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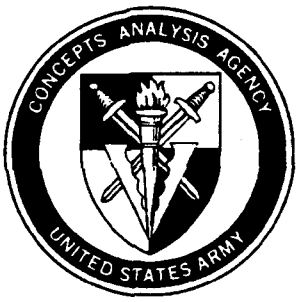
ARMY AVAILABILITY FACTOR (AAF)

DECEMBER 1991



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The Army must periodically update or revalidate the AAF which is used for determination of manpower requirements in tables of distribution and allowances (TDA) organizations. The last validation was in 1983. This memorandum report discusses recommended analytical methods for revalidating the AAF and preliminary findings on data source identification. Nonavailable time categories required to support the approach are identified along with governing requirements when known.

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ARMY AVAILABILITY FACTOR (AAF)

December 1991

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CHAPTER 1

GENERAL INFORMATION

1-1. SUPPORT REQUEST. This support request originated as a study proposal in the fiscal year (FY) 92 Army Study Plan. Further coordination between the US Army Force Integration Support Agency (USAFISA), who initiated the proposal, and the US Army Concepts Analysis Agency (CAA) resulted in a request tasking CAA to provide analytical support in producing a framework for an Army Availability Factor (AAF) validation study. The request also included a comparison of the two most recent validation efforts of the Army and Air Force. Applicability of approach for a future AAF validation was to be addressed.

1-2. BACKGROUND. The Army must periodically update or revalidate this factor which is used for determination of manpower requirements in tables of distribution and allowances (TDA) organizations. The AAF was last validated in 1983.

1-3. ANALYTICAL SUPPORT. This quick reaction analytical report discusses recommended analytical methods for revalidating the AAF and preliminary findings on data source identification. Nonavailable time (NAT) categories required to support the approach are identified along with governing requirements when known.

1-4. SIGNIFICANT DEFINITIONS

a. Definition of AAF. From AR 570-4, the Army Availability Factor is defined as "the average number of manhours per month that an assigned individual is available to perform primary duties. Monthly required manhours are divided by the AAF to determine the manpower requirements." The AAF is most applicable for determination of manpower requirements in TDA organizations. It includes those manhours available each month to produce work. Presented formally, the equation for determining the AAF is:

$$available\ time = assigned\ time - nonavailable\ time$$

The AAF excludes all nonavailable time as defined in paragraph 1-4b below.

b. Definition of Nonavailable Time. From AR 570-5, nonavailable time is defined as "the net assigned manhours that are not usable by the work center supervisor because of the participation of work center personnel in activities directed, recognized, and sanctioned by the Army which render them unavailable for primary duties. The absences recognized as nonavailable are essentially beyond the immediate control of the work center supervisor." Figure 1-1, taken from AR 570-5, lists all subcategories of NAT. All other subcategories shown in this figure which are not under NAT are considered to be available time, thus comprising the AAF.

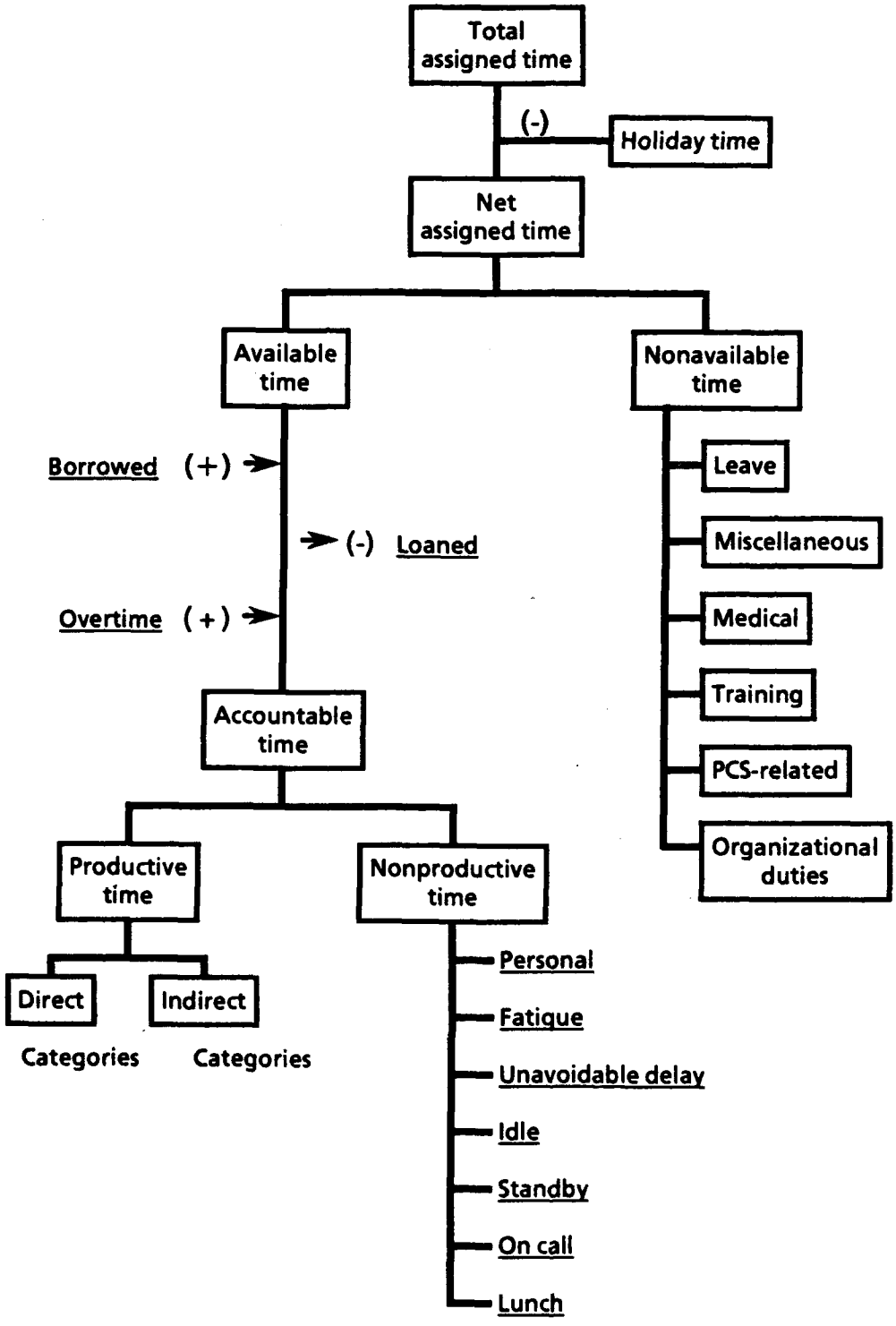

Figure 1-1. Time Classifications

1-5. INTERPRETING THE AAF. The AAF is used to predict available manpower for resource allocation in the annual budget cycle, and, as such, the factor can be interpreted in the following manner. A higher availability factor presents the Army in a more competitive stance to Congress when that factor is compared to equivalent factors of the sister services. Conversely, a higher AAF also translates to fewer calculated personnel requirements to perform primary duties. In the past, the Army has calculated different values for military versus civilian available time. If different AAFs are used, these differences could bias the TDA organization in its military versus civilian TDA design. Similarly, calculated or assumed differences in military versus civilian net productive time (see Figure 1-1) may also improperly bias TDA design. Therefore, it is very important that the AAF be thoroughly understood by its users and that it be sufficiently up to date to accurately represent current Army experience.

CHAPTER 2

REVIEW OF PREVIOUS AAF VALIDATION METHODOLOGIES

2-1. LATEST AAF VALIDATION EFFORTS. Availability factors for the various services are frequently compared with each other, particularly during resource allocation for the annual budget cycle. Due to this competitive nature among the services, a discussion of how the AAF is validated from both an Air Force and Army perspective follows in paragraph 2-2. The information was taken from the latest validation efforts for both branches of the service. The Air Force availability factor (or Peacetime Manpower Availability Factor, PMAF, as it is referred to by the Air Force) was last updated in 1990 for both civilians and military personnel. This update was performed by its Management Engineering Agency at Randolph Air Force Base. The Army's latest validation effort was in 1983, again for both civilian and military personnel. Their update was performed by an outside contractor named Presearch, Inc., of Arlington, Virginia.

2-2. HIGHLIGHTS AND COMPARISONS OF THE ARMY AND AIR FORCE STUDIES

a. NAT Categories. Designated nonavailable time categories differed somewhat for the two services. The Army chose to include many categories of NAT in its AAF factor which the Air Force did not address. This can perhaps be explained by the general data acquisition approach taken by the Air Force in using mostly available record data as its source. The smaller categories of time which the Army used could be more easily addressed through the use of a survey which was the Army's approach. The reader is referred to Appendix A of the 1983 Army validation study for a comprehensive listing of its considered NAT categories, and to Tables 4 and 9, respectively, of the Air Force's 1990 military and civilian updates.

b. Population Makeup

(1) Population Overview

(a) Military vs Civilian Population Categories. Both the Army and the Air Force studies made separate population categories for military and civilian personnel.

(b) CONUS vs OCONUS Categories. The Air Force analyzed existing data on continental United States (CONUS) and outside continental United States (OCONUS) factors for normal 40-hour workweeks and determined that there was an insignificant difference between these factors. It therefore combined them into one category for CONUS/OCONUS, i.e., a normal 40-hour week. A separate category was established for the overseas 48-hour extended workweek. The Army chose to maintain separate population categories for a 40-hour workweek for CONUS and OCONUS.

(c) Wartime Population Categories. Here, the approaches of determining applicable population categories differ between the two studies. Although the Air Force alludes to separate availability factors for peacetime versus wartime, the report provided to this office contains only peacetime

factors. The Army study report addresses wartime factors, but does so differently than the approach to peacetime in which the supporting data was collected mainly through surveys. Survey data for wartime NATs was deemed inadequate, and the scenario-oriented "what if" approach was considered infeasible. The Army therefore turned to governing regulations. Unclassified wartime planning documents provided guidance on appropriate adjustments to both nonavailable time elements and allowed time for certain elements to reflect the wartime work environment. The result of such research included availability factor values which were derivations of peacetime factors and possessed adjustments for a wartime scenario. These adjustments therefore consisted largely of the best evidence available, with some judgment of personnel familiar with general wartime operating conditions. Workweeks of 48 hours for civilians and 60 hours for military were established.

(2) Population Exclusions from the Two Reports

(a) Army Population Exclusions. Since the AAF applies to TDA organizations only, the Army excluded certain categories of personnel due to the nature of their functions. Excluded military personnel included those with less than 12 months of service, personnel in modified table of organization and equipment (MTOE) units, personnel on orders, general officers, and personnel in the "Individuals Account"--referred to also as the "TTHS" (transients, trainees, holdees, and students) account. Excluded civilian personnel consisted of those involved in civil duties, non-full time personnel, non-US citizens, firefighters, and participants in ceiling-exempt programs.

(b) Air Force Population Exclusions. Population exclusions are not specified for Air Force military personnel within their report. However, subsequent discussions with the director of the Air Force study revealed population exclusions which, indeed, were similar to those of the Army.

(3) Segmentation of Remaining Population. Remaining population categories examined by the two studies were apportioned somewhat differently. The Army and Air Force categories are represented in Tables 2-1 and 2-2.

c. Analytical Approaches. For the most part, the NAT quantification approach of the Army involved surveys and incorporated only a minimal amount of actual record data. Conversely, the Air Force took the approach of relying heavily on record data. When such data was not available, it turned to its last availability factor update (1987) and used this data for baseline quantification. The Air Force also relied on governing regulations, where feasible. A short synopsis of each approach follows.

(1) Army Analytical Approach. Twenty-five thousand surveys on personal nonavailable time were mailed to an applicable target population. This targeted population consisted of individual soldiers and civilians at the major Army command (MACOM) level, and employed a stratification by location (CONUS or OCONUS), officer or enlisted, sex, and command. The mail-out surveys excluded population categories listed in paragraph 2-2a above.

Separate surveys were developed and sent to military and civilian personnel. The response rate of 11,028 returns from these surveys was statistically sufficient. In addition, the Army also collected record data for several NAT categories which included military leave (ordinary and convalescent), civilian training, and US direct hire civilian leave. Again, certain categories of individuals were excluded from the record data. The Army study was contracted out.

(2) Air Force Analytical Approach. The Air Force approach was to use data provided by their functional activities. It did not "measure" the NATs through the use of surveys. Projected data from the functional activities was preferred; however, when this proved to be unavailable, record data from the last available fiscal year was compiled and then normalized to fit a projected FY 90 end strength. The end strength was based on the FY 92 Six-Year Defense Plan (SYDP). When such empirical or projected data proved unavailable, the study turned to its 1987 availability factor update for the number of occurrences of the given NAT. Many unsubstantiated (though not necessarily unreasonable) estimations for the average length of time required to perform a given NAT activity were dispersed throughout the report. The Air Force often had the total number of occurrences of the activity for a given fiscal year provided by their functional activities. However, the average time to perform the activity was unavailable. In these circumstances, frequent use was made of "expert opinion." One example of this expert opinion was the establishment of 20 minutes (round trip) travel time per individual to various appointments. Lastly, the Air Force researched appropriate regulations for guidance on the given NATs and interjected their information when other was lacking. The Air Force study was an in-house project.

(3) Resultant Availability Factors. Tables 2-1 and 2-2 show the factors arising from the above studies.

(4) Targeted vs Calculated Results. It is interesting to note that the published version of the Army results (AR 570-4 Update) differed from the calculated results expressed through the 1983 Army study. Criticism from the Government Accounting Office (GAO) in 1983 led to a revision of two general groups of NAT categories--organizational duties and ancillary training. The values in these categories became "targeted" nonavailable time--that is stipulated time as opposed to measured time. Additionally, population categories appeared to be arbitrarily combined without regard to the size and impact of each category on the overall availability factor. The categories of military and civilian personnel, for CONUS and OCONUS, were combined into one availability factor. This change potentially negated most of the calculated results of the 1983 availability study. As seen in Table 2-1, the differences in the values for military and civilians assigned to CONUS (137.07 and 144.80), respectively, indicate a significant difference in calculated factors. The corresponding factors for military and civilians assigned OCONUS (132.31 and 142.35) represent an even greater disparity. Thus, the military versus civilian population differences from the 1983 study seemed to have a larger impact than CONUS vs OCONUS differences. Evolving from these calculated values, the Army study displayed RECOMMENDED values (further along in Table 2-1), which attempted to close the gap between the military and civilian factors, while simultaneously raising the values for availability. Military and civilian populations were still maintained

separately. Finally, the published version of these factors, found in AR 570-4, shows a combining of the military and civilian population categories into a single overall and unsubstantiated higher availability factor of 145.0 for normal peacetime, military and civilians together. Competition between the Army and the Air Force, whose availability factor reflected a higher value, may have been the impetus for the decision within HQDA to change the AAF from a calculated set of values to an entirely different recommended set of values. The Air Force availability factors are displayed in Table 2-2.

Table 2-1. Army Population Categories

Population categories and AAFs for Army measured behavior

	Military		Civilian	
	CONUS	OCONUS	CONUS	OCONUS
Assigned hrs/mn	167.92	167.92	167.92	167.92
Total NAT	30.85	35.61	23.12	25.57
Total available time	137.07	132.31	144.80	142.35

Population categories and recommended Army AAFs

	Peacetime 40-hour week				Wartime	
	Military		Civilian		48-hour civilian	60-hour military
	CONUS	OCONUS	CONUS	OCONUS	Worldwide	Worldwide
Assigned hrs/mn	167.92	167.92	167.92	167.92	208.63	260.79
Total NAT	24.77	27.42	23.12	25.57	11.79	15.47
Total available time	143.15	140.50	144.80	142.35	196.84	245.32

Table 2-2. Air Force Population Categories

Population categories and availability factors for Air Force measured behavior

	Peacetime 40-hour			Peacetime extended 48-hour military (OCONUS)
	Military (CONUS + OCONUS)	Civilian		
		CONUS	OCONUS	
Assigned hrs/mn	167.26	167.26	167.26	202.05
Total NAT	18.07	19.30	14.24	16.34
Total available time	149.19	147.96	153.02	185.71

CHAPTER 3

OBSERVATIONS FROM THE ARMY AND AIR FORCE REPORTS

GENERAL OBSERVATIONS

a. Undisclosed Sources. Both studies lacked complete accounting for source information. This was observed most clearly with the Army's omission of stated wartime planning regulations from which availability information was extracted. In addition, the Air Force made frequent use of unsubstantiated values for the average length of time required for the occurrence of a given event of NAT.

b. Population Exclusions. Population exclusions from the Air Force study were not apparent, and could have an uncalculated impact on final availability results. The Army was very explicit in their population exclusions (see paragraph 2-2b).

c. Omitted NATs. The Army chose to include many more incidental categories of NAT than did the Air Force. Such an approach was facilitated by its use of an opinion survey, which was also its main approach to data collection. However, the Air Force approach of relying primarily on record data undoubtedly limited the scope of NATs considered, due to difficulties in obtaining available record data for every possible category. It is deemed feasible that the Air Force's reduced selection of NAT categories collectively reduced its total NAT when compared with the Army's total NAT.

d. Overtime Issues. The Army report adjusts its NAT downward from the data it received through surveys. The rationale for this recalculation was that the reported data is skewed due to hours included as overtime. It found that by comparing the responses of individuals who work the normal 40-hour week with individuals who consistently put in longer (overtime) weeks, the latter group also routinely reported greater nonavailable time. The Army's adjustment downward brought the overtime week in line with a normal 40-hour workweek, while simultaneously reducing the reported NAT. The assumption was made that these two factors, the length of the workweek and NAT, were linearly related. Such an assumption may or may not be supportable.

e. Lack of References. Neither report had an enclosed reference list or bibliography. It is understood that the sponsor's copies of these two reports also did not contain these enclosures. If the original documents did indeed omit the references and bibliographies, this would lessen the credibility of results obtained, providing less supportable evidence of origination of data and approach.

CHAPTER 4

RECOMMENDATIONS FOR REVALIDATION OF THE ARMY AVAILABILITY FACTOR

4-1. PREFERRED METHODOLOGY. Overall, the Air Force study results appear to be more supportable than those of the Army. This is because record data is generally considered to be more reliable than the recall of survey respondents. It is suggested that record data be used whenever possible. An observed limitation of this approach is the fact that record data often contains the total number of instances for a given element of NAT, but not the average length of time involved for one instance of the given event. As stated earlier, the Air Force produced "average" lengths of time for the events, but did not support these hypotheses with a source. We recommend avoiding this omission. Reliable technical opinion by an individual or group of persons who would have direct knowledge of the NAT can be used when necessary; however, the source should ALWAYS be listed for credibility. This also facilitates subsequent repetition, revision, or validation of the analysis for any NAT elements desired.

4-2. ANALYTICAL APPROACH. For the reasons stated above, the Air Force approach to revalidating the availability factor is the preferred approach. This approach for revalidation is presented in great and clear detail within the Air Force study and the reader is reffered to the study report. To repeat its analyses here would be redundant. Further clarification on some deviations from the approach would, however, be worthwhile.

a. Most of the NAT categories recommended by this report in Table 4-1 are the same as those in the Air Force study and, unless noted below, should be handled similarly. Several of the NAT categories were not compatible or supportable. Therefore they were not included in this recommended list of categories.

b. Actual FY 91 year end data is preferred in the future Army validation effort, unlike the Air Force which used a projected SYDP year end figure. This actual year end data should be extracted from the Army personnel master files maintained by the Total Army Personnel Command.

c. Required testing and training are of course different between the Army and the Air Force. Paragraph 5-21 below discusses required testing and Tables 5-1 and 5-2 discuss common military training and resident training in the Army, respectively.

d. The recommended departure from the Air Force analyses involves military ancillary training. Realizing that record data can at times be difficult to obtain due to time constraints imposed on any validation study, and the multitude of training subjects required by the military, an alternative approach to training may be needed. This issue is discussed in paragraph 4-6 below.

4-3. TARGETED VS CALCULATED RESULTS. The Army Availability Factor must pass muster with various staff offices within the Army. It must also pass scrutiny and be acceptable to several concerned higher government offices. These offices include the Office of the Secretary of Defense (OSD), the Office of Management and Budget (OMB), and Congress. The factor will inevitably be compared with that of the sister services. Our recommendation is to allow for flexibility in introducing suggested and supportable values for appropriate categories of nonavailable time. Such values should be viewed as targets for which individual commanders are advised to adhere, to the fullest extent possible. It is also recommended that the responsibility of validating the availability factor fall to a neutral contractor and thus remain outside the auspices of the Army. Such an approach would minimize possible criticism of undue influence by the Army on revalidation efforts.

4-4. RECOMMENDED ELEMENTS OF NONAVAILABLE TIME. Upon surveying the results and experiences of the provided availability reports, it was determined that the suggested elements of NAT listed in Table 4-1 present the largest impact on overall NAT and should be supportable with available data.

Table 4-1. Recommended Elements of Nonavailable Time

MILITARY NAT ELEMENTS	CIVILIAN NAT ELEMENTS
LEAVE	LEAVE
In-unit Leave	Annual Leave
Convalescent and Maternity Leave	Sick Leave
PCS RELATED	Special Absences
In/Out Processing	Excused Absence
Family Settlement	Emergency Rescue or Protective Work
Car Shipment	Absence for Voting or Registration
MEDICAL	Blood Donations
Inpatient and Quarters	Taking Examinations
Outpatient	Consultation with Operating Officials, Civilian Personnel Officers, and Employment Interviews
Physicals	Medical Examinations for Federal Service
Dental	Attending Meetings and Conferences
ORGANIZATIONAL DUTIES	Administrative Dismissal
Physical Fitness Annual Testing	Off-the-job Training during Regularly Scheduled Duty Hours
Sponsorship Program	Military Funerals
EDUCATION AND TRAINING	Absences Relating to Travel TDY and PCS
Testing	Military Leave
Ancillary Training	Court Leave
Resident Formal Training	CIVILIAN TRAINING
MISCELLANEOUS	
Substance Abuse Reorientation and Treatment	
Surveys	

4-5. RECOMMENDED POPULATION CATEGORIES. Final determination of appropriate population categories should be made upon receipt of all record and survey data. The most obvious determinations to be made are whether to include military and civilian personnel into one population category, whether to combine CONUS and OCONUS into a category, and whether to introduce availability time for wartime conditions. It is recommended that these population groups be combined only if the calculated or recommended

difference in nonavailable time between military and civilian personnel subcategories are all less than a desired threshold (for example, 4 percent). Likewise, if the difference between CONUS and OCONUS population subcategories are less than a specified threshold, then these groups could also be combined. The decision of whether to include a mobilization group in the population categories of the AAF rests with both the identification of governing regulations for this period of time and with possible expert opinion. Such regulations were indirectly cited in the Army study report of 1983, but no direct references were made and we were unable to readily identify the source regulations. The study members of the next AAF validation effort may even wish to refer to the changes listed in the previous 1983 validation effort. Table 4-2 displays the reasonable combinations of population categories from which to select for the actual validation effort. Given the background provided by the two previous validation efforts, population categories listed under "d" of this table may be the most appropriate for the next Army validation effort. Note that the term "military and/or civilian" means that the military and civilian personnel can be combined into a single category or differentiated into two separate categories.

4-6. RECOMMENDED APPROACH FOR DETERMINING NAT ATTRIBUTABLE TO TRAINING. The most comprehensive approach to obtaining necessary ancillary and resident training data is through use of individual surveys. Data acquired in this manner would acknowledge many smaller elements of training which otherwise might be omitted. However, when the time expended to obtain such data risks consuming a disproportionate amount of total data acquisition time and delaying the overall study results, other approaches should be considered. One alternative is to contact offices possessing direct knowledge of unit training. This targeted population would be the MACOMs; specifically, the Operations, Plans, and Training Directorate offices at installation level. Members of these offices should be able to provide record data, or more likely, expert opinion on the actual time expended on training. Large scale surveying of individual soldiers should not be necessary. Recommended categories of training listed on these installation level surveys would include those listed in Table 5-1 as common military training, along with the resident training listed in Table 5-2. Respondents should be asked to indicate the frequency of the training subjects along with the average length of time dedicated to each subject during FY 90. The survey should also be very explicit about resident training, addressing only those individual unit losses that occur while its member(s) attended the training. Training performed between unit assignments or while in an "individuals status" should not be included. The respondents should also be given the opportunity to add significant miscellaneous training courses not listed on the survey. Additionally, it is suggested that OCONUS MACOMs be included in this survey effort to determine if major differences exist between their training NAT and that of CONUS. (This would also aid in determining whether to combine the population categories of CONUS and OCONUS when only small differences exist between their time expended on training. The training NAT category is probably the single most influential category for making this population category distinction.) The POC respondents for this survey should also be given the opportunity to address any changes mobilization would have on certain elements of the listed training. Such information should be available following the experience of Desert Storm. The respondents should be asked which items of training would be reduced (in training time, not

necessarily in emphasis, since some courses may actually be covered more intensely but in a lesser allotted time). The amount of time reduction for each training subject should be stated, along with an indication of the subjects to be deleted entirely. The survey to the MACOM respondents should be very specific and straightforward. Respondents should be informed of the survey's purpose and applicability to themselves, along with the major staff office(s) requesting the information. Finally, aggregated results from this survey effort should be presented to the Training Directorate of the Deputy Chief of Staff for Operations, DAMO-TR, for oversight analysis. The suggested values evolving from their office are the recommended ones to use in the final validation study.

Table 4-2. All Feasible Combinations of Possible Population Categories

POSSIBLE POPULATION CATEGORIES FOR NEXT ARMY AAF VALIDATION STUDY

a. CONUS and OCONUS, Peacetime
   ---
   military and/or civilian

b. CONUS, Peacetime / OCONUS, Peacetime
   ---
   mil. and/or civ. / mil. and/or civ.

c. CONUS and OCONUS, Peacetime / Wartime, Worldwide
   ---
   mil. and/or civ. / mil. and/or civ.

d. CONUS and OCONUS, Peacetime / Wartime, Worldwide
   ---
   mil. and/or civ. / 48-hr. week 60-hr week
   ---
   mil. and/or civ.

e. CONUS, Peacetime / OCONUS, Peacetime / Wartime, Worldwide
   ---
   mil. and/or civ. / mil. and/or civ. / mil. and/or civ.

f. CONUS, Peacetime / OCONUS, Peacetime / Wartime, Worldwide
   ---
   mil. and/or civ. / mil. and/or civ. / 48-hr week 60-hr week
   ---
   mil. and/or civ.

4-7. PREFERRED RECORD DATA YEAR. Presuming that a follow-on study commences quickly, it is best to use FY 90 record data. Earlier data may not be truly representative of current conditions in the Army, and later data may be somewhat skewed by Desert Shield and Desert Storm. Respondents to the training survey data should be encouraged to provide information from a FY90 frame of reference. (This may or may not be possible.) As stated earlier, the Air Force approach was to take this data provided by its functional activities and then normalize it to fit a PROJECTED FY 90 end strength. A similar approach is recommended for the Army, with a fit to ACTUAL FY 91 end strength.

4-8. THE OVERTIME ISSUE. As stated earlier, the Army adjusted its NAT downward in order to factor out the effects of overtime. Its rationale was also stated in paragraph 3-1d. Such an approach has the inherent danger of misinterpretation. It is recommended that all NAT be listed as originally stated. In the interest of fairness, however, overtime issues should be mentioned in an "assumptions" section of the final report, along with an explanation of how the overtime issue was resolved.

4-9. RECOMMENDED TIME FOR COMPLETION OF REVALIDATION. According to the author of the Air Force report, approximately 6 man-months were expended on the actual validation effort. Data collection was the most time-consuming task, even though the study team proved fortunate in being physically colocated with many of their data sources. Using this 6 man-months as a lower bound, because Army data collection may not be as easy, the AAF revalidation should take between 6 and 12 man-months.

CHAPTER 5

NECESSARY DATA FOR GIVEN NONAVAILABLE TIME ELEMENTS AND GENERAL CALCULATIONS

5-1. GENERAL DATA INFORMATION. The following data acquisition needs pertain only to TDA units, and preferably for FY 90. Recommended population categories for which this data is needed are: peacetime CONUS military, peacetime CONUS civilians, peacetime OCONUS military, peacetime OCONUS civilians, wartime (CONUS+OCONUS) military 60-hour week, and wartime (CONUS+OCONUS) civilian 48-hour week. Data obtained in these basic population categories can later be aggregated into any of the feasible combinations of population categories listed in Table 4-2. Desert Shield/Desert Storm data and sources can be used to guide the wartime values; however, they may be somewhat unrepresentative of a sustained wartime scenario. Army wartime planning regulations may be equally helpful. Additionally, travel time should be included in appropriate events. The Air Force used an average round trip travel time of 20 minutes for any NAT that encompassed travel. This number should be reevaluated by the study team.

5-2. NECESSARY MILITARY DATA

a. Military In-unit Leave

(1) Average number of days of leave per individual, or

(2) The total annual leave earned coupled with the total annual leave used. Note that this does not differentiate between leave used during normal duty days and days not included in the normal duty week.

b. Convalescent and Maternity Leave

(1) Total annual convalescent leave days taken.

(2) Total number of maternity leaves granted, or

(3) Total number of active duty Army deliveries at all military facilities.

c. In/Out Processing

(1) Needed are the total number of PCS moves due to:

(a) Accessions.

(b) Training.

(c) Operational.

(d) Rotational.

(e) Separations.

(2) Expert opinion on the average length of time for each type of move or the average amount of time allowed.

d. Family Settlement

(1) Needed are the total number of resettlements due to:

(a) Accessions.

(b) Training.

(c) Operational.

(d) Rotational.

(e) Separations.

(2) Expert opinion on the average length of time for each type of move or the average amount of time allowed.

e. Privately Owned Vehicle (POV) Shipment not in conjunction with permanent change of station (PCS) travel.

(1) Total number of shipments made.

(2) Expert opinion on the average percentage of shipments not made in conjunction with PCS travel.

f. Inpatient and Quarters. Total number of sick days (not to be confused with officially designated convalescent days).

g. Outpatient Visits

(1) Total number of visits by active duty members to Air Force, Army, Navy, and PRIMUS clinics.

(2) Composite average lost duty time for each outpatient visit.

h. Physicals

(1) Needed are the total number of physicals given yearly to active duty Army members, and the average length of time for each physical.

(2) Alternatively, the required number of physicals can be determined based on age, flight status, and other factors guided by current regulations. (The average length of time for each physical will still be necessary.)

i. Dental. Total number of annual active duty patient visits and composite time values (CTVs) for each visit.

j. Daily Physical Fitness and Annual Testing

(1) Expert opinion on the average length of time and frequency (Armywide) of participants in the daily program, and the average amount of

time required for annual testing. It is noted that AR 350-15 (Update) states ". . . as a minimum, such a program will allow for at least 30 minutes of intense exercise at least three times per week, plus adequate preparation time for changing, showers, and recovery." The regulation also stipulates biennial physical fitness testing. However, conclusively determining the time needed for such events from record data might prove to be cumbersome or, at best, misleading since many individual commanders perform PT with their units before the duty day has begun or after it has ended. This places the NAT category outside the normal 40-hour workweek. Additionally, a source in the Training Directorate under the Deputy Chief of Staff for Operations (DCSOPS) stated that the twice yearly tests reasonably take 2 hours plus travel time to and from the testing area.

k. Sponsorship Program Participation

(1) Average time spent while being a sponsor for an incoming individual.

(2) Total number of sponsors in the program (for the fiscal year).

(3) Department of the Army (DA) Pamphlet 612-1 (paraphrased) states that with the exception of unmarried E1-E4s, service members are required to apply for the sponsorship program. However, they may also indicate refusal for sponsorship on the application form. Additionally, AR 612-11 is currently being rewritten to reduce the sponsorship burden on individuals.

l. Mandatory Testing (provided by DCSOPS, Training Directorate)

(1) Skills Qualification Test (SQT). The last SQT was administered in FY91 (actually through November of the year) and was given to E1-E7s. It is now being replaced for FY92 with the two hour Self Development Test for E5-E7s only.

(2) Annual Physical Training (PT) test discussed in paragraph 5-2k above.

(3) Weapons Qualification. Some TDA units have weapons qualifications tests. These take an average of 4-5 hours.

m. Ancillary Training

(1) Common Military Training (CMT). Table 5-1 comprises appropriate elements of common military training, usually necessitating formal training sessions, i.e., classes normally requiring more time than that provided through unit formations and informal settings. The governing regulation for each type of training is also listed in AR 350-1, along with the proponent Army office for policy or implementation.

Table 5-1. Elements of Common Military Training

Weapons Qualification	AR 350-4
Physical Fitness	AR 600-9
First Aid	AR 40-3
Heat, Cold, and Hearing Injury Protection	AR 40-5
Nuclear Surety	AR 50-5
Chemical Surety	AR 50-6
Counterterrorism	AR 190-52
NBC Defense	AR 220-58
Opposing Force	AR 350-2
Civil Disturbance	AR 350-7
Intelligence Readiness Training	AR 350-3
Benefits of an Honorable Discharge	AR 350-21
Code of Conduct	AR 350-30
Military Justice	AR 350-212
Geneva-Hague	AR 350-216
Survival, Evasion, Resistance	AR 350-225
Censorship	AR 380-200
Water Safety	AR 385-15
Prevention of Motor Vehicle Accidents	AR 385-55
Operations Security	AR 530-1
Electronics Security	AR 530-3
Equal Opportunity	AR 600-21
Alcohol and Drug Abuse	AR 600-85
Preparation for Overseas Replacement	AR 612-2

(2) Requirements. Needed are identification of the frequency for each training item, the duration of time for each training item, and the groups of people (i.e., the total TDA Army or a designated subset of it) requiring each training item listed as Common Military Training. A distinction between CONUS and OCONUS training should be made when appropriate.

n. Formal Resident Training. Also to be sought is quantification on the impact of resident training which is accomplished while persons are assigned to a unit and are not in an "individuals" account. The number of individuals attending a program falling under one of the major categories in Table 5-2, along with the length of their stay for the given training, is needed. DA Pamphlet 351-4 is the official reference for formal courses offered at active US Army school and training centers. DA Pamphlet 351-4 supplements the Army Training Requirements Resource System. USAREUR Pamphlet 350-205 is the official reference for formal courses offered in the US Army, Europe. More information on noncommissioned officer (NCO) academies and other formal training is provided in AR 351-1, Individual Military Education and Training, for Schools.

Table 5-2. Formal Resident Training

a. All TRADOC schooling (to include the basic and advanced NCO courses)
b. All AMC schooling
c. All medical schooling
d. All schooling offered through the sister services
e. All FORSCOM schooling
f. All JAG schooling
g. All foreign staff colleges
h. All NDU (National Defense University) schooling
i. All DOD schooling
j. All War College schooling
h. All NSA schooling

o. Substance Abuse Reorientation and Treatment

(1) Total lost duty hours, preferably refined by the number of entrants in each stage of treatment provided away from the normal duty setting.

(2) Average length of time for each such stage of treatment

p. Surveys. Average respondent burden or the average number of surveys per individual with the average length of time required to complete each survey.

5-3. NECESSARY CIVILIAN DATA

a. Civilian Leave

(1) Total annual leave used.

(2) Total sick leave used.

(3) Total "other" leave used, as defined in Table 4-1.

(5) Total sick leave used.

(6) Total leave used for each of the special absence categories listed in Table 4-1, Chapter 4.

b. Civilian Training

(1) Total number of instances of training.

(2) Total number of hours used for training.

APPENDIX A

LISTING OF IDENTIFIED SOURCES

DA Surgeon General
POC: Elizabeth Thomas, Medical Audit Div, (202) 576-1151

Assistant Surgeon General for Dental Services
POC: COL Jim Fay, Senior Dental Corps Staff Office, (703) 756-0029

Military Traffic Command
POV POC: LTC Clark Hall or CPT Soto, (703) 756-1744
Personal Property POC: MAJ Robertello (USAF), (703) 756-1691

Deputy Chief of Staff for Operations
Training Directorate (DAMO-TR)
POC for Testing: COL Armstrong, (703) 697-4107

POC for Ancillary Training: LTC Jim Stratton, (703) 614-1233
FAX (703) 697-0936

POC for Resident Training: Allan Craig, Deputy Chief of Staff for Personnel, Directorate of Military Personnel Management (703) 695-2231

US Army Research Institute for the Behavioral and Social Sciences (ARI)
POC for Survey Respondent Burden: Dr. Morris Peterson, (703) 617-7801

US Total Army Personnel Command (PERSCOM)
PCS POC (in Office of Dep Chief of Staff for Plans and Analysis): LTC Bill Fennell, (703) 325-3200

Personnel Information Systems Command POC: Mrs.Bonnie Bailey (703) 325-5444, vice Mr. Boyles, (703) 325-8344. Source of demographic data for the military, personnel master files.

Civilian Personnel Management Directorate
Training POC: Mr. Charles Cline, (703) 325-1347 should have FY 91 training data for >8-hour classes. Has data for total number of instances of training, along with the total number of hours for training

Leave POC: John McAuliffe, (703) 325-1339 (vice Mr. Griner, (703) 325-1330). Using ACPERS system, said we can perhaps get a look at leave ELIGIBILITY, getting a breakdown of 4-, 6-, and 8-hour leave categories; however, leave USED is not tallied beyond the installation level.

US Army Drug and Alcohol Operations Agency
POC: Mr. Marquez, (703) 756-2004 ext. 32
(need total lost duty hours for the three "tracks" of reorientation and treatment). Any request for data must go through ODCSPER. POC there is MAJ John Algner, (703) 695-4450

Community and Family Support Center (a field operating agency)
POC: Allan Tidwell, Sponsorship Program, DSN 221-9390
May only be able to give estimates. Gave .57 manhours/week for 50 weeks. Referred me also to a Mr. Brendell, (703) 325-2794, in Work Reductions Branch, Military Personnel Integration Division, Adjutant General Directorate, at PERSCOM, who stated that the time per individual spent may be hard to judge.

Mobilization Plans Branch, Program Directorate, Training Operations and Management Activity, TRADOC, Fort Monroe
Mobilization Training POC: Mr. Don Skinner, DSN 680-3540/3350

APPENDIX B

PROPOSED LETTER FOR DCSOPS SIGNATURE REQUESTING COMPLIANCE ON DATA ACQUISITION EFFORTS

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Update of Army Availability Factor (AAF)

1. Reference attached Request for Quick Reaction Analytical Support, subject: Determining Requirements for Revalidation of the AAF.

2. The reference requested that the U.S. Army Concepts Analysis Agency (CAA) perform a quick reaction analysis (QRA) to provide the initial framework for an AAF revalidation study. The AAF factor is used for determination of manpower requirements in tables of distribution (TDA) organizations. It includes those manhours available each month to produce work. It excludes the categories of nonavailable time listed in paragraph 3 below. The AAF factor is used to predict available manpower for resource allocation in the annual budget cycle. The QRA review of the availability factor included examination of required record data. Sponsor of this QRA was the U.S. Army Force Integration Support Agency (USAFISA).

3. USAFISA reviewed revalidation recommendations proposed by CAA, including an identification of data needs. Pursuant to these needs, data on the following categories of nonavailable time is sought: in-unit leave, convalescent and maternity leave, in/out processing, family settlement, shipment of POV, inpatient and quarters, outpatient, physicals, dental appointments, physical fitness annual testing, post counseling and review sessions, sponsorship programs, ancillary training, testing, formal training and education, substance abuse reorientation and treatment, surveys, and household moves.

4. USAFISA has initiated record data collection through the MACOMs; however, additional record data will be needed from Army staff agencies. This coordinated collection of record data is needed to minimize the costlier requirements of an exhaustive data survey. All Army staff offices are requested to support this effort.

5. The list of offices from which record data is requested may grow in the future, as new requirements become known.

6. This memorandum was coordinated through members of the offices listed in the distribution below.

Distribution:

D.A. Surgeon General
Assistant Surgeon General for Dental Services
Office of the Deputy Chief of Staff for Operations
Military Traffic Management Command
Training and Doctrine Command
U.S. Army Research Institute for the Behavioral and Social Sciences
U.S. Total Army Personnel Command
Community and Family Support Center

APPENDIX C

BIBLIOGRAPHY

Recommended Army Availability Factors (AAFs), Smith. G. H., Gillogly, H. S., Kershaw, S. J., of Presearch, Inc., 2361 South Jefferson Davis Highway, Arlington, VA 22304

Peacetime Military Man-hour Availability Factor (MAF) Update, May 1990, Studies and Analysis Division, Air Force Management Engineering Agency, Randolph Air Force Base, Texas

Peacetime Civilian Man-hour Availability Factor (MAF) Update, November 1990, Studies and Analysis Division, Air Force Management Engineering Agency, Randolph Air Force Base, Texas

AR 350-1, Army Training

AR 351-1, Individual Military Education and Training

AR 350-1,5 The Army Physical Fitness Program

AR 570-4, Manpower Management

AR 570-5, Manpower Staffing Standards System

AR 612-11, The Army Sponsorship Program

DA Pamphlet 612-1, It's Your Move

APPENDIX D

REQUEST FOR ANALYTICAL SUPPORT

REQUEST FOR QUICK REACTION ANALYTICAL SUPPORT

1. Title: Army Availabiilty Factor (AAF)

2. Date request received: 16 Sep 91	**3. Due date:** 29 Nov 91	**4. Sponsor:** USAFISA (MOFI-STD-O)

5. Background/statement of problem: The Army must periodically update or revalidate the Army Availability Factor (AAF) which is used for determination of manpower requirements in TDA organizations. The AAF was last updated in 1983.

6. Objective(s): Determine the requirements for updating or revalidating the AAF, and provide initial framework for an AAF validation study.

7. Scope of work: Analysis will include reviews of the prevous (1983) AAF Study and the recent USAF (1990) availability factor study for applicability of data and analytical approach. Data review will also identify AAF-required nonavailable time categories, nonavailable time categories governed by Army regulations, and record-data sources whenever possible.

8. Issues for analysis: What is the recommended analytical approach to update/validate the AAF? What data are required to support this approach?

9. Product required: Memorandum report which responds to the issues in para. 8 above and provides useful input to the AAF study statement of work.

10. Study Director/POC signature: Patti L. Pennington	**Date:** 25 Oct 1991
11. Deputy/Assistant Director concurrence: John V. Harvey	**Date:** 12 Nov 91
12. Sponsor (COL/DA Div Chief) concurrence: [signature]	**Date:** 14 Nov 91

13. Sponsor comments: (continue on reverse)

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APPENDIX E

CONTRIBUTORS

INTERNAL CONTRIBUTORS

Report Preparation: Patti L. Rennekamp, Study Director

Report Review: Howard E. Whitehead
LTC Michael Burchett
CPT Arnethia Murdock

EXTERNAL CONTRIBUTORS

Mr. John Patrick, MOFI-STD-O
MAJ R. David Holmgren, USAF, HQ AFMEA/MERA

GLOSSARY

1. ABBREVIATIONS, ACRONYMS, AND SHORT TERMS

AAF	Army Availability Factor
CMT	common military training
CONUS	continental United States
FY	fiscal year
MACOM	major Army command
NAT	nonavailable time
OCONUS	outside continental United States
PCS	permanent change of station
POV	privately owned vehicle
PRIMUS	primary care for the Uniformed Services
SYDP	Six-Year Defense Plan
TDA	table of distribution and allowances
TTHS Account or Individuals Account	Transients, Trainees, Holdees, and Students

2. DEFINITIONS

ancillary training
Authorized absences from the work center for training not directly related to job performance of a specific skill/job series. This category includes leadership training, together with program, refresher, integrated, and awareness training. (It specifically excludes attendance at technical schools in a TDY status or local training given for a particular military skill/civilian job series.)

available time
The total hours that assigned personnel are available to the work center to perform work, and measured by the Army Availability Factor

expert opinion
Also referred to as the "Delphi Method," this involves obtaining the opinion of those intimately familiar with the workings of the subject through first-hand experience or knowledge of written guidance

normal workweek
Assumed in this report to be a 40-hour week, Monday through Friday, unless otherwise specified

population categories
Those divisions among the general TDA Army or Department of the Army civilian population which possess a separate availability factor unique to their group

productive time
Time expended performing work that is useful and essential to the mission of the work center, not to be confused with available time

resident training
In this report, resident training is defined as formal training, not directly mission-related, obtained onsite at one of the Army's institutes for professional training