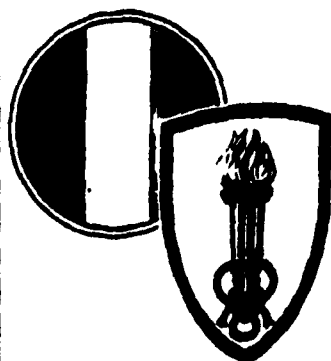


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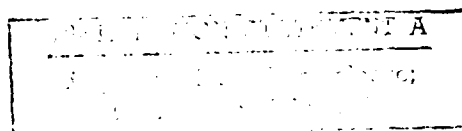
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PERSONNEL SERVICE SUPPORT
PLANNING FACTORS SYSTEM STUDY



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DECEMBER 1989

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PERSONNEL SERVICE SUPPORT (PSS)
PLANNING FACTORS SYSTEM STUDY

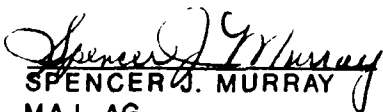
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DEPARTMENT OF THE ARMY
UNITED STATES ARMY SOLDIER SUPPORT CENTER
FORT BENJAMIN HARRISON, INDIANA 46216-5700

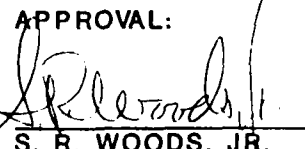
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PUBLICATION NOTICE

The Personnel Service Support Planning Factors System Study was approved by the Commander, SSC. This publication of the Final PSS Planning Factors System Study contains minor editorial changes only. The substance of the analysis and recommendations remain unchanged.

DISCLAIMER

The findings in this report are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

The words "he," "him," "his", "man," and "men" when used in this publication, represent both the masculine and feminine genders unless otherwise specifically stated.



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The conclusions and recommendations of this study are those of the Commander, US Army Soldier Support Center as approved by the Commander, TRADOC. They are based on data gathered and analyzed by the US Army Soldier Support Center and TRADOC Analysis Command - Fort Benjamin Harrison.

The study was jointly conducted by Dr. Gordon Goodwin, TRAC-FBHN and MAJ Spencer J. Murray, DCD, Analysis Division. Additional research and analytical support was provided by Mr. Jeff Erikson, Mrs. Dina Philips, and Mr. James O. Burnett.

See Appendix B for Study Contributors outside of the US Army Soldier Support Center and TRADOC Analysis Command - Fort Benjamin Harrison.

SECURITY CHECKLIST

1. TITLE OF STUDY: Personnel Service Support Planning Factors Systems Study.
2. This volume of the report is unclassified.
3. This study does not contain NOFORN information.
4. Release of information to foreign nationals will be determined by HQS, TRADOC, ATTN: ATCS-D, Fort Monroe, Virginia 23651-5000.
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TABLE OF CONTENTS

	<u>PAGE</u>
TITLE PAGE	i
NOTICES	ii
ACKNOWLEDGEMENT	iii
SECURITY CHECKLIST	iv
TABLE OF CONTENTS	v
ABSTRACT	vi
SUMMARY	vii
MAIN REPORT	
CHAPTER 1 - Introduction	1-1
CHAPTER 2 - Background.....	2-1
CHAPTER 3 - Study Methodology.....	3-1
CHAPTER 4 - Analysis Results.....	4-1
CHAPTER 5 - Conclusions and Recommendations	5-1
APPENDICES	
APPENDIX A - Study Directive and Additional Guidance	A-1
APPENDIX B - Study Contributors	B-1
APPENDIX C - Soldier Support Center Projects	C-1
APPENDIX D - Field Survey and Analysis	D-1
APPENDIX E - Management Concept	E-1
APPENDIX F - Draft Army Regulation	F-1
APPENDIX G - Glossary	G-1
APPENDIX H - Distribution	H-1
APPENDIX I - References	I-1
APPENDIX J - Coordination	J-1

ABSTRACT

Results from this study indicate that PSS planners holding a variety of positions at different levels of the Army rely on less than optimal data from "dated" sources. The processes currently used to obtain PSS planning factor data lack consistency and efficiency. Planners at all echelons need more reliable PSS data as well as a system for the development and maintenance of missing or deficient factors.

A draft regulation proposed by the study sets forth policy and establishes responsibility for the management of PSS planning factors Army-wide. Missing or deficient factors critical to accomplishing operational objectives in manning the force are identified and prioritized as a part of the analyses. More importantly, the study outlines procedures and an organizational structure for streamlining the development, validation, and dissemination of PSS planning factors in a centralized system.

PERSONNEL SERVICE SUPPORT (PSS)
PLANNING FACTORS SYSTEM STUDY SUMMARY

THE PRINCIPAL FINDINGS

Results from this study indicate that PSS planners holding a variety of positions at different levels of the Army rely on less than optimal data from "dated" sources. The processes currently used to obtain PSS planning factor data lack consistency and efficiency. Planners at all echelons need more reliable PSS data as well as a system for the development and maintenance of missing or deficient factors.

THE MAIN ASSUMPTION

PSS organizations are and will continue to be responsible for manning, a critical element in sustaining the force.

PRINCIPAL LIMITATIONS

Only factors with a direct impact upon wartime requirements are considered.

THE SCOPE OF THE STUDY

The Defense Guidance scenario for full mobilization in a global conflict defines the spectrum of factors considered. Planning factor requirements primarily focus on the needs of PSS planners in the Army's active duty component.

THE STUDY OBJECTIVES

- (1) Identify planners of personnel service support at all echelons within the Department of the Army.
- (2) Identify the factors that PSS planners at each echelon need to accomplish their operational objectives.
- (3) Determine the sources and validity of planning factors currently used by PSS planners.
- (4) Rank order factors by availability, desirability, and feasibility of acquisition.
- (5) Establish procedures to maintain a one-source system with consolidation of validated factors into the system.

BASIC APPROACH

The findings of this study are based upon literature reviews; a data survey of PSS proponents; and personal interviews with personnel assigned to corresponding activities at the Logistics Center, Combined Arms Center, and Academy of Health Sciences. In addition, planning factor requirements were refined and prioritized by the subject-matter expertise of a joint working group representing various functional areas in the PSS community.

THE REASONS FOR PERFORMING THE STUDY

There is no single source of policy and responsibility for the management of PSS planning factors. The lack of a centralized depository for valid planning factors hinders the Army's efforts in developing reliable wartime estimates. Procedures currently used to obtain data are inefficient and resource intensive.

STUDY IMPACT

A draft regulation proposed by this study sets forth policy and establishes responsibility for the management of PSS planning factors Army-wide. Missing or deficient factors critical to accomplishing operational objectives in manning the force are identified and prioritized as a part of the analyses. More importantly, the study outlines procedures and an organizational structure for streamlining the development, validation, and dissemination of PSS planning factors in a centralized system. Implementation of the proposed regulation and system would be a major milestone in correcting battlefield deficiencies identified in a Functional Area Assessment and Mission Area Development Plan.

CHAPTER 1

INTRODUCTION

1-1. STUDY PURPOSE. The purpose of this study is to: a) identify factors needed by PSS planners to make reliable estimates for wartime operations and plans; b) propose a system for incorporating validated factors into the appropriate reference sources.

1-2. PROBLEM. Army planners within the personnel service support community cannot develop reliable wartime estimates due to the lack of valid planning factors.

1-3. DEFINITION. PSS planning factors are defined as selected and valid multipliers used to estimate amounts and types of effort or resources for a proposed operation. Factors may be expressed as man days, hours per day, pounds per soldier per day, number per combat soldier per day, payments per 1000 soldiers, or as percentages.

1-4. STUDY PLAN. See Appendix A.

1-5. OBJECTIVES. The objectives stated below are as outlined in the Soldier Support Center study plan, as approved by TRADOC Analysis Command - Fort Benjamin Harrison (TRAC-FBHN).

a. Identify planners of personnel service support at all echelons within the Department of the Army.

b. Identify the factors PSS planners at each echelon need to accomplish their operational objectives.

c. Determine the sources and validity of planning factors currently used by PSS planners.

d. Rank order factors by availability, desirability, and feasibility of acquisition. Constraints imposed for ranking factors will be based upon current resources and technology.

e. Establish procedures to maintain a one-source system with consolidation of validated factors into the system.

1-6. SCOPE. The scope of this study is limited to the following basic parameters:

a. Planning factors examined in the study include personnel and administrative support; legal services; finance support; morale, welfare, and recreation services; religious support; public affairs; and selected health services.

b. Required wartime planning factors are identified for PSS planners at echelons above corps down to end-users at battalion and company level.

c. The spectrum of factors included in the study is defined by the Defense Guidance scenario for full mobilization in a global conflict.

d. The study is focused on planning factors required by the active Army. U.S. Army Reserve and Army National Guard factors with a direct impact upon mobilization and operational planning are included whenever possible.

1-7. LIMITATIONS.

a. This study will not result in the development of missing or deficient PSS factors but will establish procedures for their development.

b. Factors for peacetime operations will not be considered unless they have a direct impact upon wartime requirements and capabilities or can be simultaneously addressed to conserve resources.

c. The PSS Planning Factors System Study addresses health service factors of concern to planners outside of the medical community. The list of factors considered is not comprehensive or detailed enough to satisfy the operational requirements of medical personnel and organizations.

d. Planning factors needed for operational requirements unique to the U.S. Army Reserve and Army National Guard are not addressed.

1-8. ESSENTIAL ELEMENTS OF ANALYSIS.

a. What organizations have PSS planning requirements?

b. What positions do PSS planners hold?

(1) For whom do they prepare the planning estimates?

(2) How often do they prepare the estimates?

(3) What are their operational objectives?

c. Are the factors used in developing estimates related to a specific theater of operations?

d. What degree of accuracy is required by planners?

e. Would planners prefer a fixed point estimate or range for the factor?

f. Upon what are the factors based (e.g. posture of the US forces, strength of the opposing forces)?

g. How are the factors determined (e.g. historical data, algorithms, subjective analysis, simulations, models, etc.)?

h. What factors are most often used?

i. What needed factors are not available?

j. What are the sources most often used for PSS planning factors?

(1) Who are the proponents of the publications?

(2) Do the publications provide sufficient instruction on the use of planning factors?

k. Do users have confidence in the available factors?

(1) How often are these planning factors reviewed/updated by the proponent?

(2) Do changes in doctrine and technology prompt the review/update of the planning factors?

l. What constraints limit the development or publication of specific planning factors?

m. Should planning factors based upon classified data be published?

n. Will a list of available factors satisfy the planners' needs to a significant degree?

o. How will missing and deficient factors be developed and validated?

p. What factors currently available should not be included?

q. What are the criteria for adding and deleting factors from the list?

r. What are the criteria for validating planning factors?

s. Who should have access to the one-source system?

t. What access controls are required to safeguard sensitive or classified planning factors?

u. Who will maintain the system?

v. Will the system provide feedback from users?

CHAPTER 2

BACKGROUND

2-1. THE PERSONNEL SERVICE SUPPORT MISSION OF SUSTAINMENT.

a. On the AirLand battlefield, combat service support (CSS) has the mission of sustaining the force. Sustainability, as defined by Joint Chiefs of Staff publications, is the function of providing and maintaining levels of force, materiel, and consumables necessary to support the military effort. Personnel service support is responsible for manning, the first challenge of sustainment. Manning requires that an uninterrupted flow of soldiers be provided on the battlefield.

b. In addition to providing replacements, PSS units defend the rear area against enemy attack and perform essential personnel services during operations. Soviet doctrine emphasizes the disruption of the rear area using conventional and unconventional warfare. The use of electro-magnetic pulse (EMP) and radio-electronic combat (REC) on communications and automation systems in PSS units would seriously impede efforts to sustain the force. The capability of making reliable personnel estimates in the absence of communications and automation is an effective countermeasure against this threat.

2-2. INTEGRATION INTO THE DECISION MAKING PROCESS.

a. The Soldier Support Center (SSC) is one of three agencies responsible for integrating all functional areas within the Army (see Figure 1). Traditionally, major programs such as the Concept Based Requirements System (CBRS) have not placed the SSC in a status equal to the other two integrating centers. Integration functions and proponent schools associated with the SSC are shown in Figure 2. These personnel service support functions are frequently categorized as a subset of CSS. CSS comes under the purview of the Logistics Center. CSS analyses focus almost exclusively upon logistical requirements and tend to de-emphasize personnel constraints.

b. Decision makers and operational planners in the personnel service support community experience great difficulty in making wartime estimates. They do not have multiple information sources generally used by their contemporaries in the combat and combat support communities. The Army leadership relies heavily upon analytical models, lessons learned from major training exercises, and training simulations to identify wartime requirements, deficiencies, and capabilities. Since most analytical models and training exercises ignore or oversimplify service support functions, PSS planners must extrapolate peacetime data or rely more heavily upon historical data for wartime planning.

TRADOC INTEGRATING CENTERS

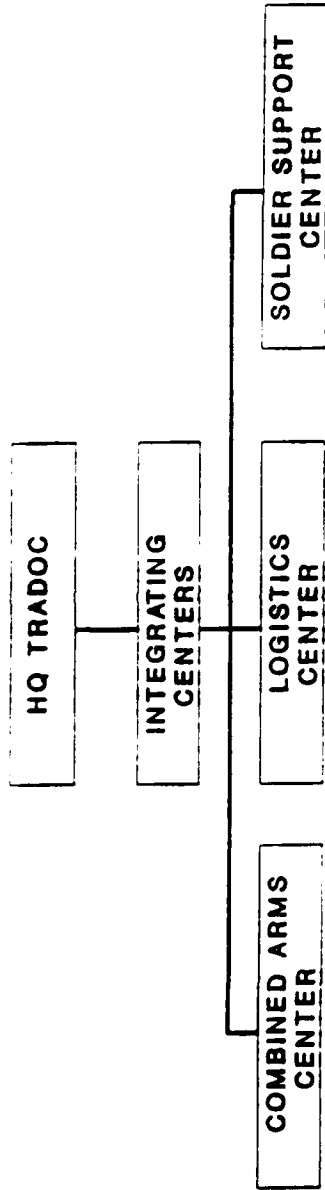


FIGURE 1

SSC INTEGRATION FUNCTIONS

INTEGRATION FUNCTIONS

PERSONNEL
FINANCE
PHYSICAL FITNESS
RECRUITING/RETENTION

PUBLIC AFFAIRS

LEGAL

CHAPLAIN
MUSIC

PROponent SCHOOL

ADJUTANT GENERAL SCHOOL
FINANCE SCHOOL
PHYSICAL FITNESS SCHOOL
RECRUITING & RETENTION
SCHOOL

DEFENSE INFORMATION
SCHOOL

JUDGE ADVOCATE GENERAL
SCHOOL
CHAPLAIN SCHOOL
CHIEF, ARMY BANDS
(SCHOOL OF MUSIC)

FIGURE 2

TRADOC

c. A lack of emphasis on PSS functions in Army-wide programs becomes more evident upon a review of TRADOC analyses for major training programs and analytical models. Figure 3 sets out Army training programs in which personnel service support is

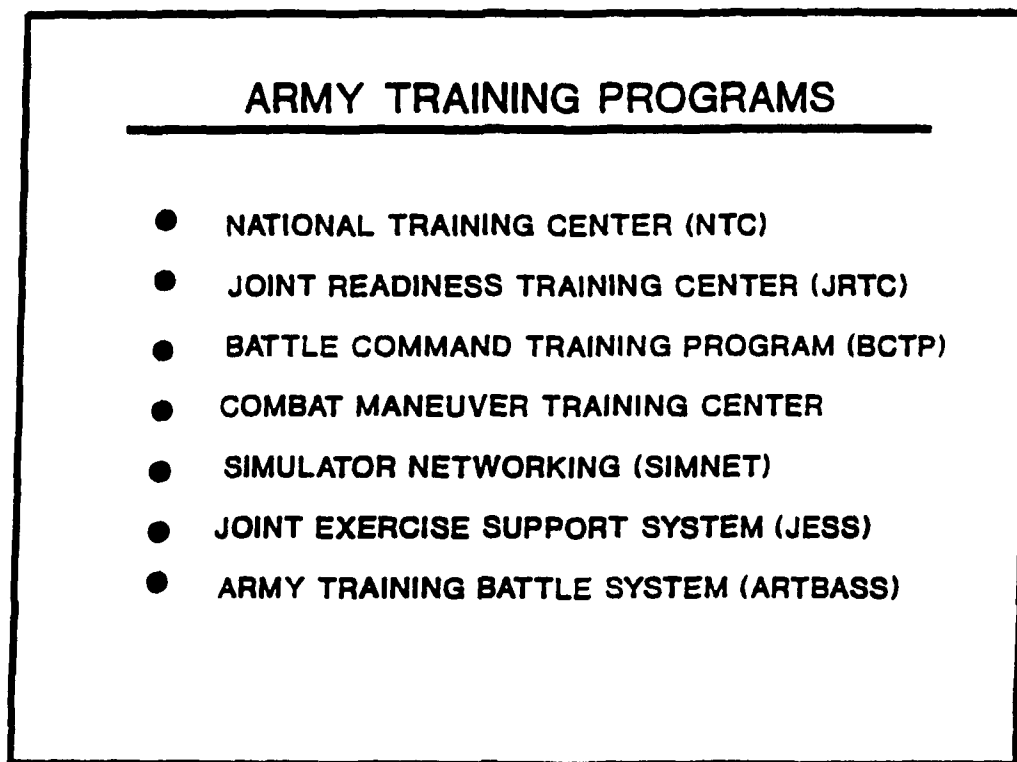


FIGURE 3.

simulated and not evaluated. Similarly, the analytical programs listed do not sufficiently address PSS functions critical to our warfighting capabilities:

- (1) Mission Area Analyses (MAA)
 - (a) Combined Arms Mission Area Analysis (CAMAA)
 - (b) Close Combat Capability Analysis (CCCA)
 - (c) Close Combat Heavy (CCH)
 - (d) Close Combat Light (CCL)
- (2) Low Intensity Conflict (LIC)
- (3) Battlefield Functional Mission Areas (BFMA)

d. The Army does not have a stand-alone personnel modeling capability. Personnel service support analysis is typically added as an after thought to some other modeling process if performed at all [Reference 7]. Presently, there is no strategic modeling capability to evaluate human dimensions on the battlefield. Critical wartime elements of PSS with a direct effect on combat capabilities such as personnel replacements, reconstitution operations, and rear battle operations are routinely assumed to have negligible impacts on battle and are, therefore, non-existent in analytical models. In addition, these models fail to consider internal requirements of the PSS community for transportation, communications and other elements of support when projecting the Army's total requirements.

2-3. THE TRANSITION TO WAR.

a. Based upon doctrine, there exists a dichotomy in the peacetime and wartime missions of the PSS community. FM 12-6, Personnel Doctrine, indicates service support personnel routinely perform tasks in peacetime and low-intensity conflicts that are not required during mid- to high-intensity conflicts. Draft FM 14-7, Finance Operations, shows there will be a radical shift in finance priorities. For example, military pay, which is given the highest priority in peace, may be secondary and negligible in work load compared to contracted services on the battlefield aimed at sustaining the force.

b. Evaluations conducted jointly by the SSC and the Army of Excellence (AOE) Task Force support this doctrine. An appraisal of the Personnel Administration Center (PAC) conducted January-March 1988 indicated--

(1) Peacetime priorities in the PSS community do not parallel its wartime priorities;

(2) Functions identified as low work load drivers or not performed in garrison become high work load drivers during war;

(3) The peacetime mission of service support personnel precludes their being trained on wartime tasks in a field or combat environment.

c. As a result of the dichotomy in the wartime and peacetime mission, the validity of extrapolations presently made by PSS planners with peacetime data are at best questionable. Failure to exploit training and warfight models compounds the problem by eliminating alternative means for validating these extrapolations. The use of historical data in deriving planning factors for the AirLand battle is also inappropriate in most instances. Such data cannot account for the impact of new technology, changes in the threat, or functioning in a resource constrained environment.

CHAPTER 3

METHODOLOGY

3-1. OVERVIEW. As per the study plan (Appendix A), the study proceeded through three phases. These phases differed somewhat from what was originally envisioned in that plan. The three actual phases may be construed as follows:

PHASE I - planning, literature review, survey instrument development, local (internal) input to "strawman" survey instrument

PHASE II - external input to survey instrument, Joint Working Group delineation of all input (validation), adjustment of study plan

PHASE III - consolidation of PSS planning factors for inclusion in a single reference document, consolidation of information bearing on the PSS planning factor issue, further external concept validation through interviews of identified PSS planners, and report preparation

Since the study was essentially developmental and non-statistical in nature, planning, data collection, and analysis all took place throughout the study.

3-2. PHASE I - STRUCTURING THE PROBLEM

a. The analysts attempted to relate the issue of PSS planning factors to the similar and better developed issue of logistics planning factors. Thus, following the gathering of relevant documents, an initial step was to visit the USALOGC (Operations Analysis Directorate, Planning Factors Division) to interview individuals who dealt with logistics planning factors management. One member of the study team conducted structured interviews with each individual in the division. Answers to the questions did not apply directly to the EEAs but did provide an overview of planning factors management in other CSS areas.

b. The interviews at USALOGC led to the formulation of a concept paper (Appendix E) which set out a process and potential structure for the management of PSS planning factors - if it were deemed reasonable to pursue such management at Fort Benjamin Harrison. The analysts reasoned that PSS planning factors might be managed in much the same fashion as logistics planning factors, the process for which is set out in AR 700-8. This document constituted a seminal document since it outlined procedures and responsibilities for gathering and maintaining valid planning factors in other CSS functional areas. The

analysts also consulted FM 101-10-1/2 and the Armed Forces Planning Data Assumptions (AFPDA) document as general repositories of Army planning factors.

c. A second step conducted in connection with a review of the relevant "literature" was to construct a "strawman" list of PSS planning factors which users or potential users could annotate with a view to a potential PSS planning factors data base (see Appendix D). The analysts sent this "strawman" to each of the five divisions within the SSC Directorate of Combat Developments for a "first cut" in the process of successive approximations toward a workable list of PSS planning factors. Analysts considered the DCD review to be an internal review by handlers or potential handlers of PSS planning factors.

3-3. PHASE II - DATA COLLECTION

a. Following a review of internal comments on the strawman list of PSS planning factors in the field survey and subsequent minor revisions, representatives of the following proponent organizations/ activities in the PSS community reviewed the list and commented on the need for, or potential usage of, factors.

Public Affairs
Adjutant General School
Judge Advocate General School
Finance School
Chaplain School
School of Music

Recognizing that many organizations other than the above have need or the potential need for PSS planning factors, the analysts nonetheless felt that the organizations would have a feel for PSS information demand as well as an institutional idea of specific needs for PSS planning data.

b. Representatives from each organization/activity responded, with Public Affairs and the School of Music (Chief of Army Bands) indicating that they saw no (parochial) need for a repository of PSS planning factors. Commentary of action officers of the above organizations, in addition to that of DCD combat developers, provided answers to EEAs one through five. In the meantime, the analysts reviewed the original study plan and consolidated objectives and EEAs.

c. The next step was to seek further refinement from a Joint Working Group (JWG), again composed of an internal group of combat developers, some of whom did initial review of the "strawman." This group met for approximately four hours and interactively provided, not only refinement, but also the foundations for answers to EEAs 6 through 20 (since answers to EEAs one through five were clear by the time of the meeting). The

composition of the group and its collective credentials are contained in Table 1. Information on individual members of the JWG is annotated in Appendix B.

Table 1. JOINT WORKING GROUP SUMMARY

<u>Job Title</u>	<u>Grade</u>	<u>MOS/Series</u>	<u>Years of Service</u>	<u>Combat Dvlpmt Experience</u>
Mil Admin Anlyst	GS-12	301	23	4.0
CD NCO	E-7	75Z	17	0.5
NCOIC Pers Team	E-9	75Z	19	3.0
CD Staff Officer	O-3	42/53	10	1.0
Mgmt Analyst	GS-12	343	19	4.0
Mil Per Mgmt Spc	GS-12	343	10	8.0
Project Officer	GS-12	205	26	4.0
Health Svc Off	O-3	67A/67D	13	.8
Oper Rsch Anlyst	GS-12	1515	7	6.0
Oper Rsch Anlyst	GS-13	1515	11	4.0
Chaplain	O-4	56A	16	1.0
Chief, Anlys Div	O-4	42/49	12	1.5
Oper Rsch Anlyst	GS-13	1515	5	5.0
Mgmt Analyst	GS-12	343	14	4.0
-----			-----	
Mean			12.3	3.5

3-4. PHASE III - DATA ANALYSIS

a. The analysts determined that, with basic answers to all EEAs, concept validation efforts and "gap-filling" could be accomplished through face-to-face interviews at the Command and General Staff College with individuals responsible for FM 101-10-1/2, as well as the Patient Administrative Services Bio-Statistics Activity (PASBA). Accordingly, one member of the study team interviewed an editor of FM 101-10-1/2 as well as the Commander of PASBA.

b. The analysts proceeded to consolidate information, delineate EEAs, and prepare the report.

CHAPTER 4

ANALYSIS RESULTS

4-0. OVERVIEW. The analysis in this chapter is outlined in accordance with the study objectives. For reader clarification, these objectives are numbered and restated below. The matrix provided on the next page clearly depicts which EEAs are associated with each objective listed.

OBJECTIVE

- 1 - Identify planners of PSS at different levels within the Department of the Army.
 - 2 - Identify the factors each PSS planner needs to accomplish operational objectives.
 - 3 - Determine the sources and validity of planning factors currently used by PSS planners.
 - 4 - Rank order factors by availability, desirability, and feasibility of acquisition.
 - 5 - Establish procedures to maintain a one-source system with consolidation of validated factors into the system.
-

4-1. PERSONNEL SERVICE SUPPORT PLANNERS.

a. All echelons of the Army have PSS planning requirements. Factors for these requirements may be categorized as strategic, operational, or tactical. DCSPER and other agencies at echelons above corps are primarily interested in strategic factors for long-range plans of three or more years. PSS planners at this level engage in strategic planning to 1) determine quantitative peacetime and mobilization training requirements; 2) establish criteria for Army-wide grade structure requirements; 3) provide active and reserve components with institutional training requirements; 4) execute the manning system for unit replacement operations; and 5) develop initial shelf requisitions.

b. At corps and below, PSS planners are more concerned with operational and tactical requirements. Finance Support Commanders, Personnel Support Commanders, G1/AGs, and their counterparts at brigade and battalion levels routinely need factors to prepare operation orders, personnel estimates, readiness reports, replacement allocations, personnel requisitions, and provisions of support. For planning purposes, maneuver elements need factors periodically reviewed to account for changes in force structure, the threat, technology, and

ESSENTIAL ELEMENTS OF ANALYSIS

OBJECTIVES

	1	2	3	4	5
1. What organizations have PSS planning requirements?	X				
2. What positions do the planners hold?	X				
3. For whom do they prepare the planning estimates?	X				
4. How often do they prepare the estimates?	X				
5. What are the operational objectives?	X				
6. Are the factors used in developing estimates related to a specific theater of operation?		X			
7. What degree of accuracy is required by PSS planners?		X			
8. Would planners prefer a fixed point estimate or range for the factor?		X			
9. Upon what are the factors based; e.g., posture of US forces, strength of opposing forces?		X			
10. How are the factors determined; e.g., history, model, algorithm, subjective analysis?		X			
11. What factors are most often used?		X			
12. What needed factors are not readily available?		X			
13. What are the sources most often used?			X		
14. Who are the proponents of the publications used?			X		
15. Do the publications provide sufficient instruction on the use of planning factors?			X		
16. Is there confidence in the use of available planning factors?				X	
17. How often are these planning factors reviewed/updated by the proponent?				X	
18. Do changes in doctrine and technology prompt the review/update of the planning factors?				X	
19. What are the constraints that could limit the development or publication of specific planning factors?				X	
20. Can planning factors be published that are based upon classified data?				X	
21. Will a list of available factors satisfy planners' needs to a significant degree?					X
22. How will deficient/missing factors be developed and validated?					X
23. What planning factors currently available should not be included?					X
24. What are the criteria for adding or deleting factors?					X
25. What are the criteria for validating planning factors?					X
26. Who should have access to the one-source system?					X
27. What access controls are required to safeguard sensitive or classified planning factors?					X
28. Who will maintain the system?					X
29. Will the system provide feedback from users?					X

doctrine. In tactical situations on the battlefield, PSS planners express the need for interactive automated system to provide real-time information for personnel estimates.

c. Both strategic and operational factors used for provisions of support extend across functional areas of the staff at each command level. PSS planning at all levels is essential for force integration. The inclusion of service support variables adds a realistic dimension to training and the decision making process in determining the Army's total wartime requirements and capabilities.

4-2. OPERATIONAL OBJECTIVES.

a. Using the field data survey at Appendix D, sixteen general types of factors were identified as being needed for personnel service support. Requirements for each general type of factor vary by end usage for a specified command level. Factors used for CONUS replacement centers and PSS impacts on combat capability are based upon historical data and subjective analyses from ongoing research efforts at the Soldier Support Center. Other strategic factors such as casualty estimation and stratification, return-to-duty profiles and personnel force structure are based upon DA master files and the output of complex analytical models.

b. The latter group of factors are primarily scenario dependent. Major warfighting models used in generating factors tend to focus only upon NATO forces under full mobilization in a mid- to high-intensity conflict. Presently, results from major models are used in conjunction with subjective analyses to project the requirements and capabilities for other combat scenarios and levels of conflict. The needs of PSS planners at echelons above corps are frequently satisfied by bulk rates and the range for a given factor versus a fixed point estimate.

c. Strategic factors when required at corps or division and below become operational or tactical factors and differ in both scope and the required level of detail. The division is responsible for sustaining its combat effectiveness on a continuous 24-hour basis in a close-in battle, deep attack, or rear battle. As a result, PSS planners want fixed-point estimates on battlefield functions that must be performed by their organic elements for contingency planning and training purposes.

d. On the battlefield, however, planners at division and below also want the capability of making real-time projections for personnel estimates and reconstitution operations based upon unique missions, situations, or organizations. This implies an interactive model based upon a range of factors is required. This latter requirement is generated by mission responsibilities for combined arms operations on the AirLand battlefield below division. Battalions decide how to fight, command, and control

combined arms teams. Brigades integrate combined arms and share the responsibilities for slice training with division.

e. In turn, corps planners routinely need aggregated planning factors for three divisions. Corps and division integrate all AirLand battle functions in determining how the battle will be fought. Since corps is equipped to sustain combat effectiveness for a longer duration than the division and has unique assets which make its total combat capabilities greater than the sum of its subordinate commands, factors characteristic of both strategic and operational planning factors should be examined independently at corps level to determine whether they are scenario dependent and should be expressed as a range or point estimate.

f. DA level staff agencies, integrating centers, MACOMs, and combat developers at proponent schools use work load factors to determine force structure. Manpower requirements criteria (MARC) and MS3 study documents use historical data, time and motion studies, and subjective analysis in deriving work load factors. Corps and below use these factors for determining provisions of support and the most efficient allocation of service support personnel.

g. Fixed-point estimates satisfy a majority of the planners concerned with work load factors although planners in the combat development and force structure arena frequently want to examine the trade-off between personnel and technological improvements in equipment. Work loads are dependent upon scenarios, conflict intensity, and force posture; however, generic work load factors may be developed independent of these variables.

4-3. THE SOURCES AND VALIDITY OF CURRENT FACTORS.

a. Most factors identified as being needed are not readily available to all PSS planners. The frequency of usage for PSS factors depends upon their availability to planners rather than upon the need or requirements for a particular factor. The only PSS factors readily available to all command levels through published documents are indicated on the next page in Table 2.

b. The field data survey and the JWG identified FM 101-10-1/2, Volume 2 as the primary source used for all PSS planning factors. Although the field manual is edited and published by the US Army Command and General Staff College, this agency exercises very limited qualitative controls over the factors and information included. Data is submitted by the proponent who accepts responsibility for a given factor. Editors of the manual indicated it is sometimes difficult to determine who is proponent for a particular factor. They also indicated the responses from proponents are often lacking when information is requested to update the manual.

Table 2. PUBLISHED PSS PLANNING FACTORS

<u>FACTORS</u>	<u>STRATIFIED BY</u>
o Awards and Decorations	soldiers/month; type of award
o Postal Services	wartime/peacetime; theater; intensity; mode of transportation
o Enemy Prisoners of War	equal force estimate/division; superior & inferior forces /posture; theater; Vietnam
o Enemy Civilian Internees	hostile/friendly population
o Military Prisoners	nuclear/nonnuclear
o Crime Rates	type of crime; CONUS/overseas/ worldwide by FY
o Personnel Losses	type of division/branch; daily losses/percentage of strength; war; corps & EAC/branch; air- borne & amphibious operations; theater

* SOURCE: FM 101-10-1/2, Volume 2. Short narratives, but no factors, are provided on finance services and terrorists.

c. The JWG members and participants in the field data survey are of the opinion commanders and action officers in the field do not have much confidence in published factors. Their comments and opinions as subject matter experts are supported by comments, information requests, and taskers received by the Directorate of Combat Developments.

(1) Prior to major training exercises, units frequently request factors to estimate and stratify casualties and to predict personnel replacement requirements. Controllers and units participating in exercises at the National Training Center and the Joint Readiness Training Center have stated casualties are routinely three to five times greater than the battlefield losses projected using factors in FM 101-10-1/2. Based upon feedback from the field, USAPERSCOM tasked SSC to develop an automated system to assist personnel planners at corps and division levels. Analytical agencies such as CAA obtain this data for specific projects directly from the casualty stratification model developed at the SSC. Factors in FM 101-10-1/2 are based upon historical data and do not consider all the factors which have an impact on the AirLand battlefield.

(2) Factors on enemy prisoners of war and civilian internees also generate a number of information requests. In

part, this is attributable to editorial errors made in the October 1987 edition of the field manual. Factors published in previous editions were based upon data from World War II and a very limited amount of data from the Korean War. Studies conducted by SSC in 1985 and 1986 incorporated data from more recent battlefield experiences of other nations to account for changes in doctrine and the technology of weapon systems [Reference 4 and 5]. The revised figures are not accurately printed in the 1987 edition, and other editorial errors in the narrative make instructions given for the use of these factors unclear.

(3) Users may send comments or corrections to editors at the Command and General Staff College or directly to the proponent responsible for a particular factor using DA Form 2028. Proponents submit corrections to editors using the same form. Corrections are compiled and included in the next revised edition. The edition of FM 101-10-1/2 prior to October 1987 was published in 1976.

d. The second major source identified for PSS planning factors is the AFPDA. The primary focus of this document is factors and rates required by major analytical models and planning efforts at the Department of the Army level. The instructions and level of detail given are inadequate to meet the immediate needs of units at or below corps.

4-4. RANK ORDERING PSS PLANNING FACTORS.

a. Analysts used the following criteria to rank order planning factors:

- Factors related to battlefield deficiencies identified by Functional Area Assessments (FAA), the Mission Area Development Plan (MADP), System Program Reviews (SPR), the Long-Range Development Plan (LRDP), and the Army of Excellence (AOE) Task Force are assigned a higher priority than those not identified as battlefield deficiencies.

- The processes and the Task Force listed above are time sensitive and are assigned the following order based upon their projected outlook: (1) FAA - 3 years, (2) MADP - 0 to 15 years, (3) SPR - 15 years, (4) LRDP - 15 to 30 years, and (5) AOE. The process with the highest priority is used to rank order factors related to deficiencies identified in more than one area. Issues addressed by the AOE Task Force significantly impact upon force structure, doctrine, and training under both peace and wartime conditions. However, these issues are primarily of concern to proponents in the personnel service community.

- Factors required by multi-functional areas have a higher priority than work load factors or those required only in the personnel service support community.

b. Based upon the above listed criteria, PSS planning factors identified as being required are rank ordered in the descending order of importance (see Appendix D for more detailed description of factors):

- (1) Casualty Estimation
- (2) Casualty Stratification
- (3) Returned-to-duty Personnel
- (4) Conus Replacement Centers
- (5) PSS Impacts on Combat Capability
- (6) Force Personnel Factors
- (7) Enemy Prisoners of War
- (8) Postal Activities
- (9) Finance Operations
- (10) Personnel Services
- (11) Chaplain Activities
- (12) Morale/Welfare Support Activities
- (13) Legal Activities
- (14) Civilian Internees
- (15) Administrative Services
- * (16) Health Service Support

c. Many projects presently in progress at SSC impact upon the availability and feasibility of acquisition for the factors identified as being needed. Listed in Appendix C are descriptions of SSC projects that will contribute to the development of missing and deficient factors in the PSS data base.

4-5. PROCEDURES TO ESTABLISH AND MAINTAIN A ONE SOURCE SYSTEM.

a. Members of the JWG concluded changes in doctrine and technology do prompt the review and update of most PSS planning factors. A single reference source with valid and reliable data will benefit personnel planners Army-wide. They also concluded that a vast majority of the requirements for planning factors can be satisfied by unclassified data. The small number of requests for classified factors, generally for echelons above corps, can be managed by exception in accordance with the applicable security regulations.

b. Proposed procedures for establishing and maintaining a PSS Planning Factors System will not be restated in this chapter. The concept paper in Appendix E outlines a single-source reference system for the development, consolidation, validation, and dissemination of PSS planning factors. As a part of this study, the draft Army regulation in Appendix F was also written to set forth policy and responsibility for managing the system.

*NOTE: The Health Services Command (more specifically PASBA) has a system for developing, validating and disseminating planning factors. In this study analysts were unable to determine what health service factors, if any, should be included in the PSS data base.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5-1. CONCLUSIONS.

a. PSS planners holding a variety of positions at all levels rely on less than optimal data from "dated" general sources. One reaches this conclusion after reviewing feedback from combat developers, school commentators, and information requests from field commanders. In fairness, the FM 101-10-1/2 editor maintained that none of the current data contained in the most recent volume was "off" enough that he would feel extremely uncomfortable with it. He nonetheless conceded that some of the data was of World War II vintage and that the process by which data came to print was subject to overall inconsistency on the part of providers/proponents.

Overall, PSS planners comprise a range of individuals at the school houses and in the field (as indicated in Chapter 4) who rely on FM 101-10-1/2 and other publications which "borrow" its tables. Data falls into question due to the lack of a rigorous process by which it may be updated or certified.

b. The process by which individuals currently may obtain PSS planning factor data lacks consistency and efficiency. This conclusion results from a comparison between the process by which planners may obtain logistics data and the process by which planners may obtain PSS data. A clear process and structure exists for obtaining current, certified logistics data; no such process or structure exists in connection with PSS data.

c. PSS planners need a variety of planning data at different levels as well as a "system" for obtaining such data. To some extent, the use of planning data supports the "need" for planning data. The present study has established the fact that planners have legitimate uses for an array of PSS data in their models, exercises, lessons, and the like, as well as the fact that they do try to put available data to use. The paucity of PSS data in Army models, as well as the near absence of PSS play in major exercises indicates the need for a "system."

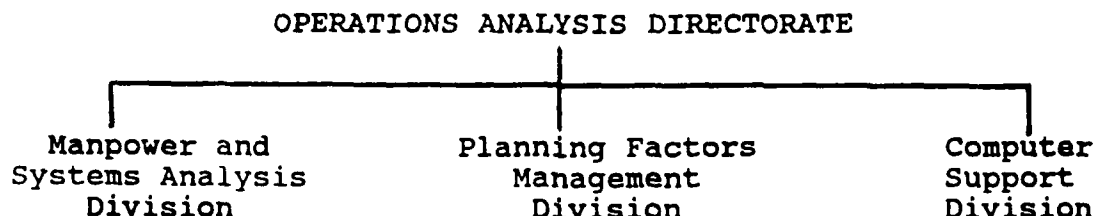
5-2. RECOMMENDATIONS.

a. Implement a regulation similar to AR 700-8, Logistics Planning Factors for the management of PSS planning factors. A draft of such a regulation may be found in Appendix F of this report. This Army regulation will establish a structure for maintaining accurate PSS data and providing it to planners.

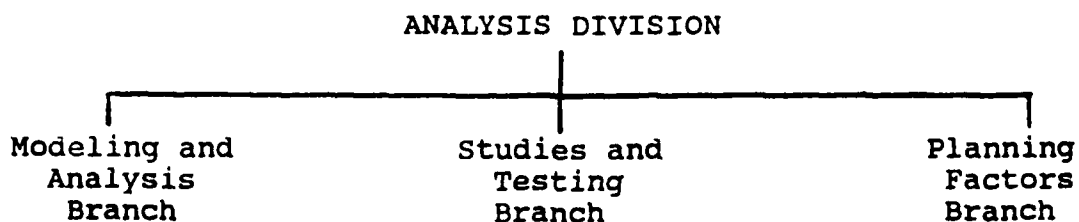
b. Contract the task of building a usable data base. This report provides an outline of what is needed; the task of building

a usable, TACCS-compatible data base may now be contracted if funds are available.

c. Establish a PSS Planning Factors Branch within the Analysis Division, Directorate of Combat Developments at Fort Benjamin Harrison to manage the development and maintenance of the data base. The outline for accomplishing this, a minor reorganization, may be found at Appendix E of this report. While necessary reorganization may be minor, one must remember that there is "no free lunch;" that is, it takes a staff of approximately eighty military and civilian personnel to operate PASBA, a considerably larger operation than what is envisioned at the Soldier Support Center. Similarly, but on a lesser scale, LOGCEN's Planning Factors Management Division requires nineteen people. That division, comprised primarily of logistics officers, civilian logistics specialists, and operation research analysts is set out as follows:



Fewer individuals could deal initially - and possibly over a long period of time - with PSS Planning Factors management in a structure (within the Directorate of Combat Developments) such as the following:



The Planning Factors Branch, based upon personnel resources already available, would reasonably begin with four individuals: one 53B (O3), two operations research analysts (GS-1515), and one data base specialist.

Although it will be necessary in a time of unfortunate scarcity to allocate people/resources to meet the above structural requirements, there will be a payoff in terms of valid, certified data provided to a variety of planners. Nonetheless,

the point must be made that the processing and management of such data requires some personnel and resource investment in the Army's planning to fight and win.

APPENDIX A

STUDY PLAN AND ADDITIONAL GUIDANCE



DEPARTMENT OF THE ARMY
US ARMY SOLDIER SUPPORT CENTER
FORT BENJAMIN HARRISON, INDIANA 46216

ATSG-DDN

1 August 1988

MEMORANDUM FOR: SEE DISTRIBUTION

SUBJECT: Study Plan: Personnel Service Support (PSS) Planning Factors

1. PURPOSE. This study will identify factors PSS planners need to make reliable estimates for wartime operations and plans. It will further develop and evaluate a system for incorporating validated planning factors into appropriate reference sources.

2. REFERENCES.

- a. FM 101-10-1/2, October 1987, Staff Officers' Field Manual, Organizational, Technical, and Logistical Data.
- b. FM 101-10-3, October 1987, Staff Officers' Field Manual, Organizational, Technical, and Logistical Data (C).
- c. CGSC Student Text 101-2, June 1985, Planning Factors.
- d. Army Force Planning Data and Assumptions, FY 1988-1997 (C).
- e. Total Army Analysis, FY 1993 (C).
- f. FM 12-6, Personnel Doctrine (Draft)
- g. AR 570-2, Manpower and Equipment Control, Organization and Equipment Authorization Tables - Personnel, and AMC/TRADOC Supplement 1 to AR 570-2.
- h. AR 611-201, Enlisted Career Management Fields and Military Occupational Specialties.

3. TERMS OF REFERENCE.

a. PROBLEM STATEMENT. The capability does not exist for PSS planners to develop reliable planning estimates based upon a system containing appropriate and validated planning factors.

b. IMPACT OF THE PROBLEM. The lack of appropriate and validated planning factors degrades mission capability on the battlefield with regard to personnel readiness. Valid planning factors are essential in estimating casualties, projecting

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SUBJECT: Study Plan: Personnel Service Support (PSS) Planning Factors

replacements, and strength accounting. Furthermore, PSS factors are used by Army elements concerned with planning resources for operations; force structure; Manpower Requirements Criteria (MARC), and Table of Organizational Allowances and Equipment (TOE) development; wargames; simulation models; training exercises; and other analysis efforts.

c. OBJECTIVES.

(1) Identify planners of Personnel Service Support at different levels within the Department of the Army.

(2) Identify the factors each PSS planner needs to accomplish operational objectives.

(3) Determine the sources and validity of planning factors currently used by PSS planners.

(4) Rank order factors by availability, desirability, and feasibility of acquisition. The list constraints will be current resources and technology.

(5) Consolidate existing planning factors that have been validated into a single reference source.

(6) Establish procedures to maintain a one-source system (i.e. access procedures, periodic reviews/updates, and inclusion of new factors).

(7) Design and implement a plan for the systematic development of deficient and non-existing planning factors.

d. SCOPE. Required wartime planning factors will be identified for PSS planners at the Department of the Army level down to end-users at battalion and company level. If the study yields an "improved" PSS planning factors source, further cost/benefit investigation will have to be conducted prior to an unqualified recommendation for implementation. Cost implications will not be considered in this study.

e. LIMITATIONS. The study will identify requirements for planning factors and determine the feasibility of developing missing or deficient factors; however, the study will not develop the equations or models required actually to produce new planning factors.

f. ESSENTIAL ELEMENTS OF ANALYSIS (EEA):

(1) What organizations have PSS planning requirements?

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SUBJECT: Study Plan: Personnel Service Support (PSS) Planning Factors

- (2) What positions do the planners hold?
- (3) For whom do they prepare the planning estimates?
- (4) How often do they prepare the estimates?
- (5) What are the operational objectives?
- (6) Are the factors used in developing estimates related to a specific theater of operation?
- (7) What degree of accuracy is required by PSS Planners?
- (8) Would planners prefer a fixed point estimate or a range in which the factor is most likely to fall?
- (9) Upon what are the factors based; e.g., posture of US forces, strength of opposing forces?
- (10) How are the factors determined; e.g., history, model, algorithm, subjective analysis?
- (11) What factors are used?
- (12) What factors are needed that are not readily available?
- (13) What are the sources used?
- (14) Who are the proponents of the publications used?
- (15) Do the publications provide sufficient instruction on the use of planning factors?
- (16) Is there confidence in the use of available planning factors?
- (17) How often are these planning factors reviewed/updated by the proponent?
- (18) Do changes in doctrine and technology prompt the review/update of the planning factors?
- (19) What are the constraints that could limit the development or publication of specific planning factors?
- (20) Can planning factors be published that are based upon classified data?

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SUBJECT: Study Plan: Personnel Service Support (PSS) Planning Factors

(21) Will a list of available factors satisfy planners' needs to a significant degree?

(22) What factors should be developed that currently are not available?

(23) How should missing factors be developed?

(24) If historical data are required for a missing factor, what proponent or agency maintains the data?

(25) What planning factors currently available should be dropped from the feasible list?

(26) What are the criteria for adding or deleting factors from the feasible list?

(27) What are the criteria for validating planning factors?

(28) Who will validate the factors?

(29) Which proponents will be tasked to develop deficient or non-existing planning factors that are valid and feasible?

(30) Who will task the proponents to correct and develop factors?

(31) Who should have access to the one-source system?

(32) What access controls are required to safeguard sensitive or classified planning factors?

(33) Who will maintain the system?

(34) Will the system provide feedback from users?

g. CONSTRAINTS.

(1) Manpower limitations.

(a) Analysis Division, DCD 1.5 PSY

(b) TRAC-FBHN 1.0 PSY

(2) Study participants will arrange for their own TDY funds.

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h. ALTERNATIVES.

- (1) Status Quo
- (2) Update factors in existing documents.
- (3) Develop a single source document with PSS planning factors.
- (4) Develop an automated system data base.
- (5) Any combination of the above.

i. MEASURES OF EFFECTIVENESS.

- (1) Recognition by PSS planners that analysis has delineated the best method currently available for PSS planning factors.
- (2) Costs for updating and maintaining the factors are reduced.
- (3) The need for planners/users to resort to using special and diverse sets of factors for a particular function is eliminated.
- (4) Uncontrolled proliferation of PSS planning factors is discouraged.

j. METHODOLOGY.

(1) The study will be conducted in three phases. Phase I focuses upon the identification of PSS planners, planning factor requirements, data sources, and current doctrinal and modeling deficiencies. After a thorough literature review, questionnaires and interviews will be used to answer the essential elements of analysis associated with the first three objectives. A Joint Working Group may be staffed to assist in this effort.

(2) In Phase II, requirements identified by PSS planners are compiled and evaluated. The list of planning factor requirements will be validated and the feasibility of developing new or deficient factors will be determined, subject to current resource and technological constraints. The list will be staffed with PSS Planners worldwide.

(3) Phase III involves two distinct steps: (1) the consolidation of all PSS planning factors into a single reference document, and (2) a plan for the development of new factors

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identified as both valid and feasible. Answers to essential elements of analysis associated with Phase III will be obtained using the data collection instruments noted in Phase I of the methodology.

k. RELATED STUDIES.

- (1) PSS in ARMY Models
- (2) PSS/BSS
- (3) VIC-CSS
- (4) MARC Studies
- (5) Casualty Stratification Model
- (6) Casualty Estimation
- (7) DOD-Joint Casualty Operations Reporting Systems
- (8) PSS Units in the Rear Area
- (9) Soldier Dimensions in Combat Models
- (10) Wartime Role of S-1/PAC
- (11) Mail Delivery on an Integrated Battlefield
- (12) Enemy Prisoner of War (EPW)/Civilian Internee (CI)
Rate Study
- (13) The Impact of Indigenous Religions upon U.S.
Military Operations
- (14) Survivability of the UMT on the Battlefield
- (15) Systemic Effects of Threat Weapons on PSS Systems
- (16) PSS Transportation Requirements
- (17) Intra-Theater Replacement Operations

4. ENVIRONMENT/THREAT CONSIDERATION. All standard combat development scenarios will be considered in this study.

5. SUPPORT AND RESOURCE REQUIREMENTS.

a. Sponsor - USASSC

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SUBJECT: Study Plan: Personnel Service Support (PSS) Planning Factors

- d. Joint Study Agents - DCD, Analysis Division (Lead)
TRAC-FBHN

6. ADMINISTRATION.

a. MILESTONE SCHEDULE.

- (1) Draft Study Plan: 1 June 1988
- (2) Final Study Plan: 30 June 1988
- (3) Phase I completed: 31 October 1988
- (4) Phase II completed: 30 November 1988
- (5) Phase III completed: 28 February 1989

b. CONTROL. The Analysis Division will manage the project using applicable project management techniques and the study process outlined in TRADOC PAM 11-8. TRAC-FBHN will approve the study plan and certify the Final Report.

- c. STUDY DIRECTOR: CPT Murray.

7. CORRELATION.

- a. Study ACN: 73285.
- b. AR 5-5 Category: H.
- c. Study priority within the TRADOC Study Program: 82.

FOR THE COMMANDER:

RUSH S. YELVERTON
Colonel, GS
Deputy Commander

DISTRIBUTION:

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EVALUATION AND STANDARDIZATION, ATSG-ES

APPENDIX B

STUDY CONTRIBUTORS

. USA Academy of Health Sciences
Patient Administration Systems &
Bio-Statistics Activity (PASBA)
. Fort Sam Houston, Texas

United States Army Logistics Center
Operations Analysis Directorate,
Planning Factors Division
Fort Lee, Virginia

USA Combined Arms Combat Developments Activity
Department of Sustainment & Resourcing Operations
Fort Leavenworth, Kansas

JOINT WORKING GROUP MEMBERS

1. Major, 56A, Chief, Chaplain Integration Branch, 11.5 years active duty, 4.5 years USAR, 6 years as Bn Chaplain, 2 years as an Administrative Chaplain, 1 year as Bde Chaplain, 1 year in Combat Developments, Special Project Officer for Special Operations Related Support Training.
2. Major, 42A/497Y, Operations Research Systems Analyst, Chief, Analysis Division, 12 years active duty, 2 years in PSC, 1 year in Div G-1, 1 year as Asst. S2/3 in P&A Bn, 2 years as Group S-1, 1.5 years as Co Cdr and Bn XO, 1.5 years in Combat Developments.
3. Captain, 67A/67D, Health Services Officer, 12.5 years active duty, 2 years as Chief, Administrative Services, 3 years as Information Management Staff Officer, 2 years as Detachment Cdr, 1 year in Combat Developments, Project Officer for Re-equipping RTD's.
4. Captain, 42A/53, Chief, Personnel Branch, 10 years active duty, 3 years ACofS P&A Cmd, 1 year as Bn Adj/Co Cdr, 2 years as Co Cdr, 1 year in Combat Developments.
5. Sergeant Major, 75Z5H, NCOIC, C4 Personnel Team, 19.5 years active duty, 3 years as NCOIC, 9th PSC, 2 years as NCOIC, Enlisted Assignment Division, 2 years as Bde PSNCO, 5 years as Senior Instructor for MOS 75E, 3 years in Combat Developments.
6. Sergeant First Class, 75Z40R3, 17 years active duty, 4 years as Bde PSNCO, 2 years as NCOIC, Personnel Actions/Customer Service, 3 years as Bn PSNCO, Project Officer for FY89 CRC Exercise.
7. GS1515-13, Operations Research Systems Analyst, 5 years of service with the Department of the Army as an engineering psychologist and analyst. Co-author and reviewer of AR 5-5 studies pertaining to training issues for Combat Developments.
8. GS1515-13, Operations Research Systems Analyst, 11 years service with DA, 4 years in Combat Development, designed the Casualty Stratification Model II, SSC Representative for Casualty Estimation/Stratification Steering Committee sponsored by DCSPER, major contributor to the Wartime Replacement Systems Study.
9. GS1515-12, Operations Research Systems Analyst, 7 years service with DA, 6 years in Combat Developments, manager for SSC AR 5-5 Study Program, co-author of EPW studies for NATO, NEA, and SWA, Project Officer for civilian internee and military prisoner rates.

10. GS343-12, Managment Analyst/TOE Developer, 11 years government service, 8 years in DA, 4 years in Combat Developments, 1 year as MARC analyst, 3 years as TOE developer for Public Affairs, Chaplains, and Army Bands, Project Officer for Re-equipping platoons.

11. GS205-12, Military Personnel Management Specialist, 10 years government service, 8 years in Combat Development as Managment Specialist and Administative Analyst, Project Officer for Postal Operations.

12. GS301-12, Military Administration Specialist, 23 years government service, 4 years in Combat Development, Project Officer for Low Intensity Conflict (LIC), Rear Battle Operations, Equipment Usage Profiles, and Assessment of PSS in Scenarios.

13. GS343-12, Management Analyst, 14 years government service, 4 years in Combat Development, 1 year in Inventory Management, 3 years as Supply Systems Analyst, 8 years as Managment Analyst, experienced in conducting manpower surveys, organizational analysis, and occupational audits, avid student of military history.

14. GS205-12, Military Personnel Management Specialist, 26 years of government service, 4 years in Combat Developments, Project Officer for morale, welfare, and recreation functions, author of the Morale, Welfare, and Recreation Wartime Study.

APPENDIX C

SOLDIER SUPPORT CENTER PROJECTS

1. Casualty Stratification Process & (CSM) II
2. Automated Personnel Planning Software (APPS)
3. Battlefield Laydown Study for Corp/COMMZ
4. Personnel Service Support (PSS) Battlefield Communications Requirements
5. Finance Materiel Requirements
6. Personnel Service Support in Army Models

SUBJECT: The Casualty Stratification Process and Model (CSM II)

1. PURPOSE. The Casualty Stratification Process provides the personnel planning community with the estimated MOS/AOC/FA, Grade/Skill, ASI, and/or gender of "bulk" casualties. Typically, campaign simulation models (like CEM, FORCEM, VIC) only provide gross numbers of casualties. They do not actually play personnel at all, only weapon systems. It is then necessary for a post-processor to estimate a detailed MOS/skill description of the casualties for planning purposes.
2. USES. The Enhanced Casualty Stratification Model (CSM II) is the analytical post-processor used to estimate the MOS/skill detail of the casualties. These estimates are necessary to calibrate the mobilization training base and to assess the personnel implications of various OPLANS. CSM II can also be used to support training exercises, Functional Area Assessments, and Career Management Field studies.
3. OVERVIEW. CSM II essentially refights the battle using a given scenario from a personnel perspective. Personnel are deployed and arrayed on the battlefield just as they should have been in the warfight models. Each MOS is associated with a target (such as 19K and M1 tank). A threat force is arrayed against the blue force and each of its weapon systems has a target priority table designating the percent of time it should fire against each blue target. Each threat weapon system contains a lethality table which is an estimate of its capability to inflict casualties on each blue target by firing distance and exposure. The model steps through one time period at a time assessing individual MOS/skill vulnerability. CSM II does not estimate the number of casualties only the MOS/skill makeup of the casualties.
4. HISTORY. In 1976 Soldier Support Center (SSC) developed the first casualty stratification model. Although the original model was developed for a one time study, the DA analytical community quickly picked up on its potential. Since the late 70's SSC has been involved in DA-level personnel analysis. From 1976 to 1984 casualty stratification was considered merely an interim fix until warfight models could play the necessary personnel detail. Due to the realization that the models would not have this capability for the foreseeable future, a decision was made in 1984 to permanently establish the stratification process. This led to an effort to correct noted deficiencies in the process and thoroughly document the process. The result is CSM II.
5. STATUS. SSC conducted a study to document CSM II and to verify its internal validity. Documentation for the model includes: 1) Functional Description; 2) Software Unit Specifications; 3) Maintenance Manual; 4) Reference Manual; 5) User's Manual; and 6) Test Analysis Report. The CSM II study report has been submitted for certification and approval.

SUBJECT: Automated Personnel Planning Software (APPS)

1. **REFERENCE.** Study Plan: Automated Personnel Planning Software for Division and Corps Level Planners, July 89.

2. **PURPOSE.** Develop a methodology and a prototype for an automated planning software package that will provide division and corps level personnel planners with a method for estimating and stratifying casualties and predicting personnel replacement requirements.

3. **USES.** The mission of the APPS project is to develop an analytical tool to assist personnel planners. The project has the following characteristics:

- Provides casualty estimates for divisions and corps based on unit status, threat force, posture, force ratio, terrain, and theater.
- Stratifies casualties by MOS and grade.
- Develops shelf requisitions.
- Considers battle and nonbattle casualties and administrative losses.
- Operates in IBM and TACCS environments with Microsoft Disk Operating System (MS-DOS) and Burroughs Technical Operating System (BTOS) versions.
- Supports Division and Corps level planners in Peace (Garrison, FTX, and CPX) and Wartime (Regional and Contingency Conflicts) environments.
- Minimizes user input requirements.
- Works with incomplete or unknown information.
- Can be customized for specific units or scenarios.
- Is menu driven.

4. **OVERVIEW.** DCD is the lead study agency for this project. TRAC-FBHN and DOTD will share various levels of responsibility in the development and implementation of APPS. Work was started in May 89 and project completion is scheduled for Nov 90. Project length is 18 months and requires 2.6 PSY.

SUBJECT: Battlefield Laydown Study for Corps/COMMZ

1. REFERENCE. Study Plan: Battlefield Laydown Corps/Communication Zone, May 1989.

2. PURPOSE. This study documents the doctrinal battlefield locations of all Personnel Service Support (PSS) units, their habitual relationships, support requirements, and capabilities.

3. OBJECTIVES.

- a. Determine battlefield locations for all PSS units.
- b. Determine habitual relationships among PSS units and between PSS and other CSS units.
- c. Identify the support requirements for PSS units addressing:
 - (1) Feeding
 - (2) Transportation (missions, replacements, cargo, unit moves)
 - (3) Power (electric generators)
 - (4) Security (information and physical)
 - (5) Supplies
 - (6) Maintenance
 - (7) Decontamination
- d. Identify the organic mission and support capabilities of PSS units.
- e. Identify the non-organic support requirements.

4. OVERVIEW. The lack of appropriate integrated doctrine on battlefield locations and relationships for PSS units degrades mission capabilities and unit readiness and may inhibit our ability to support/sustain combat forces. Using the Defense Guidance Illustrative Planning Scenario, the study will identify doctrinal wartime configurations to support the TAA-96 force structure.

SUBJECT: Personnel Service Support (PSS) Battlefield Communications Requirements

1. **PURPOSE.** The study documents PSS requirements to transfer information on the battlefield and analyzes communication means available to meet mission demand. Study results may be used to update organizational doctrine, design, force structure, and requirements documents.

2. **OBJECTIVES.**

a. Determine the information that must be transmitted by PSS units/elements at each echelon.

b. Determine the communication means needed by PSS units.

c. Determine the difference between the currently authorized means and the required means.

d. Identify any necessary changes in communications equipment requirement documents and PSS functional doctrine.

3. **OVERVIEW.** Current PSS doctrine and organizational design do not adequately address current or future communication needs. Documented communication requirements are incomplete, contradictory, and have no foundation in mission analysis to support them. As a result, PSS units and staff elements may not be satisfactorily equipped to effectively perform their functional or operational mission. This study focuses on documenting how PSS units use communications to perform their mission and on identifying any major deficits in the TAA-93 force structure.

SUBJECT: Finance Materiel Requirements Study

1. **PURPOSE.** This study evaluates equipment requirements by type, quantity, and equipment readiness code (ERC) for Tables of Organization and Equipment (TOE) in finance units.

2. **OBJECTIVES.**

a. Determine TOE equipment requirements for the fielded and/or approved finance TOEs, and proposed headquarters and detachment TOEs to support finance doctrine.

b. Identify Mission Essential Task List (METL) and Mission Essential Equipment List (MEEL) required to operate IAW the principles of Support/Standards of Service (PS/SS) and finance doctrine.

c. Determine CTA requirements for individual and deployable organizational equipment.

d. Recommend minimum ERCs for the finance unit TOE equipment.

e. Complete a cost comparison of current, additional, and/or new equipment.

3. **OVERVIEW.** Equipment requirements for DA approved TOE finance units require analysis and validation against wartime finance support missions. Without adequate equipment, finance units will be unable to perform wartime missions in accordance with doctrine and the Principles of Support and Standards of Service. The fluid nature of AirLand Battle Doctrine, combined with a variety of TOE and Common Tables of Allowances (CTA) equipment, demands effective transportation, communications, power generation equipment, automation, weaponry, and NBC equipment. Current missions, support requirements and capabilities, and habitual relationships with other CSS units are considered in determining all equipment requirements.

SUBJECT: Personnel Service Support in Army Models

1. REFERENCE. Study Plan: Personnel Service Support (PSS) in Army Models, TRADOC Analysis Command - Ft. Benjamin Harrison, IN (1989).

2. PURPOSE. The purpose of the study is to catalog the PSS functions that are represented in existing models; to identify requirements for additional functions in current and future models; and to write a management plan designed to implement the recommendations of the study.

3. OBJECTIVES.

a. To identify and catalog the PSS functions that are represented in current Army models.

b. To identify and prioritize the PSS functions that should be included in present and future Army models.

c. To prepare a management plan designed to implement the recommendations of the study.

4. OVERVIEW. Many of the Army's current analytical and training models treat the PSS function in a simplistic manner. PSS functions affect the Army's ability to sustain combat power and in particular, control the flow of replacements to combat units. The consequences of inadequate or simplified inclusion of PSS functions into Army models may be to systematically overstate the power of the blue force, leading to overly optimistic model results upon which policy and strategic/tactical alternatives are evaluated.

5. STATUS. TRAC-FBHN undertook and completed the study. It has been certified and will be published pending approval.

APPENDIX D

FIELD SURVEY AND ANALYSIS



DEPARTMENT OF THE ARMY
TRADOC ANALYSIS COMMAND-FBH
FORT BENJAMIN HARRISON, INDIANA 46216-5000



REPLY TO
ATTENTION OF

ATRC-B

8 November 1988

MEMORANDUM FOR: SEE DISTRIBUTION

SUBJECT: Personnel Service Support (PSS) Planning Factors
Assessment

1. The Directorate of Combat Developments (DCD) and the Directorate of TRADOC Analysis Command - Fort Benjamin Harrison (TRAC-FBHN) are conducting a joint AR 5-5 study on the development of a PSS planning factors system. Since your organization was identified as a user or potential user of such factors, we request your input in the development of a PSS planning factors data base.

2. On the attached list of factors, instructions are given at the top of each page. We are requesting that you:

a. Indicate with and "X" or check mark the factors that PSS planners may need for purposes such as planning exercises, conducting wartime operations, and working with Army models. Space for the addition of factors not listed is provided on the last page.

b. Annotate your source document for PSS planning factors previously used.

c. Identify known uses and users for each factor. (Note: do not expend too much time or other resources in researching this particular information).

3. Please return your input by 16 Dec 88 to Dr. Gordon Goodwin, ATRC-B, Bldg 401B, Fort Benjamin Harrison, IN 46216. If clarification is needed, contact Dr. Goodwin at AV 699-6896 or CPT Murray at AV 699-3820. Upon completion of the study, you will be apprised of the results.

Encl

GERALD A. KLOPP, Ph.D.
Director, TRADOC Analysis Command-
Fort Benjamin Harrison

DISTRIBUTION:

COMMANDANT, AG SCHOOL, ATTN: ATSG-AG

COMMANDANT, US ARMY CHAPLAIN CENTER AND SCHOOL, ATTN: ATSC-DCD

✓ COMMANDANT, DEFENSE INFORMATION SCHOOL, ATTN: ASTX-CMT

COMMANDANT, FINANCE SCHOOL, ATTN: ATSG-FS

COMMANDANT, JAG SCHOOL, ATTN: JAGC-DDC

CHIEF, ARMY BANDS, ATTN: ATZI-AB

ACTOR/DESCRIPTION	PUT A CHECK IN THE SPACE IF REQUIRED BY PSS PLANNERS AT THE LEVEL INDICATED:					INDICATE THE SOURCE YOU USE FOR THIS FACTOR, IF ANY: (FM 101-10-1/2, AFDA, etc.) SOURCE DOCUMENT	KNOWN USES/USER FOR THE FACTOR	POTENTIAL USAGE	PROPORTION
	EMC	COMPS	DIV	BDE	BU				
1. CASUALTY ESTIMATION:									
- POSTURE									
- ATTACK									
- DEFEND									
- ACTIVE									
- PASSIVE									
- PREPARED DEFENSE									
- HASTY DEFENSE									
- TARGET DESIRABILITY									
- TARGET HARDNESS/SOFTNESS									
- SITUATION (Threat Potential)									
- ENVIRONMENT									
2. CASUALTY FACTORS									
- KILL/CAPT/MISSING IN ACTION									
- WOUNDED IN ACTION									
- DIED IN HOSPITAL									
- EVACUATED									
- RETURNED TO DUTY									
- DECEASED									
- STRESS/PSYCH CASUALTY									
- RETURNED-TO-DUTY									
- NON-BATTLE INJURY									
3. RETURNED-TO-DUTY									
- MEDICAL PROFILES									
- EXPECTED PROFILE BY MOS									
- RECLASSIFICATION									
4. FORCE PERSONNEL FACTORS									
- MOS/GRD PROFILE OF:									
- ACTIVE ARMY									
- TOE ARMY									
- TOA ARMY									
- PRE-DEPLOYED ARMY									
- BY BRANCH									

FACTOR/DESCRIPTION	PUT A CHECK IN THE SPACE IF REQUIRED BY PSS PLANNERS AT THE LEVEL INDICATED:					INDICATE THE SOURCE YOU USE FOR THIS FACTOR, IF ANY: (FM 101-10-1/2, AFDDA, etc.) SOURCE DOCUMENT	KNOWN USES/USER FOR THE FACTOR	POTENTIAL USAGE	PROBABILITY
	EAC	CORPS	DIV	BDE	BN				
- RESERVE FORCES									
- RESERVISTS									
- NAT'L GUARD									
- IRREGULAR IMM SBR									
5. COMUS REPLACEMENT CENTERS									
- EXPECTED WORKLOADS	XX					TAADS DOCUMENTS, ABPERCEW, NATIONAL GUARD BUREAU, USACHS	PERSONNEL READINESS RPT		SSC, DCD ATSG-DDC
- HOLDING CAPACITY	X						WARTIME REPL OPS, SJA SPT		MAJ JIM IRVING AV 699-3809
- PROCESSING TIMES	X						WARTIME REPL OPS		TRADOC DCS PAL ATCL-RM
- EXPECTED LEARNING CURVE	X						WARTIME REPL OPS		MAJ MUSSELMAN AV 680-3817
- EXPECTED EXCEPTION RATE	X						WARTIME REPL OPS		
6. PSS IMPACTS ON CBT CAPABILITY									
- PSS MOS'S	XX	XX	XX	X	X		PERSONNEL OPLANS, SJA		SSC, DCD ATSG-DDC
- PSS TOE'S	XX	XX	XX	X	X		PERSONNEL OPLANS, SJA		CPT PAT WILLIAMS AV 699-6727 (AS PART OF PLANNED/ONGOING STUDY)
- PSS EQUIPMENT	XX	XX	XX	X	X		PERSONNEL OPLANS, SJA		
WORKLOAD AND CAPACITY FACTORS									
7. PERSONNEL SERVICES									
- STRENGTH ACCOUNTING									
- AMOL	XX	XX	XX	XX	XX	CGSC-ST 101-2/FM 101-10-1	LEGAL SUPPORT		
- DESERTERS						CGSC-ST 101-2/FM 101-10-1			
- ADMIN DISCHARGES						CGSC-ST 101-2/FM 101-10-1			
- CASUALTY REPORTING	X	X	X	X	X				
- PERSONNEL RECORDS MAINTENANCE	X	X	X	X	X				
- AWARDS & DECORATIONS	X	X	X	X	X	CGSC-ST 101-2/FM 101-10-1			
- PROMOTIONS/REDUCTIONS	XX	XX	XX	XX	XX		LEGAL SUPPORT		
- (RE)CLASSIFICATION ACTIONS	XX	XX	XX	XX	XX		LEGAL SUPPORT		
- ROTATIONS/TRANSFERS	X	X	X	X	X	CGSC - ST 101-2			
- PROCESSING REPLACEMENTS	XX	XX	XX	XX	XX		F6, FSC, LIC/MIC TEAM SPT		

FACTOR/DESCRIPTION	PUT A CHECK IN THE SPACE IF REQUIRED BY PSS PLANNERS AT THE LEVEL INDICATED:					INDICATE THE SOURCE YOU USE FOR THIS FACTOR, IF ANY: (FM 101-10-1/2, AFDDA, etc.)	KNOWN USES/USER FOR THE FACTOR	POTENTIAL USAGE	PROBABILITY
	EAC	CORPS	DIV	BDE	BN				
8. ADMINISTRATIVE SERVICES									
- CLASSIFIED DOCUMENT CONTROL	X	X	X	X	X		PROVISION OF SPT		
- REPORT/FORM CONTROL	X	X	X	X	X		PROVISION OF SPT		
- CORRESPONDENCE PREP	X	X	X	X	X		PROVISION OF SPT		
- PUBLICATION SUPPORT	X	X	X	X	X		PROVISION OF SPT		
- REPRODUCTION SUPPORT	X	X	X	X	X		PROVISION OF SPT		
- DISTRIBUTION	X	X	X	X	X		PROVISION OF SPT		
- FILES/RECORDS MAINTENANCE	X	X	X	X	X		PROVISION OF SPT		
- COURIER REQUIREMENTS	X	XX	XX	X			PROVISION OF SPT, USACHCS		
9. HEALTH SERVICE SUPPORT									
- HOSPITALIZATION (Med Holding)	XX	XX	XX	XX	XX		PERSONNEL EST, REPL ALLO, LEGAL SPT		
- EVACUATION	XX	XX	XX	XX	XX		PERSONNEL EST, REPL ALLO, LEGAL SPT		
- HEALTH SERVICES LOGISTICS	X	X	X	X	X		PERSONNEL EST, REPL ALLOCATIONS		
- PREVENTIVE MED SERVICES	X	X	X	X	X		PERSONNEL EST, REPL ALLOCATIONS		
10. FINANCE ACTIVITIES									
- MILITARY PAY	XX	XX	XX	XX	XX	FM 14-7, AR 37-104-3	S-1, G-1, PERS EST		
- TRAVEL	XX	XX	XX	XX	XX	FM 14-7, AR 37-104-3	S-1, G-1, PERS EST		
- DISBURSING	XX	XX	XX	XX	XX	FM 14-7, AR 37-104-3	S-1, G-1, S-4, G-4		
- COMMERCIAL ACCOUNTS	XX	XX	XX	XX	XX	FM 14-7, AR 37-104-3	S-1, G-1, S-4, G-4, LEGAL SPT		
11. POSTAL ACTIVITIES									
- PERSONAL MAIL						CGSC-ST 101-2/FM 101-10-1			POLICY: DCSPER FUNCTIONAL: PSSD, TAPA CWO GONZALES DAPC-PDO-PS AV 221-5103 OR 8696
- OFFICIAL MAIL						CGSC-ST 101-2/FM 101-10-1			BRANCH: AG SCHOOL POLICY: DISC4 FUNCTIONAL: ISC FOR SUST BASE, EAC IN THEATER & TACTICAL ENVIRONMENT
- STAMP SALES									MONETTE BLANCO HQ USAISC AS-OPS-MR AV 879-7446 /OFFICIAL MAIL 2002

FACTOR/DESCRIPTION	PUT A CHECK IN THE SPACE IF REQUIRED BY PSS PLAYERS AT THE LEVEL INDICATED:					INDICATE THE SOURCE YOU USE FOR THIS FACTOR, IF ANY. (FM 101-10-1/2, AFPDA, etc) SOURCE DOCUMENT	KNOWN USES/USER FOR THE FACTOR	PROPOSENT
	EAC	CORPS	DIV	BDE	BN			
12. CHAPLAIN ACTIVITIES								
- WORSHIP OPPORTUNITIES	X	X	X	X	X		USACHCS	DCD-USACHCS CHAP CGL ROB WOLT AV 992-5147
- ECCLESIASTICAL SUPPLIES	X	X	X	X	X		USACHCS	
13. LEGAL ACTIVITIES								
- CRIMINAL LAW	XX	XX	XX	XX	XX	CGSC-ST 101-2/FM 101-10-1	PROVISION OF SPT, PERSONNEL ESTIMATE, SJA	
- CLAIMS	XX	XX	XX	XX	X		PROVISION OF SPT, PERS EST, CLAIMS	MILITARY POLICE OPERATIONS AGENCY COL BRAXTON 97-756-1880 (DATA FOR CRIME TABLES IN FM 101-10-1)
- ADMINISTRATIVE LAW	XX	XX	XX	X	X		PROVISION OF SPT, PERS EST, SJA	
- INTERNATIONAL LAW	XX	XX	XX	X	X		PROVISION OF SPT, PERS EST, SJA	
- LEGAL ASSISTANCE	X	X	X	X	X		PROVISION OF SPT, PERS EST, SJA	
14. MORALE/WEAFARE SUPPORT ACTIVITIES	XX	XX	XX	XX	XX		PROVISION OF SPT, PERS EST, SJA	NO KNOWN DEPOSITORY OF FACTORS; POC KILA WILSON AV 699-3796
15. EVENT PRISONER OF WAR						CGSC-ST 101-2/FM 101-10-1		SSC, DCD ATSG-DGW ANNA FAYE BRANDENBURG AV 699-3815
- THREAT	XX	XX	XX	X	X		FG, TFC, FSC, USACHCS, SJA PERSONNEL ESTIMATE	
- POSTURE								
- INTENSITY								
- COMPOSITE								
16. CIVILIAN INTERNEES								
- THREAT	XX	XX	XX	X	X	CGSC-ST 101-2/FM 101-10-1	FG, TFC, FSC, SJA PERSONNEL ESTIMATE	
- POSTURE								
- INTENSITY								
- COMPOSITE								

ANNOTATED RESPONSES TO
"CORE" QUESTIONS - AN INTERVIEW WITH
THE FM 101-10-1/2 AUTHOR

1. Who are your "customers"/users?

- People in the "4" and the "3" shops
(mostly folks at battalion, corps, and above)
- the schoolhouses
- planners for warplans, OPLANS, and the like
- wargamers/modelers

2. What kind of feedback do you get/provide?

(i.e. What is the interaction with other PLANNING FACTORS personnel?)

We do not interact much with the field even though the FM is essentially "for" the field. We have gotten involved occasionally in trying to come up with some agreement on factors where controversy exists.

3. How do you collect/compile info?

Data comes from whomever happens to be the proponent. (I cannot always say exactly who should be responsible for given factors.) We solicit changes at update time, but there may not be any. Some may say "it looks good to me," and I have to accept that.

4. Is your confidence in various factors uniform? Do you consider the data "certified" in any sense?

No. Some places (LOGCEN) have a structure for dealing with PLANNING FACTORS, and some do not.

Again, factors are a "point of departure." The higher the level you apply them to, the more accurate they are; they also get better over a lengthened period of time. Nothing is totally out of line, to my knowledge; but I have great confidence in some factors, not much in others.

Factors are "certified" in only a very limited sense.

5. Are the following coordinated through your office?

- a) FC 101-5-2, The Staff Officer Handbook
- b) Student text 101-2 (CGSC)
- c) data tapes for the Hewlitt Packard programmable calculators

The student text is; generally, other things are lifted from FM 101-10-1. I don't know about the data tapes.

6. What sorts of fixes need to be made in the PLANNING FACTORS business in general?

DA DCSLOG should have some approval/police role. Also, there should be a better structure to handle the whole issue. We do not have a doctrine office because of manpower constraints; my main function is that of an instructor, and this is an "oh, by the way" tasking for me that came about because CAC got proponency for the issue and bounced it down to the college.

7. What are the problems/pitfalls in compiling data?

The main problem is that there is no doctrine group to a) deal directly with the Planning Factors issue, b) confer, and c) keep an audit trail.

8. Are you aware of any data deficiencies in the PSS arena?

No; we don't really get into this.

ANNOTATED RESPONSES TO "CORE" QUESTIONS-
AN INTERVIEW WITH THE COMMANDER OF THE
PATIENT ADMINISTRATIVE SERVICES
BIOSTATISTICAL ACTIVITY (PASBA)

Questions for COL Soule:

1. How is your data obtained? verified? certified?

For the most part, data comes from medical records, and it is coded in Washington, D.C. It was generated at a local level and coded there. In some cases we have "samples" -e.g. Viet Nam, 1964-1969. We process the data to "verify" it by means of an IRS-type computer program. (If something looks suspicious to our computer, it is "spit out"; for example, a female with a prostate problem, or a male delivering a baby.) If we cannot immediately pinpoint the problem, we call an agency and request the medical record. This amounts to "cleaning" the data. After such cleaning, data is certifiable. When COL Soules signs something to be sent out, it is "certified." (There were few edits before 1976, so we have gotten better on this point.)

2. What are the problems/pitfalls with managing the kind of data you deal with?

The problems/pitfalls come in working through the consistency issue, but these are not overwhelming. (Data is generated and coded at the local level, and there are various factors influencing the validity of the data over which we have little or no control.)

3. Who uses your data and how do they request it?

DOD, the Surgeon General, the MACOM (ACHS) here, physicians looking for trends, the press, and other military and civilian personnel. 50% of our interaction is with individual MTFs. We encourage phone calls to coordinate and delineate written requests. A caveat here is to keep the privacy act in mind.

4. What kind of staff is needed to manage the data?

A staff of about 80.....statisticians and Health Services military personnel.

5. What degree of confidence do you have in your data? Is it uniform?

I have a high degree of confidence after the data has been edited. And that confidence is more or less uniform. (Note that data, however, is primarily in-patient data. Out-patient data is mostly in summary form.)

6. Would you have potential use for PSS planning factors data? Do you see any "interface" needs?

Not at present. Have you talked with the Combat Developments folks in ACHS? (Yes).

APPENDIX E
MANAGEMENT CONCEPT

A CONCEPT PAPER
for
Personnel Service Support (PSS)
Planning Factors Management

1. PROBLEM: There is no single source of policy and responsibility for the management of Personnel Service Support (PSS) Planning Factors.

2. CONCEPT:

This concept paper sets out a three phase effort to design and develop a PSS Planning Factors Management System which incorporates:

- a data base management system with procedures for data collection, validation, and dissemination;

- an organizational structure to enfranchise the management system; and

- an Army regulation for establishing the policy and responsibility for PSS planning factors.

3. DISCUSSION:

A. The Status Quo

1. With increasing frequency, organizations such as the Total Army Personnel Agency (TAPA), the Concepts Analysis Agency (CAA), and various TOE units currently make demands on SSC for PSS planning factors data. Under current circumstances, agencies or individuals making data "requests" have no logical avenue to follow to obtain data. Calls are typically made to the "Soldier Support Center" since it seems reasonable that such an integrating center should be the keeper of data pertaining to casualty estimation, strength management, and the like. At the same time, individuals within the SSC, notably personnel within Combat Developments Directorate, consider that they should in fact somehow keep such data and respond to reasonable requests. Indeed, several individuals do keep data and respond to requests on a "catch as catch can" basis, but such activity is not documented as a major part of their work activity, and - in any case - these individuals are not part of a coordinated effort. Thus, from a SSC perspective, data management and provision is "out of hide" since people meet a continuing demand without official recognition of that demand or the time and effort needed to meet it.

2. Along the same lines, any data that SSC may provide is subject to criticism since no process or responsibility exists for

certifying or validating data. Moreover, FM 101-10-1/2 serving as a key reference, is extremely dated. Criticism notwithstanding, SSC cannot efficiently provide necessary PSS planning factors data because (a) there is no semblance of an integrated single source, (b) knowledge and memory of the Combat Developments Directorate, and (c) individuals who can provide data do not have direct responsibility to do so and may thus understandably operate on a "when I get around to it" basis.

B. ADDRESSING THE PROBLEM

The Logistics Center (LOGCEN) dealt with the logistics planning factors problem by forming a Planning Factors Management Division within its Operations Analysis Directorate. This Division, serving as the primary source of logistics planning factors, manages the collection, development, maintenance, validation, and dissemination of planning factors. With the present system in place at Fort Lee, numerous users easily and routinely employ logistics planning factors.

The Soldier Support Center may adopt a similar approach by forming a Personnel Service Support (PSS) Planning Factors Management Division or Branch. This group would have parallel responsibilities in the PSS arena.

1. Initial Steps: Least disruption and expense will be incurred through a minor reorganization within the Directorate of Combat Developments to form a locus for PSS planning factor operations; management and dissemination of PSS planning factor data is consistent with the mission of that directorate since studies within the directorate would naturally benefit from such structure. Individuals across the directorate who currently perform PSS planning factor tasks may affiliate either explicitly or implicitly as a group, and other likely candidates for membership in that group may be identified. The fledgling planning factors "branch" may then develop a set of standard procedures in concert with TRAC-FBHN to collect, validate, manage, and disseminate PSS planning data.

2. The Cost to SSC/The Army: There is already a cost associated with provision of Planning Factors data; that is, requests are disruptive to "business as usual," and any time expended for provisions of planning factors data must be considered within the miscellaneous category of "other duties as assigned". Coordination across divisions within the Combat Developments is, in itself, time-consuming and thus expensive. Nonetheless, official designation of responsibility will require increased manpower initially, as well as incidental costs associated with a minor reorganization. In addition, computer resources would need to be made available for central storage and management of PSS data.

3. The Benefit to SSC/The Army: Fixing a single source policy and responsibility for the management of PSS planning factors will lead to a number of positive outcomes, including the following:

- better visibility for PSS and the SSC as an integrating center since factors will more readily be used (included in scenarios, models, FTX, and the like) if data are credible and up-to-date

- recognition and credit for what is already being done

- a single repository and audit trail for data used in SSC studies

- a way of tracking data requests, while TRADOC et al get a central point of contact for PSS planning factors. (In sum the Army gains efficiency.)

- the ability to provide PSS planning factors which are tailored to a variety of specific uses

- accountability

- the opportunity to speak to validation and certification issues

4. Summary: This proposal sets out a possible avenue for implementation of TRADOC data policy Memorandum 87-6, which implies establishment of a personnel factors data base. Some cost is involved, but the eventual payback is efficiency through streamlined availability of valid and reliable data.

A regulation (AR 700-8) exists that institutionalizes and streamlines the management of logistics planning factors; a similar regulation with accompanying operational support is in order for PSS planning factors.

C. TIMELINE

1. PHASE I

- Formation of a joint DCD/TRAC-FBHN working group to delineate roles of TRAC-FBHN and DCD in possible "quick fix" and long term actions and to outline plans for a PSS planning factors data base.

- Initiation of joint DCD/TRAC-FBHN study, "PSS Planning Factors"

2. PHASE II

- Identification of individuals across the Combat Developments Directorate to manage PSS planning factors data

- Acquisition of computing resources (already in process)
- Identification of pertinent factors and initial set-up of data base with TRAC-FBHN assistance
- Completion of joint DCD/TRAC-FBHN study, "PSS Planning Factors"

3. PHASE III

- Collocation of individuals across the Combat Developments Directorate to manage PSS planning factors data
- Development and submission of an Army regulation entitled "PSS Planning Factors Management" to parallel AR 700-8, "Logistics Factors Management."

3. REFERENCES:

- A. AR 700-8, 15 August 1981, Logistics Planning Factors Management
- B. Study Plan titled "Personnel Service Support (PSS) Planning Factors," dated 23 June 1988
- C. TRADOC Policy Memorandum 87-6, "Data support for TRADOC AR 5-5 studies," dated 25 May 1988
- D. FM 101-10-1/2, Staff Officers' Field Manual: Organizational, Technical, and Logistic Data (unclassified), July 1976

APPENDIX F

DRAFT ARMY REGULATION

for

PERSONNEL SERVICE SUPPORT PLANNING FACTORS MANAGEMENT

DEPARTMENT OF THE ARMY

NO. XXX-X

Washington, DC. 1 May 1989

PERSONNEL SERVICE SUPPORT

PERSONNEL SERVICE SUPPORT PLANNING FACTORS MANAGEMENT

This regulation sets forth policy and responsibility for the management of Personnel Service Support (PSS) planning factors. Local supplementation of this regulation is prohibited, except under approval of the Deputy Chief of Staff for Operations.

Interim changes to this regulation are not official unless they are authenticated by The Adjutant General. Users will destroy interim changes on their expiration dates unless superseded or rescinded. This regulation is approved for public release: distribution is unlimited.

	Paragraph
Purpose	1
Applicability	2
Internal Control Systems	3
Explanation of terms	4
General	5
Policy	6
Responsibilities	7
Inquiries and Requests	8

Appendices:

A. Proponents for Selected Planning Factors and Personnel Service Support Incident Rates.

B. Internal Control Checklist.

1. Purpose. This regulation provides policy and prescribes responsibilities for the management, collection, development, maintenance, validation, and dissemination of Personnel Service Support (PSS) planning factors and related data.

2. Applicability. This regulation applies to all elements of the Active Army, the Army National Guard, and the US Army Reserve, that--

a. Develop, collect, store, process, or disseminate PSS data or planning factors.

b. Use PSS planning factors to carry out their missions.

3. Internal Control Systems. Internal controls are the methods and procedures prescribed by management to ensure that resource use is consistent with laws, regulations, and policies; that resources are safeguarded against waste, loss, and misuse; and that reliable data are obtained and fairly disclosed in reports or input to models. Internal controls should not be looked upon as separate, specialized systems within an organization. Rather, they should be recognized as an integral part of each system that management uses to regulate and guide its operations. In short, internal controls help achieve the positive aims of managers, and are to be part of the criteria by which managers are rated. AR 11-2, which implements the Federal Managers' Financial Integrity Act of 1982, which provides detailed instructions for a periodic evaluation of internal controls in all Army programs. A checklist to be used when conducting reviews of internal controls can be found at Appendix B of this regulation.

4. Explanation of terms.

a. Personnel Service Support (PSS). The management and execution of all personnel-related matters which include personnel services, administrative services, postal services, morale support activities, finance/comptroller services, health services, chaplain activities, legal services, and public affairs.

b. Personnel Service Support factor. A selected and valid multiplier used to estimate amounts and types of effort of resources for a proposed operation. Planning factors can be expressed as man days, hours per day, pounds per soldier per day, number per combat soldier per day, payments per 1000 soldiers, or they may be expressed as percentages. Development of PSS planning factors involves calculations and estimations of parameters used to predict requirements in the major functional areas of PSS: Personnel Services, Administrative Services, Postal Services, Morale Support Activities, Finance/Comptroller Services, Health Services, Chaplain Activities, Legal Services, and Public Affairs.

c. Rate. A rate differs from a planning factor in that it states a requirement or expected performance standard for organizations, personnel, etc., for a given environment, a level of commitment, or a time period such as--

- (1) Pounds of mail per man per day
- (2) Number of enemy POW per combat soldier per day
- (3) Daily personnel loss, percentage of strength
- (4) Wounded in action per 1000 strength per day

NOTE- Rates ordinarily are used as part of an algorithm to compute planning factors.

d. PSS data. Numbers representing amounts of efforts or resources consumed in connection with personnel related factors.

e. Planning factor publications. Those documents (field manuals, technical manuals, supply bulletins, etc.) containing planning factors which are published as general references or functional guides for use by Army planners at large.

f. Proponents for planning factors and incident rates. Those organizations or staffs which have been assigned primary responsibility for developing basic incident rates and planning factors. Appendix A identifies proponents of selected planning factors and incident rates.

g. Validation. The process involving the identification, verification, and documentation of--

(1) The sources of raw PSS data used in the development of PSS planning factors and the procedures for the collection, processing, and reporting of those data.

(2) The methodology by which PSS planning factors are derived, tested, and applied.

5. General.

a. PSS planning factors are a major element of operation plans, force structure, combat development studies, Manpower Requirements Criteria (MARC) and Tables of Organization and Equipment (TOE) development, budget and training forecasts, war games and exercises, and models. Factors may vary with the type and intensity of operations, types of units, force structure, terrain, climate, and geographic area.

b. The central management of PSS planning factors results in a single source for approved PSS planning factors. These factors

can then be used in joint, combined and unilateral service planning. Central management also reduces uncontrolled proliferation of Personnel Service Support planning factors.

c. All sources of maneuver, exercise, and test data are looked at for planning factors development. Therefore, each Army unit and test facility is a potential data source and a candidate to validate planning factors.

d. Incident rates, and situational modifiers are selectively integrated in the development of PSS planning factors to reflect the specifics of the intended application. Central management of PSS planning factors requires close coordination between the central manager and various Army functional proponents for PSS concepts, doctrine, data, and incident rates. This coordination determines the methodologies and quantitative information appropriate to the development process. The central manager, through this process, provides Army planners with approved PSS planning factors related to force structure, usage profile, and/or other scenario conditions identified by the planner.

6. Policy. PSS planning factors will be centrally managed at the US Army Soldier Support Center (USASSC) with the Commander, US Army Training and Doctrine Command (TRADOC), acting as the Executive Agent for the Deputy Chief of Staff for Operations, Department of the Army (DA). These factors are to be used by Army elements concerned with planning resources for operations, force structure, Manpower Requirements Criteria (MARC) and TOE development, war games, models, training exercises, and other analytical efforts.

7. Responsibilities.

a. The Deputy Chief of Staff for Operations (DCSOPS) will--

(1) Establish policies and develop functional guidance.

(2) In coordination with the Army Staff, approve all PSS planning factors.

(3) Coordinate planning factor needs of the Army staff and, as requested, for the Joint Chiefs of Staff (JCS), Office of the Secretary of Defense (OSD), sister services, and allied nations.

b. The Commander, US Army Training and Doctrine Command, as the Executive Agent for the DCSOPS will--

(1) Exercise operational direction and promulgate guidance for USASSC's planning factor management process.

(2) Participate in the planning and coordination of data collection and validation of planning factors with other major commands (MACOMS).

(3) Coordinate system design for data bases and information systems.

(4) Program, budget, and fund the planning factors management mission of the USASSC.

(5) Obtain Personnel Service Support planning factors from USASSC.

c. The Commander, USASSC, as the PSS Planning Factors Manager for the Army, will--

(1) Manage the collection, development, maintenance, validation, and dissemination of Army PSS planning factors.

(2) Serve as the primary source of PSS planning factors used by Army activities.

(3) Determine Army requirements for PSS planning factors used by Army activities.

(4) Identify inconsistencies between existing factors or rates and recommend to DCSOPS appropriate factors or rates to be used.

(5) Convene working groups to resolve inconsistencies in methodologies and policies affecting standardization of PSS planning factors.

(6) Use field exercises, simulation models, and war games to validate PSS planning factors.

(7) Design, develop, and maintain data bases, application programs, and information systems to produce, record, and disseminate PSS planning factors.

(8) Review and participate in Army and US government studies and planning events which produce data for the development of PSS planning factors.

(9) Prior to publication, review Army documents (see para 4e) that specify PSS planning factors for consistency, necessity, identification of sources, rationale of methodologies, assumptions, and limits in applying the factors.

d. MACOMS will--

(1) Obtain PSS planning factors from USASSC.

(2) As requested or assigned, collect and provide PSS data to the USASSC for use in development of standard PSS planning factors.

(3) Assist in confirming PSS planning factors during field training and command post exercises, operational readiness tests, and other training or tests.

e. Proponents for planning factors and incident rates will--

(1) Coordinate the planned publication of PSS planning factors with USASSC (ATSG-DDC).

(2) Participate in working groups to resolve inconsistencies in PSS planning factors and rates in use by OSD, JCS, and DA elements.

(3) Participate in design and development of data bases, information systems, and system interfaces to enhance the development of standard PSS planning factors.

(4) Provide the most up-to-date factors, rates, or PSS data to USASSC to be included in the planning factors data base or for consolidation and release to users.

(5) On an annual basis, by 31 July of each year, the proponents (see Appendix A) will review and validate their existing standard PSS planning factors which are on file with the USASSC. Any proposed changes must be accompanied by appropriate calculation information and rationale.

f. Proponents of planning factor publications will--

(1) Validate the need for inclusion of PSS planning factors in the document.

(2) Coordinate planned publication of PSS planning factors with USASSC (ATSG-DDN). Provide a statement why the PSS planning factors should be contained in the document.

(3) When USASSC concurs, include the following statement in the document: "The Soldier Support Center has reviewed and concurred in publication of the PSS planning factors contained herein."

8. Inquiries and Requests. All inquiries and requests for PSS planning factors will be sent to--

Commander
US Army Soldier Support Center
ATTN: ATSG-DD
Fort Benjamin Harrison, 46216-5700
AUTOVON: 699-3830
Commercial: (317) 542-3830

APPENDIX A

PROPOSERS FOR SELECTED PLANNING FACTORS AND
PERSONNEL SERVICE SUPPORT INCIDENT RATES

A-1. General. This appendix identifies specific proponents and their appropriate planning factors and incident rates. The responsibilities of each proponent are specified for ease of identification. This list will be corrected or clarified as the need arises. This appendix is not exhaustive; rather, its intent is to illustrate the organizational relationships envisioned under the regulation.

A-2. PSS Incident Rates.

- a. Casualty Estimation
USAPERSCOM
Hoffman II, Building
ATTN: TAPC-MOC
Alexandria, VA 22332
- b. Casualty Stratification
US Army Soldier Support Center
ATTN: ATSG-DDN
Fort Benjamin Harrison, IN 46216-5700
- c. Killed/Captured/Missing in Action
US Army Concepts Analysis Agency
8120 Woodmont Ave
Bethesda, MD 20814-2797

A-3. Service Activities

- a. Personnel Services
US Army Soldier Support Center
ATTN: ATSG-DDO
Fort Benjamin Harrison, IN 46216-5700

US Army Force Integration Support Agency
ATTN: MOFI-STD
Bldg 2588
Ft. Belvoir, VA 22060-5587
- b. Administrative Services
US Army Signal Center
ATTN: ATZH-DCD
Fort Gordon, GA 30905-5000

- c. Health Service Support
Patient Administration Systems and
Bio-Statistics Activity(PASBA)
ATTN: HSHI
Bldg 126
Ft. Sam Houston, TX 78234-6200
- d. Finance Activities
US Army Finance and Accounting Center
ATTN: FINCE-S-SAFM-FAQ-S(MS-3)
Fort Benjamin Harrison, IN 46249-0001
- e. Postal Activities

Personal mail
Policy: DCSPER
Specified Proponent (Branch): AG School
Functional: USAPERSCOM, PSSD
Alexandria, VA 22332

Official mail
Policy: DISC4
Specified Proponent (Branch): Signal Center
Functional: IC4SC for Sust. Base; EAC in theater
and tactical environment
HQ USAISC AS-OPS-MR
- f. Chaplain Activities
US Army Chaplain Center & School
ATTN: ATSC-DCD
Fort Monmouth, NJ 07703-5000
- g. Legal Activities
Judge Advocate General School
ATTN: JAGC-DDC
Charlottesville, VA 22903-1781

Crime Statistics
Military Police Operations Agency
ATTN: MOMP
Nassif Bldg.
Falls Church, VA 22041
- h. PSS Impact and Capabilities
US Army Soldier Support Center
ATTN: ATSG-DDC
Fort Benjamin Harrison, IN 46216-5700

i. Morale/Welfare Support Activities

US Army Soldier Support Center
ATTN: ATSG-DDC
Fort Benjamin Harrison, IN 46216-5700

Band Activities

Chief, U S Army Bands
ATTN: ATZI-AB
Fort Benjamin Harrison, IN 46216-5070

Personal Demand Items

HQ, AAFES
ATTN: AAFES-PL-C
Dallas, TX 75222

Sundries Supplements

Defense Personnel Support Center
ATTN: ATSM-SFS
Philadelphia, PA 19101-8419

A-4. Systems Capabilities

a. Personnel Administration Center Factors

US Army Force Integration Support Agency
ATTN: MOFI-STD
Bldg 2588
Fort Belvoir, VA 22060-5587

US Army Soldier Support Center
ATTN: ATSG-DDO
Fort Benjamin Harrison, IN 46216-5700

b. CONUS Replacement Centers

Work load factors

US Army Soldier Support Center
ATTN: ATSG-DDC
Fort Benjamin Harrison, IN 46216-5700

Holding Capacity & Processing Times

TRADOC, DCSPAL
ATTN: ATCL-RM
Fort Monroe, VA 23651

A-5. EPW and Civilian Internees

US Army Soldier Support Center
ATTN: ATSG-DDN
Fort Benjamin Harrison, IN 46216-5700

AR XXX-X

A-6. Wartime Replacement Factors

DA DCSOFS
ATTN: DAMO-ZXS
Washington, DC 20301

APPENDIX B

INTERNAL CONTROL REVIEW CHECKLIST

B-1. Appendix B consists of an Internal Control Checklist as is displayed in the following format:

TASK: Management and Command Activities

SUBTASK: Army Personnel Service Support Planning Factors

THIS CHECKLIST: Planning Factor Development

ASSESSABLE UNIT: The assessable unit is USASSC

ORGANIZATION:

ACTION OFFICER:

REVIEWER:

DATE COMPLETED:

STEP 1: Process request for creating and/or updating planning factor and compute planning factor quality by Army echelon.

RISK: Error in planning factor development methodology may cause serious and expensive mistakes in planning support for combat operations.

CONTROL OBJECTIVE: Develop PSS planning factors for data areas for use in planning, force design, resource allocation, modeling, war gaming, and training.

CONTROL TECHNIQUE:

1. Designate office/individuals with responsibility for planning factor development.
2. Receive requests for planning factors from requestor stating end use.
3. Verify planning factor data from proponents.
4. Mathematically compute factor.

TEST QUESTIONS

1. Are goals, objectives and responsibilities for development of planning factors clearly assigned to appropriate offices and individuals?

1/2. Are requests for planning factors retained as an audit trail of factor development?

1/2. Is development of Personnel Service Support planning factors centrally controlled to avoid duplication of effort?

2. Is request for development of planning factors supported by sufficient rationale to avoid inefficient use of resources?

3. Do proponents for planning factors provide input and verification data for the development of planning factors for their Data Areas?

4. Is computation of factors verified for accuracy?

RESPONSE

YES NO NA

REMARKS 1/

STEP 2: Acquire approval of planning factor.

RISK: Use of unapproved planning factor could result in inadequate support for combat operations and/or a waste of resources.

CONTROL TECHNIQUE: Forward newly developed planning factors to higher headquarters for approval.

TEST QUESTIONS:

1. Are planning factors forwarded within a specified period of time for approval?

2. Are planning factors reviewed, staffed, and acted upon by the appropriate officers?

3. Is approval formally received from higher headquarters?

RESPONSE

YES NO NA

REMARKS 1/

STEP 3: Publish approved planning factors.

RISK: Users of factors do not know the approved factor to use.

CONTROL OBJECTIVE: Provide approved planning factors for users in published format as source data with methodology for development.

CONTROL TECHNIQUE: Directorate for Combat Developments, Soldier Support Center in concert with TRAC-Fort Benjamin Harrison will review and certify planning factors methodology, formulae, data description, charts, and other reference data.

TEST QUESTIONS:

1. Are reference publications published for planning factors?
2. Are publications disseminated for use Army wide?

STEP 4: Review factors for validity.

RISK: Outdated factors are used causing false requirements determination.

CONTROL OBJECTIVE: Review factors within a specified time period to ensure factors do not become obsolete and update factors as required.

CONTROL TECHNIQUE:

1. Develop software in PSS planning factors data base to output reports of planning factors that have not been reviewed in one year or more.
2. Receive input from proponents of data bases for planning factors.
3. Receive verification from proponents within specified time periods as to validity of factors.
4. Based on input from users and proponents, compute changes to factors as required.

TEST QUESTIONS:

1/2/3/4 Do proponents provide periodic updates to factors?

1/2/3/4 Are factors periodically verified by proponents to ensure current factors are maintained?

1/2/3/4 Is review cycle defined to ensure timely reviews and updates of factors?

RESPONSE

YES NO NA

REMARKS 1/

I attest that the above listed internal controls provide reasonable assurance that Army resources are adequately safeguarded. I am satisfied that if the above listed controls are fully operational, the internal controls for this subtask throughout the Army are adequate.

DIRECTOR OF PLANS AND OPERATIONS, DA DCSOPS

I have reviewed this subtask within my organization and have supplemented the prescribed internal control review checklist when warranted by unique environmental circumstances. The controls prescribed in this checklist, as amended, are in place and operational for my organization (except for the weaknesses described in the attached plan, which includes schedules for correcting the weaknesses). (Parenthetical part will be used only when weaknesses are discovered.)

USA SOLDIER SERVICE SUPPORT CENTER, DIRECTORATE OF COMBAT DEVELOPMENT

B-2. All proponents of PSS Planning Factors and writers of PSS Planning Factors doctrine or guidance are responsible for utilizing this checklist, or a similar checklist, for formal accountability.

APPENDIX G

GLOSSARY

ACN - Action Control Number
AFPDA - Army Force Planning Data and Assumptions
AG - Adjutant General
AMC - Army Material Command
AOE - Army of Excellence
ARTBASS - Army Training Battle System
BCTP - Battle Command Training Center
BFMA - Battlefield Functional Mission Area
CAA - Concepts Analysis Agency
CAMAA - Combined Arms Mission Area Analysis
CBRS - Concept Based Requirements System
CCCA - Close Combat Capability Analysis
CCH - Close Combat Heavy
CCL - Close Combat Light
CI - civilian internees
CSS - Combat Service Support
CONUS - Continental United States
DA - Department of the Army
DCD - Directorate of Combat Developments
DCSOPS - Deputy Chief of Staff for Operations
DCSPER - Deputy Chief of Staff for Personnel
DOD - Department of Defense
EEA - Essential Elements of Analysis
EMP - Electromagnetic Pulse
EPW - Enemy Prisoners of War
FTX - Field Training Exercise

G1 - Assistant Chief of Staff, Personnel
JCS - Joint Chiefs of Staff
JESS - Joint Exercise Support System
JRTC - Joint Readiness Training Center
LOGCEN - Logistics Center
LIC - Low Intensity Conflict
MAA - Mission Area Analyses
MACOM - Major Army Command
MARC - Manpower requirements criteria
MS3 - Manpower Staffing Standards System
NATO - North Atlantic Treaty Organization
NTC - National Training Center
OSD - Office, Secretary of Defense
PAC - Personnel Administration Center
PSS - Personnel Service Support
PSY - Professional Staff Years
REC - Radio electronic combat
SIMNET - Simulator Networking
TAPA* - Total Army Personnel Agency
TDY - Temporary duty
TOE - Tables of Organization and Equipment
TRAC-FBHN - TRADOC Analysis Command-Fort Benjamin Harrison
TRADOC - Training and Doctrine Command
USAPERSCOM - United States Army Personnel Command
USASSC - United States Army Soldier Support Center
*NOTE: Redesignated as United States Army Personnel Command
(USAPERSCOM)

APPENDIX H
DISTRIBUTION

COMMANDER
U.S. ARMY ENGINEER SCHOOL
ATTN: ATFE-CDM-C
FORT LEONARD WOOD, MO 65473-6620

COMMANDANT
US ARMY FIELD ARTILLERY SCHOOL
ATTN: ATSF-CDT
FORT SILL, OK 73503-5000

COMMANDANT
U.S. ARMY INFANTRY SCHOOL
ATTN: ATSH-CD
FORT BENNING, GA 31905-5000

COMMANDER
U.S. ARMY ORDNANCE CENTER & SCHOOL
ATTN: ATSL-CD
ABERDEEN PROVING GROUND, MD 21005-5201

COMMANDER
U.S. ARMY SIGNAL CENTER & FORT GORDON
ATTN: ATZH-CD
FORT GORDON, GA 30905-5000

COMMANDER
U.S. ARMY LOGISTICS CENTER
ATTN: ATCL-OP
FORT LEE, VA 23801-6000

COMMANDER
U.S. ARMY COMBAT DEVELOPMENTS EXPERIMENTATION CENTER
ATTN: ATEC-EX
FORT ORD, CA 93941-7000

COMMANDER
U.S. ARMY COMBINED ARMS COMBAT DEVELOPMENTS AGENCY
ATTN: ATZL-CA
FORT LEAVENWORTH, KS 66027-5300

COMMANDER
U.S. ARMY COMMAND AND GENERAL STAFF COLLEGE
ATTN: ATCA-SW
FORT LEAVENWORTH, KS 66027-6900

COMMANDER
U.S. ARMY INFORMATION SYSTEMS COMMAND
ATTN: AS-PLN
FORT HUACHUCA, AZ 85613

COMMANDANT
U.S. ARMY QUARTERMASTER SCHOOL
ATTN: ATSM-CD
FORT LEE, VA 23801-5037

COMMANDANT
U.S. ARMY TRANSPORTATION SCHOOL
ATTN: ATSP-CD
FORT EUSTIS, VA 23604-5395

COMMANDER
ARMY WAR COLLEGE
ATTN: AWCI
CARLISLE BARRACKS, PA 17013-5050

COMMANDER
U.S. ARMY ORDNANCE MISSILE AND MUNITIONS CENTER & SCHOOL
ATTN: ATSK-CD
REDSTONE ARSENAL, AL 35897-6500

COMMANDER
U.S. ARMY CONCEPTS ANALYSIS AGENCY
ATTN: CSCA-AS
8120 WOODMONT AVENUE
BETHESDA, MD 20814-2797

COMMANDANT
U.S. ARMY AIR DEFENSE SCHOOL
ATTN: ATSA-CD
FORT BLISS, TX 79916-7050

COMMANDER
TRADOC ANALYSIS COMMAND
ATTN: ATRC
FORT LEAVENWORTH, KS 66027-5200

COMMANDER
U.S. ARMY TRAINING AND DOCTRINE COMMAND
ATTN: ATCD-A
FORT MONROE, VA 23651-5000

COMMANDER
TRADOC TEST & EXPERIMENTATION COMMAND (TEXCOM)
ATTN: ATAA-TD
FORT HOOD, TX 76544

COMMANDER
U.S. ARMY ARMOR CENTER & SCHOOL
ATTN: ATSB-CD
FORT KNOX, KY 40121-5215

COMMANDER
U.S. ARMY AVIATION CENTER & FORT RUCKER
ATTN: ATZQ-CD
FORT RUCKER, AL 36362-5000

COMMANDER
U.S. ARMY TEST & EVALUATION COMMAND
ATTN: AMSTE-TD
ABERDEEN PROVING GROUND, MD 21005-5055

COMMANDER
U.S. ARMY TEST & EVALUATION COMMAND
ATTN: AMSTE-SY
ABERDEEN PROVING GROUND, MD 21005-5055

COMMANDER
U.S. ARMY TEST & EVALUATION COMMAND
ATTN: AMSTE-PS
ABERDEEN PROVING GROUND, MD 21005-5055

COMMANDER
U.S. ARMY FORCES COMMAND
ATTN: AFOP-MP
FORT McPHERSON, GA 30330-6000

COMMANDANT
U.S. ARMY MILITARY POLICE SCHOOL
ATTN: ATZN-CD
FORT McCLELLAN, AL 36205-5030

COMMANDANT
U.S. ARMY PERSONNEL COMMAND
ATTN: DAPC-MS
HOFFMAN II BLDG
ALEXANDRIA, VA 22332-0400

COMMANDER
U.S. ARMY COMBINED ARMS TRAINING ACTIVITY
ATTN: ATZL-TA
FORT LEAVENWORTH, KS 66027-7000

COMMANDER
U.S. ARMY LOGISTICS CENTER
ATTN: ATSI-LNO
FORT LEE, VA 23801-6000

COMMANDANT
U.S. ARMY AVIATION AND LOGISTICS SCHOOL
ATTN: ATSQ-CD
FORT EUSTIS, VA 23604-5419

COMMANDANT
U.S. ARMY CHEMICAL SCHOOL
ATZN-CM-CD
FORT McCLELLAN, AL 36205

COMMANDANT
THE JUDGE ADVOCATE GENERAL SCHOOL
ATTN: JAGC-DDC
CHARLOTTESVILLE, VA 22903-1781

COMMANDER
U.S. ARMY INTELLIGENCE CENTER & SCHOOL
ATTN: ATSI-CD
FORT HUACHUCA, AZ 85613-7000

COMMANDANT
U.S. ARMY CHAPLAIN CENTER & SCHOOL
ATTN: ATSC-DCD
FORT MONMOUTH, NJ 07703-5000

COMMANDANT
U.S. ARMY ACADEMY OF HEALTH SCIENCES
ATTN: HSHA-COT
FORT SAM HOUSTON, TX 78234

COMMANDER
U.S. ARMY JFKSWC & SCHOOL
ATTN: ATSU-CD
FORT BRAGG, NC 28307-5000

CHIFF of U.S. ARMY BANDS
ATTN: ATZI-AB
FORT BENJAMIN HARRISON, IN 46216-5070

COMMANDANT
U.S. ARMY ADJUTANT GENERAL SCHOOL
ATTN: ATSG-AG
FORT BENJAMIN HARRISON, IN 46216-5530

COMMANDANT
U.S. ARMY FINANCE SCHOOL
ATTN: ATSG-FS
FORT BENJAMIN HARRISON, IN 46216-5640

COMMANDANT
DEFENSE INFORMATION SCHOOL
ATTN: ATSX-SA
FORT BENJAMIN HARRISON, IN 46216-6200

APPENDIX I

REFERENCES

1. Army Force Planning Data and Assumptions Fiscal Year 1989-1998, U.S. Army Concepts Analysis Agency, Bethesda, Maryland, 1988.
2. Army Regulation 700-8, Logistics Planning Factors Management, U.S. Army Logistics Center, Operations Analysis Directorate, Fort Lee, Virginia, August 1981.
3. Casualty Stratification Model (CSM) II, U.S. Army Soldier Support Center, Combat Developments Directorate, Fort Benjamin Harrison, Indiana, November 1989.
4. Enemy Prisoner of War and Civilian Internee Rates for Northeast Asia and Southwest Asia, U.S. Army Soldier Support Center, Combat Developments Directorate, Fort Benjamin Harrison, Indiana, April 1986.
5. Enemy Prisoner of War (EPW)/Civilian Internee (CI) Rate Study, U.S. Army Soldier Support Center, Combat Developments Directorate, Fort Benjamin Harrison, Indiana, October 1985.
6. Field Manual 101-10-1/2, Organizational, Technical, and Logistical Data Planning Factors, United States Army Command and General Staff College, Fort Leavenworth, Kansas, October 1987.
7. Personnel Service Support in Army Models, TRADOC Analysis Command - Fort Benjamin Harrison, Fort Benjamin Harrison, Indiana, October 1989.
8. Student Text 101-2, Planning Factors, United States Army Command and General Staff College, Fort Leavenworth, Kansas, June 1985.
9. Wartime Manpower Planning System, FY89 and FY93 (WARMAPS 89/93), U.S. Army Concepts Analysis Agency, Forces Systems Directorate, Bethesda, Maryland, September 1987.
10. Wartime Replacement System Study, U.S. Army Soldier Support Center, Directorate of Combat Developments, Fort Benjamin Harrison, Indiana, March 1987.

APPENDIX J

COORDINATION

The final report for the Personnel Service Support Planning Factors System Study was coordinated with the activities listed in the appendix.

U.S. Army Logistics Center
ATTN: ATCL-OPF
Fort Lee, VA 23801-6000

Defense Information School
ATTN: ATSX-SA
Ft. Benjamin Harrison, IN 46216-5070

The Judge Advocate General's School
ATTN: JAGS-DDC
Charlottesville, VA 22903-1781

U.S. Army Adjutant General School
ATTN: ATSG-AGP
Ft. Benjamin Harrison, IN 46216-5530

U.S. Army Chaplain Center & School
ATTN: ATSL-DCD
Fort Monmouth, NJ 07707-5000

U.S. Army Finance School
ATTN: ATSG-FS
Ft. Benjamin Harrison, IN 46216-5640

Chief of U.S. Army Bands
ATTN: ATZI-AB
Ft. Benjamin Harrison, IN 46216-5070