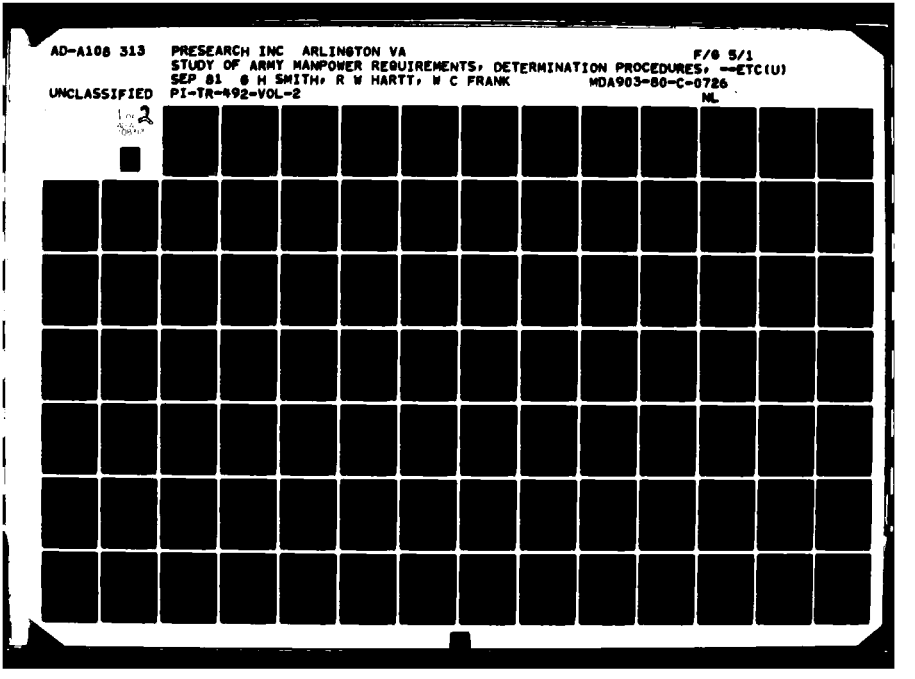
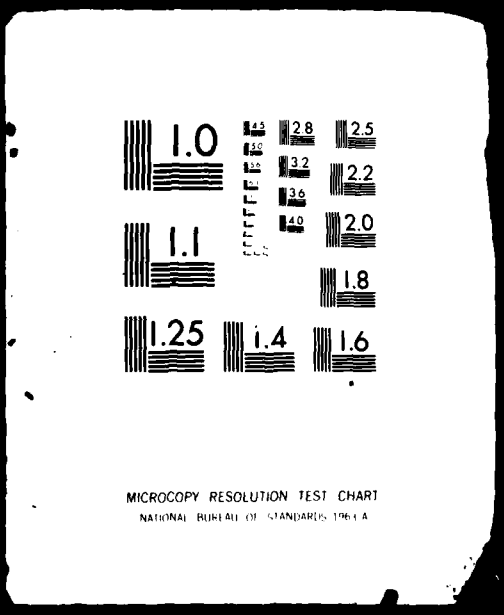

AD-A108 313
PRESEARCH INC ARLINGTON VA
F/G 5/1
STUDY OF ARMY MANPOWER REQUIREMENTS, DETERMINATION PROCEDURES, --ETC(U)
SEP 81 G H SMITH, R W HARTT, W C FRANK
MDA903-80-C-0726
UNCLASSIFIED
PI-TR-492-VOL-2
NL



PRESEARCH INCORPORATED

Preliminary Draft

Technical Report No. 492

STUDY OF ARMY MANPOWER REQUIREMENTS, DETERMINATION PROCEDURES, AND ORGANIZATION

Volume II; Appendixes

by

G. H. Smith, R. W. Hartt, W. C. Frank,
H. S. Gillogly, R. D. Collins, and
D. W. Chamberland

7 July 1981

Prepared for
Headquarters, Department of the Army
Deputy Chief of Staff for Personnel (DAPE-MBU)
Under
Contract No. MDA 903-80-C-0726
(Expiration date: 30 June 1981)

2361 South Jefferson Davis Highway
Arlington, Virgnia 22202

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER TECHNICAL REPORT #492 Vol II	2. GOVT ACCESSION NO. AD-A108	3. RECIPIENT'S CATALOG NUMBER 313
4. TITLE (and Subtitle) Study of the Army Manpower Requirement Determination Procedures and Organizations		5. TYPE OF REPORT & PERIOD COVERED FINAL 23 Sept 80-23 Sept 81
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Presearch, Inc.		8. CONTRACT OR GRANT NUMBER(s) MDA-903-80-C-0726
9. PERFORMING ORGANIZATION NAME AND ADDRESS Presearch, Inc. 2361 S. Jefferson Davis Hwy Arlington, VA 22202		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS DCS Personnel DAPE-MBU Rm 2B673 Pentagon		12. REPORT DATE 23 Sept 81
		13. NUMBER OF PAGES
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office) N/A		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for Public Release
Distrubution unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

N/A

18. SUPPLEMENTARY NOTES

N/A

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

(U) Evaluation (U) Manpower (U) Determination (U) Requirements (U) Standards

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Development of the optimum organization and procedures for establishing a work-load based manpower standards driven Requirements Determination program.

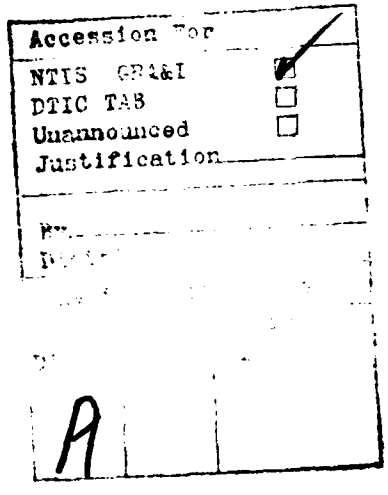
DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

APPENDIX A
DESCRIPTIONS OF PROGRAM FUNCTIONS

A.1 Each of the proposed program functions, as currently conceived, is described in this appendix. The manpower requirements determination program, using workload based staffing standards, includes the following major functions: provide program management; prescribe standards development methodology; enforce standards development methodology and policies; develop standards; publish standards; and determine requirements. This appendix provides detailed descriptions for each of these functions.



PROVIDE PROGRAM MANAGEMENT

The program management functions include the following:

- Establishing policies for a requirements program in the Army to include the role of staffing standards and how they interface with other standards used within the Army.
- Responsibility for the directive that is the basic authority for staffing standards and sets forth the scope and policies under which they will be developed.
- Determining any overall exclusions to standards coverage when analysis indicates that it would be neither feasible nor cost effective to develop staffing standards.
- Determining which functions should receive priority in the standards development sequence and issuing schedules or guidance as appropriate.
- Directing standards development activities to provide milestone charts for completion of each phase of a standards study and monitoring progress toward meeting this timetable.
- Establishing standards coverage goals for TDA authorizations and monitoring progress toward these goals.

- Coordinating and interfacing staffing standards with other standards efforts within DA.
- Monitoring career fields used in the requirements program and recommending changes that would improve the overall program.
- Monitoring Army resources (both current and programmed) dedicated to the requirements program to assure that capability exists and is programmed to meet established goals and Army-wide needs.
- Presenting overall Army manpower requirements process for presentation to OSD, OMB, and Congress in the annual Manpower Requirements Report.
- Developing and coordinating overall training requirements for new personnel entering the program and upgrade training for personnel in the program.
- Establishing overall ADP requirements for the program and justifying these needs in the budget.
- Monitoring overall budget allocations for the program to ensure that required staffing is being provided. If not, revising goals and schedules accordingly.
- Coordinating program effort with Commercial/Industrial Type Activities (CITA) to ensure that requirements program provides needed support to the CITA effort in determining in-service manpower estimates.
- Approving standards studies that meet all quality control criteria prior to the standard being published.

- Coordinating training course curricula to update currently assigned technicians and recommending training course curricula for personnel entering the program.

PRESCRIBE STANDARDS DEVELOPMENT METHODOLOGY

The standards development functions include the following:

- Responsibility for standards development methodology and detailed procedures to be used in preparing the study to support each standard. Documenting these procedures so that all standards development activities will have clear and concise instructions for a uniform standards development effort.
- Monitoring management engineering developments outside the Army and recommending new equipment and/or ADP capabilities to expedite standards development or to produce standards at a lower labor cost.
- Coordinating with Adjutant General on forms used in the development of standards and ensuring that stocks are adequate to meet anticipated usage.
- Developing and prescribing parameters that must be met to qualify statistics and data for various types of standards.
- Prescribing formats to be used in the documentation of the various phases of standards development.
- Prescribing which documents and/or at which points in the develpoment process quality control will be performed.

- Coordinating equipment allowances for all activities developing staffing standards.
- Responsibility for ADP support for data collection and computations.

ENFORCE STANDARDS DEVELOPMENT METHODOLOGY AND POLICIES

The function to enforce standards development methodology and policies includes the following:

- Reviewing measurement plans for substance and proper format. The more significant areas considered in these reviews include the following:
  - Adequacy of work center description(s).
  - Appropriateness of the workload to be collected and propriety of the work count system.
  - Effect of the recommended management improvements on the measurement plan if they are implemented.
  - Representative coverage of the functional universe by the location selected for measurement.
  - Format compliance and editorial content.
- Coordinating measurements with functional staff and determining if any of the management improvements should be directed for implementation.
- Reviewing completed standards studies. The more significant areas examined in these reviews are as follows:
  - Sufficiency of data collected
  - Adequacy of data analysis

  - Propriety of the computations in deriving the staffing equation
  - Suitability of additives, exceptions, and deviations (AEDs) to accommodate unique situations
  - Proper workload range depicted in the staffing table and appropriateness of categories, MOS/series, skills, and grades shown
  - Suitability and utility of program estimating equations or factors
  - Format compliance and editorial content.
- Coordinating trial applications of standards after studies are approved.
- Reviewing trial application results and determining any adjustments that should be made to improve the standards.
- Making on-site visits during the different phases of standards development to assure that prescribed procedures and techniques are being used.
- Recommending changes in parameters and techniques where the same quality products can be achieved with less labor cost.
- Determining extent of quality control to be exercised by development activities so that unnecessary duplication of reviews is avoided.

DEVELOP STANDARDS

Based on a directed schedule, a team of personnel with required skills is designated to develop a standards study as a means of presenting a proposed standard. The more significant actions of this team in producing this standards study are outlined below.

- Preparing a measurement plan as follows:
  - Identifying work center(s) to be covered by the standard
  - Developing work center description(s)
  - Identifying work units and potential workload factors for each work center
  - Prescribing the work measurement methods to be used in collecting needed data
  - Prescribing work count(s) to be used
  - Identifying potential management improvements.
- Submitting measurement plan to appropriate quality control office for review and approval.
- After approval of the measurement plan, collecting the data according to the scheme set forth in the plan. (This normally includes data from various locations that must be collected TDY or by technicians stationed at or near these locations.)

- Analyzing collected data to determine what is compatible for use in producing a staffing equation that gives total manpower required for various workload volumes.
- Determining the civilian-military mix appropriate for the function and military needs of the Army.
- Using this mix to build a table that depicts a selected number of workloads and the military and/or civilians needed for each by duty title, MOS/series by grade (nominal grade for civilians), and quantity. Also identifying any special adjustments that must be made to the standard to accommodate for individual locations and/or conditions.
- Developing program estimating factors, if appropriate, to provide program oriented variables used to forecast manpower needs for the next 5 fiscal years in the functional area covered by the standard.
- After approval, transmitting the standard to all users for a trial application (also called initial application). Resolving any special situations raised by the trial application. Advising DA of any changes to the standards that are warranted.
- Updating standards as required based on changes in methods, directives, equipment, etc.

PUBLISH STANDARDS

The function to publish standards includes the following:

- Establishing and maintaining a manual containing all approved standards to include program estimating equations and factors
- Establishing and maintaining current distribution lists
- Coordinating printing requirements and printing schedules
- Formatting individual standards after their approval for publication in the standards manual.

DETERMINE REQUIREMENTS

The function to determine requirements includes the following:

- Analyzing and evaluating (both qualitatively and quantitatively) requests submitted by operating officials and subordinate organizations. After verification of workload involved, validating the request by applying standards if they are available. If not, validating using other assessment techniques.
- Developing manpower requirements for new equipment and systems.
- Reviewing CITA proposals for validity of in-Service manpower involved.
- Reviewing utilization of manpower in functional areas for questionable allocations or utilization.
- Reviewing correspondence and proposed directives for manpower implications.
- Reviewing host-tenant and other inter-Service support agreements involving manpower for propriety of numbers involved.
- Responsibility for coordinating AMSCOs needed for the functional identification to monitor utilization of manpower and required in the development of functional staffing standards.

- Monitoring productivity enhancement developments and alerting appropriate offices in those instances where an existing standard might be affected.
- Monitoring existence of contracts to avoid duplication by in-Service authorizations.
- Making trial application (initial application) of each new standard and determining if special allowances not provided by standard are needed because of unique local situations.
- Monitoring projects designed to measure and improve functional productivity trends as they affect manpower utilization.
- Providing budget justification to support new requirements generated by mission and/or workload changes.
- Applying all approved standards at least annually to provide a credibility statement of need to Congress for each budget submission.

APPENDIX B
CRITERIA DEFINITIONS

Definitions by criteria category for the criteria in Table 2.1 are given in this Appendix. Table B.1 contains clarifying definitions for criteria relating to organizational level of accomplishment (Where). Definitions for criteria pertaining to the more specific responsibility designations are in Table B.2 (Who).

TABLE B.1

CRITERIA DEFINITIONS: WHERE

Criteria		Definition
Category	Where	
I: Mandatory Placement	Directed assignment of function	A function required to be performed by specific organizational entities/activities under current directives
	Functions required to be performed by Army Management Headquarters Activities (AR 570-8)	Type functions required to be performed by Army Management Headquarters Activities are as follows: Policy development and/or guidance Long-range planning, programming, and budgeting Management and distribution of resources Program performance review and evaluation
II: Functional Compatibility	Functional compatibility between existing functions of organizational entity under consideration and program function	The appropriateness of integrating the proposed new function with the primary functions currently assigned and required for mission accomplishment of the organizational entity under consideration
	Value of placing procedures (methodology) and policy determination (program management) functions within the same organizational entity	An assessment of program function interface and the efficiencies obtained by collocating two of the program functions in the same organizational entity

TABLE B.1 (Cont)

Criteria		Definition
Category	Where	
II: Functional Compatibility (cont)	Value of assigning methodology and policy enforcement with the same organizational entity that develops the methodology and policies	An assessment of program function interface and the efficiency obtained by collocating two of the program functions in the same organizational entity.
	Value of placing standards publication and standards approval (program management) functions within the same organizational entity	An assessment of program function interface and the efficiencies obtained by collocating a program subfunction (standards approval) and a program function in the same organizational entity
III: Inherent Capabilities	Value of centralized control of an Army-wide program	An examination of the need to centrally manage key functions of an Army-wide program
	Value of performing functions at more than one level with varying scope	An examination of the need to perform a function at more than one level, and, if required, the degree of performance at each level
	Avoids potential bias in performing function	The potential degradation of products if two or more of the program functions are performed at the same level within the DA structure

TABLE B.1 (Cont)

Criteria		Definition
Category	Where	
III: Inherent Capabilities (cont)	Span of Control	An assessment of the number of subordinate elements that can be effectively managed with due consideration of the scope of the tasks, time required to accomplish them, and dispersion
	Ability to provide adequate overall control	An assessment of the capability of an organizational entity to insure compliance with directives, policies, and procedures; initiate corrective action; and insure scheduled functional accomplishment
	Ability to standardize performance and products	An appraisal of the capability of an organizational entity to establish rules for the performance of program functions and develop products that conform with specifications
	Status with respect to maximum feasible decentralized threshold	An appraisal of the level at which decentralization becomes counterproductive for the function in question
	Standards population breakdown between Army-wide and command unique	The distribution of Army-wide and command unique standards with respect to numbers and locations within the DA structure

TABLE B.1 (Cont)

Criteria		Definition
Category	Where	
III: Inherent Capabilities (cont)	Ability to effectively and efficiently utilize teams	An assessment of the capability of an organizational entity to control team performance
	Ability to enhance product acceptance through participation	An appraisal of the propensity of an organizational entity's personnel to assist in product implementation as a result of identifying with the product and potential results
	Value of centralized publication of products of an Army-wide program; ability to standardize products	An appraisal of the capability of an organizational entity to develop products that conform with specifications
	Value of proximity to data source	An assessment of the effort required (time and distance) in the organizational entity under consideration to obtain from the data source required inputs for functional performance
	Quantity of requirements not subject to standards at each level within the DA structure	The distribution of nonstandard requirements by number at each level within the DA structure
	Ability to validate inputs	The capability of the organizational entity under consideration to corroborate data submissions

TABLE B.1 (Cont)

Criteria		Definition
Category	Where	
III: Inherent Capabilities (cont)	Ability to evaluate requirements not covered by standards	The capability of the organizational entity under consideration to judge the validity of nonstandard requirements
	Ease of documenting results	The facility with which all information required for requirements documentation can be recorded by the organizational entity under consideration
IV: Cost Benefits	Credibility of final product	An assessment of the relative perceived value of the product (as a result of assigning a program function to a particular organizational activity) in the eyes of the user, HQDA, DoD, and Congress based upon applicable published views
	Cost to organize and manage program	The relative resources with respect to other options (estimated number of personnel and dollars) required by the organizational entity under consideration to organize and manage the program

TABLE B.1 (Cont)

Criteria		Definition
Category	Where	
IV: Cost Benefits (cont)	Cost to perform function	The relative resources with respect to other options (estimated number of personnel and dollars) required by the organizational entity under consideration to perform the function
	Cost to organize and operate	The relative resources with respect to other options (estimated number of personnel and dollars) required by the organizational entity under consideration to organize and operate a manpower requirements determination program

TABLE B.2

CRITERIA DEFINITIONS: WHO

Criteria		Definition
Category	Who	
I: Mandatory Placement	Directed assignment of function	A function required to be performed by specific organizational activities under current directives
II: Functional Compatibility	Functional homogeneity between existing functions of organizational activity under consideration and program function	The appropriateness of integrating the proposed new function with the primary functions currently assigned and required for mission accomplishment of the organizational activity under consideration
	Product homogeneity between existing product(s) of organizational activity under consideration and product(s) of program function	The appropriateness of integrating the proposed new functional product with the primary products currently produced by the organizational activity under consideration
	Value of placing standards application and development within the same organizational activities	An assessment of program functional interface and the efficiencies obtained by collocating two program functions (develop standards and determine requirements) with the same organizational activities

TABLE B.2 (Cont)

Criteria		Definition
Category	Who	
III: Inherent Capabilities	Ability to integrate all functions of the requirements determination and utilization process	The capability of the organizational activity under consideration to organize and administer all program functions
	Simplicity of procedures and control	An assessment of the ability of the organizational activity to streamline the process required to execute the function, assign tasks, designate objectives, and supervise staff execution
	Effectiveness of feedback	An appraisal of the ability of the organizational activity under consideration to receive user inputs and detect changes needed to improve performance of the function and/or program
	Efficiency of lines of communication	An appraisal of the channels and means of communication available and their responsiveness in the accomplishment of a program function
	Ability to monitor compliance	An assessment of the capability of the organizational activity under consideration to detect deviations in methods and procedures used to determine requirements and their validity

TABLE B.2 (Cont)

Criteria		Definition
Category	Who	
III: Inherent Capabilities (cont)	Value of separate review authority an echelon above standards development	An assessment of the need to have a higher authority perform quality control for the standards developer
	Extent of review required to provide credible product	An appraisal of the maximum number of reviews and the level of performance that is productive
	Proximity to source of requirements	An assessment of the effort required (time and distance) by the organizational activity under consideration to obtain required information from the source to determine requirements
	Value of proximity to data source	An assessment of the effort required (time and distance) in the organizational entity under consideration to obtain from the data source required inputs for functional performance
IV: Cost Benefits	Credibility of final product	An assessment of the relative perceived value of the product (as a result of assigning a program function to a particular organizational activity) in the eyes of the user, HQDA, OSD, OMB, GAO, and the Congress

TABLE B.2 (Cont)

Criteria		Definition
Category	Who	
IV: Cost Benefits (cont)	Cost to organize and manage program	The relative resources with respect to other options (estimated number of personnel and dollars) required by the organizational activity under consideration to organize and manage the program
	Cost to perform function	The relative resources with respect to other options (estimated number of personnel and dollars) required by the organizational activity to perform the function
	Cost to organize and operate	The relative resources with respect to other options (estimated number of personnel and dollars) required by the organizational activity under consideration to perform the function

APPENDIX C
PARTICIPANTS IN THE ARMY MANPOWER REQUIREMENTS DETERMINATION PROGRAM

This appendix lists all major Army commands and those agencies that will participate in the manpower requirements determination program. Also included in this appendix are the acronyms for each of the listed activities used in this report.

PARTICIPANTS IN THE ARMY MANPOWER REQUIREMENTS DETERMINATION PROGRAM

Major Army Commands	Acronym
US Army Forces Command	FORSCOM
US Army, Europe	USAREUR
US Army Material Development and Readiness Command	DARCOM
US Army Training and Doctrine Command	TRADOC
US Army Health Services Command	HSC
Eighth US Army	EUSA
US Army Communications Command	USACC
US Army Western Command	WESTCOM
US Army Intelligence and Security Command	INSCOM
US Army Corps of Engineers	USACE
Military Traffic Management Command	MTMC
US Military District of Washington	MDW
US Army, Japan	USARJ
US Army Criminal Investigation Command	USACIDC

Major Agencies*	
Army National Guard	ARNG
The Adjutant General Office	TAGO
US Army Computer Systems Command	USACSC
US Army Recruiting Command	USAREC
United States Military Academy	USMA
The Surgeon General	TSG
US Army Military Personnel Center	MILPERCEN
Military Enlisted Processing Command	MEPCOM
US Army Troop Support Agency	USATSA
US Army Finance and Accounting Center	USAFAC

* Those agencies and commands reporting to HQDA with more than 1,500 authorized TDA population.

APPENDIX D
HQDA STAFF FUNCTION STATEMENTS

This appendix contains detailed function statements for the DA staff (DSCPER) under the various alternative organization structures.

PROVIDE PROGRAM MANAGEMENT

To provide program management at the HQDA level, the staff will do the following:

- Establish policies for a staffing standards program in the Army to include the role staffing standards fulfill and how they interface with other standards used within the Army.
- Develop and maintain the directive that is the basic authority for staffing standards and set forth the scope and policies under which they will be developed.
- Determine any overall exclusions to standards coverage when analysis indicates that it would be neither feasible nor cost effective to develop staffing standards.
- Determine which functions should receive priority in the standards development sequence and issue guidance as appropriate.
- Establish standards coverage goals for TDA authorizations and monitor progress toward these goals.
- Coordinate and interface staffing standards with other standards efforts within DA.
- Monitor career fields used in the requirements program and recommend changes that would improve the overall program.

- Monitor Army resources (both current and programmed) dedicated to the staffing standards program to assure that capability exists and is programmed to meet established goals and Army-wide needs.
- Present overall Army manpower requirements process to OSD, OMB, and Congress in the annual Manpower Requirements Report.
- Develop and coordinate overall training requirements for both upgrade training for personnel in the program and new personnel entering the program.
- Establish overall ADP requirements for the program and support these needs in the budget.
- Monitor overall budget allocations for the program to ensure that required staffing is being provided. If not, revise goals accordingly.
- Coordinate program effort with commercial/industrial type activities (CITA) review to ensure that staffing standards program provides needed support to the CITA effort in determining in-serivce manpower estimates.
- Approve standards studies that meet all quality control criteria prior to the standard being published.
- Coordinate training course curricula to update assigned technicians and recommand training course curricula for personnel entering the program.
- Be responsible for a manual containing all approved standards to include program estimating equations and factors.

PRESCRIBE STANDARDS DEVELOPMENT METHODOLOGY

To prescribe standards development methodology at the HQDA level, the staff will do the following:

- Develop standards development methodology and detailed procedures to be used in preparing the study to support each standard. Document as necessary to ensure that all standards development activities will have clear and concise instructions for a credible standards development effort.
- Monitor management engineering developments outside the Army and recommend new equipment and ADP capabilities to expedite standards development or to produce standards at a lower labor cost.
- Coordinate with Adjutant General on forms used in the development of standards and ensure that stocks are adequate to meet anticipated usage.
- Develop and prescribe parameters that must be met to qualify statistics and data for various types of standards.
- Prescribe formats to be used in the documentation of the various phases of standards development.
- Prescribe which documents and/or at which points in the development process quality control will be performed.

- Coordinate on equipment allowances for all activities developing staffing standards.
- Establish ADP requirements for data collection and computations.

ENFORCE STANDARDS DEVELOPMENT METHODOLOGY AND POLICIES

To enforce standards development methodology and policies at the HQDA level, the staff will do the following:

- Review measurement plans for both substance and proper format. The more significant areas considered in these reviews are as follows:
  - Adequacy of work center description(s)
  - Appropriateness of the workload to be collected and propriety of the work count system
  - Effect of the recommended management improvements on the measurement plan if they are implemented
  - Representative coverage of the functional universe by the locations selected for measurement
  - Format compliance and editorial content.
- Coordinate measurement plans with functional staff and determine if any of the suggested management improvements should be directed for implementation.
- Review completed standards studies. The more significant areas examined in these reviews are as follows:
  - Sufficiency of data collected
  - Adequacy of data analysis

  - Propriety of the computations in deriving the staffing equation
  - Suitability of additives, exceptions, and deviations (AEDs) to accommodate unique situations
  - Proper workload range depicted in the staffing table and appropriateness of categories, MOS/series, skills, and grades shown
  - Suitability and utility of program estimating equations of factors
  - Format compliance and editorial content.
- Coordinate trial applications of standards after studies are approved.
- Review trial application results and determine any adjustements that should be made to improve the standard.
- Make on-site visits during the different phases of standards development to assure that prescribed procedures and techniques are being used.
- Recommend changes in parameters and techniques where the same quality products can be achieved with less labor cost.

PUBLISH STANDARDS
HQDA STAFF

Publication of standards by HQDA staff is only required under alternative 2. Under this alternative, publication of standards has been combined with the "provide program management" functions at the HQDA staff level.

DETERMINE REQUIREMENTS

To determine requirements at the HQDA level, the staff will do the following:

- Analyze and evaluate (both qualitatively and quantitatively) requests submitted by subordinate organizations after continuation of workload involved.
- Develop manpower requirements for new equipment and systems.
- Review MACOM CITA budget proposals for proper in-Service manpower deletions.
- Review utilization of manpower in functional areas for questionable allocations or utilization.
- Review correspondence and proposed directives for manpower implications.
- Review host-tenant and other inter-Service support agreements involving manpower for propriety of numbers.
- Coordinate AMSCOs needed for functional identification to monitor utilization of manpower as required in the development of functional staffing standards.

APPENDIX E
FOA FUNCTION STATEMENTS AND MISSION DIRECTIVE

This appendix contains the FOA detailed function statements for the manpower requirements determination program (MRDP) under alternatives 1 and 3. This appendix also contains a draft mission directive for an FOA that would have the responsibility for developing staffing standards under the Army's MRDP.

PROVIDE PROGRAM MANAGEMENT

To provide program management at the FOA level (not required under alternative 2), the staff will do the following:

- Recommend policies to update the staffing standards program.
- Recommend changes to the directive that is the basic authority for staffing standards and set forth the scope and policies under which they will be developed.
- Recommend any overall exclusions to common standards coverage when analysis indicates that it would be neither feasible nor cost effective to develop such staffing standards.
- Recommend to DA which functions should receive priority in the standards development sequence.
- Prepare milestone charts for completion of each phase of FOA standards studies and monitor progress toward meeting these timetables.
- Recommend standards coverage goals for TDA authorizations Army-wide.
- Draft common staffing standards schedules for approval and transmission to organizations with a staffing standards program below DA level.

- Recommend career field changes that would improve the overall program.
- Recommand training requirements for new personnel entering the program and upgrade training for personnel in the program.
- Draft statements of ADP requirements for the program.
- Monitor overall budget allocations for the program to ensure that required staffing is being provided. If not, recommend to DA staff revised goals and schedules.
- Recommend Army-common standards schedules that are consistent with commercial/industrial type activities (CITA) review schedules to ensure that MRDP provides needed support to the CITA effort.
- Recommend to DA training course curricula to update currently assigned technicians and recommend training course curricula for personnel entering the program.

PRESCRIBE STANDARDS DEVELOPMENT METHODOLOGY

To prescribe standards development methodology at the FOA level (not required under alternative 2), the staff will do the following:

- Draft standards development methodology and recommend changes in detailed procedures to be used in preparing studies to support proposed standards.
- Recommend new equipment and/or ADP capabilities to expedite standards development or to produce standards at a lower labor cost.
- Coordinate with Adjutant General on forms used in the development of standards and ensure that stocks are adequate to meet anticipated usage.
- Propose any changes in parameters that must be met to qualify statistics and data for various types of standards.
- Suggest changes in formats that will improve presentation of the various phases of standards development.
- Suggest any changes to improve quality control of the development process.
- Suggest changes in equipment for development activities that will facilitate standards studies.
- Recommend changes in ADP requirements to improve/expedite data collection and computations.

ENFORCE STANDARDS DEVELOPMENT METHODOLOGY AND POLICIES

Enforce standards development methodology and policies at the FOA level (not required under alternative 2), the staff will do the following:

- Review FOA prepared measurement plans for both substance and proper format. The more significant areas considered in these reviews are as follows:
  - Adequacy of work center description(s)
  - Appropriateness of the workload to be collected and propriety of the work count system
  - Effect of the recommended management improvements on the measurement plan if they are implemented
  - Representative coverage of the functional universe by the locations selected for measurement
  - Format compliance and editorial content.
- Coordinate FOA measurement plans with DA staff as appropriate.
- Review completed FOA standards studies. The more significant areas examined in these reivews are as follows:
  - Sufficiency of data collected
  - Adequacy of data analysis

  - Propriety of the computations in deriving the staffing equation
  - Suitability of additives, exceptions, and deviations (AEDs) to accommodate unique situations
  - Proper workload range depicted in the staffing table and appropriateness of categories, MOS/series, skills, and grades shown
  - Suitability and utility of program estimating equations or factors
  - Format compliance and editorial content.
- Review trial application results and determine any adjustments that should be made to improve the standard.
- Make on-site visits during the different phases of standards development to assure that prescribed procedures and techniques are being used.

DEVELOP STANDARDS

To develop standards at the FOA level (not required under alternative 2), the staff will do the following:

- Based on a directed schedule for common standards, prepare a staffing standards study that presents each proposed standard. Each development study will consist of the following three phases:
  - Preliminary phase involves all of the planning for the other two phases. The result of this planning is documented in a measurement plan that does the following:
    -- Identifies work center(s) to be covered by the standard
    -- Develops work center description(s)
    -- Identifies work units and potential workload factors for each work center
    -- Prescribes the work measurement methods to be used in collecting needed data
    -- Prescribes a work count to be used
    -- Identifies potential management improvements
    -- Specifies locations to be measured and who will conduct measurements. (Completed

measurement plan is submitted to appropriate level for review and concurrence/comment prior to proceeding with the remainder of the study.)

- Measurement phase--Involves collection of the data according to the scheme set forth in the measurement plan.
- Computation phase--Involves the analysis of collected data to determine which is compatible for use in producing a staffing equiation that gives total manpower required for various workload volumes. This includes the following:
  - -- Determination of civilian-military mix appropriate for the function consistent with other military needs of the Army
  - -- Construction of a table that depicts a selected number of workloads and the military and/or civilians needed for each by duty title, MOS/series by grade (nominal grade for civilian), and quantity. Also identifies any special adjustments that must be made to the standard to accommodate for individual locations and/or conditions
  - -- Development of Program Estimating Factors, if appropriate, to provide program oriented variables used to forecast manpower needs for the next 5 fiscal years in the functional area covered by the standard.

- After approval, transmit the standard to all users for a trial application (also called initial application). Resolve any special situations raised by the trial application and advise DA of any changes to the standards that are warranted.
- Update standards as required based on changes in methods, directives, equipment, etc.

PUBLISH STANDARDS

To publish standards at the FOA level (not required or alternative 2), the staff will do the following:

- Establish and maintain a manual containing all approved standards, including program estimating equations and factors
- Maintain current distribution lists
- Format individual standards after their approval for publication in the standards manual.

DETERMINE REQUIREMENTS

To determine requirements at the FOA level (not required under alternative 2), the staff will do the following:

- Analyze and evaluate (both qualitatively and quantitatively) requests referred by HQDA staff for verification of workload involved and proper application of standards if they are available. If standards are not available, validate requirements using other assessment techniques.
- When requested by DA staff, develop manpower requirements for new equipment and systems.
- Monitor utilization of manpower in functional areas for questionable allocations or utilization.
- Review proposed directives for manpower implications.
- Review host-tenant and other inter-Service support agreements referred by HQDA staff and recommend changes in manpower as necessary.
- Be responsible for coordinating AMSCOs needed for the functional identification of manpower involved in the development of functional staffing standards.
- Provide members and administrative support to the HQDA manpower survey team.

- Assist DA staff in the development of workload reporting systems to provide manpower managers with the workload information needed for standards application.
- Monitor currency of Army-common standards and recommend updates as appropriate.
- Monitor MACOM/agency standards reapplication schedules.
- Perform studies on the following and recommend changes as needed:
  - Man-hour availability factor and updates as required
  - Grade authorization structure for compatibility with personnel promotion policies/criteria
  - Manpower mix within the Army.
- Advise MILPERCEN and CIVPERCEN of significant authorization changes resulting from a new or revised Army-common standard.

DRAFT MISSION DIRECTIVE--FOA
(Not required under alternative 2)

Attached is a proposed mission directive for a U.S. Army Staffing Standards Development Agency.

Army Regulation

No. 10-

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C.
(date)

ORGANIZATION AND FUNCTIONS
US ARMY STAFFING STANDARDS DEVELOPMENT AGENCY

Effective (date)

This regulation governs the responsibilities of the US Army Staffing Standards Development Agency (USASSDA) under the functions and authority assigned to The DCSPER by AR 10-5. Local supplementation of this regulation is prohibited except upon approval of The DCSPER.

Users of this regulation will not implement interim changes unless the change document has been authenticated by The Adjutant General. (Interim changes expire 1 year after publication date.) If a formal printed change is not received by the time the interim change expires, users will destroy the interim change.

1. PURPOSE. This regulation gives the mission, principal functions, command and staff relationships, responsiblities, and communication channels of the US Army Staffing Standards Development Agency (USASSDA). This is a field operating agency under the jurisdiction of The Deputy Chief of Staff for Personnel (DCSPER).

2. MISSION. The mission of USASSDA is as follows:

a. Develop and maintain Army-common manpower staffing standards for the purpose of improving manpower utilization.

b. Supervise assigned teams engaged in the development of standards.

c. Assure the implementation of technical and procedural guidance.

d. Issue standards development schedules

e. Publish standards

3. APPLICABILITY. This regulation applies to the Active Army, the Army National Guard, and the Army Reserve.

4. FUNCTIONS. The principal functions of USASSDA are listed below.

a. Exercise command over functional standards development teams (SSTs)

b. Develop and update Army manpower standards for major common functional areas.

c. Participate in the preparation of technical guidance for the development and maintenance of manpower standards.

d. Schedule assigned functional SSTs and coordinate with command team requirements for the development of Army-common standards.

e. Provide standards development assistance as directed by DCSPER.

f. Review proposed manpower standards for technical adequacy.

g. Provide technical assistance to command standards development activities and function areas as requested.

h. Participate with other agencies in improving current techniques for determination of grade requirements.

i. Assure the use of occupational analysis data in the standards development process.

j. Ensure coordinated development of grade/skill requirements through continual information interchange with appropriate personnel offices during manpower standards development.

k. Advise MILPERCEN/CIVPERCEN on overall manpower implications that interrelate with personnel actions to include the following:

   (1) Significant adjustments in programmed manpower by MOS/series and command

   (2) Manpower impacts by skill and command that will result from current Army staff and/or OSD program change decisions.

   (3) Intercommand transfers of functional responsibility that have significant manpower impacts.

   (4) Impacts of proposed changes to the Army military classification systems.

   (5) Basis for significant changes in manpower requirements by MOS/series.

   (6) Coordination of the development of Army-common standards and monitoring of the initial application.

   (7) Response to requests for information regarding manpower authorization changes and their causes.

l. Establish requirements for education and training programs of manpower management personnel.

m. On a continuing basis, assess the technical guidance contained in Army Standards Development policies and procedures, and submit recommendations for improvement to DAPE-MBU as appropriate.

n. Perform manpower utilization studies e.g., development and maintenance of man-hour availability factors for various workweeks to include those under emergency conditions.

o. Provide input to Army productivity improvement program based on staffing standards applications.

p. Develop functional coding definitions to support the staffing standards program and interface with the Army management structure code system.

q. Perform research and develop models for use in manpower requirements computations to ensure requirements are consistent with MOS career paterns.

r. Monitor wartime requirements for TDA organizations and provide technical guidance and procedures for use in determining these requirements.

s. Establish ADP requirements for use in standards development.

t. Coordinate workload reporting systems for Army-common standards.

5. RESPONSIBLITIES. The Commander, USASSDA, is responsible to the DCSPER, HQDA, for accomplishing the USASSDA mission and functions. The Commander is under the staff supervision of the Director of Manpower, Plans, and Budget, DCSPER.

6. CHANNELS OF COMMUNICATIONS. Liaison and direct communication is authorized between USASSDA and major and subordinate Army commands, other Army field operating agencies, standards development activities of other services, and other Federal agencies in all matters related to worldwide USASSDA missions and functions assigned by DCSPER, HQDA.

The proponent agency of this regulation is the Office of the Deputy Chief of Staff for Personnel. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) direct to HQDA (DAPE-MBU) WASH, D.C. 20310.

By Order of the Secretary of the Army:

E. C. Meyer
General, United States Army
Chief of Staff

Official:

J.C. PENNINGTON
Major General, United States Army
The Adjutant General

DISTRIBUTION:

To be distributed in accordance with DA Form 12-9A requirements for AR, Organization and Function.

Active Army: A
ARNG: None
USAR: A

APPENDIX F
MACOM/AGENCY FUNCTIONS

This appendix contains the detailed functional statements for the manpower requirements determination program at the MACOM/agency level under the various alternative organization options. It also includes a functional statement for requirements determination below MACOM headquarters level when so authorized.

PROVIDE PROGRAM MANAGEMENT

To provide program management at the MACOM/agency level, the staff will do the following:

- Establish policies for the command staffing standards.
- Be responsible for any required command supplements to the HQDA directive, which is the basic authority for staffing standards.
- Determine any overall exclusions to command-unique standards coverage when analysis indicates that it would be neither feasible nor cost effective to develop staffing standards.
- Determine which command-unique functions should receive priority in the standards development sequence and issue development schedules that are consistent with Army-wide development timetables.
- Prepare milestones for completion of each phase of a command-unique standards study and monitor progress toward meeting this timetable.
- Review existing command standards, determine when revisions are warranted, as well as schedules, updates, or new studies as appropriate.

- Coordinate and interface command-unique staffing standards with other standards efforts within the command.
- Monitor command resources (both current and programmed) dedicated to the staffing standards program to assure that capability exists and is programmed to meet command established goals and Army-wide needs.
- Coordinate overall command training requirements for new personnel entering the program and upgrade training for personnel in the program.
- Coordinate command ADP requirements for the program.
- Monitor command budget allocations for the staffing standards program to ensure that required resources are provided. If not, revise goals and schedules accordingly.
- Coordinate command program effort with commercial/industrial type activities (CITA) reviews to ensure that staffing standards program provides needed support to the CITA effort in determining in-Service manpower estimates.
- Review standards studies for quality assurance prior to forwarding to HQDA for approval.
- (Additional task under variation to alternative 3 option).
- Maintain a command manual containing all approved command standards to include program estimating equations and factors.
- Maintain a current distribution list for standards manual.

- Coordinate printing requirements and printing schedules.
- Format individual standards after their approval for publication in the command standards manual.

ENFORCE STANDARDS DEVELOPMENT METHODOLOGY AND POLICIES

To enforce standards development methodology and policies at the MACOM/agency level, the staff will do the following:

- Review command measurement plans for both substance and proper format. The more significant areas considered in these reviews are as follows:
  - Adequacy of work center description(s)
  - Appropriateness of the workload to be collected and propriety of the work count system
  - Effect of the recommended management improvements on the measurement plan if they are implemented
  - Representative coverage of the functional universe by the locations selected for management
  - Format compliance and editorial content.
- Coordinate command measurement plans with functional staff and determine if any of the management improvements should be directed for implementation.
- Review completed command standards studies. The more significant areas examined in these reviews are as follows:
  - Sufficiency of data collected
  - Adequacy of data analysis

  - Propriety of the computations in deriving the staffing equation
  - Suitability of additives, exceptions, and deviations (AEDs) accommodate to unique situations
  - Proper workload range depicted in the staffing table and appropriateness of categories, MOS/-series, skills, and grades shown
  - Suitability and utility of program estimating equations of factors
  - Format compliance and editorial content.
- Coordinate trial applications of standards after studies are approved.
- Review trial application results and determine any adjustments that should be made to improve the standard.
- Make on-site visits during the different phases of standards development to assure that prescribed procedures and techniques are being used.

DEVELOP STANDARDS

To develop standards at the MACOM/agency level a team of personnel will designated with required skills to develop a standards study as a means of presenting a proposed standard. The more significant actions of this team in producing this standards study are outlined below. The staff will do the following:

- Prepare a measurement plan that does the following:
  - Identifies work center(s) to be covered by the standard
  - Develops work center description(s)
  - Identifies work units and potential workload factors for each work center
  - Prescribes the work measurement methods to be used in collecting needed data
  - Prescribes a work count to be used
  - Identifies potential management improvements.
- Submit measurement plan to appropriate quality control office for review and approval.
- Collect the data according to the scheme set forth in the measurement plan. (This normally includes data from various locations that must be collected TDY or by technicians stationed at or near these locations.)

- Analyze collected data to determine which is compatible for use in producing a staffing equation that gives total manpower required for various workload volumes.
- Determine the civilian-military mix appropriate for the function and military needs of the Army.
- Using this mix, build a table that depicts a selected number of workloads and the military and/or civilians needed for each by duty title, MOS/series by grade (nominal grade for civilians), and quantity. Also identify any special adjustments that must be made to the standard to accommodate for individual locations and/or conditions.
- Develop program estimating factors, if appropriate, to provide program oriented variables used to forecast manpower needs for the next 5 fiscal years in the functional area covered by the standard.
- After approval, transmit the standard to all users for a trial application (also called initial application). Resolve any special situations raised by the trial application. Advise DA of any changes to the standards that are warranted.
- Update standard as required based on changes in methods, directives, equipment, etc.

PUBLISH STANDARDS
MACOM/AGENCY LEVEL

This function is only performed at this level under a variation to alternative 3. If performed at this level, the function to publish standards is combined with program management.

DETERMINE REQUIREMENTS

To determine requirements at the MACOM/agency level, the staff will:

- Analyze and evaluate (both qualitatively and quantitatively) requests submitted by subordinate organizations. After verification of workload involved, validate the request by applying standards if they are available. If not, validate using other assessment techniques.
- Develop manpower requirements for new equipment and systems.
- Review CITA proposals for validity of in-Service manpower involved.
- Review utilization of manpower in functional areas for questionable allocations or utilization.
- Review correspondence and proposed directives for manpower implications.
- Review host-tenant and other inter-Service support agreements involving manpower for propriety of numbers involved.
- Monitor productivity enhancement developments and alert appropriate offices in those instances where an existing standard might be affected.

- Monitor existence of contracts to avoid duplication by in-Service authorizations.
- Make trial applications (initial applications) of each new standard and determine if special allowances not provided by standards are needed because of unique command/local situations.
- Monitor projects designed to measure and improve functional productivity trends as they affect manpower utilization.
- Provide budget justification to HQDA to support new requirements generated by mission and/or workload changes.
- Apply, or require subordinate organizations to apply, all approved standards at least annually to provide credible manpower requirements to HQDA for each budget submission.
- Conduct manpower surveys as required for subordinate organizations in functional areas not already covered by staffing standards or under study (i.e., surveys will not be required in areas that are under standards or are the subject of current standards studies).

DETERMINE REQUIREMENTS BELOW MACOM LEVEL

To determine requirements below the MACOM/agency level, the appropriate manpower staff will do the following:

- Analyze and evaluate (both qualitatively and quantitatively) requests submitted by operating officials and subordinate organizations. After verification of workload involved, validate the request by applying standards if they are available. If not, validate using other assessment techniques.
- Review CITA proposals for validity of in-Service manpower involved.
- Review utilization of manpower in functional areas for questionable allocations or utilization.
- Review correspondence and proposed directives for manpower implications.
- Review host-tenant and other inter-Service support agreements involving manpower for propriety of numbers involved.
- Monitor existence of contracts to avoid duplication by in-Service authorizations.
- Make trial application (initial application) of each new standard and determine if special allowances not provided by standard are needed because of unique local situations.

- Provide budget justification to support new requirements generated by mission and/or workload changes.
- Apply all approved standards at least annually to provide credible manpower requirements to MACOM HQDS for each budget submission.

APPENDIX G
RESOURCE QUANTIFICATION FOR STANDARDS DEVELOPMENT

G.1 This Appendix describes the derivation of the resource estimating algorithm that is used to determine the number of analysts required to accomplish the development phases of Army staffing standard studies.

OBJECTIVES

G.2 The basic objectives of this effort were to do the following:

a. Identify and analyze the parameters that affect the number of analysts required to develop staffing standards.

b. Develop a methodology for projecting resource requirements for specific increments of standards development workload.

APPROACH

G.3 The approach used in this effort was designed to do the following:

a. Draw upon the resource planning and scheduling information of other services to identify relevant planning factors and to formulate a basic resource estimating formula.

b. Incorporate into the basic formula such additional resource considerations as are relevant to an Army-wide staffing standards program.

G.4 The specific approach consisted of four basic steps.

a. First, schedules covering standards development efforts under consideration by the U.S. Navy and Air Force were obtained.

b. Next, analyses were performed of the schedules to identify relevant planning factors. Discussions were held with persons having knowledge of and work related experience in preparing these schedules to obtain an overall understanding of the scheduling methodology and to assess the relevancy of the planning factors to the development of a schedule for an Army program.

c. Third, statistical analyses were performed of the planning information to determine the staffing patterns or ratios used, and to evolve a mathematical expression of the analyst-to-workload relationships.

d. Finally, the resultant relationships were assessed for applicability to the Army standards program and appropriate adjustments made.

ANALYSIS

G.5 Principal among the information sources utilized were the standards development schedules developed for the USAF Management Engineering Program and the USN Shore Requirements, Standards, and Manpower Planning System (SHORSTAMPS) Program.

G.6 Air Force Program. Currently, all USAF common staffing standards are centrally scheduled on a 2-year basis by the Air Force Management Engineering Agency (AFMEA). With few exceptions, a uniform 66-week schedule is utilized for each standards development effort, which includes the trial application of the standard. Based on this schedule, AFMEA provides major command scheduling officials with an estimate of the number of technicians that will be required for each of the command management engineering teams selected as inputs on a given standards effort. Informal contact with scheduling officials of two USAF major commands (Tactical Air Command and Military Airlift Command) indicated that the parameters used to allocate command technician resources for a given staffing standards effort are as follows:

- The number of work centers in the standards development effort
- The method of workload measurement (i.e., operational audit, work sampling, time study, etc.) envisioned for use in the standards effort
- The current and/or forecast man-week loading of an input team
- The scope of the study.

Currently USAF directives do not identify the specific parameters used in scheduling, but indications are that there are common parameters used by AFMEA and by all major commands in preparing schedules. Since most USAF-common staffing standards efforts have utilized the operational audit method of measurement in recent years, it would appear that the number of work centers within a given standards effort is the predominant parameter for technician loading in the current USAF program.

G.7 Navy Program. From available data, the USN SHORSTAMPS standards development program is scheduled on a 5-year basis, with semiannual updating of the master schedule. Standards studies are programmed by man-months required for each phase of a standards development effort from the preliminary phase through the application/implementation phase. Although there are no known published procedures/parameters for man-month allocations in the SHORSTAMPS scheduling system, analysis of available data indicated a high correlation between the man-months scheduled for representative standards development efforts and the number of work centers under study. Unlike the Air Force, the Navy does not apply a uniform, fixed calendar schedule to each study. Informal contact with SHORSTAMPS personnel indicated that all of the aforementioned parameters affect the schedule to some extent; however, the number of work centers under development is the driving factor.

G.8 Assessment. Both Services' programs utilize the same basic planning factors in developing their respective standards development schedules; consequently planning information from either program would be adequate as a base from which to formulate a basic resource estimating formula. The SHORSTAMPS schedule was selected, however, because it would more closely reflect the resource requirements for standards studies under development within the framework of a relatively new program. This assessment is made relative to the Air Force's program, which spans over two decades. Key considerations in selecting the SHORSTAMPS methodology were as follows:

a. The SHORSTAMPS program was initiated in 1973. The major effort continues to be directed toward the development of first generation staffing standards.

b. Standards are being developed for base support type activities and functions ashore that are similar to functions and proportional population in the Army TDA universe.

c. Emphasis is on developing functional staffing standards on a Navy-wide basis.

G.9 Resource Estimating Algorithm. Based on the planning information in the SHORSTAMPS schedule an algorithm was developed using the following steps:

a. The bivarate linear equation $Y = a + bX$ was used as the mathematical model for testing paired values. In this equation, Y is the dependent variable and X the independent variable, with a and b representing constants. (The a represents fixed costs of each study and the b is the expected change in Y with a change of one unit of X.)

b. Using the SHORSTAMPS planning information, the tested dependent variable (Y) was the total man-months for the preliminary, measurement, and computation phases. The independent variables (X values) tested were the number of work centers and the total population in each study. Both linear and multilinear regression models were tested to determine the best statistical fit. The selected independent variable was the total number of work centers. The data utilized in regression analysis and the statistical parameters obtained are provided as follows:

Number of Standards Studies	Number of Work Centers	Analyst Man-Months
1	4	59
2	7	72
3	4	59
4	3	30
5	2	23
6	2	15

The resultant regression equation is: $Y = 1.538 + 11.308X$.

The statistical parameters are:

Coefficient of Determination (r^2) = .8190
Coefficient of Correlation (r) = .9050
Standard Error of the Estimate = 11.06
Coefficient of Variation (v) = .2573
Test of Significance ("t") = 4.255

The criteria for model acceptance were: $>r^2$ .7071; $r>.50$; "t" >2.45 and $v<.30$. These criteria are generally those prescribed for staffing standards developed on the basis of regression analysis.

c. The above basic resource estimating equation was adjusted to compensate for additional tasks that were not reflected in the SHORSTAMPS planning information. These tasks are incidental to the startup of the Army program or reflect additional requirements of the program.

(1) Functional language development. Additional time will be required to develop and refine

a functional language that adequately describes base support taskings and responsibilities. The language will be developed during the preliminary phase of standards development. It is estimated that 1 man-month per standards development study would be required. This nominal amount was added to the "a" value in the estimating equation.

(2) Trial application of approved standards. After each standards study has been approved, initial application is made to determine the manpower impact. An additional allowance is required to perform this workload and to resolve any special situations that arise from the initial application. These added tasks are not reflected in the SHORSTAMPS planning information that formed the basis for the estimating equation. Time to accomplish this workload would vary based on the number of work centers involved. It is estimated that approximately .70 man-months would be required per work center. This estimate was added to the "b" coefficient obtained in the resource estimating equation. The estimating equation developed thus far, adjusted to significant digits, becomes $Y = 2.5 + 12X$.

(3) Task and summary-level standards development. The time to perform this added functional responsibility would vary based on the number of work centers in a standards development study. It is estimated that an additional 2 man-months would be required per

work center to identify and de. ne appropriate work units at the task and category level, perform the data collections, and compute the task and summary level standards. With this adjustment, the resultant estimating equation is Y = 2.5 + 14X.

G.10 The equation (Y = 2.5 + 14X) thus derived can be used to determine the number of man-months of effort required for each standards development study. It is important to note that the estimating equation reflects only the hands-on, analyst man-months required. Its use is limited to workload planning and scheduling.

APPENDIX H
COMMAND-UNIQUE STANDARDS DEVELOPMENT STUDIES

H.1 This appendix contains listing of potential command-unique standards development studies identified by MACOM and agency.

H.2 Tables H.1 through H.21 identify each potential study, applicable AMSCO, population, and estimated number of work centers.

TABLE H.1

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
U.S. ARMY FORCES COMMAND

Study	AMSCO	Population	Work Centers
Maintenance Activities (Reserves)	51799400000	2,714	3
Tactical Support Forces (Reserves)	51292400000	1,720	3
Recruit Training (Reserves)	51899200000	423	2
Medical Support Units (Reserves)	51899700000	318	2
Army Readiness Regions (Reserves)	51999230000	2,517	4
Force Related Training (FORSCOM)	20219300000	57	2
Director of RC Activities (Reserves)	51999250000	137	2
Port Terminal Operations (Reserves)	51493200000	47	2
Professional and Skill Progression Training (Reserves)	51899300000	146	5
Force Related Training (SOUTHCOM)	20259300000	114	4
Intelligence Support (Reserves)	51391100000	1	1
Army Reserve Commands (Reserves)	51999210000	29	2
Maintenance and Repair - Inactive Installations/Facilities	XXXX96K8000	2	1
Total		8,225	

TABLE H.2

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
U.S. ARMY EUROPE

Study	AMSCO	Population	Work Centers
Communications Support (Europe)	20239500000	245	1
Force Related Training (Europe)	20239300000	852	4
Intelligence Support (Europe)	20239100000	262	3
Total		1,359	

TABLE H.3

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
U.S. ARMY MATERIAL DEVELOPMENT AND READINESS COMMAND

Study	AMSCO	Population	Work Centers
Logistics Administrative Support	72282900000	2,580	3
Supply Management Operations	72111200000	6,509	6
Central Procurement Activities	72111300000	4,932	4
Communications Electronics Equipment	738017E0000	730	3
Electronic and Electron Devices	61270500000	738	1
Installation Restoration	XXXX96R0000	67	1
Maintenance Support Activities	73801700000	4,293	25
Aircraft Depot Maintenance	738017A0000	179	8
Atmospheric Investigations	61211100000	58	1
Aircraft Avionics Technology	61220200000	196	3
Aeronautical Technology	61220900000	208	3
Tank and Automotive Technology	61260100000	188	3
Communications - Electronics	61270100000	174	2
Combat Surveillance, Target Acquisition, and Identification	61270300000	139	3
Night Visions Investigations	61270900000	250	3
Human Factors Engineering in Systems Development	61271600000	144	3

TABLE H.3 (Cont)

Study	AMSCO	Population	Work Centers
Clothing, Equipment, and Shelter Technology	61272300000	62	1
Aircraft Power Plants and Propulsion	62320100000	89	2
Rotary Wing Controls, Rotors, and Structures	62321100000	54	1
Chemical Defensive Material Concepts	64372300000	210	3
Combat Support Equipment	64372600000	79	2
Advanced Attack Helicopter	64420700000	170	3
Infantry Fighting Vehicle (IFV) XM2	64461600000	72	3
Tank Systems	64462000000	97	2
Special Purpose Detectors	64472300000	141	3
Aviation Engineering Flight Activity	66520100000	166	3
Air Mobility Support	62320900000	25	2
Electric Power Services	62370200000	46	2
Remotely Piloted Vehicle Drones	62372500000	25	1
Communications Development	64370700000	36	3
Tactical Electronic Warfare Equipment	64374500000	29	3
Single Channel Ground and Airborne Radio Subsystems	64374600000	27	1

TABLE H.3 (Cont)

Study	AMSCO	Population	Work Centers
Tactical Electronic Countermeasure Systems	64375500000	62	3
Aerial Scout (Helicopter)	64420300000	25	1
CH-47 Modernization	64421300000	32	1
Aircraft Electronic Warfare (EW) Self-Protection System	64471100000	35	2
Division Tactical ECM Systems	644750L1000	25	2
Technical Information Activities	66580300000	27	7
Depot Maintenance Activities (General)	73320700000	258	5
Program-wide Activities (R&D)	66580100000	1,623	26
Major R&D Test and Evaluation Facilities	66580400000	10,082	25
In-House Laboratory Independent Research	61110100000	101	4
Joint Services Food System Technology	61272400000	302	4
Mobility Equipment Technology	61273300000	246	5
Electronic Warfare Vulnerability Susceptibility	66371800000	246	4
Nonsystems Training Devices	66471500000	43	5

TABLE H.3 (Cont)

Study	AMSCO	Population	Work Centers
Support of Development Testing	66570200000	859	7
Scientific and Technical Intelligence	38102200000	505	5
General Combat Support	64471700000	396	6
Material Systems Analysis	66570600000	328	5
Industrial Preparedness Operations	72801100000	388	12
AIF Manufacture and Assembly	30001000	3,205	--
AIF Overhaul, Repair, and Renovation	30003000	18,040	--
AIF Engineering Services	30007800	1,532	--
AIF Other Products and Services	30008000	413	--
AIF Redstone Arsenal	BB36310000	219	--
AIF Research and Development - Harry Diamond Laboratories	6A36AA6000	1,145	--
AIF HQ USA Research and Development Center, Army Industrial Fund	6A36520000	3,554	--
AIF Research and Development - Watervliet Arsenal	6A36556000	834	--
AIF Support of Service-Wide Support Supply Edgewood Arsenal	6A36557500	79	--

TABLE H.3 (Cont)

Study	AMSCO	Population	Work Centers
AIF Engineering Services - Edgewood Arsenal	6A36557800	102	--
AIF Research and Development - Aberdeen Proving Ground	6A36716000	550	--
AIF Depot Supply and Maintenance - Watertown Research Center	6A36A00060	460	--
AIF Research and Development - Redstone Arsenal	7D36316000	1,282	--
AIF Research and Development - Watervliet Arsenal	7L36566000	29	--
AIF Other Products and Services - Aberdeen Proving Ground	6A36718119	39	--
AIF US Army Materials and Mechanics Research Center - Overhaul, Repair, and Renovation	6A36AA0033	30	--
AIF US Army Materials and Mechanics Research Center - Support of Service-Wide Supply	6A36A00075	46	--
AIF US Army Material and Mechanics Research Center - Engineering Services	6A36A00078	85	--
AIF Support of Service-Wide Supply	30007500	12,992	--
Total		82,932	

TABLE H.4

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
U.S. ARMY TRAINING AND DOCTRINE COMMAND

Study	AMSCO	Population	Work Centers
Recruit Training	81471100000	3,393	3
Combined Recruit and Skill Training	81476100000	9,635	3
Cryptologic/SIGINT Related Skill Training	81473400000	925	1
Personnel Processing Activities (Recruiting)	87171400000	845	1
Undergraduate Pilot Training	81474100000	1,266	2
Training Developments	81477200000	5,995	1
General Intelligence Skill Training	81473300000	570	1
General Skill Training	81473100000	16,946	10
Reserve Officer Training Corps	81472300000	3,445	5
Tactical Support Logistics Unit	20281800000	372	2
Other Flight Training	81474300000	248	1
USA Training and Doctrine Command (R&D)	66570700000	1,098	5
Support of the Training Establishment	81477100000	3,076	12
Other Combat Development Activities	20801800000	3,021	10

TABLE H.4 (Cont)

Study	AMSCO	Population	Work Centers
Theater Nuclear Force	66570800000	12	1
Survivability Analysis			
Officer Candidate School, Branch Immaterial	81472200000	34	1
Junior ROTC Activities	87972100000	17	1
Professional Military Education	81475100000	794	10
Training Support to Units	81973100000	1,204	9
Total		52,896	

TABLE H.5

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
U.S. ARMY HEALTH SERVICES COMMAND

Study	AMSCO	Population	Work Centers
Education and Training (Health Care)	84676100000	2,351	2
Care in Regional Defense Facilities	84771100000	17,508	28
Care in Non-Defense Facilities	84771300000	6	1
Total		19,865	

TABLE H.6

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
EIGHTH U.S. ARMY

Study	AMSCO	Population	Work Centers
Communications Support (Pacific)	20249500000	11	1
Force Related Training (Pacific)	20249300000	156	4
Tactical Intelligence Support (Korea)	20241600000	14	1
Total		181	

TABLE H.7

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
U.S. ARMY COMMUNICATIONS COMMAND

Study	AMSCO	Population	Work Centers
Base Communications (CONUS)	39570100000	5,035	5
(Europe)	39570200000		
(Pacific)	39570300000		
Air Traffic Control, Approach, and Landing Systems	31511400000	1,674	3
Alternate National Military Command Center	39201200000	277	3
National Military Command System-Wide Support	39205300000	46	2
STARCOM (Army Communication System - ACS)	39311100000	6,387	9
Satellite Communications	39314200000	503	3
Cryptologic Communications	38105500000	511	3
Minimum Essential Emergency Communications Network (MEECN)	39313100000	26	1
Longhaul Communications	39312600000	4,157	13
Base Communications (Reserves)	53999500000	108	5
Total		18,724	

TABLE H.8

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
U.S. ARMY INTELLIGENCE AND SECURITY COMMAND

Study	AMSCO	Population	Work Centers
Cryptologic Activities	38101100000	5,801	4
Security and Investigative Activities	31512800000	792	1
Foreign Counterintelligence Activities	31512700000	364	1
Human Intelligence (HUMINT)	38101200000	630	1
Intelligence Support (CONUS)	20281600000	184	3
Intelligence Support (Pacific)	20249100000	21	1
Imagery Intelligence	38101900000	130	3
Intelligence Production Activities	38102100000	254	5
Total		8,176	

TABLE H.9

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
U.S. ARMY CORPS OF ENGINEERS

Study	AMSCO	Population	Work Centers
Division Engineering Offices	72801810000	319	1
Mapping and Geodesy	61270700000	1,013	2
Real Estate Administration	72801850000	359	3
Mobility and Weapons Effects Technology	61271900000	131	3
Cold Regions Engineering Technology	61273000000	124	3
Military Facilities Engineering Technology	61273100000	50	1
Facilities Investigation and Studies	72801820000	51	1
Technical Assistance - Active Installation	72801840000	20	1
Total		2,067	

TABLE H.10

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
U.S. ARMY MILITARY TRAFFIC MANAGEMENT COMMAND

Study	AMSCO	Population	Work Centers
AIF Military Traffic Management Command - Transportation Services	33XX7210	488	--
AIF Military Traffic Management Command - Eastern Area - Defense Freight Railway Interchange System	33517220	15	--
AIF Military Traffic Management Command - Port Operations	33XX7231	669	--
AIF Military Traffic Management Command - Commercial Operations	33XX7232	229	--
AIF Military Traffic Management Command - Eastern Area - Base Operations Cost Codes	3351724Z	585	--
AIF Military Traffic Management Command - General Support	33XX7241	565	--
Total		2,551	

TABLE H.11

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
U.S. ARMY CRIMINAL INVESTIGATIONS COMMAND

Study	AMSCO	Population	Work Centers
Criminal Investigations	95152000000	1,941	4

TABLE H.12

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
ARMY NATIONAL GUARD

Study	AMSCO	Population	Work Centers
National Guard, Training Operations	37100000	8,433	--
National Guard, Logistical Support	37300000	15,652	--
Total		24,085	

TABLE H.13
LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
THE ADJUTANT GENERAL OFFICE

Study	AMSCO	Population	Work Centers
Personnel Administration	95122000000	1,760	7
Automated Personnel Support Systems (Reserves)	53999300000	4	2
OPMS - USAR (Reserves)	53999310000	31	1
Total		1,795	

TABLE H.14

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
U.S. ARMY COMPUTER SYSTEMS COMMAND

Study	AMSCO	Population	Work Centers
Computer and Information Sciences	61272500000	21	3

AD-A108 313 PRESEARCH INC ARLINGTON VA F/G 5/1
STUDY OF ARMY MANPOWER REQUIREMENTS, DETERMINATION PROCEDURES, --ETC(U)
SEP 81 G H SMITH, R W HARTT, W C FRANK MDA903-80-C-0726
UNCLASSIFIED PI-TR-492-VOL-2 NL

END
DATE FILMED
1-82
DTIC

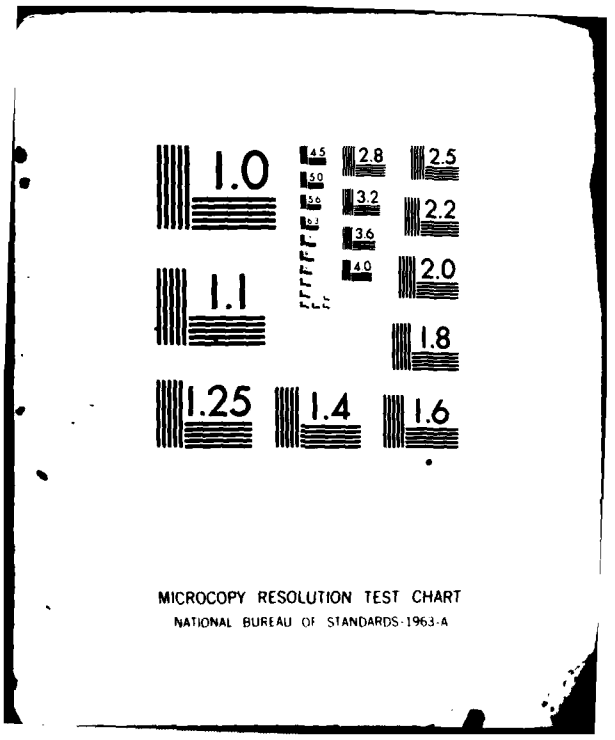

1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
4.5
5.0
5.6
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

TABLE H.15

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
U.S. ARMY RECRUITING COMMAND

Study	AMSCO	Population	Work Centers
Recruiting Activities	87171100000	9,533	3
Recruiting and Retention Activities (Reserves)	53899100000	461	2
Total		9,994	

TABLE H.16

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
U.S. MILITARY ACADEMY

Study	AMSCO	Population	Work Centers
Service Academy (USMA)	81472100000	1,982	15

TABLE H.17

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
THE SURGEON GENERAL

Study	AMSCO	Population	Work Centers
Environmental Quality Technology	61272000000	102	2
Helicopter Combat Crew and Airborne Medicine	61277300000	122	3
Combat Medical Material	61277800000	33	1
Combat Medical Material	62373200000	4	1
Medical Defense Against Biological Agents	61277600000	457	6
Defense Research Sciences	61110200000	2,345	25
Total		3,063	

TABLE H.18

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
U.S. ARMY MILITARY PERSONNEL CENTER

Study	AMSCO	Population	Work Centers
Personnel Administration	95122000000	3,386	7

TABLE H.19

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
MILITARY ENLISTMENT PROCESSING COMMAND

Study	AMSCO	Population	Work Centers
Examining Activities (Recruiting)	87171300000	1,461	1
Examining Activities (Medical)	84171300000	370	1
Total		1,831	

TABLE H.20

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
U.S. ARMY TROOP SUPPORT AGENCY

Study	AMSCO	Population	Work Centers
Commissary Operations	XXXX96Q0000	10,605	6

TABLE H.21

LIST OF POTENTIAL STANDARDS DEVELOPMENT STUDIES -
U.S. ARMY FINANCE AND ACCOUNTING CENTER

Study	AMSCO	Population	Work Centers
Finance and Accounting	95121200000	2,707	6

APPENDIX I
STANDARDS DEVELOPMENT MANPOWER

I.1 This appendix explains the steps used to compute "hands-on" developmment man-months using the algorithm described in Appendix G and the conversion of these man-months into authorizations.

I.2 Using the algorithm described in Appendix G, the number of positions required to develop standards was determined using the following steps:

a. The algorithm was applied to each Army-common standard study shown in Table 3.5 and to each command unique standards study listed in Appendix H.

b. The resultant man-months were then accumulated for all Army-common standards and for unique standards by each MACOM/agency.

c. Manmonths of analyst effort for review and update of each standard every 2 years after initial approval was computed for all Army-common standards and for unique standards by MACOM/agency.

d. Update/review man-months were then combined with initial development man-months to derive total developer man-months for Army-common standards and command-unique standards by MACOM/agency.

e. Total developer man-months were then converted to average number of spaces per year required over

the 7-year initial development period for Army-common standards and for each MACOM/agency (i.e., man-months were divided by 12 to obtain man-years and the result divided by seven [1/] to obtain the average annual man-years. These average annual man-years were then converted to authorization using a conversion factor of 1.16, which is based on a man-hour availability factor of 145 hours per month per individual.)

f. Direct technical supervision was then added, at the rate of 1 full-time supervisor (Team Chief) for each 10 developer positions, to obtain the total number of development analysts.

g. Administrative support was then determined on the basis of 1 clerical position for each 10 development analysts (including direct supervision).

I.3 The computation of the number of development positions for Army-common standards is shown in Table I.1. The computations of development positions for the unique standards for each MACOM/agency are shown in Table I.2. Inherent in these computations is the assumption that all analysts positions would be fully manned for the full 7 years. Because of the large number of additional analysts that will be required to initiate the program, it is not realistic to assume 100 percent manning from the first day of the program. To avoid any slippage in program completion, any shortfall in staffing during this initial buildup period

---

[1/] Authorizations were leveled over the 7-year cycle to provide maximum stability to personnel in the program.

TABLE I.1

DEVELOPMENT MANPOWER FOR ARMY-COMMON STANDARDS

Common Standards Population	Number of Studies	Work Centers	Develop Man-Months	Update/Review Man-Months	Total Developer Man-Months	Average Spaces Per Year	Direct Technical Supervision	Total Analysts	Support Spaces
188,906	62	262	5,223	741	5,964	82.3	8.2	91	9

TABLE I.2

DEVELOPMENT MANPOWER BY MACOM/AGENCY FOR COMMAND-UNIQUE STANDARDS

Activity	Unique Standards Population	Unique Standards Studies[1/]	Work Centers	Development Man-Months	Update/ Review Man-Months	Total Developer Man-Months	Average Spaces Per Year	Direct Technical Supervision	Total Development Analysts	Support Spaces
MACOM										
FORSCOM	8,225	13	33	495	169	664	9.2	.9	10	1
USAREUR	1,359	3	8	120	39	159	2.2	.2	2	0
DARCOM	82,935	70	363[2/]	5,261	910	6,171	85.2	8.5	94	9
TRADOC	52,896	19	79	1,154	247	1,401	19.4	1.9	21	2
HSC	19,865	3	31	442	39	481	6.6	.7	7	1
EUSA	181	3	6	92	39	131	1.8	.2	2	0
USACC	18,724	10	47	683	130	813	11.2	1.1	12	1
WESTCOM	--	--	--	--	--	--	--	--	--	--
INSCOM	8,176	8	19	286	104	390	5.4	.5	6	1
USACE	2,067	8	15	230	104	334	4.6	.5	5	1
MDW	--	--	--	--	--	--	--	--	--	--
MTMC	2,551	6	6[2/]	86	78	164	2.3	.2	3	0
USARJ	--	--	--	--	--	--	--	--	--	--
USACIDC	1,941	1	4	59	13	72	1.0	.1	1	0
Subtotal	198,917	144	611	8,908	1,872	10,780	148.9	14.8	163[3/]	16
Agency										
ARNG	24,085	2	37[2/]	812	26	838	11.6	1.2	13	1
TAGO	1,795	3	10	148	39	187	2.6	.3	3	0
USACSC	21	1	3	45	13	58	.8	.1	1	0
USAREC	9,994	2	5	75	26	101	1.4	.1	2	0
USMA	1,982	1	15	213	13	226	3.1	.3	3	0
FSG	3,063	6	38	547	78	625	8.6	.9	10	1
MILPERCEN	3,386	1	7	101	13	114	1.6	.2	2	0
MEPCOM	1,831	2	2	33	26	59	.8	.1	1	0
USAISA	10,605	1	6	87	13	100	1.4	.1	2	0
USAFAC	2,707	1	6	87	13	100	1.4	.1	2	0
Subtotal	59,469	20	129	2,148	260	2,408	33.3	3.4	39	2
Total	258,386	164	740	11,056	2,132	13,188	182.2	18.2	202[3/]	18

1/ See Appendix B for a detailed list of studies by MACOM/Agency.

2/ Work centers were estimated where detailed MEFS data were not available.

3/ Totals may not add because of rounding.

must be offset by increasing the average number of authorizations for the remainder of the program after full manning is achieved.

I.4 To determine any shortfall, the expected strength as of the first day of FY-83 must be estimated and a practical monthly buildup rate established consistent with trained personnel availability. By comparing estimated monthly on board strength with the required 7-year average authorization level, the man-months of shortfall can be determined. By applying this technique on a monthly basis from the start of the program until full manning is achieved, the total man-months of shortfall can be calculated. The total man-months of shortfall can then be translated into authorizations using the steps outlined above, except that average annual authorizations would be established based on the number of years remaining in the 7-year cycle after full manning is reached. These would then be added to the original level and become the revised authorizations for Army standards development.

I.5 A review of the various alternatives reveals that all require approximately the same number of developers. While organizational structures and deployments will vary under each alternative, indications are that the overall level of manning at the beginning of FY-83 will be substantially the same under all three alternatives. While it would be desirable to offset all shortfalls during this buildup period, the large number of variables in the unique standards development area makes this impractical. On the other hand, the common standards development effort will, for the most part, remain the same package under all three alternatives. Since the common standards effort holds the most potential for achieving maximum coverage (i.e., spaces supported by standards) in the shortest period of time, the focus on offsetting any significant manning shortfalls should be in this area.

I.6 As shown in Table I.1, the average number of analyst authorizations to develop Army-common standards is 91. It is reasonable to expect that the locations for this new development effort, or portions thereof, will coincide with locations for existing development efforts. This collocation should provide some immediate cadre. The reduction of the manpower survey workload should also make available a limited number of analysts for transfer to this development effort. Additionally, the authorizations for standards development in certain MACOMs/agencies will be reduced by this program and this should release some personnel for use in the common standards studies effort. Recruiting for new positions will also provide additional personnel including some transfers from other Federal agencies. Offsetting these possible gains will be the manning required for the staff overhead to provide program management, prescribe standards development methodology, and enforce standards development methodology and policies. Based on the foregoing considerations, it is estimated that 27 personnel will initially be available against the 91 developer requirements. Considering the existing job market for the type of skills involved and the training (including course frequency and class size) required, a realistic monthly buildup rate of 6 personnel is established for planning purposes. On this basis, the 91 staffing level would not be achieved until the end of FY-83. This would create a 374 man-month shortfall, which would equate to six authorizations using the same basic steps outlined above in I.2.

I.7 Accordingly, the number of analysts for the Army-common standards development effort has been adjusted from 91 to 97 average authorizations throughout the program period.