,863
Multiple Launch Rocket System	+416	341
Apache Helicopter	+603	382
Black Hawk Helicopter	+886	382
Wheeled Vehicles	+127,024	127,024

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Army Training and Readiness Improvements, Fiscal Years 1980–88—Continued

	FY 80	FY 88
Equipment Modernized		
M60A3 Tank	+3,000	
Cobra Helicopters	+342	
Quality of Life Improvements		
Motor Pools	+78	
Equipment Shops	+242	
Chapels	+10	
Physical Fitness Centers	+57	
Family Housing	+32,000	
Barracks Spaces	+92,000	

SOURCES: FY 90–91 Posture Statement; DCSLOG.

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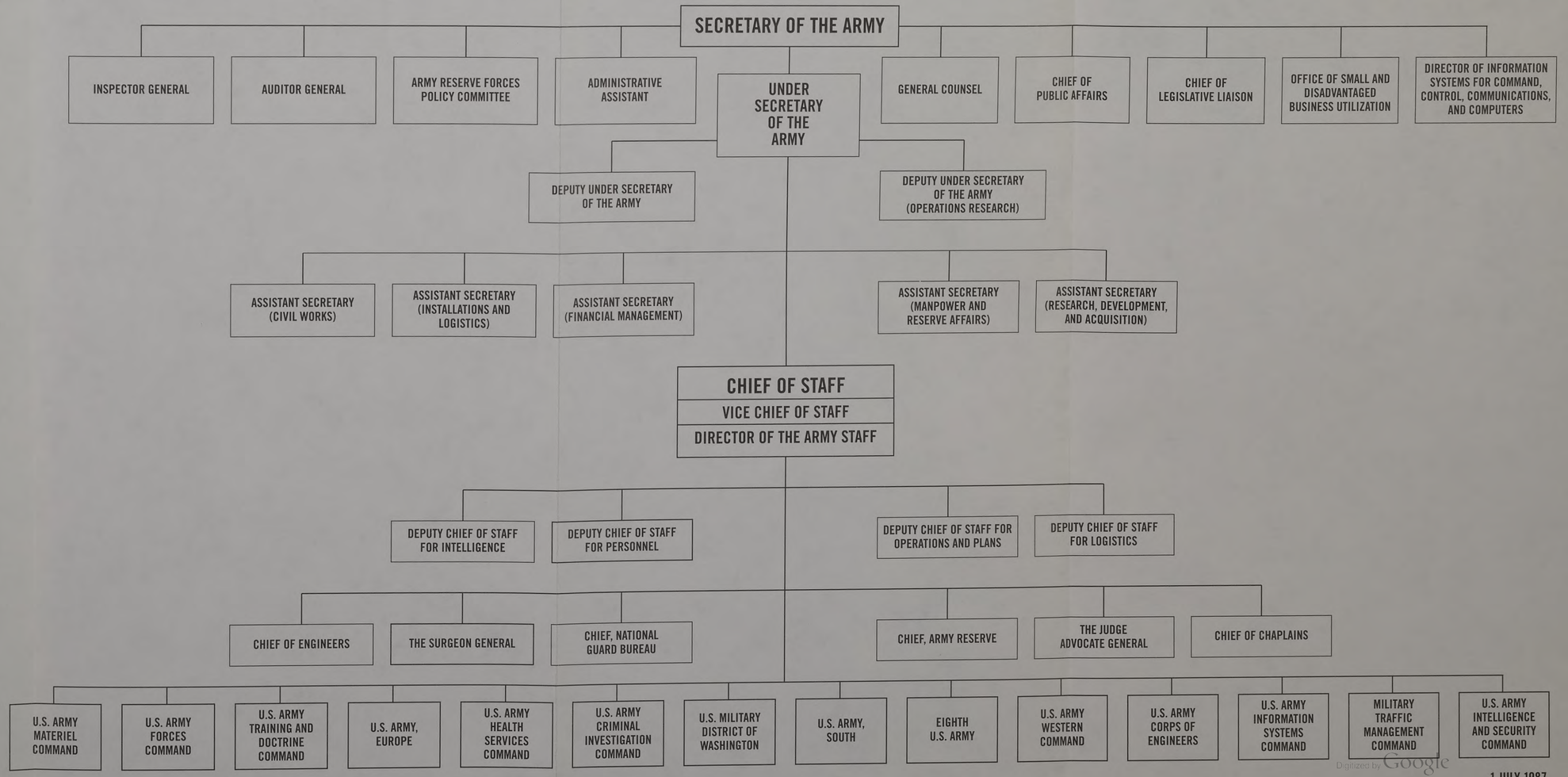
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