Report MDA903-82-C-0310-03

RECOMMENDED ARMY AVAILABILITY FACTORS (AAFs)

A report on data collection, data analysis, and development of recommendations for AAFs

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This report documents the actions and results of the first comprehensive effort to develop Army Availability Factors (AAF) for table of distribution and allowance (TDA) activities. The factors prescribe, for various combinations of people, locations, and conditions, the average amount of time per month that an Army individual is expected to be available to work on his assigned job. (CONTINUED ON REVERSE)

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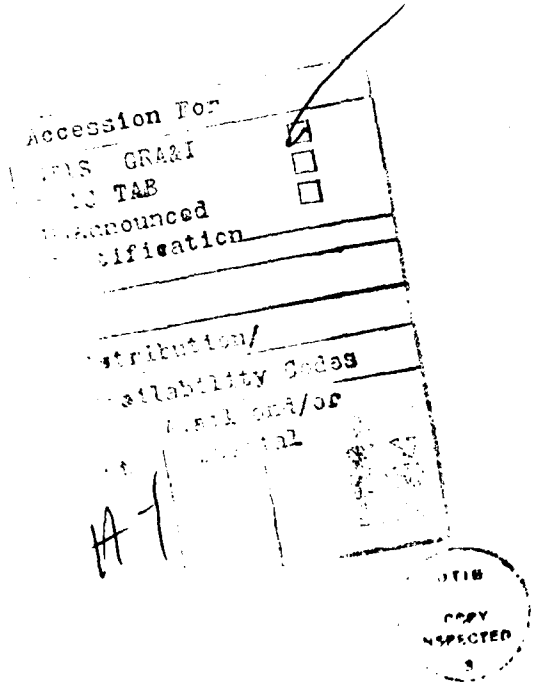
Six Army Availability Factors (AAF) are developed: Civilian Peacetime (CONUS), Civilian Peacetime (OCONUS), Civilian Wartime, Military Peacetime (CONUS), Military Peacetime (OCONUS), Military Wartime.



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1. INTRODUCTION

1.1 Objective. This report documents the actions and results of the first comprehensive effort to develop Army Availability Factors (AAF) for table of distribution and allowance (TDA) activities. The factors prescribe, for various combinations of people, locations, and conditions, the average amount of time per month that an Army individual is expected to be available to work on his assigned job.

1.2 Background.

1.2.1 The use of staffing standards for determination of workload-based manpower requirements of TDA activities is a relatively new Army endeavor, initiated by the Deputy Chief of Staff for Personnel. Heretofore, these requirements were validated periodically by manpower surveys. While work measurement was an integral part of the survey approach, it was not performed universally with the stringencies and thoroughness that are characteristic of the new approach, i.e., the development of manpower staffing standards. Availability factors were used in the process, but there was no standard prescribed Army availability factor or set of factors that had been developed in a concerted effort from TDA-universe data.

1.2.2 The advent of the manpower staffing standards system (MS-3) places new and significant emphasis on the need for valid availability factors to convert required man-hours to the required number of people. Since the factor is integral to the manpower requirements determination process, the more precise work measurement efforts that are also integral to the process would be wasted if the availability factors were not equally

credible. Further, the staffing standards are functionally, not organizationally oriented, and will apply to entire major Army commands (MACOMs), or, where possible, Army-wide.

1.3 Scope.

1.3.1 AAFs are developed for six combinations of TDA personnel categories, general location, and conditions. They are:

(a) Civilian personnel in the Continental United States (CONUS), peacetime conditions.

(b) Civilian personnel in other than the Continental United States (OCONUS), peacetime conditions.

(c) Civilian personnel, wartime conditions.

(d) Military personnel in CONUS, peacetime conditions.

(e) Military personnel OCONUS, peacetime conditions.

(f) Military personnel, wartime conditions.

1.4 Study parameters.

1.4.1 Based on the results of initial research, [1/] certain study parameters were approved by DAPE-MBU:

1/ Interim Report, "Review and Analysis of Availability Factor Methodologies," G. Smith, R. Hartt, H. Gillogly, 16 June 1982.

(a) Only full-time U.S. civilian personnel were considered. Firefighters, Army National Guard, and Reserve technicians, along with those civilians in civil works functions were excluded.

(b) Workweeks for which factors were to be developed were designated as follows:

	Military	Civilian
Peacetime	40	40
Wartime	60	48

(c) Civilian AAFs would be limited to U.S. civilians only. Subsequent studies will be conducted to develop AAFs, as required, for foreign national personnel employed in TDA activities.

(d) Mail-out quantity must be 25,000 in view of reported Army-wide survey response rates experienced on other projects.

2. GENERAL PROCEDURES

2.1 Selection of approach.

2.1.1 The project tasking instructions stipulated that any previous or ongoing availability factor development efforts be researched for possible relevance or guidance to this effort. The procedural pattern that emerged from this research confirmed the original assessment that a man-hour availability study basically parallels the traditional work measurement approach. The major steps are:

(a) Determine and define what is to be quantified.

(b) Collect pertinent data.

(c) Analyze and interpret the data.

(d) Integrate normalizing actions and policy-driven considerations.

(e) Perform final computations.

2.2 Available time in perspective.

2.2.1 The term "available time" is often confused with such terms as "productive time" or "assigned time." To preclude this confusion and provide a clear structure for the study, the time hierarchy reflected in Figure 1 was developed and rigidly respected throughout. One can readily see that if workers were not given holidays; were never diverted to tasks, formations, training, etc., away from their primary jobs; never took vacations; never lost time because of illness, etc., the available hours per worker would equal the duty hours for a given prescribed workweek. In reality, such diversions do occur, and the time losses (or nonavailabilities) must be recognized in computing personnel requirements.

2.2.2 The commonly accepted method for doing this is to quantify the time losses that must or can be allowed for these diversions and subtract the total of these from the net assigned time (net assigned time is the assigned time less holiday time) to derive the available time. In simple equation form, the available time for a given workweek is presented as follows:

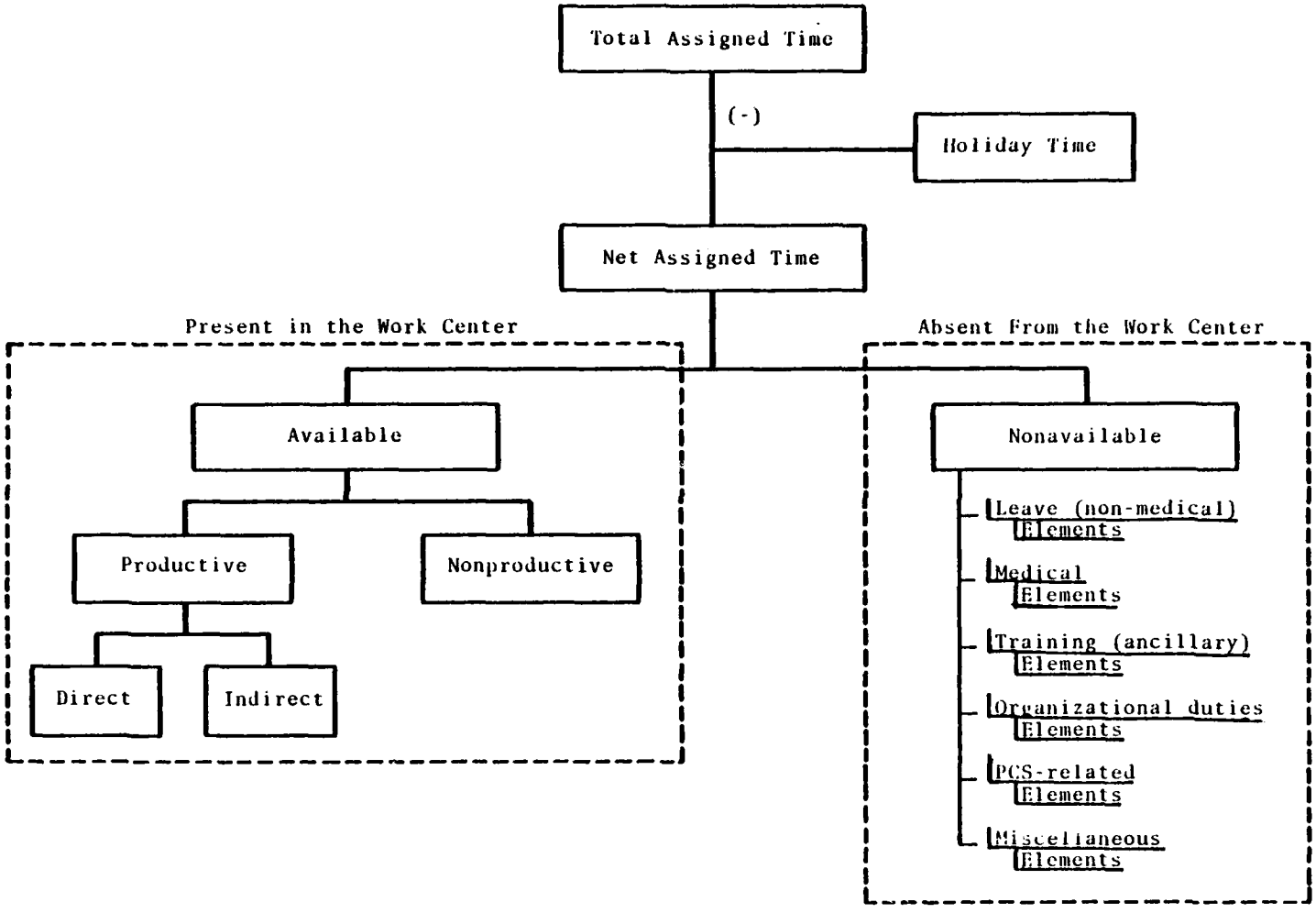

FIGURE 1. TIME HIERARCHY.

Available Time = Net Assigned Time - Nonavailable Time

Because net assigned time is readily stipulated for a given prescribed workweek, the major effort in determining valid time availability (availability factors) is the quantification of fair and reasonable nonavailable time values.

2.3 Identification and definition of nonavailable time (NAT) elements.

2.3.1 The objective of this step was to define any and all potential causes or sources of nonavailable time for subsequent quantification. The process was reasonably unconstrained, with the understanding that inclusion of a potential NAT element at this stage did not necessarily mean that it would be allowed in the final analysis. The considerable number of NAT elements noted in previous availability factor studies (principally Air Force) were complemented by the results of a screening of Army directives to identify potential NAT implications.

2.3.2 The potential NAT elements that were defined are presented in Appendix A. To provide an understanding of each element and to establish the parameters for quantifying the time for each element, the following guidelines were observed:

(a) The definitions should be mutually exclusive.

(b) They should be worded so as to minimize the possibility of misinterpretation.

(c) Existing and institutionalized Army definitions would be changed only if necessary to meet

criteria or to meet clearly established requirements of the AAF project that could not be satisfied any other way.

2.3.3 Similar NAT elements were grouped into categories to facilitate their handling throughout the study. The category definitions are in Appendix B.

2.4 Quantification of element times.

2.4.1 The ideal situation for this requirement would be to have valid historical records of time expended in each of the NAT elements by the various factor populations. Because this clearly was not the case, a sample survey was conducted. Pertinent NAT data was also extracted from existing records where it was feasible and sufficiently comprehensive. These data sources provided baseline quantification data that were then subjected to policy and resource constraint considerations to arrive at recommended allowed nonavailable times.

2.4.2 As previously indicated, the quantification of NAT elements is the central thrust and major consuming task in this effort. Accordingly, two separate sections of this report provide details of data collection and analysis.

2.4.3 It should be noted that all NAT data collection was for peacetime conditions. Adequate record data for wartime conditions was not available, and the scenario-oriented "what if" approach that would have been required in a survey was deemed infeasible.

2.4.4 As will be seen in lat r sections, the data were collected for various time periods, i.e., number of hours during a specified 6-month period, 1-year period, etc. Appropriate conventions were then applied to reduce all data to the common denominator of average hours per month.

2.5 Computation of availability factors.

2.5.1 Once the recommended allowed time for each nonavailable time element is established, the computation of availability factors is reduced to two simple operations:

(a) Compute the net assigned time for each of the stipulated workweeks by personnel types and conditions.

(b) For each AAF, subtract the respective allowed nonavailable time total from the net assigned time.

3. DATA COLLECTION

3.1 Data sources.

3.1.1 Neither of the two sources of basic NAT data has a complete advantage over the other. Record data has a generally higher confidence factor than survey data, but it proved to be more limited in availability and scope than had been hoped, and its acquisition and processing were considerably more difficult than anticipated. Conversely, survey-acquired data covered the full spectrum of potential NAT elements, but are subject to the whims, motivation, and recall ability of the respondents.

3.2 Sample survey. A questionnaire mail-out approach was used for the survey part of the data collection effort.

3.2.1 Military versus civilian. Military and civilian personnel were surveyed separately because of the different types of NAT applicable to each. [2/] Thus the questionnaire development, identification of target populations, and sample selection processes proceeded separately for military and civilian personnel.

3.2.2 Population. Both the military and civilian surveys required careful identification of the applicable populations from which to select survey participants. For civilians, the following types of personnel were deleted from the Civilian Personnel Files:

(a) Personnel in civil functions.

(b) Non-U.S. citizens and dependents.

(c) Non-full-time personnel.

(d) Firefighters.

(e) Participants in Ceiling Exempt Programs.

2/ The DoD Manpower Accounting System provides for military manpower authorizations in an "individuals" account to cover personnel while transferring between units, undergoing certain types of training, receiving medical treatment on a long-term basis, awaiting separation, etc. No such "individuals" category exists for civilian manpower. Accordingly, there are instances where a particular occurrence would constitute a nonavailable time loss to one personnel type but not to the other.

(f) Personnel with less than 12 months of service.

(g) Inactive personnel.

The following types of military personnel were deleted from the Officer and Enlisted Master Files:

(a) Personnel with less than 12 months of service.

(b) Personnel in the Individuals Account.

(c) Personnel in MTOE units.

(d) Personnel on orders.

(e) General officers.

In addition, both military and civilian personnel with records containing invalid codes for sex, accession date, or MACOM were deleted.

3.2.2.1 Stratification. Once the population was identified, tables were prepared showing the stratification of the population by location (CONUS or OCONUS), officer or enlisted (military only), sex, and command. The results of this stratification are shown in Figures 2 and 3. The stratification process produced 51 military and 28 civilian "cells" where a cell corresponds to a particular location (CONUS or OCONUS), sex, and command (also officer or enlisted for military personnel). The intent here was to make use of a sampling strategy known as stratified random sampling. Stratified random sampling takes a random sample within each cell instead of a simple random sample from the entire population.

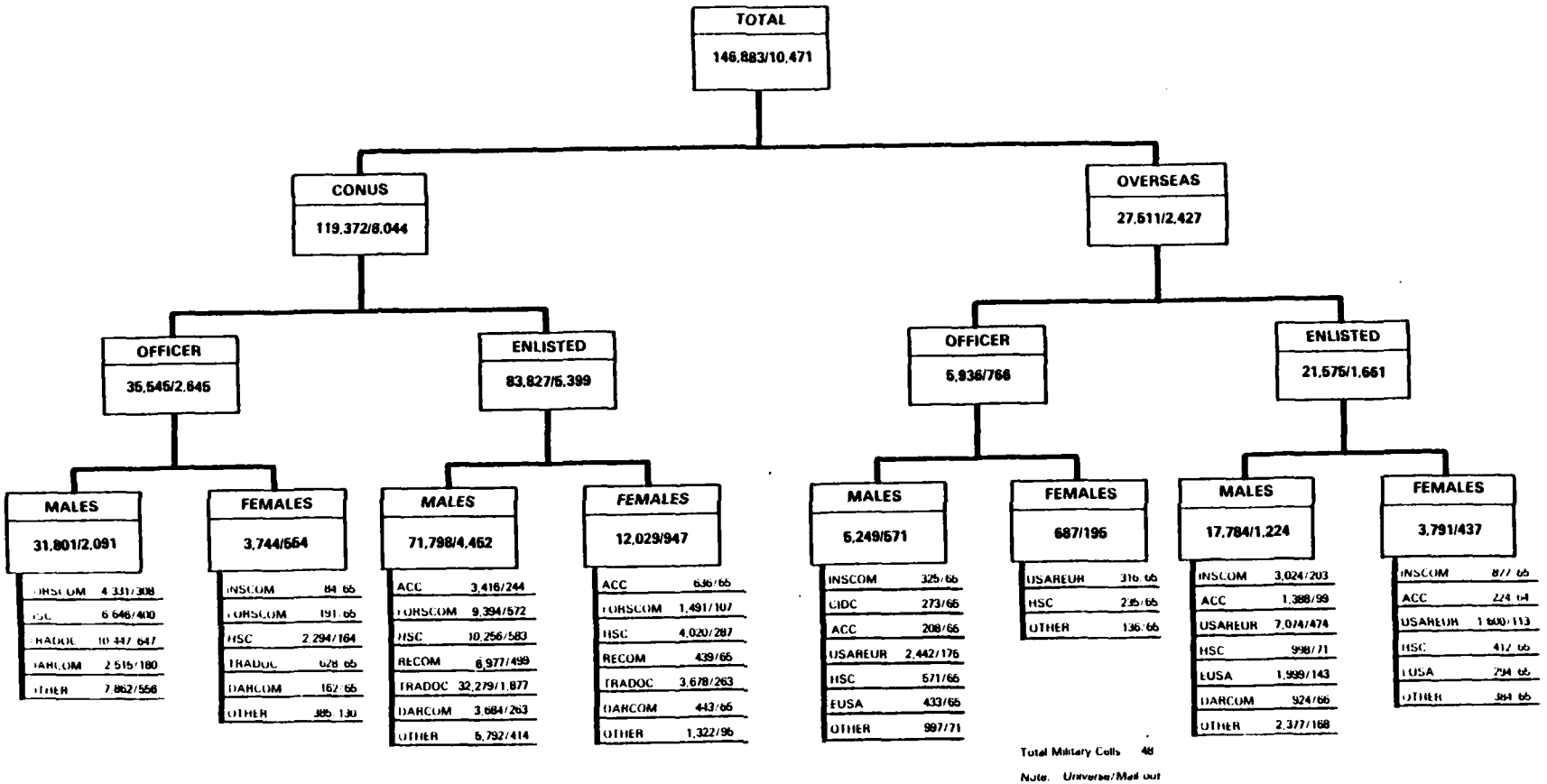

FIGURE 2. MILITARY STRATIFICATION.

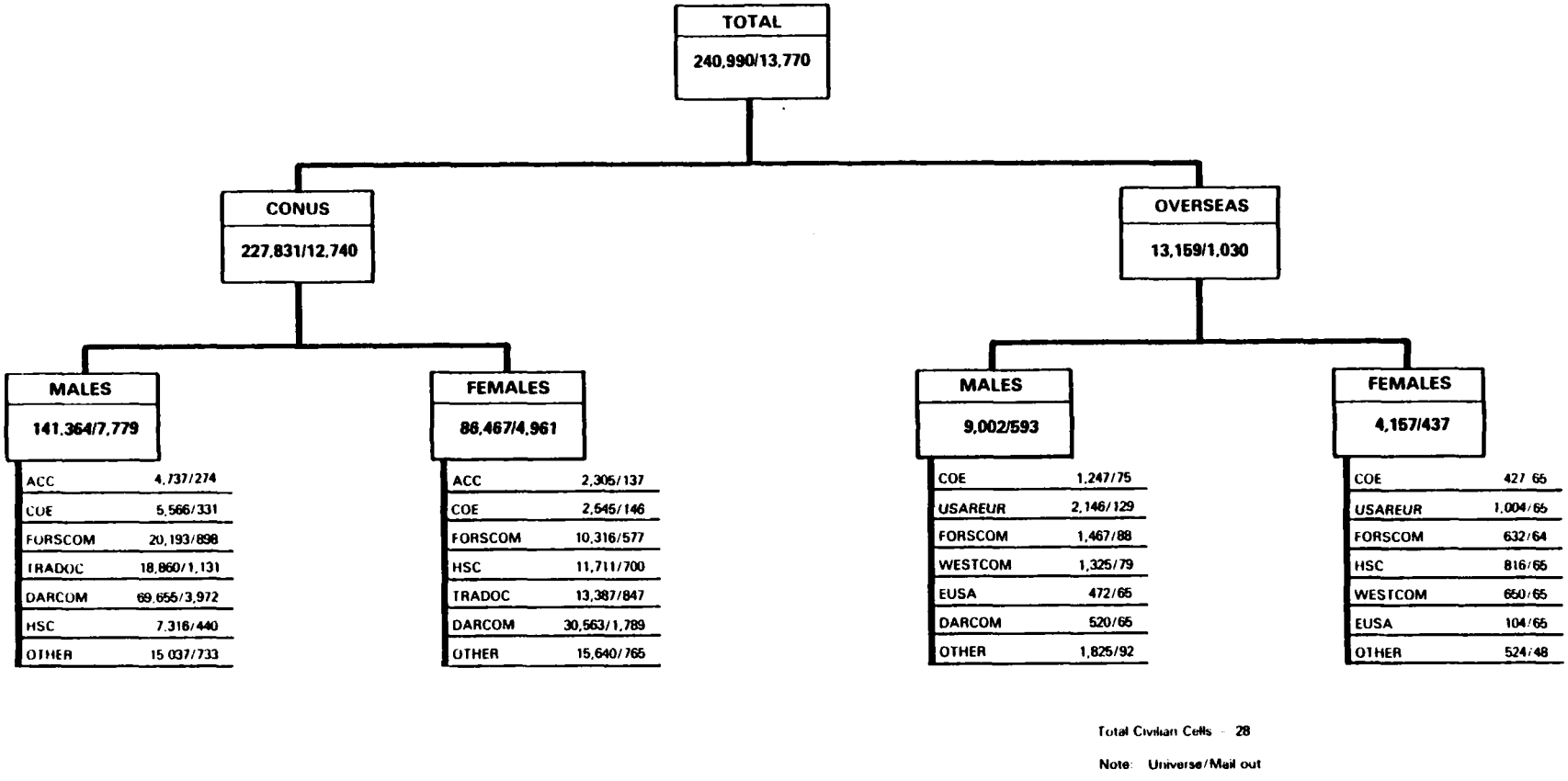

FIGURE 3. CIVILIAN STRATIFICATION.

One advantage of stratified random sampling is that it allows taking a larger sample in small cells which might be inappropriately represented if simple random sampling was used. In addition, stratified random sampling has a variance reduction property. The use of this statistical property allows the calculation of a more accurate estimate of NAT.

3.3 Questionnaires. Separate survey instruments were developed for military and civilian personnel. Each form provided comprehensive coverage of the applicable nonavailable time elements, as revised to reflect the results of MACOM and Army staff coordination/comments. Demographic questions were included to identify pertinent population attributes to be used for analysis.

3.3.1 Development.

(a) Preparation of the questions for the survey instruments concentrated on the use of terms that were accurate and, where possible, the most familiar; and on the use of wording that would be comprehensible by all segments of the population being surveyed. The questions were composed after contacts with representatives of the Survey Section of the Soldiers Support Center, Army Civilian Personnel Center, Intran Corporation (which specializes in automated survey administration and scoring), and selected Army staff members.

(b) Draft questionnaires were tested at Fort Belvoir with a group of 27 people who reflected a general cross section of the TDA population. The

presurvey test results were used to confirm or improve the validity and understanding of the questions in both survey forms.

(c) Both survey forms were designed to be machine readable. (Gridded responses were provided for all questions requiring quantified answers, e.g., NAT values.) This allowed for rapid tabulation of results and receipt of data in a medium (magnetic tape) that was readily usable in automated sophisticated statistical analyses.

3.3.2 Coordination. Final draft questionnaires were submitted to the Army Staff for approval prior to composition, printing, and dispatch. The Army staff review included coordination with the USAF and OSD representatives on the SAG. Formal ARSTAFF approval was given on 25 August 1982.

3.4 Sample size and selection of recipients. Calculation of the required sample size was based on the degree of accuracy required in the estimate of NAT and estimates of the variances likely to be encountered in the sample. Using a 5% tolerance level as a measure of accuracy and variance estimates from the most recent Air Force availability study, a sample size of 11,000 was recommended. In order to achieve a sample of 11,000, a survey mail-out of 25,000 was recommended, based on expected survey response rates. The selection of recipients was performed using the stratified random sampling technique described previously. A larger percentage of personnel in smaller cells were sampled so that sufficient responses could be obtained for statistical analysis. The selection of specific personnel within each cell

was performed by matching random numbers (obtained from an automated random number generator) with the record numbers associated with each person. This ensured that each person in the cell had an equal chance of being selected as a questionnaire recipient.

3.5 Distribution. The unit mailing address for each individual that had been randomly selected to receive a survey form was identified through a Unit Identification Code (UIC) crosswalk technique. The resulting name and address tape was used by the Intran Corporation (the subcontractor who printed, distributed, and read the questionnaires) in an automated process to print and affix address labels to each survey packet. The survey packet contained the appropriate questionnaire, a letter from the Deputy Chief of Staff for Personnel encouraging participation, and a return-addressed postage-free envelope.

3.6 Response return rate. All surveys were mailed on 15-16 December 1982. The rate of return of completed questionnaires is indicated by the ogive in Figure 4. This rate was influenced somewhat by weather conditions that affected mail service and the heavy Christmas mail volume. There were 5,514 survey packets returned as being nondeliverable because of inadequate addresses. This number of nondeliverables (22%) is higher than the 10-15% forecast by the Civilian and Military Personnel Centers, based on their historical experience with other Army surveys.

3.7 Reading responses.

3.7.1 Record specifications. Completed questionnaires were machine read and the responses transferred to magnetic tape. The recording characteristics and record layouts on the tape were specified in advance to ensure compatability with the processing computer tape drives and statistical software.

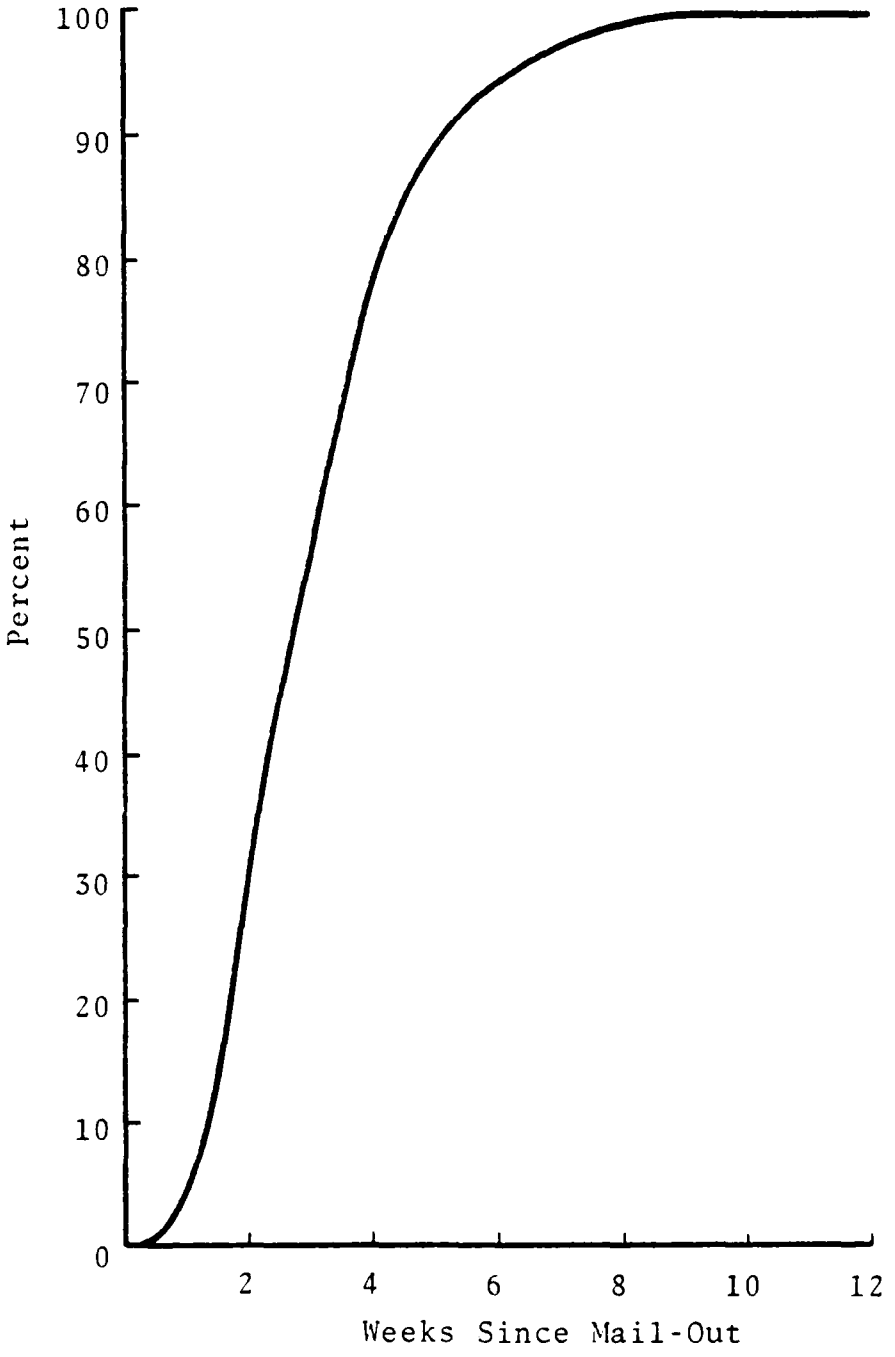

FIGURE 4. CUMULATIVE RESPONSE PERCENTILES.

3.7.2 Error corrections. All questionnaires were scanned for respondent errors during the machine reading process. The errors identified included double responses and failure to completely fill in a response. All questionnaires containing errors were manually examined and, where possible, corrections were made before the response was recorded on the magnetic tape.

3.8 Record data.

3.8.1 Availability. The availability of record data was explored for all categories of NAT. To be useful and usable in the study, it was necessary that the data not only address at least one NAT element, but that it be available for the full spectrum of the population or subpopulation concerned. Record data which met these constraints were identified as follows:

(a) Military leave (ordinary and convalescent).

(b) Civilian training.

(c) U.S. direct hire civilian leave.

3.8.2 Acquisition. Specifications were submitted to identified data sources as follows:

(a) Military leave. The request was made to the U.S. Army Finance and Accounting Center for an extract from the Joint Uniform Military Pay System. The data were requested for military members of TDA units only, excluding those personnel with less than 1 year of service at the end of FY-82. The specifics requested were:

- Days of ordinary leave taken during FY-82 (alternatively FY-81--see Note below).

- Number of individuals taking ordinary leave corresponding to the number of days taken.

- Days of convalescent leave taken (enlisted only) during FY-82 (alternatively FY-81).

- Number of enlisted personnel taking convalescent leave corresponding to the number of days taken.

- Separate counts of the above data for males and females and for officers and enlisted members.

- Identification of the unit of assignment as indicated by the Unit Identification Code for the above listed categories.

Note: If FY-82 data were not available to reasonably meet the delivery date specified, then the data extracted should be that for FY-81.

(b) Civilian training. Data were requested from the Civilian Personnel Master File and the Civilian Training File (CIVPERSINS-I) maintained and operated by the U.S. Army Civilian Personnel Center. The request was for the total number of "on-duty hours" training hours taken in the

last 12 months and for the total number of individuals involved in those hours. The data were requested for each "Principal Purpose of Training Code" for males and females within each command, and with separate reports for CONUS and OCONUS personnel. Personnel to be excluded were those identified in paragraph 3.2.2.

(c) Civilian leave. These data were requested from the Standard Army Civilian Payroll System (STARCIPS), the proponent of which is the U.S. Army Finance and Accounting Center, Fort Benjamin Harrison, Indiana. The number of hours/days of leave that each U.S. direct hire civilian took, cumulative for FY-82 or the last 26 or 27 pay periods, was requested from Army Finance and Accounting Offices operating under STARCIPS, with the following specifics:

- Hours annual leave taken.
- Hours sick leave taken.
- Hours sick leave for maternity reasons taken.
- Hours sick leave for disability pending retirement taken.
- Days military leave taken.
- Days military leave taken for law enforcement.

- Hours emergency or rescue leave taken.
- Hours court leave taken.
- Hours administrative leave taken.
- Hours home leave taken.
- Hours absent without leave.

3.8.3 For the record, it is appropriate to note pertinent dates associated with the record data acquisition. The dates, summarized in Table 1, illustrate the need for adequate lead time and the impact of data period availability constraints.

TABLE 1. DATA ACQUISITION DATES.

Data	Date		
	Request Submitted	Delivery Requested	Data Received
Military Leave	23 Jul 82	15 Oct 82	28 Dec 82
Civilian Training	30 Jul 82	1 Oct 82	21 Nov 82
Civilian Leave	5 Aug 82	15 Oct 82	1 Feb-11 Mar 83

4. DATA RESULTS AND ANALYSIS

4.1 Survey result .

4.1.1 The target sample size was 11,000, and 11,029 (5,158 military and 5,871 civilian) responses were received. The military return rate was 49% and the civilian rate was 42% for the

overall rate of 45% versus the 44% anticipated. Table 2 displays a summary of survey response statistics, including a breakdown by CONUS and OCONUS. As this table indicates, the number of military responses is higher than anticipated and the number of civilian responses is lower. Although the usable sample size (see Table 3 for a summary) is slightly smaller than the estimated requirement, there is no significant degradation in either the tolerance or the confidence level of the resulting availability factors.

4.1.2 The civilian mail-out and number of responses by cell are indicated in Table 4. Where the number of cell responses was less than 28, these responses were aggregated into the "Other" cell to ensure integrity of subsequent statistical analyses.

4.1.3 The military mail-out and number of responses by cell for CONUS and OCONUS are shown in Tables 5 and 6, respectively. If a military cell had a very small number of responses (28 or less), these responses were aggregated into the "Other" cell for computation and analyses.

4.1.4 The first 12 questions on the military survey form and the first 9 questions on the civilian questionnaire asked for demographic information for each respondent. (The anonymity of respondents was assured throughout. The questionnaire had absolutely no means of identifying the respondent, either directly or by cross-reference.) A summary of demographic statistics for military and civilian respondents is shown in Appendix C. This data reflects a very representative sample of the TDA universe being considered.

TABLE 2. SUMMARY OF SURVEY STATISTICS.

Population	Target Sample Size	Anticipated Response Rate (%) 1/	Questionnaires Printed	Mail-Out 2/	Responses	Actual Response Rate (%)
Army-Wide:						
Military	4,165	40	10,500	10,471	5,158	49
Civilian	6,835	47	14,500	13,770	5,871	42
Total	11,000	44	25,000	24,241	11,029	45
Military:						
CONUS	3,195	--	--	8,044	4,107	51
Overseas	970	--	--	2,427	1,044	43
Total	4,165	--	--	10,471	5,151 3/	49
Civilian:						
CONUS	6,145	--	--	12,740	5,438	43
Overseas	690	--	--	1,030	409	40
Total	6,835	--	--	13,770	5,847 3/	42

1/ Based on previous Army survey experience.

2/ There were 759 addresses inadequate for mail-out.

3/ Totals do not correspond because some respondents did not indicate male/female and/or CONUS/overseas and this could not be determined.

TABLE 3. USABLE SURVEY RECORDS.

CIVILIAN:	
Total respondents	5,871
No overseas/CONUS identification	-24
Usable records	5,847
MILITARY:	
Total respondents	5,158
No overseas/CONUS identification	-7
At first duty station less than 12 months	-123
Member of TOE unit part of past 12 months	-621
Mixed overseas and CONUS TDA assignments in past 12 months	-342
Usable records	4,065

TABLE 4. CIVILIAN MAIL-OUT AND RESPONSES.

Command	CONUS						OVERSEAS					
	Males			Females			Males			Females		
	Mail-Out	Responses	Percent	Mail-Out	Responses	Percent	Mail-Out	Responses	Percent	Mail-Out	Responses	Percent
TRADOC	1,131	273	24	847	247	29	--	--	--	--	--	--
DARCOM	3,972	1,864	47	1,789	696	39	65	32	49	--	--	--
FORSCOM	898	187	21	577	146	25	85	25 **	29	64	25 **	39
USACC	274	145	53	137	67	49	--	--	--	--	--	--
HSC	440	92	21	700	140	20	--	--	--	65	10 **	15
CE	331	140	42	146	60	41	75	36	48	65	22 **	34
USAREUR	--	--	--	--	--	--	129	79	61	65	18 **	28
EUSA	--	--	--	--	--	--	65	32	49	65	25 **	38
WESTCOM	--	--	--	--	--	--	79	4 **	1 **	65	3 **	1
Other	733	575	78	765	552	72	92	43	47	48	36	75
Total	7,770	3,276*	42	4,961	1,908*	39	593	251*	42	437	139*	32

* Because some respondents did not indicate male/female and/or CONUS/overseas, cell responses may not add to total number of records.

** Response cells too small for use in analysis--small response cells will be combined with "Other" for this study.

TABLE 5. MILITARY CONUS MAIL-OUT AND RESPONSES.

Command	Officer						Enlisted					
	Males			Females			Males			Females		
	Mail-Out	Responses	Percent	Mail-Out	Responses	Percent	Mail-Out	Responses	Percent	Mail-Out	Responses	Percent
FORSCOM	308	163	53	65	29	45	572	181	32	107	21**	20
HSC	400	193	48	164	92	56	583	210	36	287	64	22
TRADOC	647	380	59	65	36	55	1,877	601	32	263	60	23
DARCOM	180	104	58	65	39	60	263	93	35	65	20**	31
ACC	--	--	--	--	--	--	244	79	32	65	16**	25
RECOM	--	--	--	--	--	--	499	244	49	65	31	48
INSCOM	--	--	--	65	30	46	--	--	--	--	--	--
Other	556	299	54	130	73	56	414	231	56	95	52	55
Total	2,091	1,139*	54	554	299*	54	4,452	1,639*	37	947	264*	28

* Because some respondents did not indicate male/female and/or CONUS/overseas, cell responses may not add to total number of records.

** Response cells too small for use in analysis--small response cells will be combined with "Other" for this study.

TABLE 6. MILITARY OCONUS MAIL-OUT AND RESPONSES.

Command	Officer						Enlisted					
	Males			Females			Males			Females		
	Mail-Out	Responses	Percent	Mail-Out	Responses	Percent	Mail-Out	Responses	Percent	Mail-Out	Responses	Percent
HSC	65	18**	28	65	9**	14	71	7**	10	65	9**	14
DARCOM	--	--	--	--	--	--	66	17**	26	--	--	--
ACC	65	31	48	--	--	--	99	34	34	64	20**	31
INSCOM	65	31	48	--	--	--	203	51	25	65	8**	12
CIDC	65	28	43	--	--	--	--	--	--	--	--	--
USAREUR	175	80	46	65	36	55	474	133	28	113	35	31
EUSA	65	9**	14	--	--	--	143	21**	15	65	7**	11
Other	71	36	51	65	22	34	168	55	33	65	19	29
Total	571	233*	41	195	67*	34	1,224	318*	26	437	98*	22

* Because some respondents did not indicate male/female and/or CONUS/overseas, cell responses may not add to total number of records.

** Response cells too small for use in analysis--small response cells will be combined with "Other" for this study.

4.2 Record data results.

4.2.1 Military leave. The data were provided as requested, with the following exceptions:

(a) Ordinary and convalescent leave information was provided for total Army military personnel (i.e., TOE, TDA, and individuals account) instead of for TDA personnel only.

(b) Identifications were lacking for CONUS vs OCONUS, male or female, and MACOM of assignment.

Additional data processing was performed to purge the file of nonrelevant records and add the missing identifiers. The resulting record file met the original objectives, and allowed the performance of valid comparisons with survey data.

4.2.2 Civilian training. The data were received as requested, and provided the following:

(a) Total training hours for 12 months by MACOM, male/female, CONUS/OCONUS, and training category (mission or program change, new technology, new work assignments, improve present performance, meet future needs, develop unavailable skills, trade or craft apprenticeship, orientation for new employees, and adult basic education).

(b) The number of people involved in the reported training hours.

4.2.3 Civilian leave. In lieu of the consolidated civilian leave report that was requested, 77 installations were directed to independently submit the data directly to Presearch. Tapes were received from 62 installations. Of these, 51 were readable and provided data on approximately 60% of the desired civilian population. All categories of leave were reported as requested (annual leave, sick leave, disability leave, leave without pay, absent without leave, military leave, law enforcement leave, suspension leave, and furlough) but special data processing was required to correct the following deficiencies:

(a) Eliminate those records not excluded as requested (see paragraph 3.2.2).

(b) Identify each record by CONUS/OCONUS and command of assignment.

4.2.4 Annual TDA military PCS travel. The FY-84 budget exhibit containing PCS moves for all military personnel was obtained. Because PCS moves are not budgeted separately for TDA personnel, the number of moves by type were assumed to be in the same proportion as that of the TOE/TDA makeup of the military force.

4.2.5 AWOL and confinement rates. Army-wide AWOL and confinement rates (in terms of number of personnel per 1,000) were provided by the ARSTAFF through DAPE-MBU. Inasmuch as the Army does not maintain this separate TOE and TDA data, TDA rates were assumed to be the same as Army-wide rates.

4.3 Analyses and normalizing.

4.3.1 Survey data.

4.3.1.1 Consistency of data with target peacetime workweek. One of the significant parameters of the study was that peacetime availability factors be based on a 40-hour prescribed workweek. In analyzing the validity of the survey data, it is essential that the prescribed workweek as reported by the respondees be reviewed, and that the impact of a reported workweek of other than 40 hours on the reported NAT values be investigated.

4.3.1.2 The reported work days and work hours per week are summarized in Tables 7 and 8. There clearly is no cause for concern with the civilian data--98% reported a 40-hour workweek. Hence, that portion of the reported nonavailable time is consistent with the target workweek.

4.3.1.3 The reported military workweeks show a significantly different pattern. Only 50% reported a 40-hour workweek; 47% reported more than a 40-hour workweek, with the longest reported at 99 hours. The weighted average reported workweeks for CONUS, OCONUS, and overall were 45.13 hours, 44.61 hours, and 45.03 hours, respectively.

4.3.1.4 There is good reason to suspect that some--perhaps most--of the extreme workweeks are the actual hours worked, rather than the intended normally scheduled. Regardless of the reason, the concern to be investigated here is whether or not there is a corollary influence on the reported nonavailable time. That is, is it a valid hypothesis that a respondee who worked more than a 40-hour week would have reported a larger amount of nonavailable

TABLE 7. REPORTED MILITARY WORKWEEK SUMMARIES.

Weekly Hours	CONUS		OCONUS		Total	
	Respondents	%	Respondents	%	Respondents	%
Less than 40	72	2	30	4	102	3
40	1,697	52	325	44	2,022	50
41-43	13	--	0	--	13	--
44	428	13	118	16	546	14
45-47	39	1	11	2	50	1
48	433	13	144	20	577	14
49-59	284	9	59	8	343	9
60	123	4	33	4	156	4
More than 60	181	6	16	2	197	5
Total	3,270	--	736	--	4,006	--

time than if he had worked a 40-hour week? And, if so, what is the magnitude of the impact that must be compensated to reflect NAT consistent with the base 40-hour workweek?

4.3.1.5 To investigate the hypothesis, two computer runs were processed. One computed NAT values from only those records which indicated a 40-hour workweek. The second used all other records. Total nonavailable category times and grand total nonavailable times for these two cases and for the total survey data base (all reported workweeks) were then compared. The results are summarized in Tables 9 and 10. The comparative analysis supports the hypothesis that the total survey NAT values are higher than they would have been if the respondees had all been reporting relative to a 40-hour workweek. Accordingly, it would not be appropriate to use the NAT data, without some downward adjustment, to compute 40-hour workweek availability factors.

4.3.1.6 Several alternatives were explored to arrive at a supportable convention for adjusting or normalizing the NAT values to a level consistent with a 40-hour workweek:

(a) Apply to the category NAT times the factor of 40 divided by the survey data average workweek (45.129 for CONUS, 44.606 for OCONUS). This approach would assume that the nonavailable time changed in direct proportion to the workweek. If applied, it would reduce the survey nonavailable time by 11.4% for CONUS and 10.3% for OCONUS. This is considerably greater than the difference between the survey NAT for 40-hour workweeks and that for all respondees. The alternative was not selected.

TABLE 9. NONAVAILABLE TIME (NAT) COMPARISONS BY WORKWEEK--CONUS MILITARY.

Category	A--40 hr	B--Other Than 40 hr	C--All Workweeks	A/B	A/C
Leave (non-medical)	9.375	8.610	8.992	1.089	1.043
Medical	5.227	4.607	4.920	1.135	1.062
Training (ancillary)	6.453	7.906	7.164	0.816	0.901
Organizational duties	9.276	11.800	10.049	0.786	0.923
Miscellaneous	0.554	0.569	0.562	0.974	0.986
PCS-related	0.936	1.168	1.045	0.801	0.896
Total	31.821	34.660	32.732	0.918	0.972

TABLE 10. NONAVAILABLE TIME (NAT) COMPARISONS BY WORKWEEK--OCONUS MILITARY.

Category	A--40 hr	B--Other Than 40 hr	C--All Workweeks	A/B	A/C
Leave (non-medical)	10.036	10.190	10.110	0.984	0.992
Medical	5.300	4.663	4.907	1.137	1.080
Training (ancillary)	7.325	8.660	8.170	0.846	0.897
Organizational duties	10.707	11.851	11.363	0.903	0.942
Miscellaneous	1.286	1.406	1.342	0.915	0.958
PCS-related	2.029	2.330	2.190	0.871	0.926
Total	36.683	39.100	38.082	0.938	0.963

(b) Use the survey NAT data from only the 40-hour workweek respondees. This alternative assures consistency of the NAT data with the target workweek and injects no arbitrary deductions or assumptions. It does result in a smaller sample from which the NAT means are computed, but is the better alternative overall, and was selected.

4.3.1.7 Raw and unweighted means and statistical parameters. Raw (unweighted) means were computed for each survey question by cell. No weighting factors were necessary when examining results at the cell level of detail. Weighting factors were needed when calculating means for CONUS, OCONUS, male, and female aggregations because of the sampling strategy. Recall that the stratified random sampling approach sampled different cells at different rates. This approach necessitated the weighting of respondents by cell to negate the effects of the different sampling rates. This procedure ensured that every cell was represented according to its proportion in the population, i.e., the procedure produced an unbiased sample mean. All that has been written above about weighted and unweighted means also holds true for weighted and unweighted variances. The equations used for computing weighted variances made full use of the variance reduction properties of stratified random sampling. These smaller variances allowed the computation of more reliable confidence intervals for NAT elements.

4.3.1.8 Cell consolidation. It can be shown statistically that the smaller the number of responses in a particular cell, the less reliable are the statistics for that cell. For this reason, all cells containing fewer than 28 responses were merged

with the appropriate "Other" command cell. All the remaining cells contain a sufficient number of responses to be statistically valid.

4.3.1.9 Handling of incomplete or invalid responses. Some respondents failed to answer certain questions. Although lack of response to most questions would only affect that question, failure to respond to critical demographic questions caused the entire record to be eliminated, i.e., failure to respond to the CONUS/OCONUS question or the male/female question necessitated elimination of the record inasmuch as this information was essential for the analysis. The responses to all questions were reviewed and, where feasible, a CONUS/OCONUS designation and/or male/female designation was established by inference based on the responses to other related questions or a series of questions. Through this inference technique, almost all of the otherwise invalid records were salvaged for inclusion in the survey results. Some military respondents had mixed TOE/TDA and/or CONUS/OCONUS assignments within the past year. It was necessary to eliminate these records to avoid TOE NAT data from entering into the TDA NAT data base and to avoid mixed TDA CONUS and OCONUS data from entering the data bank.

4.3.1.10 Conversion to a common time base. Conventions for converting calendar days, duty days, and annual or semi-annual hours to monthly hours are presented in Appendix D. Conversion factors have been computed for various workweeks to simplify their use.

4.3.1.11 SPSS processing. The Statistical Package for the Social Sciences (SPSS) was used to tabulate and analyze all survey results. This statistical software package was used to

investigate and correct invalid and incomplete responses, create unweighted frequency tabulations, calculate unweighted means and variances by cell, perform the weighting of respondents, create weighted frequency tabulations, and calculate weighted means by cell.

4.3.1.12 Frequency distribution analysis by question. The response values for each question were listed for CONUS and OCONUS. These frequency distribution tables for each question were reviewed jointly by Civilian Personnel Center and representatives of the selected members of the Army Staff. The purpose of this review was to establish whether the range of response values for each question was realistic prior to any analysis being performed. Extreme or potentially unreasonable values were noted for possible adjustment if inordinate category NAT values were encountered.

4.3.1.13 Bias analysis. Frequency distributions of weighted survey responses to demographic questions were compared to TDA universe demographic frequency distributions as a check on the possibility of response bias. Although this procedure does not specifically investigate the characteristics of nonrespondents, it is a good indicator of potential bias. If the characteristics of survey respondents are close to the characteristics of the TDA universe, it is unlikely that significant response bias exists. Based on responses to the CONUS/OCONUS, officer/enlisted, sex, command, age, years of service, marital status, and pay plan questions, it appears that the possibility of any significant response bias is remote. In addition, the stratified random sampling technique and associated weighting factors helped to keep bias as small as possible. The use of apriori information

on the distributions of the variables used to stratify the sample and weight the survey responses in effect assured that bias was minimized for those variables used in the sampling and weighting process.

4.3.2 Record data.

4.3.2.1 SPSS processing. SPSS was also used in the processing of record data. Military and civilian leave and civilian training record data were tabulated using the same cell structure as in the survey results processing. Frequency tables and mean and variance statistics by cell were produced.

4.3.2.2 Conversion to common time base. Conversion of data given in calendar days, duty days, or duty hours per a given period of time (e.g., 6 or 12 months) was accomplished with the same conventions as were used for survey data (see Appendix D).

5. AAF DEVELOPMENT

5.1 General requirements.

5.1.1 The prevailing requirement of a credible availability factor is that it reflects, in its derivation, an appropriate allowance for nonavailable time (NAT). Because of this requirement, the final AAF development entails more than simply subtracting the measured NAT from the net assigned. This would be the process if it were not for relevant policy considerations, resource constraints, and the need to show realistic resource utilization practices as part of the force manpower justification process.

5.1.2 The final major requirement, then, is to evaluate the data that reflects what is causing the loss of assigned resources to nonavailability activities and then interpose the considerations that derive from policy directions, either explicitly or implicitly, to arrive at a recommendation of what should be allowed for nonavailability.

5.2 Procedures.

5.2.1 Selection of measured data source. Both record and survey data were available for some NAT elements. In those instances, the values and related validity factors (e.g., statistical parameters) were compared and analyzed to determine which source value was better for the AAF derivation.

(a) Record-based values were used for convalescent leave and AWOL/confinement for military; and for new hire employee orientation, annual,

sick, home/renewal, law enforcement, and military leaves for civilians.

(b) Survey-derived values were used for the remainder of the NAT elements to round out the baseline for measured NAT.

5.2.2 Research of potentially relevant directives. In the early stages of the study, a comprehensive review of Army directives was conducted. That review focused on identification of potential nonavailable time implications and contributed to the identification of NAT elements to be measured. [2/] In this phase of the AAF development process, the research of directives focused more specifically on the extent to which directives dictate or drive the amount of time that is or should be spent in the defined nonavailable categories. The research concentrated on identifying and evaluating directives which:

(a) Stipulated time to be devoted to any of the defined NAT elements.

(b) Directed events and their frequencies that portend nonavailable time consequences.

(c) Inferred times or factors that would relate to NAT occurrences.

[2/] Interim Report, "Review and Analysis of Availability Factor Methodologies," G. Smith, R. Hartt, H. Gillogly, 16 June 1982.

5.2.3 Integration of directives/policies to arrive at tentative allowable NAT by element.

5.2.3.1 The review of Army directives/policies revealed that:

(a) Only non-medical leave directives contain stipulated time values. However, these values are parametric in nature as they cite earned allowances rather than amounts of leave that must be taken, e.g., directives authorize military personnel 30 days of ordinary leave per year. In fact, all personnel do not take 30 days of leave per year because some individuals choose to carry over leave to the following year, others sell it back to the Army, and some elect not to use all of their leave and lose it.

(b) The publications that direct certain events (and, in a few cases, their frequency) create a significant amount of NAT which falls predominately in the training and organizational duties categories. Again, these publications are general in nature and do not provide a basis for establishing NAT levels at the element or category level. Some examples of such directives are:

- Commanders are required to conduct periodic Commander's Call for military personnel in their organization. However, neither the frequency nor duration of each session is specified.

- AR 350-1 is a compendium of training activities specified by other Army directives, e.g., arms qualification, awareness training, refresher training, etc. Neither this regulation nor those referenced in it specify the time involved for a particular training activity, but do call for an event to occur quarterly, semiannually, or annually.

(c) Directives that contained inferred NAT events also contribute significantly to the NAT in elements of the training and organizational duties categories. However, it would not be feasible to establish any NAT values at the element or category level based on these publications, e.g., *military personnel* performing details such as charge of quarters, staff duty officer, etc.

5.2.3.2 As a result of this review, it was concluded that directives/policies would not provide a basis for any specific NAT element or category times. Thus, only record and survey data would be a source for NAT values for use in establishing a NAT baseline.

5.2.3.3 This review also indicated that the ancillary training and organizational duties being directed or inferred are so extensive that some special action may be required to cancel or modify directives that create excessive NAT unless the Army is prepared to accept a lower military man-hour availability level than is now being used within DA.

5.2.4 Coordination of tentative element NATs. Survey and record element values were reviewed and a tentative decision made as to which data source would be used as the point of departure for each element. These tentative element times were informally coordinated with representatives of DAPE-MBU, the Civilian Personnel Center, the Surgeon General, and Training Directorate of DCSOPS. As a result of this coordination, the tentative element times for "Details" were adjusted downward inasmuch as it was determined there was duplication between these element times and those for compensatory time. The resulting values were used as the baseline for further NAT analysis.

5.2.5 Computation and coordination of average net assigned time. Preparatory to final factor computation, the net assigned time was computed for the workweeks prescribed in the study. The same convention was used for all workweeks, with the differences in net assigned time attributable to the varying number of work days per year and the policy on holidays. The computations and resulting values are presented in Appendix E.

5.2.6 Computation of peacetime AAFs.

5.2.6.1 In this phase, the NAT element values were summarized by category and totaled for each of the four peacetime AAFs required. The total NAT for each AAF was then subtracted from the net assigned time (167.92) to arrive at the AAFs that result if the measured data are the sole basis for the computation. The NAT category totals and four peacetime AAFs that result from survey and record data are displayed in Table 11.

5.2.6.2 Because of the voluminous amount of data accumulated and the extensive amount of computer products generated during the analysis, the detailed data and analysis information are being provided under separate cover.

TABLE 11. PEACETIME ARMY AVAILABILITY FACTORS (MEASURED BEHAVIOR).

NAT Category	40-Hour Workweek			
	Military		Civilian	
	CONUS	OCONUS	CONUS	OCONUS
Leave (Non-Medical)	9.375	10.036	13.677	14.597
Medical	4.242	4.216	5.125	4.195
Training (Ancillary)	6.453	7.325	0.919	1.245
Organizational Duties	9.276	10.707	2.644	3.468
Miscellaneous	0.569	1.300	0.634	0.768
PCS-Related and New Hire Orientation	0.936	2.029	0.120	1.298
Total NAT	30.851	35.613	23.119	25.571
Net Assigned Time	167.92	167.92	167.92	167.92
AAF	137.07	132.31	144.80	142.35

5.2.7 Peacetime AAF confidence interval calculations. Confidence interval calculations were performed on the availability factors. Results are contained in Table 12. The purpose of these calculations was to demonstrate reliability, i.e., to show how close the availability factors are to true population availability factors. For example, Table 12 shows a 95% confidence interval for CONUS military availability is 137.07 ± 0.097 hours. This means there is a 95% probability that the true population availability factor is in a range from 136.97 hours to 137.17 hours. This represents a possible deviation of no more than 0.071%.

TABLE 12. CONFIDENCE INTERVAL DATA.

	Available Time Hours	95% Confidence Interval on Available Time	Tolerance Level (%)
Military:			
CONUS	137.07	±0.097	0.071
OCONUS	132.31	±0.433	0.331
Civilian			
CONUS	144.80	±0.325	0.224
OCONUS	142.35	±0.933	0.655

5.3 Wartime factors.

5.3.1 Wartime availability factors are derivations of peacetime factors with appropriate adjustments to both non-available time elements and allowed times for certain elements to reflect the wartime work environment and work policies.

5.3.2 The initial step in this process was to review unclassified wartime manpower planning documents to determine which Army policies would apply during wartime conditions.

5.3.3 Consistent with the wartime policies reviewed, the following changes were made to the list of NAT elements used in developing peacetime AAFs:

(a) Twenty-one elements that apply to military and/or civilians were deleted as being nonapplicable in wartime. These elements are: leadership/supervisory training; answering surveys; refresher training; quarters inspections; physical fitness testing; compensatory time for work details; labor management relations; administrative dismissals; off-post/on-post moves; privately-owned vehicle requirements overseas, emergency leave travel overseas; car shipments to and from overseas; family settlement; house-hunting trips within CONUS; immunizations/vaccinations; drug/alcohol rehabilitation testing; overseas orientation; environmental and morale leave (overseas only); law enforcement; and military leave.

(b) Only two elements (rest and recuperation leave and convalescent leave for civilians) that apply under wartime conditions were added.

5.3.4 Wartime NAT values were then assigned to each element on this list. These values were based on the best evidence available or on the judgment of personnel familiar with general wartime operating conditions. The NAT values were accumulated in the same categories as were used for peacetime AAFs. The resulting NAT category totals and wartime AAFs for a 48-hour workweek for civilians and a 60-hour workweek for military are contained in Table 13.

TABLE 13. WARTIME ARMY AVAILABILITY FACTORS.

NAT Category	Civilian 48-Hour Week	Military 60-Hour Week
Leave (Non-Medical)	6.70	4.50
Medical	3.68	2.12
Training (Ancillary)	0.33	1.88
Organizational Duties	0.50	4.90
Miscellaneous	0.47	1.04
PCS-Related and New Hire Orientation	0.08	1.02
Total NAT	11.76	15.46
Net Assigned Time	208.58	260.73
AAF	196.82	245.27

6. RECOMMENDATIONS

6.1 Recommendation options. There are two basic alternatives available to develop AAF recommendations:

(a) Accept the measured data AAFs and be prepared to support them to the Office of Secretary of Defense (OSD), Office of Management and Budget (OMB), and Congress in requesting any additional resources needed for their implementation.

(b) Propose target AAFs and identify the associated policy actions that will be required. This alternative removes the AAF from the realm of simple measured behavior to one of stipulating what NAT is allowed. It would be selected if and when an AAF based only on measured behavior could not be defended.

6.2 Man-hour availability comparisons. Any recommended Army availability factors (AAFs) must be reasonable and supportable to OSD, OMB, and Congress. One step in judging this reasonableness will certainly be a comparison of the AAFs with the man-hour availability factors of the other military departments, especially with those of the Air Force, since they are the result of successive and relatively high-visibility studies. Table 14 is a comparison of the Army-measured category NATs and availability factors with those being used by the Air Force.

6.2.1 This comparison indicates that:

TABLE 14. MONTHLY MAN-HOUR AVAILABILITY--ARMY MEASURED BEHAVIOR VS AIR FORCE ALLOWED.

Category	Military				Civilian			
	CONUS		OCONUS		CONUS		OCONUS	
	Army	AF	Army	AF	Army	AF	Army	AF
Net assigned time	167.92	167.93	167.92	167.93	167.92	167.93	167.92	167.93
Leave (non-medical)	9.38	9.73	10.04	9.29	13.68	14.42	14.60	14.37
Medical	4.24	2.91	4.22	3.16	5.13	6.19	4.20	3.98
Training (ancillary)	6.45	4.47	7.33	4.71	0.92	1.40	1.25	1.13
Organizational duties	9.28	3.63	10.71	4.23	2.64	0.64	3.47	1.28
Miscellaneous	0.57	0.37	1.30	0.99	0.63	0.64	0.77	1.28
PCS-related and new hire orientation	0.94	1.65	2.03	2.09	0.12	0.64	1.30	1.28
Total NAT (in-unit)	30.86	27.76	35.63	24.45	23.12	22.65	25.57	20.76
Availability	137.06	145.17	132.29	143.48	144.80	145.30	142.35	147.20

(a) Both the CONUS and OCONUS civilian measured AAFs are very close to the man-hour availability being used by the Air Force, and are recommended for adoption by the Army for its U.S. civilians.

(b) Both the CONUS and OCONUS military measured AAFs are extremely low when compared with those being used by the Air Force. Target AAFs are therefore recommended.

6.3 Target AAF development. Analysis of the NAT by category in Table 14 revealed significant differences in two categories: training; and organizational duties. Somewhat higher Army values in these categories can be attributed to differences in philosophies and methods of operation (e.g., housekeeping duties and training as part of soldiering; more Army service-type activities performed by work details, etc.). However, the expenditure of 10% of net assigned time on these categories by the Army, compared to the 5%-6% allowed by the Air Force, suggests both a vulnerable area of nonavailability and a logical candidate for improvement.

6.3.1 Since both of these categories incorporate a large number of NAT elements, driven by numerous directives, it is both infeasible and inadvisable to attempt an element-by-element targeting for NAT redirection. Even if this were possible, it would run counter to the traditional Army philosophy of leaving maximum prerogative to individual Commanders. Accordingly, an alternative approach that establishes an overall category limit while preserving the Commander's flexibility to meet the constraint is presented.

6.3.2 Allowed NAT values for the training and organizational duties categories were established and stipulated for use by DCSPER in the computation of the initial set of AAFs (see Table 15). These values reflect minor perceived differences between CONUS and OCONUS operations of the Army. Further coordination with functional proponents for these areas is anticipated as experience is gained with the resulting AAF and as definitions of what the Army can and cannot afford to resource in these areas are refined. Based on the coordination experience in this study, conclusive negotiations will not progress until functional managers are presented with proposed allowances, constraints, etc., that reflect the cost, in NAT, of numerous functional program decisions and directives.

6.4 Normative factor implementation. As indicated previously, the research of Army directives produced practically no concrete NAT values or direct drivers of NAT values. Consequently, there is no existing baseline to which a set of discrete modifications could be applied to, in effect, force the measured behavior values to normative values that are reasonable and supportable. If a directive-by-directive modification were attempted, it would require imposing specific NAT constraints for the first time, not modifying existing constraints (because they are nonexistent). Further, such an approach would almost certainly surface a long and involved process to obtain mutual agreement on a set of NAT constraints or guides that transcend numerous directives and proponencies.

6.5 Recommended AAFs. The available time factors and the NAT allowances by category recommended for use by the Department of the Army are contained in Table 15.

TABLE 15. RECOMMENDED AAFs BY WORKWEEK.

Category	Peacetime				Wartime	
	40-Hour				48-Hour	60-Hour
	Military		U.S. Civilian		U.S. Civilian	Military
	CONUS	OCONUS	CONUS	OCONUS	Worldwide	Worldwide
Net assigned time	167.92	167.92	167.92	167.92	208.63	260.79
Leave (non-medical)	9.38	10.04	13.68	14.60	6.70	4.50
Medical	4.24	4.22	5.13	4.20	3.68	2.12
Training (ancillary)	4.92	5.18	0.92	1.25	0.33	1.88
Organizational duties	4.72	4.65	2.64	3.47	0.50	4.90
Miscellaneous	0.57	1.30	0.63	0.77	0.47	1.04
PCS-related and new hire orientation	0.94	2.03	0.12	1.30	0.08	1.02
Total NAT (in-unit)	24.77	27.42	23.12	25.57	11.79	15.47
AAF	143.15	140.50	144.80	142.35	196.84	245.32

6.6 Summary. The recommended AAFs for military personnel essentially reflect measured behavior, with modifications to the NAT for training and organizational duties to provide a more supportable allowance. Although the resulting factors are lower than the Air Force factors to which they will inevitably be compared, the fact remains that they are basically reflective of the Army and the way the Army operates. They should not be judged as good or bad simply on the basis of a direct comparison with other Service factors. Rather, the deliberations on the final approved AAF must consider the hard question of whether the Army can justify the resource expenditures in NAT that have now been quantified. If the answer is yes, the recommended AAFs should stand. If the answer is no, then the only recourse is to take those actions which either "stretch" the resource (i.e., prescribe longer workweeks) or which will force a change in the behavior that is driving the NAT values to unsupportable levels. In either course, the action must be in the form of a top-level policy statement that frankly prescribes what the Army can and will support and what is incumbent upon commanders and managers to ensure good resource utilization and continued justification of requirements.

6.7 Directive changes. The suggested approach is to modify pertinent manpower policy directives to present the approved AAFs, including NAT, stipulate their use, and explain the latitude available to commanders and managers in living with the allowance. Two directives are identified for modification:

(a) AR 570-4. The recommended AAFs should be added to this publication as the policy statement of available time allowances for TDA personnel.

(b) DA Pamphlet 570-4. The available time prescribed by this directive for staffing guides and for use in manpower surveys should be revised to the levels specified by the recommended AAFs.

6.8 Future actions. Subsequent updates of AAFs are anticipated. In the meantime, management attention should focus on the various NAT expenditures, and on ways to control--or at least consider--the impact of program decisions, policies, etc., on nonavailability.

APPENDIX A

NONAVAILABLE TIME (NAT) ELEMENTS AND DEFINITIONS

LEAVE (NONMEDICAL)

Title	Definition	
	Military	Civilian
Ordinary/Annual Leave	Authorized absence from the work center for regular or reenlistment leave taken by the military member and chargeable to annual leave earned. (Leave taken in connection with a PCS is not included in this element or in nonavailable time.)	Authorized absence from the work center for a civilian employee who requests time off chargeable to earned annual leave time, e.g., extended vacation, attend to family emergencies, personal matters.
Emergency Leave	Authorized absence from the work center to allow personnel to attend to urgent personal matters, e.g., serious illness or death of immediate family member. (This leave is chargeable to annual leave earned.)	Covered by "Annual Leave" and/or "Sick Leave."
Law Enforcement Leave	Not applicable.	Authorized absence from the work center for a civilian who is called to active duty for state (including District of Columbia) service as a member of the National Guard for the purpose of law enforcement.
Military Leave	Not applicable.	Authorized absence from the work center for a civilian employee who is called to active duty for federal service as a member of the National Guard or a Reserve component of the Services or the Coast Guard (to include the period of 15 days per year for active duty for training).
Special Leave/Home/ Renewal Leave (overseas only)	Authorized absence from the overseas work center (in an area designated for hostile fire pay) for leave in connection with an extension of his/her tour (wartime only).	Authorized absence from the overseas work center for a civilian to take a CONUS leave earned through completion of a specified tour at an overseas location and agreement to complete a second overseas tour at the same location or at another overseas location.

LEAVE (NONMEDICAL) (Cont)

Title	Definition	
	Military	Civilian
Environmental and Morale Leave (EML) (overseas only)	Authorized absence from the work center for leave from overseas installations where adverse environmental conditions warrant special leave arrangements.	Not applicable.
Rest and Recuperation (R&R) Leave (overseas only)	Authorized absence from the work center in an area designated for hostile fire pay for a vacation during his/her tour (wartime only).	Not applicable.

MEDICAL

Title	Definition	
	Military	Civilian
Dental Visits	Authorized absence from the work center for dental checks and treatment.	Covered by "Sick Leave."
Physical Examinations	Authorized absence from the work center for periodic physical examinations as required by Army directives.	Covered by "Sick Leave."
Outpatient Visits	Authorized absence from the work center for sick call and routine medical treatment.	Covered by "Sick Leave."
Inpatient/Sick in Quarters	Authorized absence from the work center while a patient is in the hospital or sick in quarters. (This element does not include time spent in hospital while assigned to the patient holding detachment of the treatment facility.)	Covered by "Sick Leave."
Sick Leave	Not applicable.	Authorized absence from the work center based on illness, injury, medical, dental, optical examination, or treatment; or would jeopardize the health of others because of exposure to a contagious disease.
Convalescent Leave	Authorized absence from the work center while recuperating from medical conditions with an extended recovery period during which the medical authority recommends a period of leave.	Authorized absence from the work center for hospitalization and related care of injuries sustained overseas as the result of mob violence or other hostile actions (overseas only).
Job-Related Injury	Covered by "Outpatient Visits" and "Inpatient/Sick in Quarters."	Authorized absence from the work center for treatment of a physical impairment resulting from an on-the-job accident or while recovering from an on-the-job injury.
Immunizations/ Vaccinations	Authorized absence from the work center for immunizations/vaccinations required by current Army directives.	Authorized absence from the work center for immunizations/vaccinations in connection with a PCS move outside the CONUS or while stationed overseas. Also includes administrative absences resulting from reactions to these immunizations/vaccinations.

MEDICAL (Cont)

Title	Definition	
	Military	Civilian
Maternity	Authorized absence from the work center for prenatal and postpartum care (some postpartum care may be covered by convalescent leave).	Covered by "Sick Leave," "Annual Leave," and "Leave Without Pay." (Also known as "Maternity Leave.")
Drug/Alcohol Rehabilitation	Authorized absence from the work center while undergoing drug/alcohol rehabilitation.	Same as military.

TRAINING (ANCILLARY)

Title	Definition	
	Military	Civilian
Leadership/Supervisory Training	Authorized absence from the work center for attendance at leadership training courses. Includes attendance at NCO Academies.	Authorized absence from the work center for supervisory training.
Program Training	Authorized absence from the work center for the purpose of weapons qualification as required by current Army directives, provided the carrying of arms is not part of his/her primary duty. Also includes physical fitness testing and while participating in a remedial physical conditioning program.	Not applicable.
Refresher Training	Authorized absence from the work center for briefings on benefits of an honorable discharge; equal opportunity program; Geneva Hague Conventions; Code of Conduct; alcohol/drug abuse; and for enlisted only, check cashing and military justice.	Authorized absence from the work center for briefings on Employee Equal Opportunity (EEO) program and on drug/alcohol program.
Integrated Training	Authorized absence from the work center for briefings on first aid, heat, cold, and hearing injury prevention program; nuclear, biological and chemical defense, opposing force, survival, evasion, resistance, and censorship program; and operations and electronics security.	Authorized absence from the work center for training in first aid and operations/electronics security. Also covers absences from the overseas work center for civilians while participating in noncombatant evacuation operations exercises (NEO).
Awareness Training	Authorized absence from the work center for training in counter-terrorism, command information program; subversion espionage directed against the Army; Army safety program; and moral and ethics development.	Authorized absence from the work center for attendance at briefings given the general population of the installation on the Army safety program.
General Military Training	Authorized absence from the work center to attend briefings (not formal courses) on military subjects not covered by program, refresher, integrated, and awareness training.	Not applicable.

ORGANIZATIONAL DUTIES

Title	Definition	
	Military	Civilian
Commander's Call	Authorized absence from the work center to attend periodic meetings held by the unit commander to discuss items of current interest, pass on information, and answer questions of subordinates.	Not applicable.
Unit Formations	Authorized absence from the work center to participate in parades, retreats, and other unit formations.	Not applicable.
Quarters Inspection	Authorized absence from the work center for quarters inspection during which the unit commander requires the individual(s) to be present.	Not applicable.
Physical Fitness Testing	Authorized absence from the work center for periodic testing of physical fitness, physical conditioning, and remedial physical conditioning.	Not applicable.
Testing	Authorized absence from the work center for the purpose of taking skill tests (MOS) and other tests related to general education and promotions.	Authorized absence from the work center for civilian employees to take Civil Service examinations as required by the employing activity.
Counseling and Reviews	Authorized absence from the work center for contacts with installation offices/agencies for assistance, e.g., legal assistance office, chaplain's office.	Not applicable.
Personnel Boards/ Councils	Authorized absence from the work center to appear before boards/councils when being considered for promotion, demotion, reclassification, etc.	Authorized absence from the work center for appeal and grievance hearings of civilian employees.
Individual Ceremonies (Promotion, Retirement, and Awards)	Authorized absence from the work center for the purpose of attending promotion, retirement, and awards ceremonies.	Same as military.
Answering Surveys	Time in the work center or an authorized absence for the purpose of completing questionnaires responding to DoD or Army surveys that are not related to the operation of the work center.	Same as military.

ORGANIZATIONAL DUTIES (Cont)

Title	Definition	
	Military	Civilian
Personnel Office Contacts and Job Interviews	Authorized absence from the work center to visit the servicing military personnel office(s) for official business reasons.	Authorized absence from the work center for civilian employees to visit their civilian personnel office (CPO) for official business reasons, e.g., pay, classification, and also to receive briefings on changes to the civilian personnel program and retirement seminars, along with job interviews arranged by the CPO.
Additional Duties	Authorized absence from the work center to perform assigned duties in addition to the primary duty assignment in the work center. (These additional duty assignments are normally confirmed on official orders, e.g., Line of Duty Investigations Officer, Voting Officer, Nonappropriated Fund (NAF) Council, Officer/NCO Club Council.	Same as military.
Project/Work Details	Authorized absence from the work center to perform projects (sometimes called details) in lieu of his/her primary duty assignment during normal duty hours. (Assignments to details are not normally carried on official orders, e.g., CFC Chairman, inventory at Officer/NCO clubs, mess checker, etc.)	Same as military. (NOTE: Detailed for duty in another position should not be counted in this element.)
Compensatory Time for Project/Work Details	Authorized absence from the work center for compensatory time resulting from performance of project/work details. (Does not include compensatory time for overtime work in one's own work center or for loaned time.)	Same as military.
Duty Details	Not applicable.	Authorized absence from the work center for temporary assignment in writing to a different position for a specific period of time with the employee returning to his/her regular duty at the end of the detail.
Labor/Management Relations	Not applicable.	Authorized absence from the work center for an employee representing a labor organization to conduct meetings or consult with management officials.

PCS-RELATED AND NEW HIRE ORIENTATION

Title	Definition	
	Military	Civilian
In/Out Processing	Authorized absence from the work center for checking in or clearing out of the various offices/activities/agencies at an installation upon arrival or preparatory to retirement, transfer, or resignation.	Same as military. (Arrival also includes new-hire employees.)
Quarters Check-In/ Clearance	Authorized absence from the work center for quarters check-in upon arrival or clearance upon departure for a PCS move.	Same as military.
Household Goods/ Hold Baggage Shipment and Receipt	Authorized absence from the work center in connection with the shipment and receipt of household and hold baggage. (Shipment from overseas includes Customs clearances.)	Same as military.
Family Settlement	Authorized absence from the work center for military personnel with dependents upon arrival from a PCS move.	Same as military. (Applies overseas only.)
House-Hunting Trip to New Duty Station	Authorized absence from the work center for military personnel under PCS orders within CONUS to travel, at their own expense, on permissive TDY to their new CONUS duty station for the purpose of locating off-post housing.	Authorized absence from the work center for civilian personnel to travel TDY to their new CONUS duty station prior to a PCS for the purpose of locating suitable housing.
Proceed Time	Authorized absence from the work center to attend to administrative details in establishing/disestablishing a residence incident to a PCS. (Restricted to PCS moves overseas and return to CONUS by military members with dependents that are authorized travel at Government expense.)	Not applicable.
Enroute Time	Not applicable. (Covered in Individuals Account.)	Authorized duty time absences while a civilian travels to his/her new duty station under PCS orders.
Sponsorship Duties	Authorized absence from the work center to assist arriving PCS personnel in family settlement and completion of in-processing.	Same as military.

PCS-RELATED AND NEW HIRE ORIENTATION (Cont)

Title	Definition	
	Military	Civilian
New-Hire Employee Orientation	Not applicable.	Authorized absence from the work center to attend orientation briefings given to all new-hire employees, i.e., only for civilians when they first start work for the Army.
Car Shipments	Authorized absence from the work center for the purpose of picking up his/her POV from a port of debarkation or delivery of a POV to a port of embarkation *in connection* with a PCS to or from an overseas assignment.	Same as military.
Overseas Orientation (overseas only)	Authorized absence from the overseas work center for attendance at briefings for new arrivals in an overseas area.	Same as military.

MISCELLANEOUS

Title	Definition	
	Military	Civilian
Administrative Dismissals	Authorized absence from the work center based on installation Commander's decision to excuse military personnel from reporting for duty, e.g., blizzard conditions, hurricane conditions, etc.	Authorized absence from the work center for civilians, based on acts of God and special occasions limited to such as blizzard conditions, work center closed due to a fire, etc.
Absent Without Leave (AWOL)	Time lost to the work center when an individual does not report for duty as scheduled, and the absence is not covered by other authorizing directives, e.g., leave, TDY orders.	Not applicable.
Voter Registration/ Voting	Authorized absence from the work center to locally register to vote and for casting a ballot in all elections at local polling places.	Same as military.
Blood Donation	Authorized absence from the work center for the purpose of donating blood, plasma, platelets, etc., and any recuperative time if medically indicated.	Same as military.
Court Duties	Authorized absence from the work center to appear as a witness in departmental legal proceedings, e.g., court martials.	Authorized absence from the work center to serve as a jury member or to be a witness at a trial in which the state or local government is one of the parties, i.e., Court Leave. Also for military legal proceedings.
Confinement	Time lost to the work center for those personnel who have been incarcerated prior to their transfer to the prisoner account.	Not applicable.
Emergency Rescue/ Protective Work	Authorized absence from the work center to participate in installation-directed search and rescue operations along with protection of property from major perils, such as flood, fire, or riot.	Authorized absence from the work center devoted to efforts to save personnel from life-threatening perils (e.g., member of Civil Air Patrol) or to protect public property from pending, or as a result of, natural disasters.

MISCELLANEOUS (Cont)

Title	Definition	
	Military	Civilian
Military Funerals	Authorized absence from the work center to attend local military funerals. (Detailed as pallbearer or Honor Guard member at such funerals would be considered as an organizational activity.)	Authorized absence from the work center for an employee whose immediate relative dies as the result of injuries received while a member of the Armed Forces in a combat zone. Also member of veterans' organization Honor Guard, or pallbearer for remains being returned to CONUS for interment.
Civil Defense	Not applicable.	Authorized absence from the work center for participation in civil defense programs as a designated official by the Army. (Voluntary participation is normally covered by annual leave.)
Private Vehicle Requirements (overseas only)	Authorized absence from the overseas work center for the purpose of taking an examination to obtain a license for a privately-owned vehicle (POV) from the appropriate military authority or foreign country, and to obtain required POV inspections for licensing or relicensing of a POV to operate in that foreign country.	Same as military.
Off-Post/On-Post Moves	Authorized absence from the overseas work center for the purpose of moving from off-post civilian housing to on-post military housing. This also includes on-post moves resulting from grade or position changes that affect quarters entitlements.	Same as military.
Emergency Leave Travel (overseas only)	Authorized absence from the overseas work center for travel time from OCONUS to CONUS port and return.	Not applicable.

APPENDIX B

CATEGORY DEFINITIONS

LEAVE (NON-MEDICAL). Authorized absences from the work center for leave purposes. This category includes both military leaves (ordinary, emergency, reenlistment, and renewal, along with environmental and morale) and civilian leaves (annual, home/renewal, military, and law enforcement).

MEDICAL. Authorized absences from the work center for medical reasons. This category includes dental visits, physical examinations, outpatient visits, inpatient status, sick in quarters, immunizations/vaccinations, maternity care, convalescent leave, and drug/alcohol rehabilitation. Civilian sick leave, drug/alcohol rehabilitation, and job-related injuries fall in this category.

TRAINING (ANCILLARY). Authorized absences from the work center for training not directly related to job performance or a specific skill/job series (i.e., training prescribed for the general population of an organization). This category includes leadership training, together with program, refresher, integrated, and awareness training. (Specifically excludes attendance at technical schools in a TDY status or local training given for a particular military skill/civilian job series.)

ORGANIZATIONAL DUTIES. Authorized absences from the work center to perform additional duties and details associated with an individual's assignment to a military organization. This includes taking of tests, responding to surveys, appearing before boards/counsels, required contacts with personnel offices (including separation and retirement briefings), and attendance at promotion awards and retirement ceremonies. Also includes military attendance for Commander's Call, unit formations, quarters inspections, physical fitness testing, and prescribed remedial physical conditioning.

PCS-RELATED AND NEW HIRE ORIENTATION. Authorized absences from the work center for activities associated with arrival at/departure from an installation in connection with a permanent change of station (PCS), retirement, or separation. Examples of activities in this category include: Government quarters check-in/clearance, shipment and receipt of household goods/hold baggage, and privately-owned vehicles when being transferred to and from OCONUS, authorized house-hunting trips, new arrival, sponsorship (overseas only for civilians), family settlements, initial

orientation for new hire civilian employees, and enroute duty time for civilian employees being transferred under PCS orders.

MISCELLANEOUS. Recognized absences from the work center for reasons/purposes not covered in the above categories. This category includes administrative dismissals (e.g., bad weather), civic duties (member of jury, voter registration/voting, court witness), blood donations, military funerals, and overseas private vehicle requirements. Absent without leave and confinement are included in this category for military personnel. It also applies to civilians involved in emergency rescue/protective work and civil defense. (Note: Activities in this category are sometimes referred to as Special Absences when applied to civilians.)

APPENDIX C

SUMMARY DEMOGRAPHIC STATISTICS

This appendix indicates the unweighted number of survey respondents, and percentage that number represents, of total respondents with various demographic characteristics.

C.1 MILITARY DEMOGRAPHIC INFORMATION

C.1.1 Number of officer (including warrant officer) and enlisted respondents by CONUS, OCONUS, and worldwide.

Personnel Category	CONUS		OCONUS		Worldwide	
	No.	%	No.	%	No.	%
Officer	1,439	43	300	42	1,739	43
Enlisted	1,904	51	416	58	2,320	57
Total	3,343	82	716	18	4,059	100

C.1.2 Number of male and female respondents by CONUS, OCONUS, and worldwide.

Sex	CONUS		OCONUS		Worldwide	
	No.	%	No.	%	No.	%
Male	2,781	83	522	77	3,303	82
Female	563	17	165	23	728	18
Total	3,344	83	687	17	4,031	100

C.1.3 Dependency status of the respondents by CONUS, OCONUS, and worldwide.

Status	CONUS		OCONUS		Worldwide	
	No.	%	No.	%	No.	%
With dependents	2,701	81	539	75	3,240	86
Without dependents	629	19	177	25	806	20
Total	3,330	82	716	18	4,046	100

C.1.4 Number of respondents by marital status for CONUS, OCONUS, and worldwide.

Status	CONUS		OCONUS		Worldwide	
	No.	%	No.	%	No.	%
Not married	625	20	149	22	774	20
Married, spouse not in Service	2,273	73	442	66	2,715	72
Married, spouse in Service	227	7	78	12	305	8
Total	3,125	82	669	18	3,794	100

C.1.5 Number of respondents by various age groups for CONUS, OCONUS, and worldwide.

Age Group	CONUS		OCONUS		Worldwide	
	No.	%	No.	%	No.	%
25 or under	474	14	168	24	642	16
26-35	1,565	47	324	46	1,889	47
36-45	1,046	32	182	26	1,228	31
46-55	222	7	31	4	253	6
Over 55	5	--	2	--	7	--
Total	3,312	82	707	18	4,019	100

C.1.6 Number of respondents by various groups of years of service for CONUS, OCONUS, and worldwide.

Years of Service	CONUS		OCONUS		Worldwide	
	No.	%	No.	%	No.	%
5 or less	630	19	210	30	840	21
6-10	808	24	180	25	988	25
11-15	820	25	153	21	973	25
16-20	639	19	102	14	741	18
21-25	293	9	50	7	343	8
26-30	127	4	13	2	140	3
Over 30	8	--	5	1	13	--
Total	3,325	82	713	18	4,038	100

C.2 CIVILIAN DEMOGRAPHIC INFORMATION

C.2.1 Number of respondents by sex for CONUS, OCONUS, and worldwide.

Sex	CONUS		OCONUS		Worldwide	
	No.	%	No.	%	No.	%
Male	3,404	63	257	65	3,661	63
Female	1,980	37	141	35	2,121	37
Total	5,384	93	398	7	5,782	100

C.2.2 Number of respondents by pay plan for CONUS, OCONUS, and worldwide.

Pay Plan	CONUS		OCONUS		Worldwide	
	No.	%	No.	%	No.	%
General Schedule (GS) and similar	3,944	75	344	88	4,288	76
WG and similar	1,282	24	44	11	1,326	23
Senior Executive Service	10	--	--	--	10	--
Other	36	1	4	1	40	1
Total	5,272	93	392	7	5,664	100

C.2.3 Number of respondents by age ranges for CONUS, OCONUS, and worldwide.

Age Group	CONUS		OCONUS		Worldwide	
	No.	%	No.	%	No.	%
25 or under	243	4	11	3	254	4
26-35	1,289	24	89	22	1,378	24
36-45	1,411	26	106	26	1,517	26
46-55	1,588	30	125	31	1,713	30
Over 55	834	16	75	18	909	16
Total	5,365	93	406	7	5,771	100

C.2.4 Number of respondents by various groups of years of service for CONUS, OCONUS, and worldwide.

Years of Service	CONUS		OCONUS		Worldwide	
	No.	%	No.	%	No.	%
5 or less	1,322	24	114	29	1,436	25
6-10	1,113	21	82	20	1,195	21
11-15	816	15	59	14	875	15
16-20	896	17	53	13	949	16
21-25	516	10	25	6	541	9
26-30	395	7	40	10	435	7
Over 30	345	6	34	8	379	7
Total	5,403	93	407	7	5,810	100

APPENDIX D
CONVERSION METHODOLOGY

The methodology for converting various units of measured or record nonavailable time (NAT) into hours per month is as follows:

- Calendar Days. Data, which in original form was in calendar days per year, were converted with the following equation:

  $$\text{Calendar days of NAT/year} \times \frac{\text{Work days/year}}{\text{365.25 calendar days/year}} \times \frac{\text{Hours/workday}}{\text{12 mos/yr}} = \text{NAT man-hours lost/month}$$

  Specific conversion factors are:

  5-day, 40-hour week: calendar days/year
  x .476 = NAT man-hours per month

  6-day, 48-hour week: calendar days/year
  x .571 = NAT man-hours per month

  6-day, 60-hour week: calendar days/year
  x .714 = NAT man-hours per month

- Duty Days. Data, which were reported as the number of duty days lost per year, were converted by using the following equation:

  $$\text{Duty days of NAT/year} \times \frac{\text{Hours/workday}}{\text{12 mos/yr}} = \text{Man-hours lost/month}$$

  Specific conversion factors are:

  5-day, 40-hour week: duty days/year x .667
  = NAT man-hours per month

6-day, 48-hour week: duty days/year x .667
= NAT man-hours per month

6-day, 60-hour week: duty days/year x .833
= NAT man-hours per month

- Man-hours. Data reported as NAT man-hours per time period were converted with the following formula:

$$\frac{\text{Man-hours of NAT}}{\text{Months in time period}} = \text{NAT man-hours/month}$$

- Rate Per Thousand. NAT data reported as the average number of personnel for each 1,000 population over a specified period of time were converted with the following formula:

$$\frac{\text{Rate (per 1,000)}}{\text{1,000 x months in time period}} = \text{NAT man-hours/month}$$

- Number of Personnel. NAT data reported as the average number of personnel absent over specified period of time were converted with the following formula:

$$\frac{\text{Number of individuals}}{\text{Months in specified time period}} \times \frac{\text{Duty days/year}}{\text{Average number days/year}}$$

= NAT man-hours/month

APPENDIX E
NET ASSIGNED WORKWEEK FACTORS

40-HOUR 5-DAY WORKWEEK

Average number of calendar days per year $\left(\frac{365 + 365 + 365 + 366}{4}\right)$	365.25
Less average number of relief days* per year $\left(\frac{5 \times 104 + 3 \times 105}{8}\right)$	-104.375
Total assigned duty days per year	260.875
Less 9 Federal holidays	-9
Average net assigned duty days per year	251.875
Conversion of net assigned duty days per year to net assigned duty days per month (÷ 12)	20.990
Conversion of net assigned duty days per month to net assigned duty hours per month (x 8)	167.92

* Relief days are defined as scheduled "days off" each week, e.g., Saturdays and Sundays for a Monday through Friday work week.

48-HOUR 6-DAY WORKWEEK

Average number of calendar days per year $\left(\frac{365 + 365 + 365 + 366}{4}\right)$	365.25
Less average number of relief days* per year for next 8 years $\left(\frac{5 \times 52 + 3 \times 53}{8}\right)$	-52.375
Total assigned duty days per year	312.875
Less 9 Federal holidays	**
Average net assigned duty days per year	312.875
Conversion of net assigned duty days per year to net assigned duty days per month (÷ 12)	26.073
Conversion of net assigned duty days per month to net assigned duty hours per month (x 8)	208.58

* Relief days are defined as scheduled "day off" each week, e.g., Sundays for a Monday through Saturday work week.

** Holidays considered as regular work days during wartime conditions.

60-HOUR 6-DAY WORKWEEK

Average number of calendar days per year $\left(\frac{365 + 365 + 365 + 366}{4}\right)$	365.25
Less average number of relief days* per year for next 8 years $\left(\frac{5 \times 52 + 3 \times 53}{8}\right)$	-52.375
Total assigned duty days per year	312.875
Less 9 Federal holidays	**
Average net assigned duty days per year	312.875
Conversion of net assigned duty days per year to net assigned duty days per month (÷ 12)	26.073
Conversion of net assigned duty days per month to net assigned duty hours per month (x 10)	260.73

* Relief days are defined as scheduled "day off" each week, e.g., Sundays for a Monday through Saturday work week.

** Holidays considered as regular work days during wartime conditions.