

AD-A183 021

Management Analysis, Incorporated

401 Church Street, N.E. ■ Suite F ■ Vienna, Virginia 22180 ■ 703-281-5218

WPA
1

FINAL REPORT
FOR
"THE ADJUTANT GENERAL'S PUBLICATIONS CENTERS,
HOW MANY AND WHERE"

Contract Number: MDA903-83-C-0491

August 3, 1984

by

Management Analysis, Incorporated
401 Church Street, N.E. Suite F
Vienna, Virginia 22180
(703) 281-5218

DTIC
ELECTE
JUL 07 1987
S
D

DISTRIBUTION STATEMENT A: Approved for public release: Distribution is unlimited.

"The views, opinions, and findings contained in this report are those of the authors and shall not be construed as an official Department of the Army position, policy, or decision unless so designated by other official documentation."

87 5 12 100

ABSTRACT

The Adjutant General's Publications Centers, How Many and Where

This is the final report of a study of alternatives to the current configuration and operation of the Army Adjutant General's Publications Center in response to the requirements of Contract No. MDA903-83-C-0491. This report presents the findings, conclusions and recommendations supported by assessment of the current system and economic analyses of alternatives to the current system.

The study found that there can be efficiencies and thus cost savings within the current two center configuration. It was found that each of the other alternatives studied - 3 centers or one center - would also reduce operating costs over the long run. However, the variation in discounted 10 year costs among the alternatives was not significant; it was concluded that choice of the preferred alternative should not be made on the basis of cost.

It was also concluded that greater efficiencies and cost savings could be obtained by instituting established concepts of logistics (inventory) management to include better, more timely information, more flexible and current data processing systems, and institution of monetary, inventory, and cost accounting procedures.

Accession For	
NTIS CRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By <i>otr on file</i>	
Distribution/	
Availability Codes	
Dist	Avail and for Special
A-1	



"THE ADJUTANT GENERAL'S PUBLICATION CENTERS,
HOW MANY AND WHERE"

Management Analysis, Incorporated is pleased to submit this report as final documentation of our study of the ADJUTANT GENERAL'S publications centers. This package represents the distillation of operating systems and techniques applied in the multi-various distribution program entitled STARPUBS. Key members of the ADJUTANT GENERAL'S Publications Directorate, the publications centers, and the MAI staff have contributed to this effort. Your contributions are greatly appreciated.

Authors: Lawrence Cohen
Sharon A. Brickhouse
Thomas R. Waddington
Arthur L. Smith

TABLE OF CONTENTS

	<u>Page No.</u>
I. EXECUTIVE SUMMARY	1
Purpose of the Project	1
Findings	2
Recommendations	3
II. BACKGROUND AND APPROACH	5
Study Approach	5
Current System	8
III. CURRENT SYSTEM ASSESSMENT	17
Some Problem Areas	17
Data Analysis	22
IV. ECONOMIC ANALYSIS	32
Current System	32
Alternative 1 (Modernization and Improvement)	36
Alternative 2 (Multi-Center)	38
Alternative 3 (One Center)	40
V. COMPARATIVE ANALYSIS	44
Comparative Cost Analysis	44
Selection of Preferred Alternative	44
Findings and Recommendations	46
Summary	47
Appendix A - Multi Center Operations	48
Appendix B - One Center Operations	51

TABLE OF EXHIBITS

<u>Exhibits</u>	<u>Total</u>	<u>Page No.</u>
1	Installation Visits	7
2	STARPUBS Org. Chart	9
3	SLAGPC Function Statement	13
4	BAGPC Function Statement	14
5	SLAGPC Org. Chart	15
6	BAGPC Org. Chart	16
7	Resupply ABC Analysis Chart	25
8	Graphical Resupply ABC Analysis	26
9	ID ABC Analysis Chart	27
10	Graphical ID ABC Analysis	28
11	75% Resupply Requests	30
12	75% ID Demand	31
13	Current System Economic Description	33
14	10 Yr. System Costs - Current System	35
15	10 Yr. System Costs - Alt. 1	37
16	10 Yr. System Costs - Alt. 2	39
17	10 Yr. System Costs - Alt. 3	42
18	10 Yr. System Costs - Alt. 3a	43
19	10 Yr. System Cost Comparison	45
A-1	Eastern Region Service Area	
A-2	Middle Region Service Area	
A-3	Western Region Service Area	
A-4	Operating Characteristics Multi-Center	
A-5	Square Footage Requirements Multi-Center	
A-6	Overall Org. Chart - Baltimore	
A-7	Warehouse Operations Org. Chart Baltimore	
A-8	Overall Org. Chart - St. Louis	
A-9	Warehouse Operations Org. Chart St. Louis	
A-10	Overall Org. Chart Salt Lake City	
A-11	Warehouse Operations Org. Chart Salt Lake City	
B-1	Operating Characteristics	
B-2	Overall Org. Chart - Single Center	
B-3	Warehouse Operations Org. Chart Single Center	

I. EXECUTIVE SUMMARY

Management Analysis, Incorporated submits this report in response to the requirements of the project entitled "The ADJUTANT GENERAL's Publications Centers, How Many and Where", contract number MDA903-83-C-0491. It is the final report and summarizes the findings and conclusions developed in a series of reports, principally, "Data Review Report", and "Economic Analysis", final versions both dated June 29, 1984.

Purpose of the Project

This project, performed under the auspices of the Army Studies Program, had as its objective "to provide TAG with a verifiable, sound basis for determining the optimum system for distribution of DA Publications and forms used army-wide". Such a system must be cost-effective and demonstrate a high level of customer satisfaction.

The study had three purposes:

- o Identify and forecast potential cost savings; develop statistical data to provide an analysis of cost effectiveness in determining how many, where, and how the Army's Standard Publications System should be best operated.

- o Provide an analysis of feasibility and the impact of using the current two distribution center concept, a single distribution concept, or a decentralization of these functions through several warehouses scattered throughout the world.

- o Identify or design alternative system(s) which may be more suited to the uniqueness of the STARPUBS system.

The contract required study of three alternatives to the current system:

- o continue the current two center operation incorporating changes to improve the efficiency and effectiveness of the systems involved
- o establish a multi-center operation, determining the size and location of each center
- o establish a single-center operation, determining the location of the center.

Findings

Our findings take into account the assumption that the Army Printing and Publications program will continue at the current level, follow current concepts, procedures and practice, and that current assignment of responsibilities will not change. We must also qualify our findings by the fact that there are significant

data gaps - particularly in financial inventory accounting; some data could not be verified and other data had to be statistically developed.

We have found that:

- o Center operating costs currently account for less than 20% of identified total program costs. These costs, in the context of the total system, are relatively fixed in that they do not vary directly with changes in the size of the printing program.
- o Center costs can be reduced through internal management improvement, modernization of plant and operating equipment, updating of automated systems hardware and software, and bringing center production standards up to date.
- o The opportunity for additional and greater savings lies in major overall system change outside the center operations context. This includes:
 - reevaluation and redefinition of system concepts
 - organizational and functional redesign at all levels
 - full implementation of inventory management concepts and procedures, including demand forecasting, economic order methods, revised stockage objectives, ABC categorization etc.
 - implementation of monetary accounting systems including cost accounting and pricing policies
 - development of performance measurement systems directed to customer satisfaction.
 - improved order fulfillment methodology
- o Center operating costs can be further reduced as a result of system changes such as:
 - reduced stockage objectives, reducing the need for storage space and warehousing operations
 - greater consolidation of orders by customer location, reducing postal cost and obtaining better freight rates, as a result of improved order fulfillment procedures and forecasts

Based on our findings and economic analyses we have concluded that:

- o Selection of any of the alternative center configurations over the current system will result in a reduction in operating costs over the long run.
- o There is no significant (+5%) total cost differential among the three alternative center configurations over the long run. This takes into account both management and modernization productivity improvements. The choice of alternatives should therefore not be on the basis of cost.
- o The preferred alternative should be continuing the current two center operation with improvements. This provides flexibility for mobilization planning, minimizes system turbulence, and provides a basis for cost reduction over the current system.
- o Changes in the overall Publications Acquisition and Distribution System are needed to obtain significant economies and efficiencies.

Recommendations

The Director of Publications TAGO should take action as soon as possible to:

- o Redesign the system architecture for Acquisition and Distribution of Army Publications to recognize, clarify and conceptualize the global nature of the system, provide a basis for identifying organizational roles and missions to carry out assigned responsibilities, and to establish the criteria for defining functional responsibilities.
- o Design an organizational structure using established Army logistics doctrine to provide unified management (command and control) of an Army Publications Acquisition and Distribution System. This includes describing the roles and functions of the elements and organizations involved in DA publications, identifying interfaces and information needs, and developing the missions and functions within the Publications Directorate.
- o Develop organizational and functional descriptions for establishment of life cycle management of commodities to include reallocation of duties and responsibilities among the current organizations in the Publications Directorate and the AG Publications Centers.
- o Continue selected projects now underway to improve information and data management e.g. - data base manage-

ment system in MISD, modernize BAGPC, improve postal accountability, UPDATE.

- o Implement an effort to update and rewrite center production standards, primarily at the St. Louis AGPC.

II. BACKGROUND & APPROACH

Management Analysis, Incorporated has been conducting this study for the ADJUTANT GENERAL's Office (TAGO) under the auspices of the Army Studies Program. This study, entitled "The ADJUTANT GENERAL's Publications Centers, How Many and Where", is being conducted as part of an effort to determine the most economically feasible alternative to current publications system operations. This work is directed to an analysis of the AG Publications Centers.

This is the final report of the "How Many and Where" study¹. It includes background information on the study, the study methodology, and the mission and function of the current publications systems. Chapters III and IV discuss and explain the current organizational analysis, and the cost/benefit analysis of the alternative distribution system. Finally, Chapter V compares costs of alternatives and discusses our major recommendations and conclusions.

Appendices which detail the physical descriptions of alternatives along with the calculations involved in the cost assessment of alternatives are also included in the report.

Study Approach

Since the beginning of this study in September of 1983, we have conducted a thorough review of current operating systems and parameters. We have held interviews and taken observations at the proponent level, the TAGO level, the center level, and the user level. We have analyzed the methods of distribution and identified areas amenable to improvements². We have also analyzed costs associated with the publications system and extended them to various operating alternatives. Our major recommendations are based on this thorough review and analysis.

We recognized that the system for acquiring and distributing Army Publications and forms called for the application of logistics doctrine to a unique commodity area. As a guide in our study we used accepted definitions of the logistical process. It is clear, for example, that a major focus of the Director of Publications responsibilities is inventory management in its broad sense:

¹ Previous reports include, "Background Data Review" October 31, 1983, "Interim Data Review" December 16, 1983, "Data Review Report" final dated June 29, 1984, "Economic Analysis Report" final dated June 29, 1984, and "How Many and Where" dated April 12, 1984.

² IBID.

"Inventory management/inventory control is that phase of military logistics which includes managing, cataloging, requirements determination, procurement, distribution, overhaul, and disposal of material."³

The current activities of the "inventory managers" at each center are not fully compatible with this Department of Defense definition. Instead, the center inventory managers' duties are more accurately described as stock control - "the process of maintaining data on the quantity, location, and condition of supplies and equipment due-in, on-hand, and due-out, to determine quantities of material and equipment available and/or required for issue and to facilitate distribution and management of material."⁴ A major distinction between inventory management and stock control is the global management responsibility as opposed to the local center operation.

Our research and analyses were thus given a focus and a basis for evaluating efficiency and completeness of operation.

In performing the study we were guided by a Study Advisory Group which provided advice, assistance and direction. We interviewed and were assisted in gathering data by many members of the Publications Directorate Staff. We met with the AG Publications Centers' commanders and support staff to familiarize ourselves with the center day-to-day operations; we observed the warehouse operations at each of the two centers - Baltimore and St. Louis - and analyzed operating data. Several installations were visited to gain an understanding of operations and conceptions at the user level (Exhibit 1). We also met with proponents of several training publications and with technical publication personnel at the DARCOM Material Readiness Support Activity as well as at Commodity Command level⁵.

We reviewed two distribution systems similar to the Army's. We visited the Air Force Publications Distribution Center, colocated with the Army center in Baltimore, Maryland. The Air Force Center has been operating under contract for many years. Their methods of warehouse processing are not as automated as the Army's and yet, their thru-put time can be as low as a matter of hours for a priority shipment. However, they only service about 700 accounts. The other distribution system examined services the Internal Revenue Service. Their system is unique in that 90%

³ Dictionary of Military and Associated Terms (Washington, D.C.: Department of Defense, Joint Chiefs of Staff, 1979) p. 1984.

⁴ IBID, p. 326.

⁵ A complete report concerning travel of this project is shown as Appendix A of the MAI report entitled "Economics of Charging the User for Publications", dated July 2, 1984. This report was submitted in compliance with the specifications of contract number WDA903-83-C-0486, another project under the Army Studies Program to investigate the feasibility of a user charge system. Until completion of the "Data Review Report", the two projects were conducted concurrently.

FIELD LOCATIONS VISITED

Ft. Campbell, Kentucky

- o Publication Stockroom
- o Transportation Office
- o 311th Military Intelligence Battalion
- o Maintenance Assistance Instruction Team, MAIT
- o Personnel Assistance Team
- o Division Support Command, PAC

Ft. B. Harrison, Indiana

- o Publications Stockroom
- o Administrative Services Branch
- o United States Army Finance and Accounting Center
- o Field Printing Plant

Lexington Blue Grass Depot, Kentucky

- o Publications Stockroom
- o Administrative Branch

Darcom Material Readiness Support Activity, Lexington, Kentucky

Ft. Monroe, Virginia

- o Publications Stockroom

Ft. Eustis, Virginia

- o Training Literature Decision

Ft. Sill, Oklahoma

- o Publications Stockroom
- o Administrative Services Branch
- o Army Training Center
- o Field Artillery School
- o Headquarters Commandant
- o Field Printing Plant
- o Logistics Assistance Instruction Team, LAIT
- o 318th Artillery Battalion

of their orders are received and processed between November and April. They too have recently conducted a study to determine their optimal system of operations; there has been a \$2 million contract awarded for the implementation of an automated system. They also use a system for their internal manual which is conceptually the same as UPDATE.

The data and information gathered was used to perform the economic analysis presented later in this report. We evaluated the three alternatives to the current center configuration using concepts presented in current Army regulations. The analyses considered costs over a 10 year period after implementation of current modernization projects, updated production standards and other internal center improvements.

Current System

The Standard Army Publications System, STARPUBS, "...is the system that supplies Department of the Army (DA) publications and blank forms Army-wide. This system includes the printing, storage, and distribution of DA publications and blank forms. It also includes the management of all DA and field printing programs."⁶

Exhibit 2 is an organization chart for the current system. The ADJUTANT GENERAL's Office is responsible for the administration and management of STARPUBS through its Publications Directorate. The Directorate oversees the publications activities through its various divisions and offices, i.e., Field Printing, Publishing, etc.. The elements directly involved in this study included:

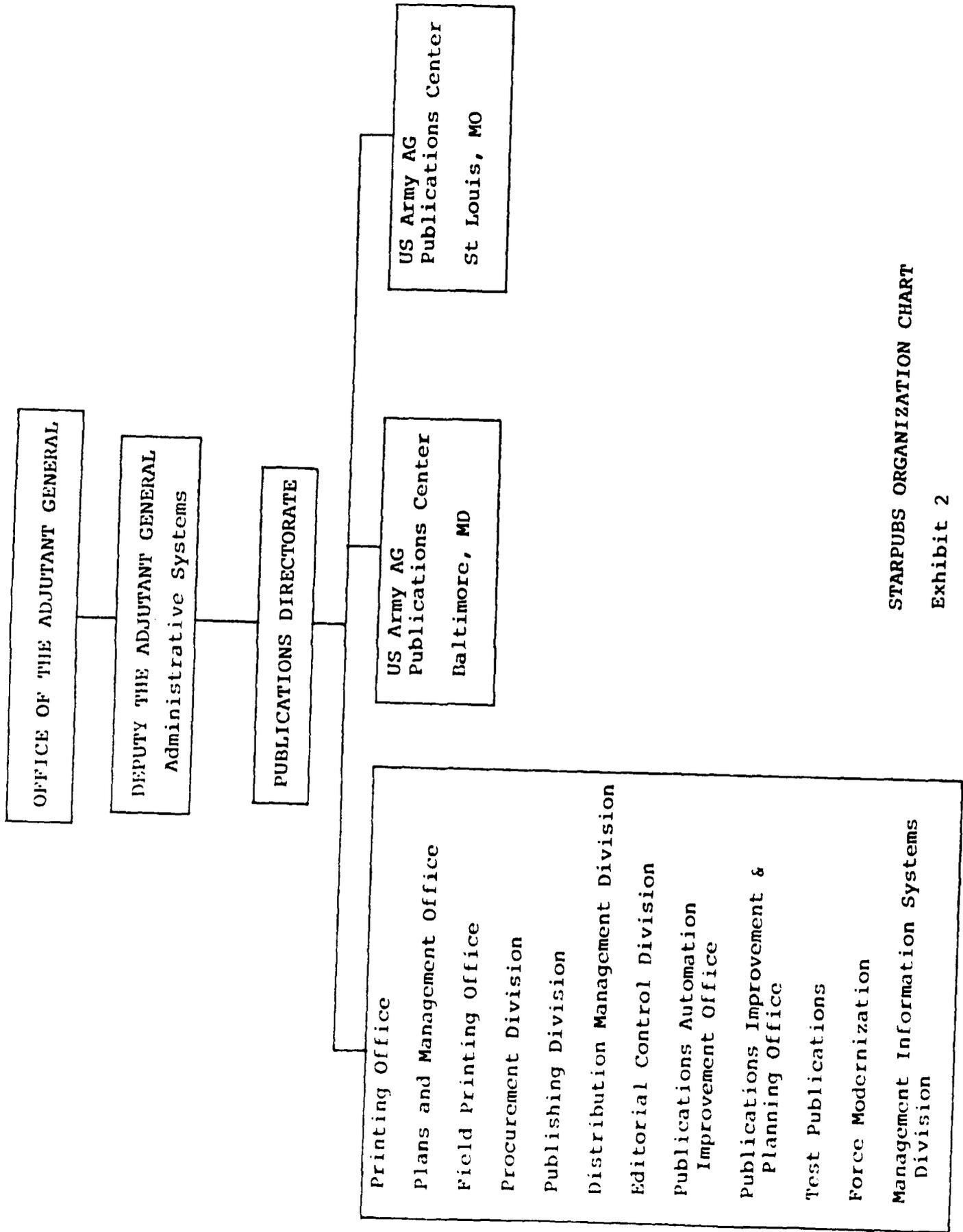
- o Procurement
- o Distribution Management
- o Management Information Systems

The two publications centers carry out storage and distribution duties associated with the publications system; they are the principal focus of this report.⁷

Until the end of World War II, the Army operated ten ADJUTANT GENERAL Depots to store and distribute publications and forms. The War Department decided then that consolidation of activities was necessary and the ten continental United States Depots were reduced to seven. At later dates the number was

⁶ The Standard Army Publication System (STARPUBS): Users Guide (Washington, D/C. Headquarter, Department of the Army, 1 October 1982), p. 1-1.

⁷ The "Data Review Report", dated June 29, 1984, gives a detailed description of the duties and responsibilities of the Directorate areas affecting this project and the functional areas within each AGPC.



STARPUBS ORGANIZATION CHART
Exhibit 2

reduced to four and then three, including the two current locations and a third location at Ogden, Utah. By 1960, the publications system was operated out of the current two locations only. Subsequently, computer operations were centralized in Baltimore and all requisitions are submitted there.

The overall system incorporates two broad approaches to distribution, the Initial Distribution System and Resupply⁸.

Conceptually ID is an automatic distribution system to fulfill subscriptions established by authorized account holders; these account holders in turn are expected to provide support to lower level units - the users of the publications. Users provide the account holder with their requirements for publications by preparing DA 12 series forms showing, by type of publications and level of organization or type of equipment and level of maintenance support, the quantity required. These are summarized by each account holder and submitted to STARPUBS. When a new title is to be printed, the quantity to be ordered is determined by summarizing the stated requirement for similar titles, special distribution needs established by the proponent are added, and a printing order/contract is issued to GPO. The title may be distributed to the accounts by the printer (printer ID) or from the Publications Center. In either case, the mailing labels are prepared by STARPUBS. Those quantities to be distributed from the centers are, upon receipt from the printer, sorted, packaged and issued either by mail or freight to the accounts. Remaining balances are stocked in the center's storage facility for use in the Resupply system.

The Resupply system is a requisition oriented system to be used for forms and for additional and/or replacement copies of publications, and to provide for other customers of the system. Authorized account holders and customers submit requisitions (by mail or AUTODIN) to STARPUBS; picking orders are issued, mailing labels prepared, and issues are made using mail or freight depending upon the quantity and location. Through the judicious use of sub-accounts, the system can provide for internal mail distribution at the account holder level.

With the exception of forms, the Centers are providing a "retail" level service for publications. Forms are managed at the local level by publications stockrooms, established principally for that purpose. These stockrooms issue forms to the users and maintain a stockage of 120 days supply; users may maintain a 60 day stockage. In this instance the Centers function on a wholesale level.

Within the context of the two systems there are several permutations and combinations designed to handle special cases, provide for unusually large demands and to resolve special problems. For example, new Enlisted Personnel Management System

⁸ A detailed explanation of the systems can be found in "Data Review Report" and in the reports the Pay For Itself studies.

items are not issued under the normal ID process; special distribution address lists are provided STARPUBS by MILPERCEN, RCPAC and the ANG so that distribution can be made directly to units with the quantity determined by the number of individuals in that unit with the particular MOS requiring the item.

Another system is that for distributing Recruiting Publicity Items to the local recruiting offices. St Louis AGPC stores these items for USAREC; items are ordered from USAREC by the recruiters, USAREC sends STARPUBS a list of addresses and quantities and SLAGPC fulfills the list usually by mail.

ID requirements are developed at the Director of Publications level; Resupply replenishment needs are initially determined at each center. The focus of replenishment is primarily to insure there are no stock-outs. There is a Computerized Inventory Management System (CIMS) for use by the item manager at each center. CIMS is the automated system in STARPUBS used for inventory control. It is designed to track status by item - demand, balances, stock levels, it prints out a reorder notice whenever an item's balance on hand is at the reorder point. It notifies the managers of a zero-balance item, of an item in backorder, and it forecasts quarterly demands. However, it requires nine months to totally integrate a new item into the system, and it requires an input price for each item.

The two AGPC's are responsible for different types of publications as opposed to servicing a geographic region with all items. St. Louis is responsible for storage and issue of technical and supply publications, and recently, classified and accountable forms. St. Louis also stores and distributes RPI. Baltimore is responsible for administrative and training publications, and recently, all forms except for classified and accountable. Baltimore also stores and distribute EPMS publications and provides storage only for FEMA publications, it handles non-Army publications and forms such as "BAI's" and other civilian personnel forms, IRS forms for distribution oconus, champus posters, etc.

BAGPC houses a Document Control Branch which maintains the Standard Single Account File and serves as a point of contract for advice, assistance, and information of the publications system.

The function statements of the two centers in the system are in Exhibits 3 and 4, and the respective organization charts are in Exhibits 5 and 6.

The Management Information Systems Division of the Publications Directorate is colocated with Baltimore AGPC. MISD functions include: receiving and documenting AUTODIN transactions; determining from which of the two centers a requisition will be filled; printing mailing labels; and programming and maintaining various automated systems for the center and specifically for inventory management.

The St. Louis AGPC has a satellite group of MISD personnel to operate the RJE located at the center to handle transactions from the main MIS Division located at Baltimore.

Management at the AGPCs is aware of the problems in the areas we have identified and there are on-going efforts to improve in these areas. SLAGPC is planning to upgrade warehouse capability and efficiency through a major modernization project. BAGPC has its modernization project well underway. BAGPC has also made an organizational structure change by establishing a Plans, Analysis, and Studies Office to track and monitor system parameters and to develop a basis for measuring improvements in operations. Both AGPCs are planning a wall-to-wall inventory of stock on hand; such an inventory has not been taken in over seven years. (SLAGPC advises that it completed a wall-to-wall inventory in May 1984.)

MIS Division is undergoing an upgrade of computer operating systems and parameters. A Data Base Management System is being installed. New hardware is on order to upgrade system capability for response and flexibility. However, the effort is based on current system operation.

The St. Louis ADJUTANT GENERAL's Publications Center (SLAGPC) mission is to :

"Receive, store and issue worldwide all technical and supply publications. This includes automatic initial distribution and resupply of new and revised publications under the pinpoint (direct to user) concept.

Receive, store and issue blank forms to Army activities in specified geographical areas consisting of Fifth and Sixth Army areas, Alaska, and the Pacific Theater, including Japan, Okinawa, Hawaii, and Southeast Asia.

Provide inventory management of all Department of the Army technical and supply publications for supply to Army installations and using organizations worldwide. This includes accumulation and maintenance of requirements data to assure procurement of sufficient stock to meet automatic initial distribution requirement and stock availability to meet resupply demands on a continuing basis.

Coordinate with the U.S. Army AG Publications Center, Baltimore, Maryland, in inventory management for worldwide supply of blank forms to all installations and activities of the Army.

Serve as secondary source of supply of blank forms for the area services by the U.S. Army AG Publications Center, Baltimore, Maryland."

(Note: This Mission Statement was provided by SLAGP; it does not reflect accurately current missions. A current "Missions and Functions Statement" is under preparation to reflect single source responsibilities for Technical Publications, RPI responsibilities and other.)

SLAGPC MISSION STATEMENT

Exnibit 3

The Baltimore ADJUTANT GENERAL's Publications Center (BAGPC) mission is as follows:

"Receives, stores, distributes, and manages administrating and training publications for Department of the Army agencies and other designated recipients worldwide. Includes Initial Distribution under the Pinpoint (direct to user) PUSH concepts, as well as resupply of new and revised publications.

Provides blank forms support to Department of the Army, Department of Defense and other designated activities located east of the Mississippi River. Also supports the Military District of Washington, U.S. Army Europe, and U.S. Army units in Central and South American.

Provides single source support to Department of the Army activities for award certificates and General Officer stationery.

Provides bulk storage for the Federal Emergency Management Agency.

Receives, stores, distributes, and manages all Enlisted Personnel Management Systems (EPMS) materials.

Performs full range of Mail Management and sortation services to minimize packaging dispatch costs and delivery time.

Operates direct computer interfaces with MILPERCEN, RCPAC, DCSOPS, and other Army and Federal Agencies for directed distributions.*

Manages, for the Adjutant General, the Single Standard Account File (SSAF) for all authorized customers.

Operates a U.S. Army Communications Command Modular Automated Multimedia Exchanged Remote Terminal (AMME).

Acts as single source for those items designated as Critical Items by the Publications Directorate.

Serves as NATO Sub-Registry providing support of NATO material to worldwide user."

*MISD Mission, not Publication Center

BAGPC MISSION STATEMENT

Exhibit 4

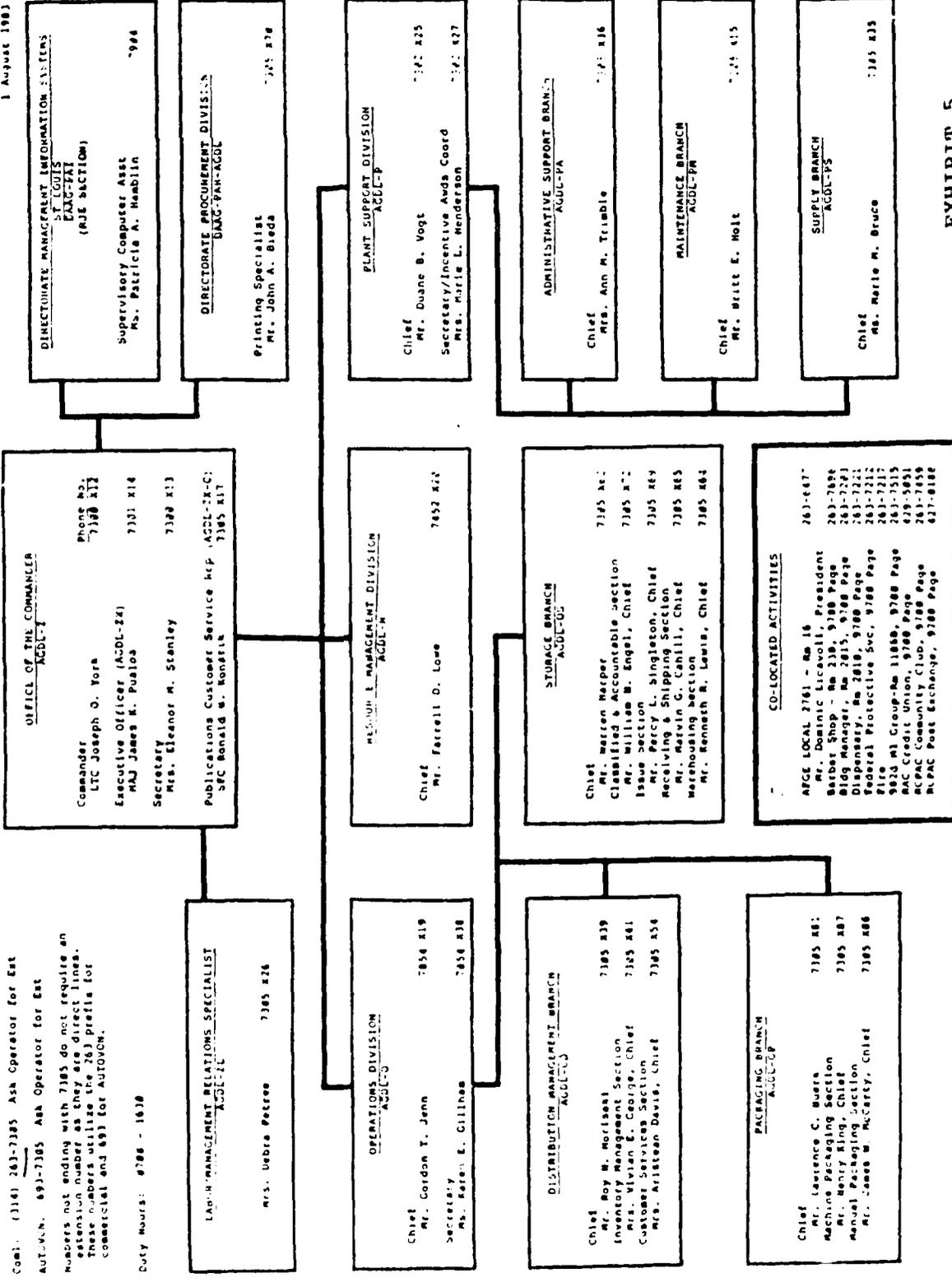


U. S. ARMY ADJUTANT GENERAL PUBLICATIONS CENTER
 1655 Woodson Road
 St. Louis, Missouri 63114



1 August 1963

Com: (314) 263-7385 Ash Operator for Ext
 AUT-VN: 693-7385 Ash Operator for Ext
 Numbers not ending with 7385 do not require an
 extension number as they are direct lines.
 These numbers utilize the 263 prefix for
 commercial and 693 for AUTOVON.
 Duty Hours: 0700 - 1630





US ARMY AG PUBLICATIONS CENTER
 2800 Eastern Boulevard
 Baltimore, Maryland 21220

Coml (301) 962- ext
 A/TU: 7 584- AV ext
 FTS 922- coml ext

Duty hours: 0730-1600
 After duty hours:
 To record messages AV 584-2533

MANAGEMENT INFORMATION SYSTEMS DIVISION
 DAAG-PAJ

Chief	Coml/AV
Mr. William J. McFadden	72367/3916
Secretary	72366/3916
Mrs. Betty Rye	

OFFICE OF THE COMMANDER
 ACDM-Z

Commander	Coml/AV
LTC Gordon C. Rollins	7201/3887
Secretary	7201/3887
Mrs. Gloria L. Myers	
Executive Officer (ACDM-ZX)	
MAJ Karl F. Carson	7202/3887
Secretary	7202/3887
Vacant	7231/-----
Word Processing Center	
Publications Ln NCO (ACDM-A)	7223/4163
SFC John Mithen	

EIO - Mr. A. Rico	7429
FMP - Mrs. M. Dulina	7266

LOGISTICS DIVISION
 ACDM-L

Chief	Coml/AV
Mr. Walter Patrick*	7227/3033
Supply	
Mrs. Joanne Bell	7225/3033
Mrs. Drema Brocato	
Maintenance	
Mr. Jesse Dalton	7256/3033
*Safety Officer	

OPERATIONS OFFICE
 ACDM-O

Chief	Coml/AV
Vacant	7202/3887
Deputy	
Mr. Charles Havens*	7202/3887
*Acting Chief	

RESOURCE MANAGEMENT OFFICE
 ACDM-R

Chief	Coml/AV
Mrs. Thelma Thornblom	7204/2893
Administration	
Vacant	7204/2893
Management Analyst	
Vacant	7204/2893
Budget	
Mrs. Mary Royston	7204/2893
Quality Assurance	
Mrs. Nettie Murray	7204/2893
Mr. Nathaniel Gordon	
Mrs. Margaret Dulina	

DISTRIBUTION MANAGEMENT DIVISION
 ACDM-O-D

Chief	Coml/AV
Mr. Helen Surman	7217/2772
Inventory Management Br	
Mrs. Karen Slough, Chief	7277/2740
Document Control Branch	
Mrs. Jean Payne, Chief	7230/3775

STORAGE & DISTRIBUTION DIVISION
 ACDM-O-SD

Chief	Coml/AV
Mr. Jesse Armentrout	7263/-----
Warehousing Branch	
Mr. Cornelius Lee, Chief	7264/
Packaging Branch	
Mr. Melvin Ernst, Chief	7270/-----
Receiving & Shipping Br	
Mr. W. Washington, Chief	7269/-----
Classified & Accountable Br	
Mr. Fred McWhorter, Chief	7262/2740

TRANSPORTATION OFFICE
 ACDM-O-T

Chief	Coml/AV
Mrs. Katherine Rosegrant	7247/4230
Freight Rate Specialist	
Mr. M. Joan Buedel	7247/4230
Shipment Clerk	
Mrs. Jeanne Macbo	7247/4230

III. CURRENT SYSTEM ASSESSMENT

It is not unusual in performing a study of selected elements of a large, complex system to find it necessary to investigate and evaluate a broader set of issues than the sponsor originally envisioned. It is also not uncommon to find that consideration of this "external" environment can lead to recommendations for changes which in turn affect the elements under study in ways which are as significant in achieving the objective as is implementing the specific alternative under study.

As we proceeded through the standard study methodology - data collection, operational data analysis, cost data analysis - we identified several areas external as well as internal to Publications Center operations that required further study and/or resolution if the end objective of operating a cost-effective Army Publications Distributions System with a demonstratable high-level of customer satisfaction is to be achieved. We also identified several areas which impeded our performance of as detailed and quantitative a study as was initially suggested.

Some Problem Areas

We would like to make it clear at the outset of this discussion that despite the problem areas we will identify it is not implied nor should it be inferred that the distribution system is inoperable or that managers and staff are unaware of or doing nothing about the problems. To the contrary, while not efficient, STARPUBS does operate reasonably effectively. It operates on a relatively consistent basis, there are standard procedures for processing new and reordered items,⁹ and there are operating parameters, such as thru-put time, shipment time, and personnel performance standards, which routinely track the progress made in the warehouse. These parameters are examined on a monthly basis at each center at the Review and Analysis meetings. The personnel are responsive to the need for continued customer service in spite of a system for publications distribution which is unwieldy and inflexible; it is not currently configured to "fit" a specific overall objective but has become an aggregate of several sub-systems designed to solve specific problems.

While the concept of STARPUBS requires two approaches to distribution there are actually many systems and subsystems in use, many of which were not established as subsystems but have evolved as special handling procedure. Included are:

- o Initial Distribution
- o Resupply
- o Special Distribution

⁹ The Standard procedures for processing new and reordered items are discussed in detail in the MAI report June 29, 1964, "Data Review Report", Section 1.5.

- o Printer ID
- o Priority
- o Classified & Accountable
- o EPMS
- o RPI
- o Medical
- o FMS
- o Schools
- o Local & Field Printing
- o Overseas Centers
- o Etc.

The number of systems alone is enough to cause confusion and duplication of effort. Many of these systems exist without cross references or similar communication to eliminate duplication and other inefficiencies. In addition, the proliferation of these special systems contributes to one of the major problem areas inherent in this study - data definition and data availability.

We have found a lack of consistency in defining what product the system is handling; and how system operations are measured. This situation exists in operations external to the centers. For example, we find in PAILS, over 32,000 titles with over 23,000 active changes. The Centers indicate they are managing 33,600¹⁰ items which includes changes and non-Army or special items which are not reflected in PAILS. The term "case" is used in the Publications Directorate to track the flow of a publication to production; a "case" is an item received by the Center from printing that is to be issued through ID.

Data is rarely consistent between the two centers, and sometimes even within a center. Units of measure or counts of productivity vary with each center section, making a comparative analysis of operations very difficult. Similar management data is not consistently used at the centers. Also, TAGO data varies, in several areas, from center data. These findings became evident in our effort to obtain various operating parameters and cost.

The major problem lies in the condition of the operational data which relates to publications distribution. While there is a great amount of data available, and used in operating the system, there are several gaps from an overall management view point; in other instances, automated processes to analyze the data are either lacking or cannot respond on a timely basis. Data is incomplete and/or not verifiable. In addition, because of the number of system proponents and sources, and the disparity of customer needs, it becomes difficult to establish "who is in charge" to take action from a system wide view point, or simply to ask the questions and establish the criteria which in turn

¹⁰ Source was special Inventory Maintenance Cost Analysis prepared by Director of Publications for this study, Jan. 1984. SLAGPC indicates their current total alone is 30,000, a growth of over 5,000 since the report.

become the determinant of the data base structure and content. These gaps, the over abundance of data, inconsistent definitions and utilization of data are reflected in the approaches to management and measurement of the system.

Most of the gaps and incompleteness of data reside in the cost and financial area; we found limited data on postal costs incurred and could not develop meaningful costs of transportation by product. Most significant was the almost complete lack of financial data relating to the value of the inventory or issues.

For example, a report requested in January 1984 estimated the dollar value of the stock on hand to be some place in the \$82,000,000 - \$8,000,000,000 range, and the value of quarterly demand to fall within the \$7,000,000 - \$2,000,000,000 range. Three approaches to this report, using varying page count and unit cost figures, all from various parts of the data base, were taken to develop those cost values. We could not arrive a a consensus as to which of the values was accurate.

We found little cost data related to the forecasting of requirements for reprinting, although there is a capability of predicting (up to 5 years) what technical publications are scheduled. The printing budget is a function of last years amount adjusted by known projects (e.g. force modernization) completed or started.

There is no cost data available in a form to allow the development of standard item prices, nor is there data which allows analysis of order handling and storage costs by item -important elements in inventory management (particularly for development of economic order quantities).

Related to this lack of operational cost data is the issue of production standards in the storage and warehousing elements of the center.

At the St. Louis center in particular, the standards are over ten years old. The workers are only required to produce in some cases an equivalent of four hours work during an eight hour period. Due to increased automation and improvements in the warehouse layout over the years, more orders can be processed during the working day. Updated, statistically developed production standards would encourage productivity among the staff and allow the supervisors to better monitor and plan their daily workloads. Accurate production standards have an effect on a majority of the aspects of distribution, i.e., thru-put time, backlog of work, and output quantity.

Another aspect of the data problem is represented by our attempt to obtain a complete picture of distribution. An April 1984 geographic data report details the number of accounts, number of lines, and quantity of Resupply issues to each state. It also details similar data for ID issues to each state. The ID data, though, reports the requirements set by the accounts in

each state based on the DA 12 series forms; there are no records kept of the actual issues to these accounts. Actual ID processed is available from a manual log; however, analyses of the type shown in the next section are not possible or practical using manual logs of information.

We are also concerned with the completeness and utility of the data in the system. For example, the CIMS (Computerized Inventory Management System) is an outdated system with limited capabilities. It uses questionable data, and its process (IBM's IMPACT) is not clearly appropriate. Some inputs, e.g. a one cent per page price for each document, are not meaningful in managing inventory. Also, some of the transactions for an item are not routinely input to CIMS, i.e., school orders, emergency orders; therefore, the demand data is suspect. And, an item is reordered whenever a CIMS generated order is printed, usually without an analysis of why the item is at reorder point. While CIMS output analysis could support inventory managers, it appears to be used in support of only the stock control function.

Accurate inventory records are essential to economic and effective supply support. Inaccurate records can result in critical supply shortages and prolonged delays in filling requisitions for items affecting mission readiness, inflated requests for funds, unnecessary expenditure of funds for procurement, maldistribution of stocks, and accumulation and disposal of excess stock. One required practice in DOD is the taking of annually scheduled physical inventories on a complete, sample, or selective basis. Records are then reconciled and adjusted to reflect the actual inventory. At the centers, physical inventory is taken when a item is reported as out of stock.

The problem of data consistency, validity, and relevance is one that should be addressed as soon as possible. The results of such an effort should be evident immediately.

The data problems outlined above are symptomatic of the incompleteness and misdirection of the inventory management process. As presently conceptualized, the system is constructed following generally acceptable logistics doctrine (although not necessarily using standard forms and processes). The focus of management attention has been on the beginnings and the ending of the publications process - the proponent and the user; the goal was to get the proponent's message into the hands of the intended receiver as expeditiously as possible, taking into account the restrictive and time consuming nature of the governmental process for obtaining printing. As the number of titles proliferated, and as the pressures for timely and accurate delivery grew, the number of systems for accomodating special cases grew; the resultant impact on distribution was to focus more on the process rather than the items being processed, e.g. Initial Distribution managed separately from Resupply. The needed relationship between the two systems is minimal; it takes about nine months for a new item, initially distributed, to be fully integrated into the Resupply system - data on quantity distributed and to whom

under ID-is lost. Management attention in Resupply is directed to preventing stock outs rather than inventory management in the accepted sense. This stock control vs. inventory management can be attributed to a complex system continuously becoming less responsive to the needs of those servicing the system and those serviced by the System. Often systems become unresponsive as they incorporate new functions, sometimes to the point where the operators are the victims of the system. Such is the case this time.

The limited application of inventory management concepts and procedures and unavailability of appropriate managerial and cost data has led to the setting of guidelines which are probably not cost effective. For example, in order to keep the administrative burden of the acquisition of printing to a minimum, a policy was established that there should only be one reprint order on an item per year. This policy as reflected in the Resupply system (the 12 month stockage objective) has an impact on the size of reprint orders. The classic formula is used to compute the order quantity - Demand through Procurement Lead Time plus demand through period between receipts of orders plus due out quantity less balances on hand and on order. The key factor is the period between receipt of order - in this case artificially set at the stockage objective (12 months). There was little consideration given to the need for a trade-off - did the additional costs of storage and handling offset the saving in administrative cost by handling one order a year? Much of the problem was due to the inability to identify who was responsible from an item viewpoint and a lack of data on which to develop the costs. Our analysis leads to a conclusion that there could be at least a one-time reduction in the printing budget for reprints by revisions in the stockage objective.

In addition to stockage objective changes there should be routine application of economic order quantity methodologies, inventory and product stratification criteria, and improved market analysis (demand forecasting by customer).

To summarize, many of the problems of Publication Distribution relate to the less than complete implementation of established logistics doctrine. We also find that the overall acquisitions and distribution system can benefit from a clearer articulation of management philosophy and practice. The role of the proponent should be clarified, for example, in both the ID and the Resupply context. Not only is there a need for a priority system for allocating printing funds - a burden currently placed on the Director of Publications - there is a need for the proponent to suggest precedence of and quantity to be issued. The current budget methodology, in which TAG estimates reprint requirements does not provide an adequate forecasting or management tool.

We have however been able to carry out some analyses to help perform the economic analysis. Pertinent analyses are discussed below.

Data Analysis

Despite problems concerning our data gathering efforts, we have analyzed information in many areas to develop a representative, quantitative picture of STARPUBS and AGPC activity.

Based on a review of several summaries of DA 12 series forms submitted by accounts identified as installation stockrooms it appears that the average stockroom ID account has 2752 blocks checked on the DA 12 series, and a quantity requirement of 21,143 copies. This is an unusually high level of ID considering that the main function of the stockroom is to redistribute forms -which are not obtained through ID - and not publications.

The Baltimore center currently utilizes 915,755 square feet of warehouse space - BAGPC will utilize approximately 600,000 square feet once the modernization effort is complete. It stocks 9298 line items which generally include forms, regulations, and training media. The balance on hand, reported as of January 9, 1984, is 512,047,712 copies. BAGPC meets an average quarterly demand of 61,561,666 copies from both CONUS and OCONUS accounts. Forms appear to represent 93% of the distribution activity at BAGPC; ARs, CIRs, and other administrative and training publications account for 3.4% of the activity. (It should be noted that although forms represent the greatest activity in terms of quantity issued, they are normally bulk shipped and thus can be handled quickly; it is believed that they probably account for not more than 20% of the workload expended to distribute products from BAGPC.) The average ID account holder checks 240 blocks on the DA 12 series forms for training and administrative publications managed at BAGPC; the requirement is an average four copies per block. The average Resupply account holder requests about 258 copies of 25 lines (excluding forms) per quarter from Baltimore.

BAGPC has an authorized staff of 187 and an actual staff of approximately 185. Personnel costs account for 63% of BAGPC operating costs.

An analysis of an excess stock report dated May 7, 1984 shows items with a greater than five cartons excess over storage objective in the following categories:

<u>Category</u>	<u>Lines</u>
0 - Forms	511
1 - ARTEP, FM, FT, TC, TRADOC	271
2 - AR, CIR	115
3 - Poster, DOD, PAM	260
4 - Misc. Pub.	57
5 - ACP, JCS, JANAP, TAGO, TRADOC BUL	37
6 - CMH	75

7 - CHAMPUS, CPP, CPR, DDB,
 DDI, FED, FPM, OPM,
 MISC

91
 1417

For those items in category 0 - Forms, the average amount excess is 300 cartons; a high of 6593 cartons, and a low of 5.5 cartons. However, the average excess in years presents a more accurate picture of excess stock. The average excess in years is 15.7; a high of 158 years, and a low of .1 years.

The St. Louis center utilizes 278,275 square feet of warehouse space. It stocks 24,344¹¹ items of which 72% are technical manuals. Technical and supply publications, RPI, and TCO are the remaining stock at SLAGPC. The balance on hand as of January 9, 1984 was 471,539,523 copies. SLAGPC responds to an average quarterly demand of 37,519,450 copies throughout the United States and the world. Forms distribution (an activity being transferred to BAGPC, except for classified and accountable forms) is also a major activity at SLAGPC - 92.4%. (As at BAGPC, although the quantities distributed are high, the manner in which they are handled is estimated by SLAGPC to account for only about 10% of the effort to distribute.) Publications and RPI account for the remaining 7.6% of the activity. The average ID account holder checks 331 blocks on the DA 12 series forms for technical and supply publications. Technical and supply publications make up 57% of the total ID activity. The average Resupply account holder requests about 115 copies of 20 lines (including forms) per quarter from St. Louis.

SLAGPC has an authorized staff of 173 and an actual staff of approximately 165. Personnel costs account for 76% of the SLAGPC operating costs.

An analysis of a March 21, 1984 excess stock report shows 1724 items with greater than five cartons excess. The number of lines excess are as follows:

<u>Category</u>	<u>Lines</u>
A - Blank Forms	117
B - SB	28
C - SC	39
E - MWO	24
F - LO	7
G - TB	119
H - TM	1302
I - RPI	27
9 - TCO	61
	<u>1724</u>

¹¹ IBID.

For those items in category H-TM's, the average amount excess is 34 cartons; a high of 408 cartons, and a low of 5 cartons. The average excess in years is 26.9; a high of 394.8 years, and a low of 0.1 years. This indicates that the items in excess in the TM category are relatively slow moving items.

The geographic data report, dated April 25, 1984, allowed additional analysis concerning the distribution of publications activity in the 50 United States. Three statistical techniques were used:¹²

- o ABC Analysis
- o Regression Analysis
- o Distribution Analysis.

ABC analysis is based on the premise that in any group only a few of its members are of real significance. This is commonly called the 20-80 rule (Pareto's Law) - 20% of the accounts represent 80% of the activity. ABC analysis provided the most helpful information as the data was too scattered to determine any significant relationship through regression or distribution analysis.

The ABC analysis of Resupply Geographic Data entailed the ranking of the states by number of lines (requests), total quantity, and number of accounts. Next, we determined the distributions of total quantity, total lines, and quantity/line for each type of publication (technical, training/administration, forms). Finally, cumulative percentages of the total amount were determined for the three rankings and from this, an ABC analysis for total quantity was developed. The top ten states under each ranking are presented in Exhibit 7.

Exhibit 8 graphically displays the ABC analysis for total Resupply quantity. The same ten states (Texas, Georgia, California, Kentucky, Missouri, Alabama, Virginia, North Carolina, Colorado, and New Jersey) account for more than 50% of the Resupply publications activity. The ABC analysis for number of accounts showed the same states except for Colorado, Missouri, and Kentucky.

For the ABC analysis of the ID geographic data, state requirements were ranked by number of accounts, number of blocks and total quantity. The rankings are provided in Exhibit 9.

Exhibit 10 graphically displays the ABC analysis for total ID quantity. It supports the Resupply analysis: Texas, North Carolina, California, Kentucky, Arizona, Michigan, Georgia, Virginia, Louisiana and Alabama represent more than 50% of the ID

¹² Regression analysis, linear or multiple, can be used to determine relationships between parameters. In this case, the parameters included number of accounts, quantity requested, etc. Distribution analysis involves an analysis of the mean, standard deviation, median, and mode.

ABC ANALYSIS OF RESUPPLY GEOGRAPHIC DATA

TOP TEN STATES

LINES REQUESTED	QUANTITY REQUESTED	ACCOUNTS SERVICED
TEXAS	TEXAS	TEXAS
CALIFORNIA	GEORGIA	CALIFORNIA
GEORGIA	CALIFORNIA	VIRGINIA
KENTUCKY	KENTUCKY	NEW YORK
NORTH CAROLINA	MISSOURI	PENNSYLVANIA
VIRGINIA	ALABAMA	GEORGIA
ALABAMA	VIRGINIA	NORTH CAROLINA
NEW YORK	NORTH CAROLINA	ALABAMA
COLORADO	COLORADO	NEW JERSEY
WASHINGTON	NEW JERSEY	FLORIDA

Exhibit 7

ABC ANALYSIS FOR
RESUPPLY TOTAL QUANTITY

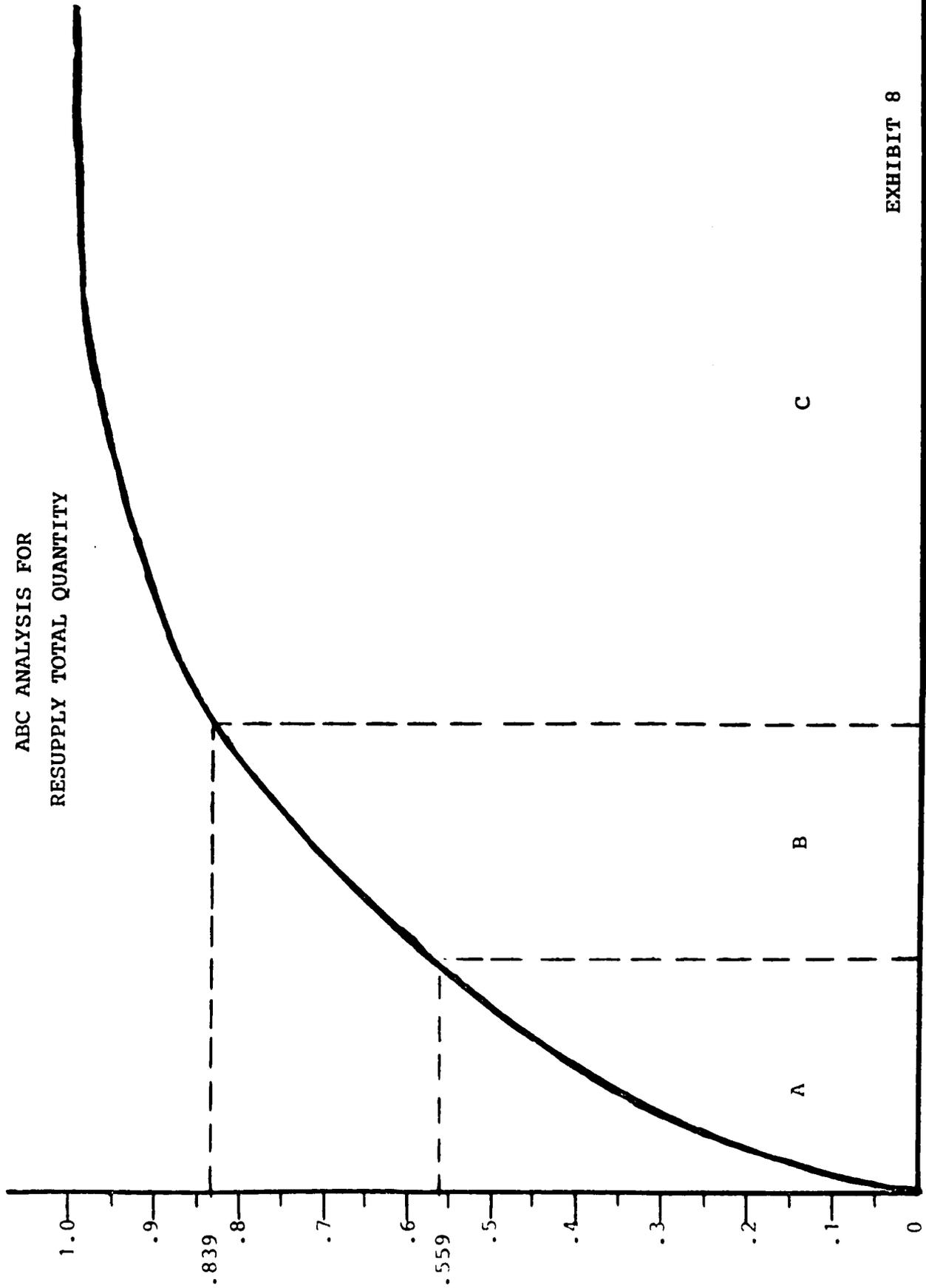


EXHIBIT 8

ABC ANALYSIS OF ID GEOGRAPHIC DATA

TOP TEN STATES

BLOCKS CHECKED	QUANTITY REQUESTED	ACCOUNTS SERVICED
TEXAS	TEXAS	TEXAS
CALIFORNIA	NORTH CAROLINA	CALIFORNIA
KENTUCKY	CALIFORNIA	VIRGINIA
GEORGIA	KENTUCKY	GEORGIA
VIRGINIA	ARIZONA	NORTH CAROLINA
NORTH CAROLINA	MICHIGAN	WASHINGTON, DC
PENNSYLVANIA	GEORGIA	ALABAMA
NEW YORK	VIRGINIA	PENNSYLVANIA
ALABAMA	LOUISIANA	NEW YORK
MARYLAND	ALABAMA	KENTUCKY

Exhibit 9

ABC ANALYSIS FOR
ID TOTAL QUANTITY

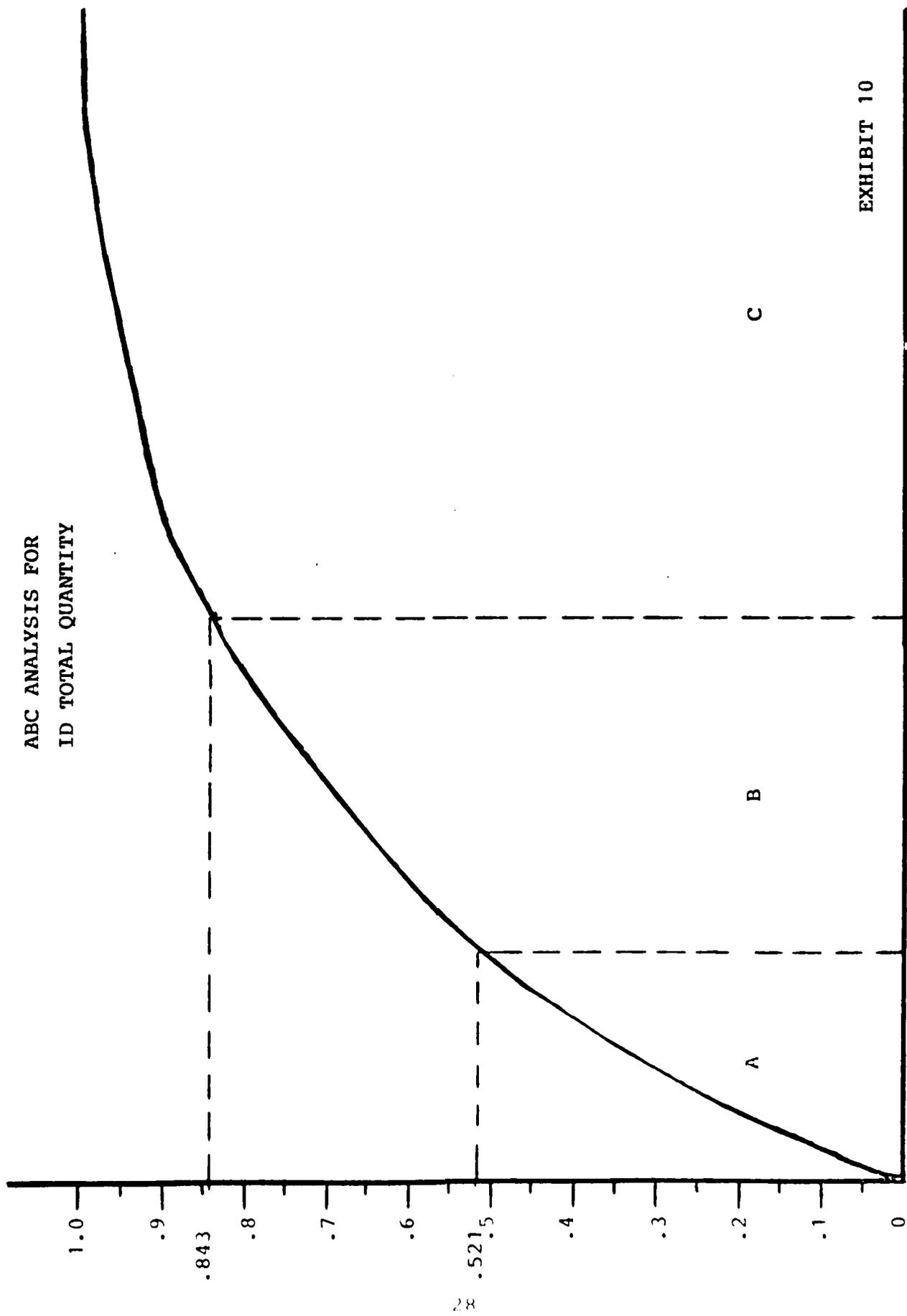


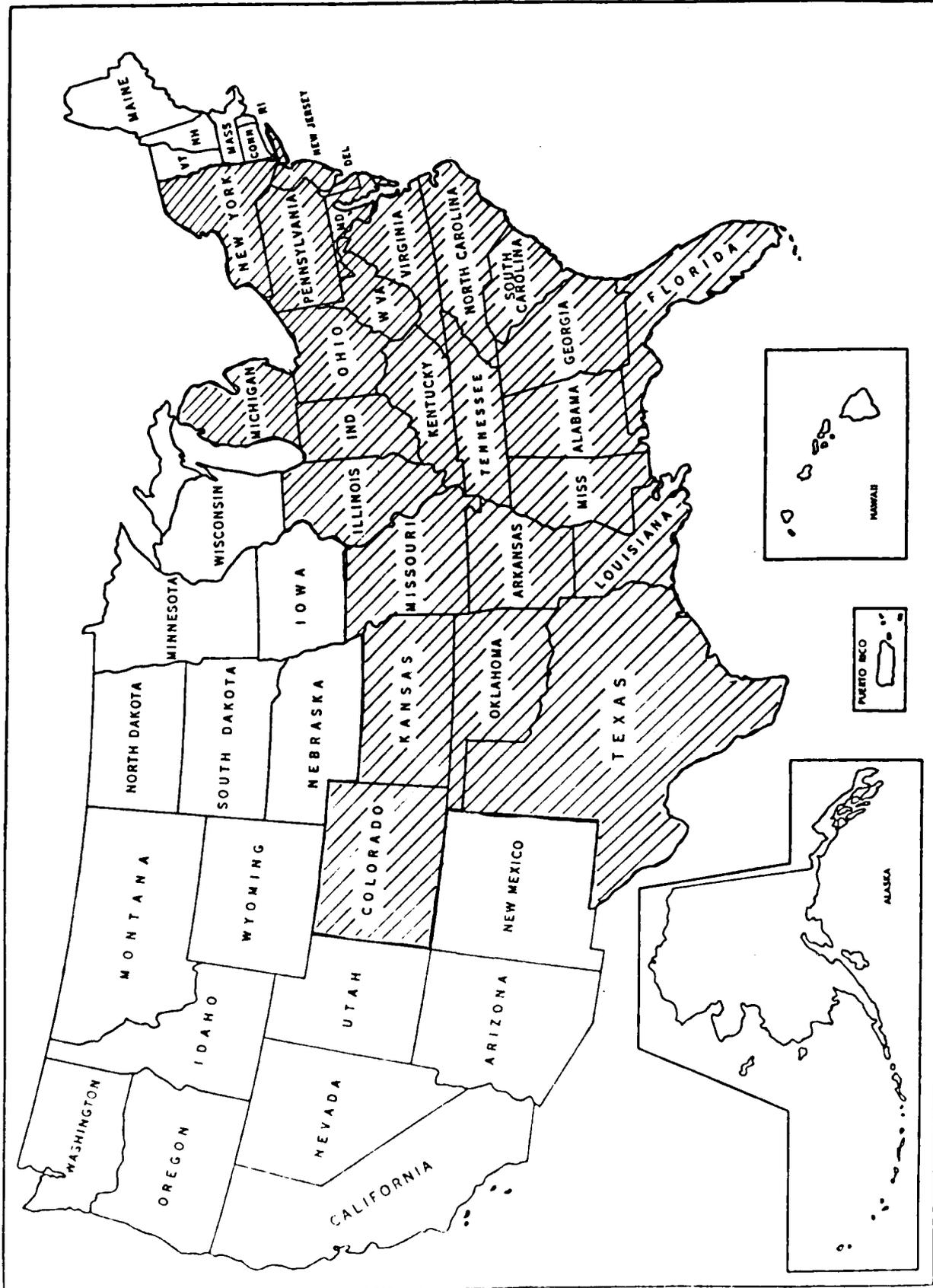
EXHIBIT 10

publications requirements. These are the same states (except for Arizona, Michigan, and Louisiana) which represent more than 50% of the Resupply activity.

We then compared the ID and Resupply findings. In comparing the number of accounts by state, eight states were in the system for both ID and Resupply; seven states were in the top ten for quantity under ID and Resupply. And, in the final comparison between lines of Resupply and blocks of ID, an 80% correlation was found.

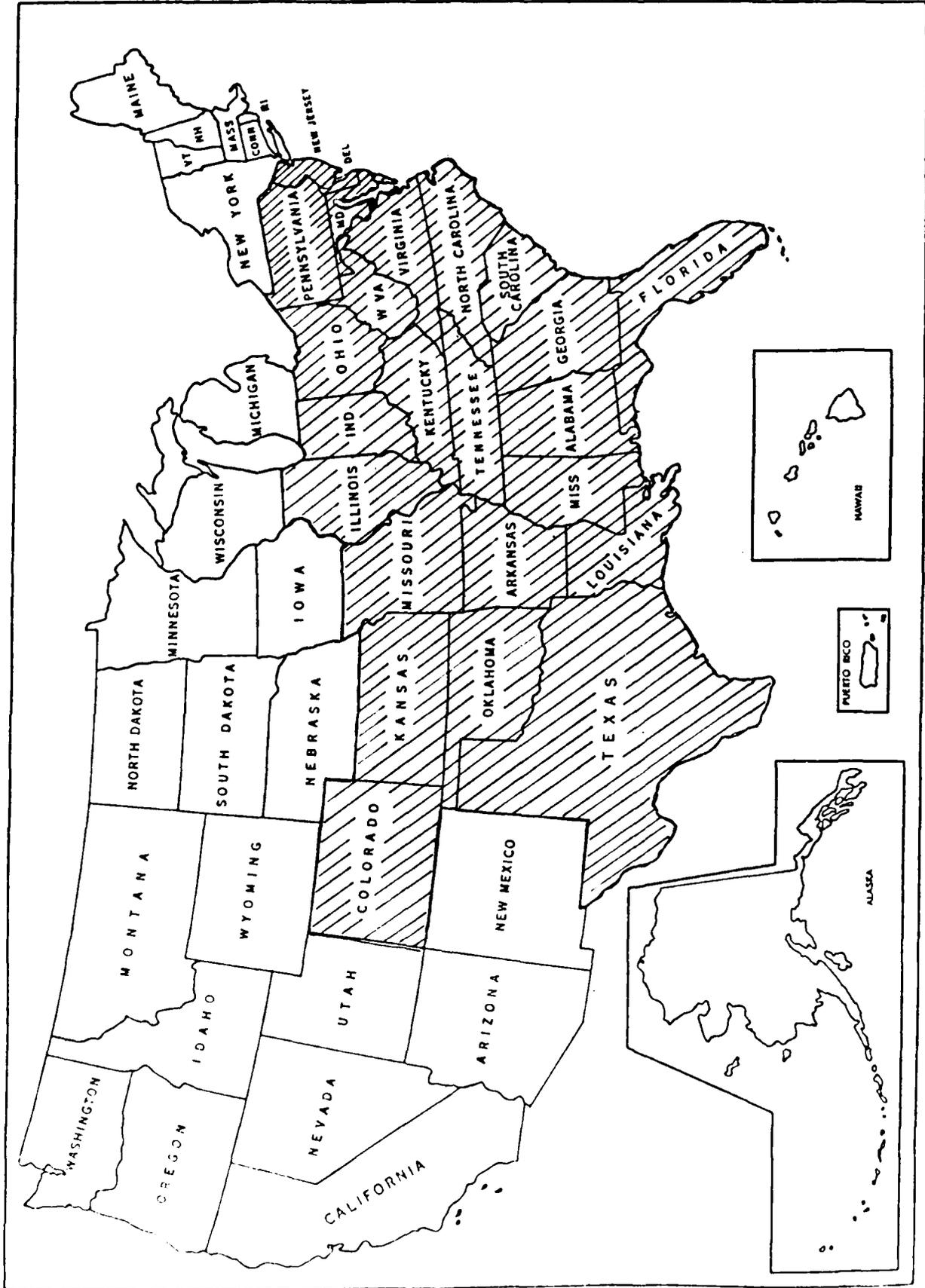
This type of analysis was essential in determining the geography of distribution activity. Since we know that the prime users of the publications system are in these top ten states, we can arrange the centers to provide maximum customer satisfaction in these areas. Also, the analysis shows that our primary ID users are also our primary Resupply users. If the Army Publications System was operating effectively, the relationship between ID and Resupply users should be inverse not parallel.

Exhibits 11 and 12 show that the majority of publications activity is in the east and south of the continental United States. This is true for ID as well as Resupply.



75 & RESUPPLY REQUESTS

Exhibit 11



75 & ID DEMAND

Exhibit 12

IV. ECONOMIC ANALYSIS

This section concerns itself with an economic analysis of center operations in support of the Publications Directorate of TAGO. The economic analysis was conducted in accordance with DoD Instruction 7041.3, "Economic Analysis and Program Evaluation for Resource Management", and AR 11-28, "Economic Analysis/Program Evaluation". The objective of the economic analysis was to determine the best alternative(s) for location of publication distribution centers within the continental United States. The principal assumption underlying this analysis is that the volume of activity presently performed by the current center operations will continue for a ten year period. This assumption has been translated into a ten year system life.

In this section, a detailed economic description of the current system is first presented. This detailed annual picture is then projected over a ten year time frame using DoD standard (10%) discounting factors as displayed in DODI 7041.3. In addition, three alternatives to the current system are identified. An economic description of each of these alternatives is included in this section. The ten year system costs developed for the current system and each of the alternatives are presented in a standard cost table containing various cost categories as well as the discounting factor associated with each year in the ten year period. A physical description of the alternatives along with supporting calculations are presented in Appendices A and B.

Current System

Exhibit 13 presents a detailed economic description of the current two center system. The costs contained in this exhibit were obtained from each of the two centers as well as the Resource Management Division, TAGO. The actual operating costs of the two centers are included in the administrative, order entry & inventory control, 2nd destination transportation, and warehousing & order fulfillment cost categories; these costs include SLUC charges paid to GSA and transportation costs to ship documents to the users. Printing costs and 1st destination transportation costs could not be separated, and so are shown as one cost as the Army-wide printing program. The postage costs provided represent only that portion of the postage costs which have actually been accounted for; true postage costs are known to be much higher, but an accurate verifiable figure could not be obtained. Because 1st destination transportation costs can not be broken out and postage costs are incomplete, potential savings could not be accurately forecast in these areas. For this reason, these costs are assumed to remain fixed throughout the ten year system life for each of the alternatives.

CURRENT SYSTEM
ECONOMIC DESCRIPTION

<u>CATEGORY</u>	<u>COST</u>
ADMINISTRATIVE	
Travel.....	41,074
Printing/Reproduction.....	143,957
SLUC (w/o warehouse).....	457,544
Pay/Benefits.....	1,529,650
ORDER ENTRY & INVENTORY CONTROL	
MISD Travel.....	9,281
MISD Transportation of Things.....	2,414
Computer Rental.....	239,037
MISD Supplies/Materials/Equipment/ Services.....	790,027
MISD Pay/Benefits.....	932,655
Inventory Control Pay/Benefits.....	1,231,036
2nd DESTINATION TRANSPORTATION	
Transportation.....	1,138,655
Pay/Benefits.....	143,678
PRINTING & 1ST DESTINATION TRANSPORTATION	
Printing and Transportation.....	76,309,108
WAREHOUSING & ORDER FULFILLMENT	
SLUC (warehouse only).....	2,420,599
Reimbursables.....	300,000
Transportation of Things.....	3,428
Rent (w/o computer rental).....	215,623
Supplies/Materials/Equipment/ Services (w/o MISD).....	1,551,135
Pay/Benefits.....	5,938,289
POSTAGE	
Postage.....	1,515,220
TOTAL	<u>94,912,410</u>

The ten year system costs for the current system are presented in Exhibit 14. Because we are analyzing the system as it currently operates, there are no investment or one-time costs incurred. We have not included costs incurred at the Publications Directorate for management and oversight of Distribution Management or for Requirements Determination for ID or FMS. Printing and first destination transportation costs, center operation costs, and postage costs were outlined in the economic description of the current system and are assumed to remain fixed through the ten year system life.

TEN YEAR SYSTEM COSTS

CURRENT SYSTEM

1984 \$ (thousands)

COST CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL
Investment	-	-	-	-	-	-	-	-	-	-	-
One-time	-	-	-	-	-	-	-	-	-	-	-
Printing and 1st Dest. Transpo.	76309	76309	76309	76309	76309	76309	76309	76309	76309	76309	76309
Center Operations	17088	17088	17088	17088	17088	17088	17088	17088	17088	17088	17088
Postage	1515	1515	1515	1515	1515	1515	1515	1515	1515	1515	1515
Total Yearly Costs	94912	94912	94912	94912	94912	94912	94912	94912	94912	94912	94912
Discount Factor	.954	.867	.788	.717	.652	.592	.538	.489	.445	.405	
Present Value	90546	82289	74791	68052	61883	56188	51063	46412	42236	38439	611,899

Exhibit 14

Alternative 1 (Modernization and Improvement)

The most easily adaptable alternative to the current system is to continue with the two center operation, while improving upon areas of weakness. Alternative 1 to the current system includes a modernization program at the Baltimore center, and managerial improvements at both Baltimore and St. Louis. Throughout our study, we have recommended many ways to improve center operations and increase overall system efficiency. In addition, the Publications Directorate and the center commanders have identified a significant number of areas subject to managerial initiative. The combined economic impact of these initiatives should result in a significant cost savings.

Since most of the expected cost savings will result from a combination of new techniques and procedures, identifying dollar savings, change by change, becomes at best an arbitrary estimating procedure. For this reason, an assumed 5% decrease in operating costs has been projected across years two through six of the ten year system cost for alternative 1. This conservative 5% figure includes cost reductions resulting from modernization as well as any cost savings resulting from managerial improvements. The investment costs required for the Baltimore center modernization have been spread out over the expected duration of the modernization project. Ten year system costs for alternative 1 are presented in Exhibit 15.

TEN YEAR SYSTEM COSTS
 ALTERNATIVE NO. 1
 1984 \$ (thousands)

COST CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL
Investment	820	820	820	820	820	-	-	-	-	-	
One-time	-	-	-	-	-	-	-	-	-	-	
Printing and 1st Dest. Transpo.	76309	76309	76309	76309	76309	76309	76309	76309	76309	76309	76309
Center Operations	17088	16234	15422	14651	13918	13222	13222	13222	13222	13222	13222
Postage	1515	1515	1515	1515	1515	1515	1515	1515	1515	1515	1515
Total Yearly Costs	95732	94878	94066	93295	92562	91046	91046	91046	91046	91046	91046
Discount Factor	.954	.867	.788	.717	.652	.592	.538	.489	.445	.405	
Present Value	91328	82259	74124	66893	60350	53899	48983	44521	40515	36874	599,746

Alternative 2 (Multi-Center)

Because the Army Publications System originally operated under a multi-center configuration, with as many as ten regional storage depots, we initially reasoned that a multi-center operation was not a viable alternative; why would the Army revert back to a system which it had already abandoned, presumably for justifiable reasons? However, because the multi-center option offers some advantages over the current two center system and the other proposed alternatives, we developed a "best" multi-center operation, described below:

Eastern Region Distribution Center - Baltimore, MD
Middle Region Distribution Center - St. Louis, MO
Western Region Distribution Center - Salt Lake City, UT

This configuration allows us to utilize the two existing warehouses, requiring the addition of only a smaller western region center. Under this alternative, each center would stock all types of forms and publications, and would provide service to only states in its region. Exhibits A-1 through A-3 illustrate the projected service areas for each of the regional centers. Exhibits A-4 and A-5 present expected operating characteristics for each of the proposed centers based upon geographic demand data. Staffing requirements for each of the centers were developed based upon expected geographic demand and applicable production standards. Exhibits A-6 through A-11 present overall organization charts and detailed warehouse operations organization charts for each of the three centers. Calculations supporting proposed operating characteristics and staffing requirements are also provided in Appendix A.

Because a majority of the publications users are located in the eastern and middle regions of the country, our proposed operation will allow the Baltimore and St. Louis centers to maintain a large portion of the publications activity and operate close to their current capacity. The Salt Lake City area was chosen because it is centrally located within our proposed western region, and it can provide a large and relatively inexpensive labor force from which to choose. Although some costs could be further reduced with additional centers, the savings cannot justify the substantial costs required to set-up and operate a system with more than three centers; the three center operation is the point of economically diminishing return.

The ten year system costs for the multi-center system, alternative 2, are presented in Exhibit 16. In addition to the investment cost associated with the modernization at Baltimore, there is a substantial one-time cost incurred in order to set-up and equip the Salt Lake City center. Also, because of additional staffing requirements, initial center operation costs have increased. As with alternative 1, a 5% reduction in operating costs is shown in years two through six due to the modernization and ongoing management improvements.

TEN YEAR SYSTEM COSTS
 ALTERNATIVE NO. 2
 1984 \$ (thousands)

COST CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL
Investment	820	820	820	820	820	-	-	-	-	-	
One-time	1173	-	-	-	-	-	-	-	-	-	
Printing and 1st Dest. Transpo.	76309	76309	76309	76309	76309	76309	76309	76309	76309	76309	
Center Operations	18103	17198	16338	15569	14790	14051	14051	14051	14051	14051	
Postage	1515	1515	1515	1515	1515	1515	1515	1515	1515	1515	
Total Yearly Costs	97920	95842	94982	94213	93434	91875	91875	91875	91875	91875	
Discount Factor	.954	.867	.788	.717	.652	.592	.538	.489	.445	.405	
Present Value	93416	83095	74846	67551	60919	54390	49429	44927	40884	37209	606,666

Alternative 3 (One Center)

The one center system is an economically feasible alternative to the current two center operation. Consolidation of the two centers into a single center will provide several areas of cost savings - reduced overhead costs, reduced personnel costs, and reduced first destination transportation costs. Also, all users of the system will be dependent upon only one supplier for all of their publication needs. However, under a one center system, second destination transportation costs will increase. Additionally, and perhaps most importantly, the one center system will require the Army to commit all of its publication resources to a single location. Not only is this a politically volatile issue, but it also impacts greatly on the Army's mobilization capability.

Because of the already existing warehouse configuration, we limited our choices for a single center location to either Baltimore or St. Louis. Any final decision on a warehouse location would predictably depend heavily upon political considerations and other factors difficult to quantify. For this reason, comparable economic descriptions are presented for either a Baltimore (alternative 3) or a St. Louis (alternative 3a) single center location.

Exhibit B-1 presents expected operating characteristics for the single center system based upon publication demand data. Staffing requirements for a single center operation were developed based upon expected demand and applicable production standards. Exhibit B-2 presents the overall organization chart for the one center system and Exhibit B-3 presents a detailed warehouse operations organization chart for this alternative. Calculations supporting proposed operating characteristics and staffing requirements are also provided in Appendix B.

The ten year system costs for the one-center systems, alternatives 3 and 3a, are presented in Exhibits 17 and 18. Besides the investment costs associated with the necessary modernization at either of the centers, there are also payroll-related one-time costs which will be incurred. Consolidation to a single center will result in the elimination of all positions at one center and an increase in the number of positions at the remaining center. All eliminated positions result in the incumbent being paid severance pay or reimbursed for transfer to the single center location. We assume that the 60 highest paid eliminated positions will accept transfers, and the remaining positions will be separated (This assumption decreases severance pay costs from an assumption of an "average" 60 moving). Calculations supporting the payroll-related one-time costs for a single center location in St. Louis and in Baltimore are provided

in Appendix B¹³. (Because of differences in wage rates and operating structures at the two centers, these costs will differ.) In addition to this one-time cost, a single center located at St. Louis will incur a one-time cost for transfer of the MIS Division from Baltimore. The lower initial center operating costs are based upon the staffing reductions possible with the consolidation of the current two center system. (Again, these costs will vary due to differences in the wage grade rates.) After the consolidation, it is assumed that no further reduction in operating costs occurs until the new operation can take advantage of the continuing effects of the modernization. This occurs in year four and results in a 5% savings per year through year six.

¹³ For severance pay we have used the OMB Circular A-76 cost factor of two percent of affected payroll. This cost factor makes proper allowance for individuals having exercised options of early retirement, acceptance of Federal vacancies in current assigned geographic location or severance pay.

TEN YEAR SYSTEM COSTS
 ALTERNATIVE NO. 3
 1984 \$ (thousands)

COST CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL
Investment	820	820	820	820	820	-	-	-	-	-	
One-time	1557	-	-	-	-	-	-	-	-	-	
Printing and 1st Dest. Transpo.	76309	76309	76309	76309	76309	76309	76309	76309	76309	76309	
Center Operations	14723	14723	14723	13987	13288	12624	12624	12624	12624	12624	
Postage	1515	1515	1515	1515	1515	1515	1515	1515	1515	1515	
Total Yearly Costs	94924	93367	93367	92631	91932	90448	90448	90448	90448	90448	
Discount Factor	.954	.867	.788	.717	.652	.592	.538	.489	.445	.405	
Present Value	90557	80949	73573	66416	59940	53545	48661	44229	40249	36631	594,750

TEN YEAR SYSTEM COSTS
 ALTERNATIVE NO. 3a
 1984 \$ (thousands)

COST CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL
Investment	360	360	360	360	360	-	-	-	-	-	
One-time	1567 750	-	-	-	-	-	-	-	-	-	
Printing and 1st Dest. Transpo.	76309	76309	76309	76309	76309	76309	76309	76309	76309	76309	
Center Operations	14954	14954	14954	14206	13496	12821	12821	12821	12821	12821	
Postage	1515	1515	1515	1515	1515	1515	1515	1515	1515	1515	
Total Yearly Costs	95455	93138	93138	92390	91680	90645	90645	90645	90645	90645	
Discount Factor	.954	.867	.788	.717	.652	.592	.538	.489	.445	.405	
Present Value	91064	80751	73393	66244	59775	53662	48767	44325	40337	36711	595,029

V. COMPARATIVE ANALYSIS

In this section we compare the alternatives and present some conclusion as to achieving the purpose of the study. It became clear as we proceeded through the study that finding that the current system can be operated at a lower cost or more effectively would come as no surprise; in fact, in many of the areas we focused on we found corrective efforts underway; for example, there is a significant modernization and improvement program underway at BAGPC - we have included the impact in our analysis of alternatives - and attempts to gain control and accountability over postage costs. We also identified some areas of potential improvement which while they do not fall within the context of center operation or are the responsibility or authority of the center commanders, can have an impact on the cost of center operations; these improvements have not been costed. For example, we are of the opinion that there can be a reduction in stockage objectives through improved inventory management information and practices; this can lead to a one-time reduction in the reprints budget (printing program) and a resultant reduction in the costs of storage (lower inventory levels); the ability to cost has been inhibited by a lack of appropriate financial data. There are other system improvements possible, some are under study; these include UPDATE, ID enhancement, installation of a Data Base Management System, upgrading of Computer hardware, and others; each one will in and of itself improve the efficiency of the system. We have not attempted to cost the impact of these projects.

Comparative Cost Analysis

A comparison of the 10 year system cost of each of the center configurations under study is shown in Exhibit 19. As is evident, any of the alternatives to the current system should result in a reduction from the current system costs; these range between \$5.2 million for the most costly to \$17.2 million for the least costly of the alternatives over the 10 year period. It should be noted however, that there is a less than 3% difference between the lowest alternative and current system cost. Note also that there is only a 2% difference between the lowest cost and highest cost alternative. Since we believe our estimates have at least a 5% error, it is our opinion that there is no significant difference in the cost of the alternatives; other factors than cost should be used in selecting a preferred alternative.

Selection of Preferred Alternative

Since there is no significant statistical difference in the costs of the center configurations studied, and there are little in the way of criteria or data on which to judge impact on customer satisfaction, and since the system is assumed to be in a relatively steady state as far as forecasted demand and printing programs, it appears that the most logical alternative is to

SUMMARY SHEET
COMPARATIVE COST ANALYSIS
FY 1984 DOLLARS

<u>Alternative</u>	<u>10 Year System Cost</u>
Current System	611,899,000
Alternative 1 (Modernization & Improvement)	599,746,000
Alternative 2 (Multi-Center)	606,666,000
Alternative 3 (One Center-Baltimore)	594,750,000
Alternative 3a (One Center-St. Louis)	595,029,000

Exhibit 19

continue the current two center system with modernization and improvements. This would reduce the impact of system turbulence on the customer which would be created by shifting sources of supply (alternative 2) or by change to one center operation (Alternative 3). A change to a one center operation at Baltimore, while apparently the least costly of the alternatives, would have a detrimental effect on mobilization plans. We also believe the current improvement efforts and the differentiation between the two centers by category of publication when coupled to improved inventory management practice will lead to deeper cost reduction. In addition, the choice of the center to be closed would be a politically volatile one since it cannot be justified solely on the basis of cost. For these reasons, alternative one is considered the most feasible. It provides a basis for a reduction from current costs, it provides for a clear demonstration of the efficiency of the proposed and underway modernization and improvements, and, in the event other suggested improvements in the system are implemented, provides for a possible fall back to alternative 3.

Other Findings and Recommendations

Throughout this and previous reports we have identified several areas of potential improvement, both in terms of cost as well as effectiveness. One of the most significant gaps we have found is the lack of a clearly articulated statement of system goals and objectives, one which recognizes the purpose of the distribution system, which identifies who it is to serve and what is expected of the system, all stated in such a way as to recognize the varied nature of the market - in terms of establishing need and quantity, the differences in satisfaction criteria among the market segments and the products, and to provide a basis for evaluating the efficiency and effectiveness of the system.

Once having clearly defined goals and objectives, the Director of Publications should develop an effective organization structure and a functional structure (roles and mission analysis) within which he can manage the process of acquiring and distributing publications on the basis of market segments and product differentiation.

With an organizational and functional framework in place, established Army logistics doctrine and procedures tailored to the uniqueness of publications should be implemented. Currently, while many of the logistical concepts are in place, implementation has focused on stock control with the resultant of minimal data availability for true inventory management, gaps in available data leading to inadequate procurement controls, and an overall lower level of operation in terms of grade structure and management awareness than is deserved.

Summary

We have concluded that the Army Publications Distribution System as currently operated is a reasonably effective, although inefficient system. It is evident that there are opportunities within the current philosophy and approaches to operation of the system to reduce the cost. Examination of several alternatives to current center operations indicates the potential for reduction in costs in the total program based on a 10-15% reduction in operating costs over a 10 year period. In selecting an alternative to the current system we concluded that there is no significant cost differential among the 3 alternatives studied; there is at most a 5% difference in estimated operating costs from lowest to highest, a difference which can be accounted for by estimating errors of at least 5%. Therefore, the preferred choice is the one which creates the least customer and overall system turbulence, considers mobilization needs and provides the soundest basis for making other system changes outside the context of center operations.

The preference should be continuation of current center operations with modernization and management improvement coupled with major changes in the overall system philosophy and practice.

Appendix A Multi-Center Operations

The exhibits in this appendix present operating characteristics and organizational structure for alternative 2, multi-center system. The first exhibits illustrate our proposed service areas for each of the regional centers. Also, using geographic demand data, the expected Resupply and ID activity have been projected for each of the regional centers. Based upon this expected activity and current center space utilization, square footage requirements were determined for each of the areas within the regional centers. Additionally, a proposed organization has been developed for each of the centers; these are presented in an overall center organization chart and a detailed warehouse operations organization chart.

Calculations supporting these exhibits are provided at the end of this appendix. Calculations are also presented as back-up to the payroll-related one-time costs and the initial center operations costs specified in section IV, Economic Analysis.

MULTI-CENTER WAREHOUSE STAFFING

MIDDLE REGION: St. Louis, MO

Resupply Lines - 1,504,878

Accounts - 9,007

ID Blocks - 2,800,569

Accounts - 4,663

RESUPPLY

Standard: $(101.5 \text{ lines/hr})(1744 \text{ hrs/yr}) = 177016 \text{ lines/yr}$
Resupply Packers: $(1504878 \text{ lines})/(177016 \text{ lines/yr}) = 9 \text{ workers}$
 $9/17 = 0.53$ or 53% of current staffing

LI Pickers: $(.53)(14) = 8 \text{ workers}$

Bulk Pickers: $(.53)(10) = 6 \text{ workers}$

Storage: $(.53)(6) = 4 \text{ workers}$

ID

Standard (Packers): $(105.5 \text{ lines/hr})(1744 \text{ hrs/yr}) = 183992 \text{ lines/yr}$

Standard (Mailmaster): $(730 \text{ lines/hr})(1744 \text{ hrs/yr}) = 1273120 \text{ lines/yr}$

Standard: 1.68 lines issued/ID block

Total ID Lines: $(1.68 \text{ lines/block})(2,800,569 \text{ blocks}) = 4,704,956 \text{ lines}$

Packers: $(0.36)(4,704,956) = 1693784 \text{ lines}$

Mailmaster: $(0.64)(4,704,956) = 3011172 \text{ lines}$

Packers: $(1693784 \text{ lines})/(183992 \text{ lines/yr}) = 10 \text{ workers}$

Inserters: $(3011172 \text{ lines})/(1273120 \text{ lines/yr}) = 3 \text{ workers}$

Zip Coders: 3 workers

Lablers: 1 worker

Machine Operators: 8 workers

Sorters: 2 workers

MULTI-CENTER WAREHOUSE STAFFING

EASTERN REGION: Baltimore, MD

Resupply Lines - 2,122,013

Accounts - 10,898

ID Blocks - 3,917,168

Accounts - 7,116

RESUPPLY

Standard: $(101. \text{ lines/hr})(1744 \text{ hrs/yr}) = 177016 \text{ lines/yr}$
Resupply Packers: $(2,122,013)/(177016 \text{ lines/yr}) = 12 \text{ workers}$
 $12/17 = 0.71 \text{ or } 71\% \text{ of current staffing}$

LI Pickers: $(.71)(14) = 10 \text{ workers}$

Bulk Pickers: $(.71)(10) = 8 \text{ workers}$

Storage: $(.71)(6) = 5 \text{ workers}$

ID

Standard (Packers): $(105.5 \text{ lines/hr})(1744 \text{ hrs/yr}) = 183992 \text{ lines/yr}$

Standard (Mailmaster): $(730 \text{ lines/hr})(1744 \text{ hrs/yr}) = 1273120 \text{ lines/yr}$

Standard: 1.68 lines issued/ID block

Total ID Lines: $(1.68 \text{ lines/block})(3,917,168 \text{ blocks}) = 6580842 \text{ lines}$

Packers: $(0.36)(6580842) = 2369103 \text{ lines}$

Mailmaster: $(0.64)(6,580,842) = 4211739 \text{ lines}$

Packers: $(236903 \text{ lines})/(183992 \text{ lines/yr}) = 13 \text{ workers}$

Inserters: $(4211739 \text{ lines})/(1273120 \text{ lines/yr}) = 4 \text{ workers}$

Zip Coders: 4 workers

Lablers: 1 worker

Machine Operators: 11 workers

Sorters: 3 workers

MULTI-CENTER WAREHOUSE STAFFING

WESTERN REGION: Salt Lake City, UT

Resupply Lines - 977,193

Accounts - 4,469

ID Blocks - 1,589,710

Accounts - 2,756

RESUPPLY

Standard: $(101.5 \text{ lines/hr})(1744 \text{ hrs/yr}) = 177016 \text{ lines/yr}$
Resupply Packers: $(977193 \text{ lines}) / (177016 \text{ lines/yr}) = 6 \text{ workers}$
 $6/17 = 0.35\% \text{ of current staffing}$

LI Pickers: $(0.35)(14) = 5 \text{ workers}$

Bulk Pickers: $(0.35)(10) = 4 \text{ workers}$

Storage: $(0.35)(6) = 3 \text{ workers}$

ID

Standard (Packers): $(105.5 \text{ lines/hr})(1744 \text{ hrs/yr}) = 183992 \text{ lines/yr}$

Standard (Mailmaster): $(730 \text{ lines/hr})(1744 \text{ hrs/yr}) = 1273120 \text{ lines/yr}$

Standard: 1.68 lines/ID block

Total ID Lines: $(1.68 \text{ lines/block})(1589710 \text{ blocks}) = 2670713 \text{ lines}$

Packers: $(0.36)(2670713) = 961457 \text{ lines}$

Mailmaster: $(0.64)(2670713) = 170956 \text{ lines}$

Packers: $(961457 \text{ lines}) / (183992 \text{ lines/yr}) = 6 \text{ workers}$

Inserters: $(1708256 \text{ lines}) / (1273120 \text{ lines/yr}) = 2 \text{ workers}$

Zip Coders: 2 workers

Lablers: 1 worker

Machine Operators: 5 workers

Sorters: 2 workers

MULTI-CENTER OPERATIONS COST

Current Operations Payroll

Adminstrative -	1,529,650
Order Entry -	1,231,036
Transportation -	143,678
Warehouse -	<u>5,938,289</u>

\$8,842,653

Multi-Center Payroll

Administrative -	1,486,800
Order Entry -	2,123,476
Transportation-	164,916
Warehouse -	<u>6,082,221</u>

\$9,857,413

increase in payroll - \$1,014,760

current operations cost: 17,088,000

+ payroll increase: + 1,015,000

18,103,000 - multi-center operations cost

EASTERN REGION CENTER - BALTIMORE, MD

SERVICE AREA:

<u>STATE</u>	<u>RESUPPLY LINES</u>	<u>ID BLOCKS</u>
Massachusetts	63,640	100,803
Rhode Island	10,411	25,844
New Hampshire	10,539	26,229
Maine	8,466	21,184
Vermont	9,767	21,974
Connecticut	16,620	39,425
New Jersey	75,600	178,623
New York (incl. APO)	1,016,060	1,669,593
Pennsylvania	110,373	258,393
Deleware	10,973	24,028
Washington, D.C.	30,056	87,748
Maryland	95,022	183,488
Virginia	138,826	303,154
West Virginia	19,238	39,942
North Carolina	148,760	288,284
South Carolina	42,728	92,457
Georgia	204,329	315,771
Florida (incl. APOs)	83,000	177,111
Caribbean	27,605	63,078
	<u>2,112,013</u>	<u>3,917,128</u>

Exhibit A-1

MIDDLE REGION CENTER - ST LOUIS, MD

SERVICE AREA:

<u>STATE</u>	<u>RESUPPLY LINES</u>	<u>ID BLOCKS</u>
Alabama	121,792	224,755
Tennessee	39,282	84,191
Mississippi	36,119	95,950
Kentucky	163,909	321,382
Ohio	56,385	127,635
Indiana	49,997	155,872
Michigan	55,485	126,025
Iowa	28,576	68,178
Wisconsin	52,719	103,697
Minnesota	46,087	86,208
Illinois	77,256	157,501
Missouri	90,855	144,296
Kansas	93,351	171,589
Nebraska	18,646	39,145
Louisiana	92,677	144,259
Arkansas	32,340	67,626
Oklahoma	100,692	152,649
Texas	<u>268,321</u>	<u>529,611</u>
	1,424,489	2,800,569

Exhibit A-2

WESTERN REGION CENTER - SALT LAKE CITY, UT

SERVICE AREA:

<u>STATE</u>	<u>RESUPPLY LINES</u>	<u>ID BLOCKS</u>
North Dakota	12,246	24,502
South Dakota	10,981	18,135
Montana	10,504	28,223
Colorado	118,760	150,464
Wyoming	7,534	13,388
Idaho	13,231	24,144
Utah	28,061	57,996
Arizona	54,993	99,578
New Mexico	17,728	34,088
Nevada	4,124	17,337
California (incl. APO)	378,448	663,780
Hawaii	71,016	140,004
Guam	4,315	3,614
Oregon	20,008	48,533
Washington (incl. APO)	120,006	190,613
Alaska	37,554	74,973
Canada	20,841	278
	<u>967,350</u>	<u>1,589,650</u>

Exhibit A-3

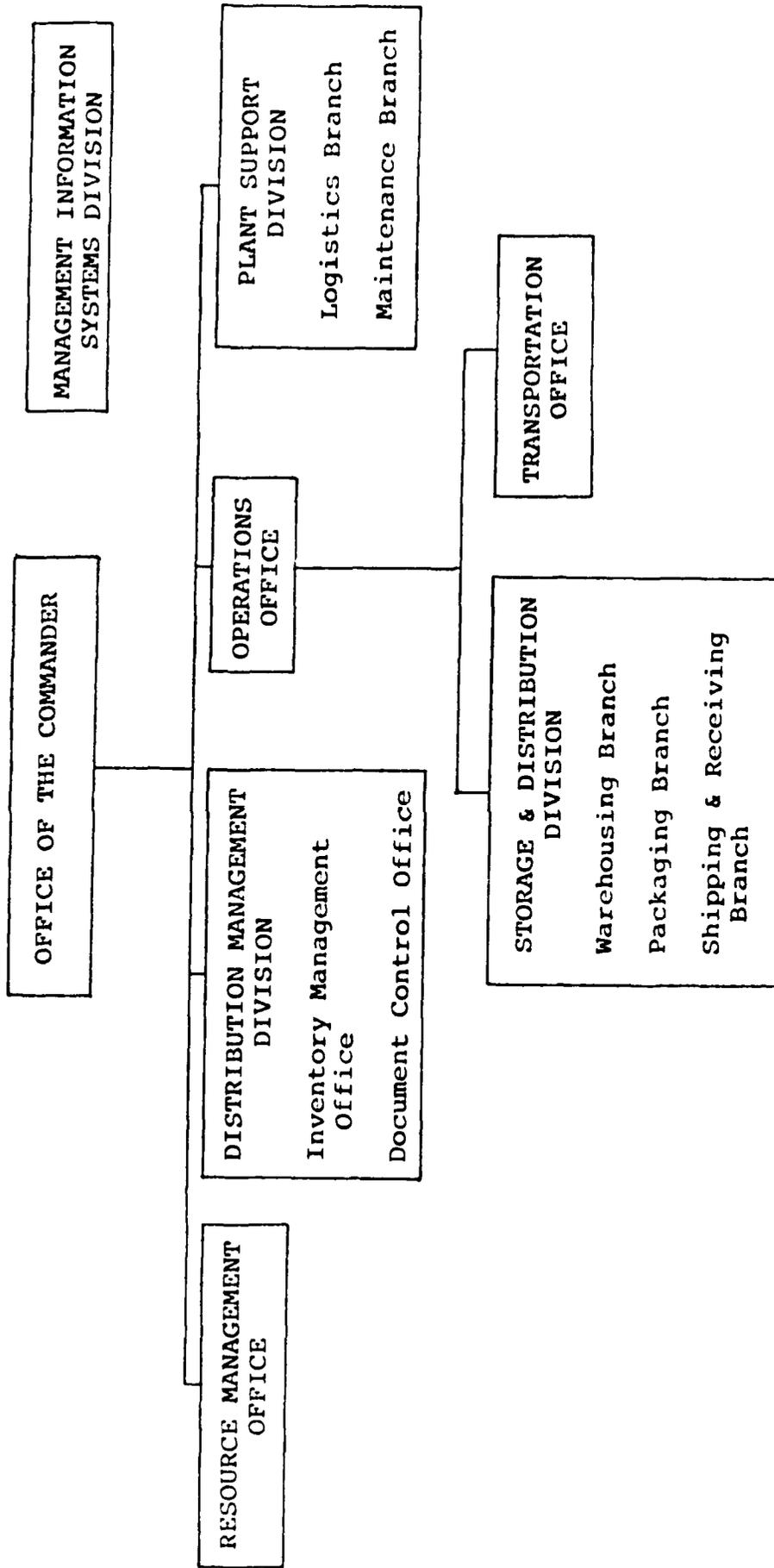
	MONTHLY RESUPPLY DEMAND (thousands)				BALANCE ON HAND 7 MO. STOCKAGE OBJECTIVE (thousands)				ID QUANTITY PER DA 12 SERIES (thousands)	
	TECH. PUBS.	TRAIN./ADMIN. PUBS.	FORMS	TECH. PUBS.	TRAIN./ADMIN. PUBS.	FORMS	TECH. PUBS.	TRAIN./ADMIN. PUBS.	TECH. PUBS.	TRAIN./ADMIN. PUBS.
EASTERN REGION Baltimore, MD	430	900	15,800	3,000	6,300	110,400	8,300	6,700		
MIDDLE REGION St. Louis, MO	330	860	16,800	2,300	6,000	117,700	6,700	5,300		
WESTERN REGION Salt Lake City, UT	160	310	9,000	1,100	2,200	64,000	4,400	2,400		

MULTI-CENTER OPERATING CHARACTERISTICS

Exhibit A-4

MULTI-CENTER SQUARE FOOTAGE REQUIREMENTS

	WAREHOUSE SPACE	OFFICE SPACE	SPECIAL SPACE	PARKING SPACE
EASTERN REGION Baltimore, MD	126,000	4,000	4,500	13,500
MIDDLE REGION St. Louis, MO	130,000	4,000	4,700	14,200
WESTERN REGION Salt Lake City, UT	73,000	2,000	2,600	7,600



MULTI CENTER ORGANIZATION CHART:

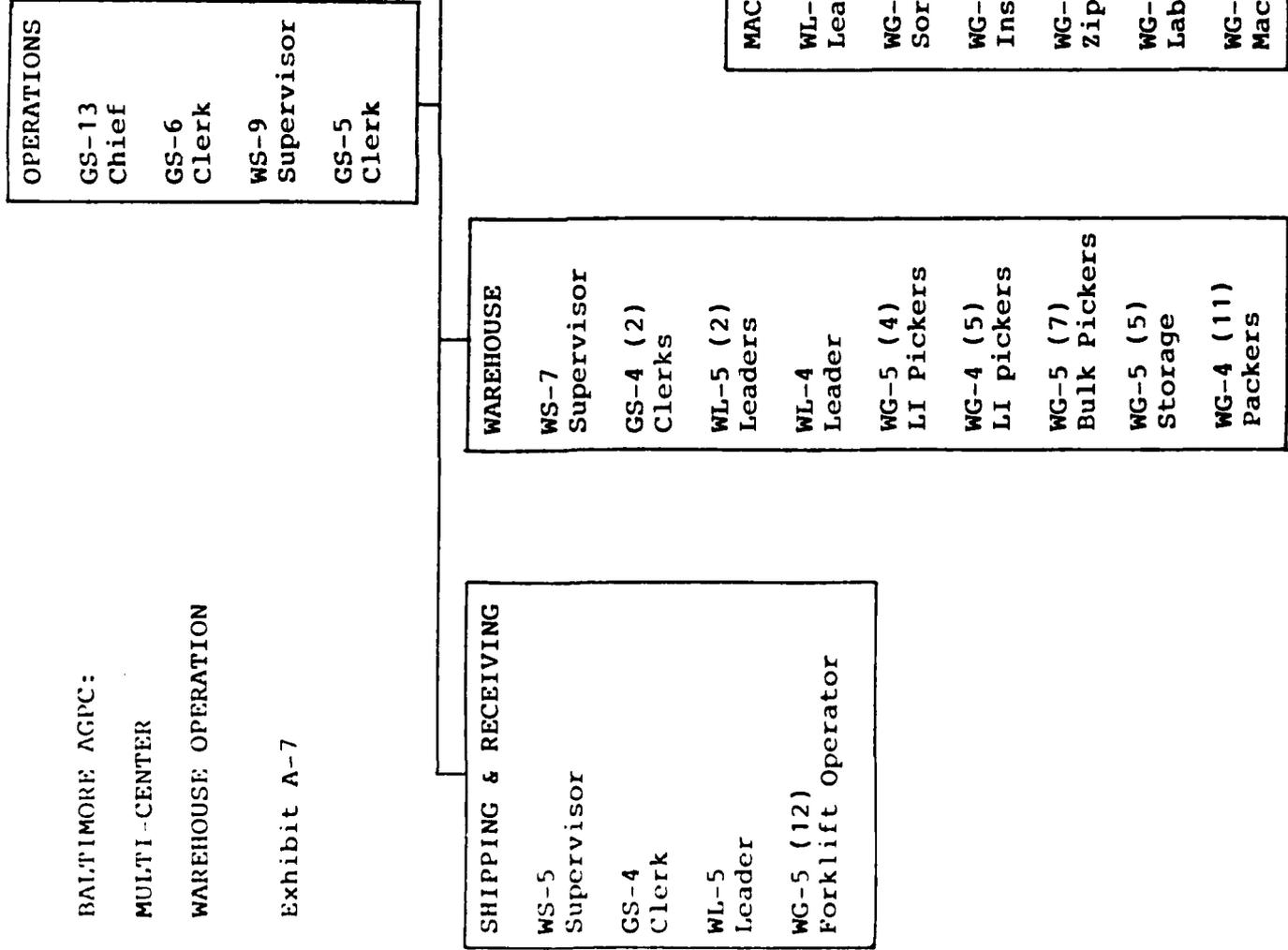
BALTIMORE AGPC

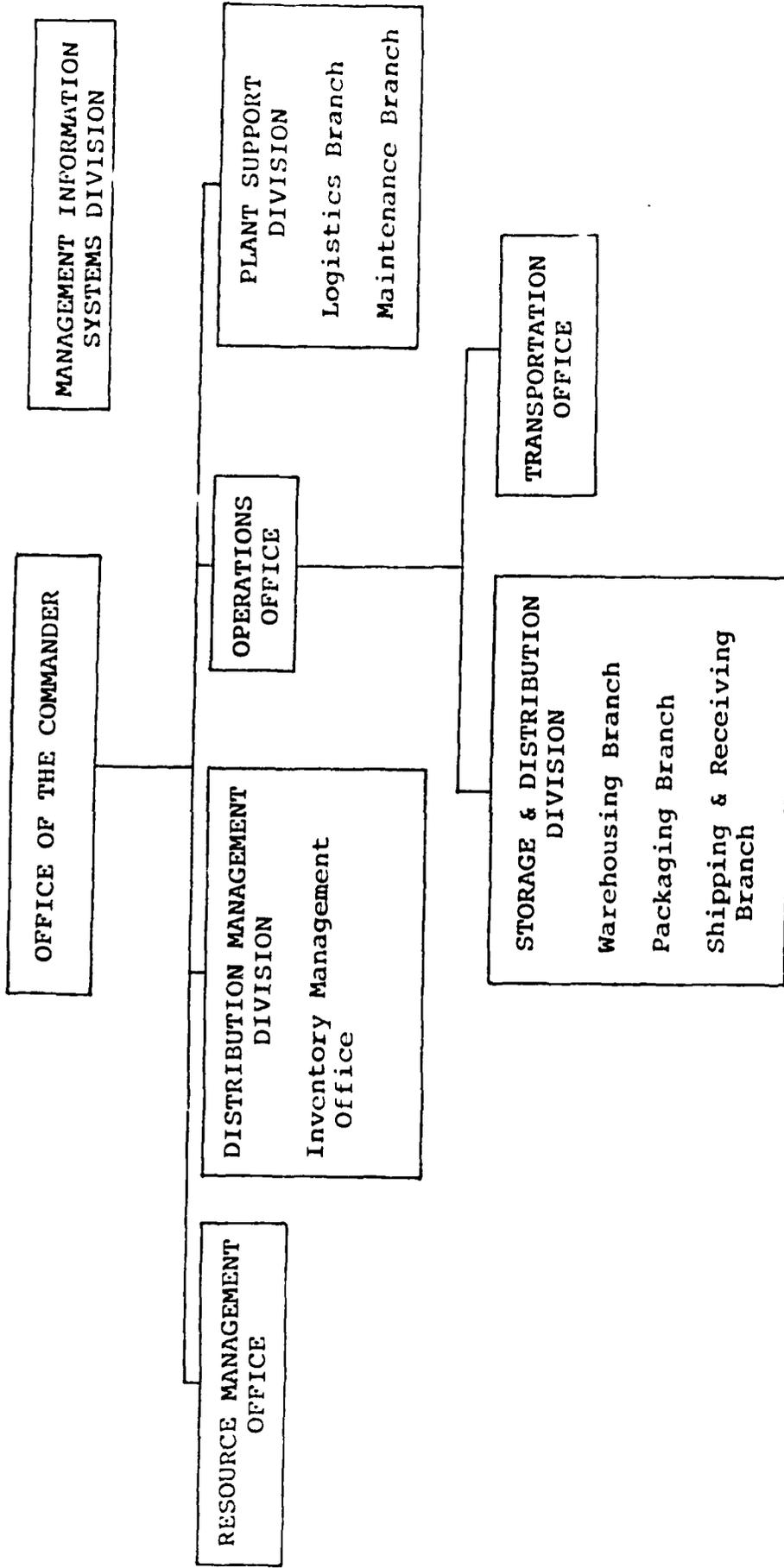
Exhibit A-6

BALTIMORE AGPC:
MULTI-CENTER

WAREHOUSE OPERATION

Exhibit A-7





MULTI CENTER ORGANIZATION CHART:

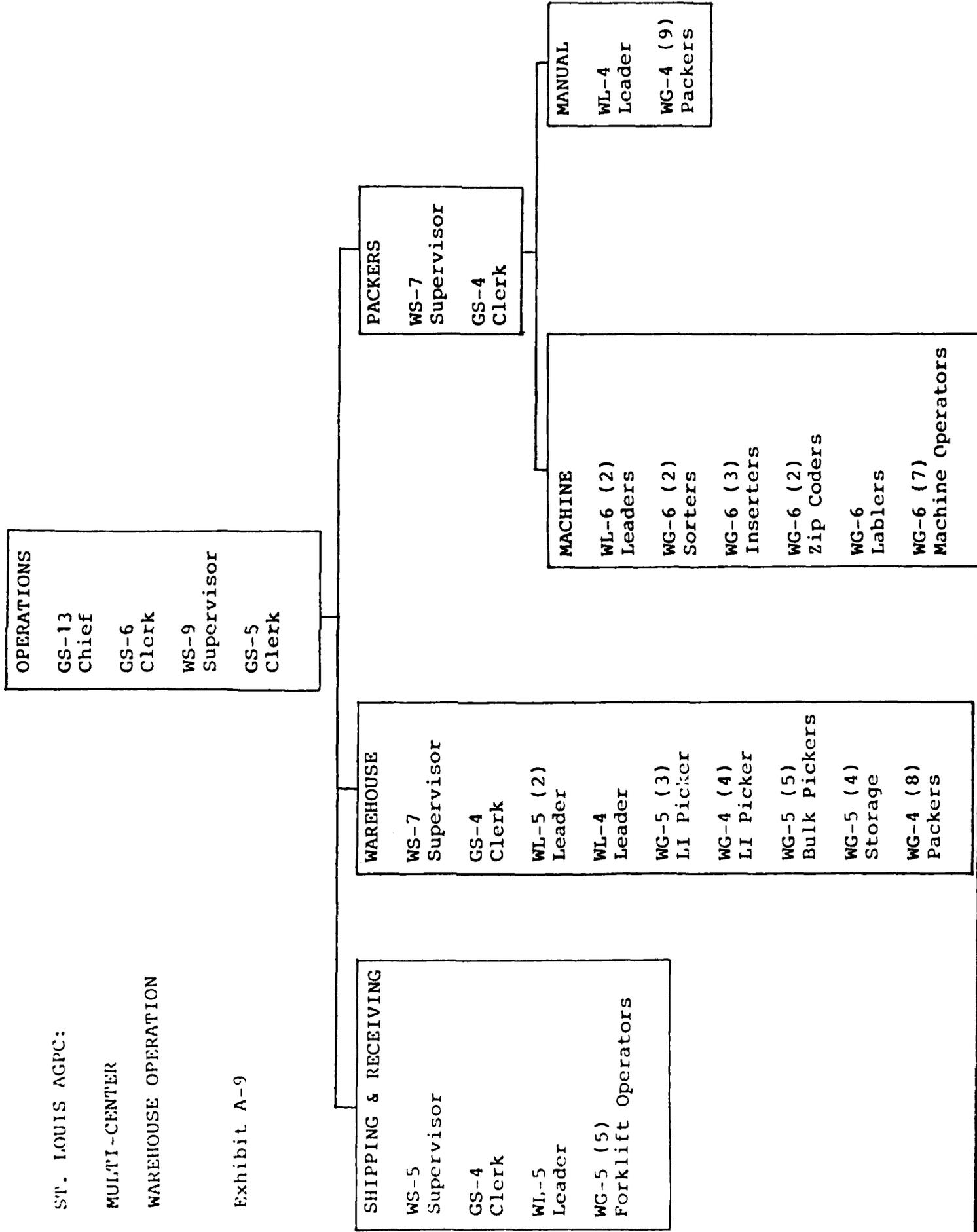
ST LOUIS AGPC

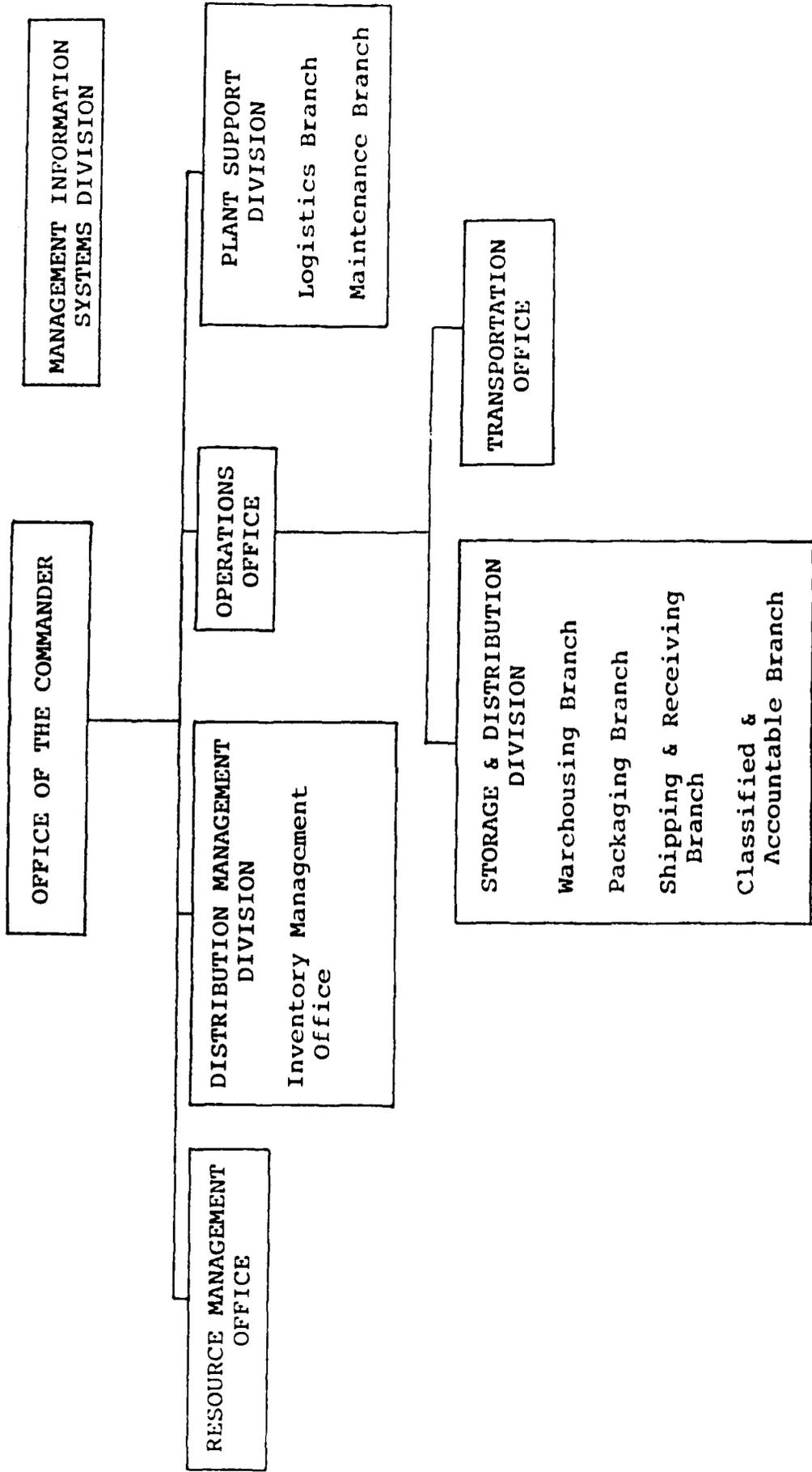
ST. LOUIS AGPC:

MULTI-CENTER

WAREHOUSE OPERATION

Exhibit A-9





MULTI CENTER ORGANIZATION CHART:

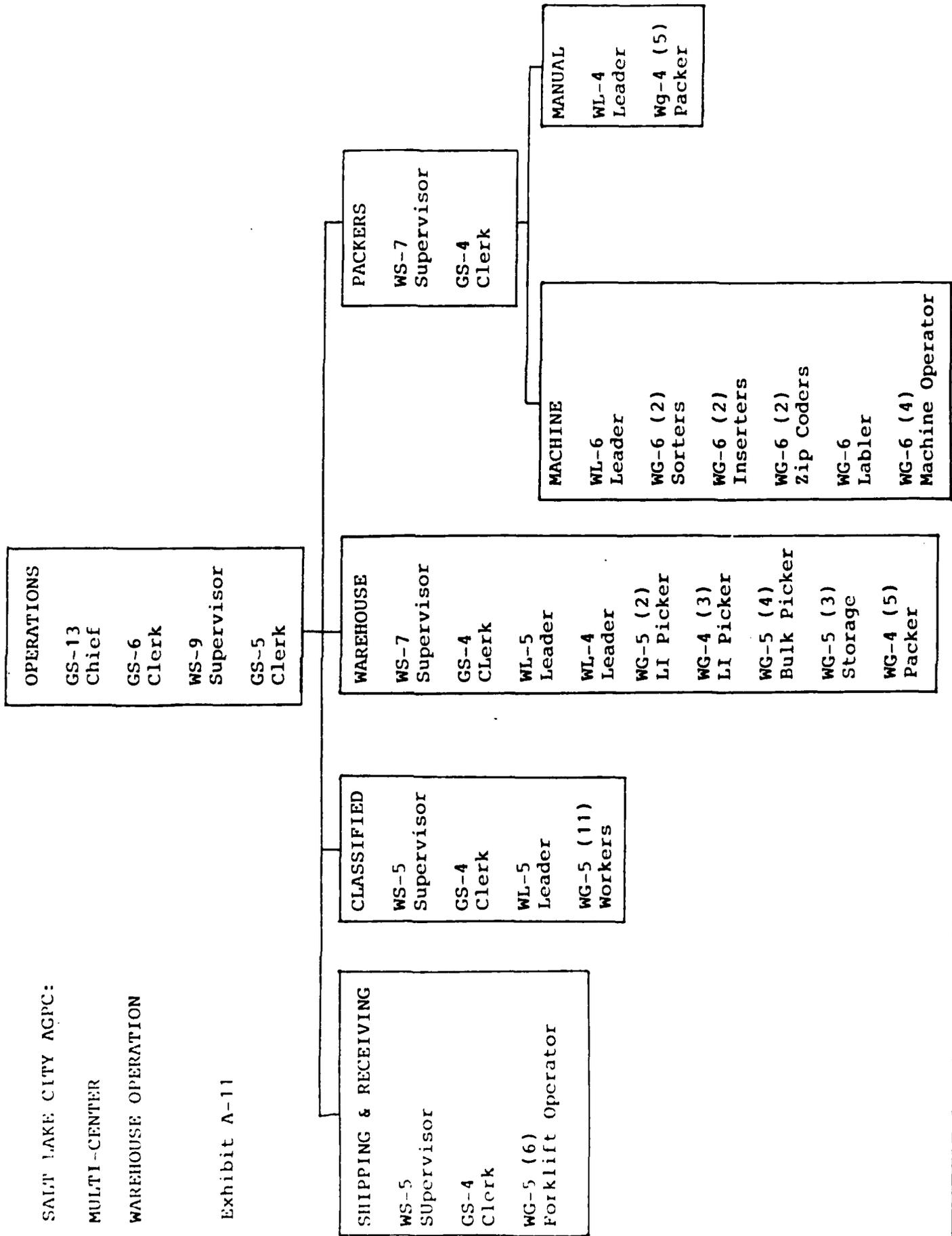
SALT LAKE CITY AGPC

SALT LAKE CITY AGPC:

MULTI-CENTER

WAREHOUSE OPERATION

Exhibit A-11



Appendix B One Center Operations

The exhibits in this appendix present operating characteristics and organizational structure for alternatives 3 and 3a, one center system in Baltimore or St. Louis. For economic comparison purposes, the one center alternative was analyzed twice, assuming both a Baltimore and a St. Louis warehouse location. Although costs will differ by location (due to varying wage rates), actual operating characteristics and organizational structure will be the same for a single center at any location. For this reason, exhibits not relating to cost are simply presented for a single center.

Using demand data, the expected Resupply and ID activity have been projected for a one center operation. Also, staffing requirements have been determined based upon expected demand and applicable production standards. The proposed staffing is presented in an overall center organization chart and a detailed warehouse operations organization chart.

Calculations supporting these exhibits are provided at the end of this appendix. Calculations are also presented as back-up to the payroll-related one-time costs and the initial center operations costs specified in section IV, Economic Analysis.

PAYROLL-RELATED ONE TIME COSTS (Baltimore)

60 Highest Paid Employees: Relocated Pay/Benefits

GS-13 (1)	40,972
GS-11 (3)	86,250
GS-9 (5)	71,283
WS-9 (3)	96,314
WS-6 (1)	28,947
WS-5 (3)	84,210
WS-4 (2)	54,428
WL-5 (1)	22,707
WL-4 (1)	21,600
WG-10 (3)	74,819
WG-9 (1)	24,042
WG-7 (6)	133,860
WG- (4)	85,900
WG- (26)	<u>536,120</u>

\$1,361,452

Total Pay/Benefits: 4,231,317

Relocated Pay/Benefits: 1,361,452

Displaced Pay/Benefits: 2,869,865

x .02

SEVERANCE PAY = 57,397

TRANSFER COST = 60 x 25,000 = \$1,500,000

ONE-TIME COST = 57,397 + 1,500,000 = \$1,557,000

PAYROLL-RELATED ONE TIME COSTS (St. Louis)

60 Highest Paid Employees: Relocated Pay Benefits

GS-13 (1)	40,972
GS-11 (3)	86,250
GS-9 (5)	71,283
WS-9 (3)	87,903
WS-6 (1)	26,964
WS-5 (3)	78,450
WS-4 (2)	50,756
WL-5 (1)	21,099
WL-4 (1)	20,286
WG-10 (3)	69,498
WG-9 (1)	22,352
WG-7 (6)	124,596
WG-6 (4)	79,888
WG-5 (26)	<u>499,200</u>

\$1,279,497

Total Pay/Benefits:	4,611,366
Relocated Pay/Benefits	<u>1,279,497</u>
Displaced Pay/Benefits	3,331,839
	<u>x .02</u>

SEVERANCE PAY = \$ 66,637

TRANSFER COST = 60 x 25,000 = \$1,500,000

ONE-TIME COST = 66,637 + 1,500 000 = \$1,567,000

ONE CENTER WAREHOUSING STAFFING

Resupply Lines - 4,560,084
ID Blocks - 8,307,447

Accounts - 24,374
Accounts - 14,535

RESUPPLY

Standard: $(101.5 \text{ lines/hr})(1744 \text{ hrs/yr}) = 177016 \text{ lines/yr}$
Resupply Packers: $(4560084 \text{ lines})/(177016 \text{ lines/yr}) = 26 \text{ workers}$
 $26/17 = 1.53$ or 153% of current staffing
LI Pickers: $(1.53)(14) = 22 \text{ workers}$
Bulk Pickers: $(1.53)(10) = \text{workers}$
Storage: $(1.53)(6) = 10 \text{ workers}$

ID

Standard (Packers): $(105.5 \text{ lines/hr})(1744 \text{ hrs/man yr}) = 183992 \text{ lines/yr}$
Standard (Mailmaster): $(730 \text{ lines/hr})(1744 \text{ hrs/man yr}) = 1273120 \text{ lines/yr}$
Standard: 1.68 lines issued/ID block

Total ID lines: $(1.68 \text{ lines/block})(8307447 \text{ blocks}) = 14000606 \text{ lines}$
Packers: $(.36)(14000606) = 5040218 \text{ lines}$
Mailmaster: $(.64)(14000606) = 8960388 \text{ lines}$

Packers: $(5040218 \text{ lines})/(183992 \text{ lines/yr}) = 28 \text{ workers}$
Inserters: $(8960388 \text{ lines})/(1273120 \text{ lines/yr}) = 8 \text{ workers}$
Zip Coders: 7 workers
Lablers: 2 workers
Machine Operators: 25 workers
Sorters: 5 workers

ONE CENTER OPERATIONS COSTS (Baltimore)

Current Operations Payroll - \$8,824,653

One Center Payroll (Baltimore)

Administrative -	1,192,097
Order Entry -	1,087,448
Transportation -	99,658
Warehousing -	<u>4,899,575</u>

\$7,278,778

decrease in payroll - \$1,563,875

current SLUC -	2,420,599
Baltimore only -	<u>1,619,436</u>

\$ 801,163 - SLUC Reduction

1,563,875
<u>+ 801,163</u>

Payroll Reduction
SLUC Reduction

\$2,365,038

Total Cost Reduction

Current operations cost: 17,088,000

cost decrease: - 2,365,000

\$14,723,000 - one center operations cost

ONE CENTER OPERATIONS COST (St. Louis)

Current Operations Payroll - \$8,842,653

One Center Payroll (St. Louis)

Administrative -	1,222,835
Order Entry -	1,087,448
Transportation -	99,658
Warehousing -	<u>5,356,517</u>

\$7,766,458

decrease in payroll - \$1,076,195

current SLUC -	2,420,599
St. Louis only -	<u>1,362,433</u>

1,058,166 - SLUC Reduction

1,076,195 -	Payroll Reduction
+ <u>1,058,166</u> -	SLUC Reduction

2,134,361 Total Cost Reduction

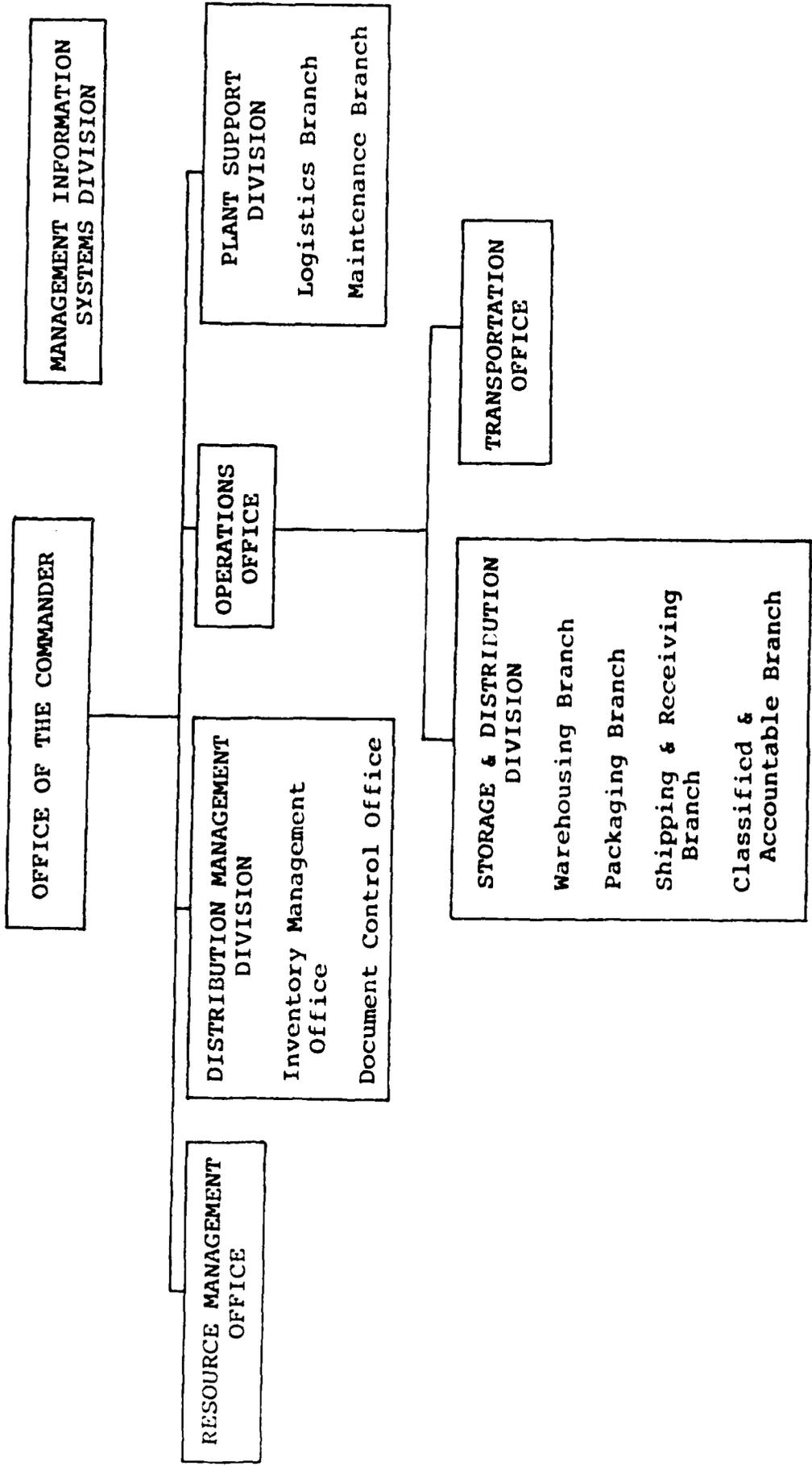
current operations cost:	17,088,000
cost reduction:	- <u>2,134,000</u>

14,954,000 - one center operation costs

	MONTHLY RESUPPLY DEMAND (thousands)			7 MO. STOCKAGE OBJECTIVE (thousands)			ID QUANTITY PER DA 12 SERIES (thousands)	
	TECH. PUBS.	TRAIN./ADMIN. PUBS.	FORMS	TECH. PUBS.	TRAIN./ADMIN. PUBS.	FORMS	TECH. PUBS.	TRAIN./ADMIN. PUBS.
SINGLE CENTER Baltimore, MD OR St. Louis, MO	931	2,100	68,600	6,500	14,100	480,000	19,400	14,400

SINGLE CENTER OPERATING CHARACTERISTICS

Exhibit B-1



SINGLE CENTER ORGANIZATION CHART:

BALTIMORE OR ST LOUIS AGPC

Exhibit B-2

ONE CENTER

WAREHOUSE OPERATIONS

Exhibit B-3

OPERATIONS
GS-13
Chief
GS-6
Clerk
WS-9
Supervisor
GS-5
Clerk

SHIPPING & RECEIVING
WS-5
Supervisor
GS-4 (2)
Clerks
WL-5 (2)
Leaders
WG-5 (25)
Forklift Operators

CLASSIFIED
WS-5
Supervisor
GS-4
Clerk
WL-5
Leader
WG-5 (11)
Workers

WAREHOUSE
WS-7
Supervisor
GS-4 (2)
Clerk
WL-5 (3)
Leaders
WL-4
Leader
WG-5 (10)
LI Pickers
WG-4 (11)
LI Pickers
WG-5 (15)
Bulk Pickers
WG-5 (9)
Storage
WG-4 (25)
Packers

PACKERS
WS-7
Supervisor
GS-4 (2)
Clerks
GS-3
Clerk

MACHINE
WL-6 (2)
Leaders
WG-6 (4)
Sorters
WG-6 (24)
Machine Operators
WG-6 (2)
Lablers
WG-6 (7)
Zip Coders
WG-6 (8)
Inserters

MANUAL
WL-4 (2)
Leaders
WG-4 (26)
Packers

AGENDA

OVERVIEW OF STATUS TO DATE

CUSTOMER ANALYSIS

CENTER COMPARISONS

ISSUES

NEXT STEPS

SYSTEM CUSTOMER

CONCERN OF BOTH STUDIES -

WHO SHOULD BE CHARGED

WHO AND WHERE ARE THEY

SOME FACTORS IN ANALYSIS

CLARITY OF AR310-2 - WHO MAY HAVE ACCOUNT

FUNCTION OF INSTALLATIONS STOCKROOM

FOCUS OF ATTENTION ON FORTS VS OTHER INSTALLATIONS

SSAF VALIDATION PROCESS

ID VS RESUPPLY

WHO ARE THE CUSTOMERS

TOTAL ACCOUNTS (SSAF) - 18 Nov 83 25275

REGULAR (A/NUM) 15958
SPECIAL (NUMBER) 9317

SPECIAL ACCOUNTS

NOT CODED BY MACOM 380
(MILITARY ADDRESS) (140)

RPI ACCOUNTS 7218
USAREC 5995
TRADOC 1222
OTHER 1

FMS 4

CODE U (NON-POD) 1714

REGULAR ACCOUNTS

TOTAL - 18 Nov 83		15958
NOT CODED BY MACOM (MILITARY ADDRESS)	350 (242)	
NON-ARMY CODED		1518
FMS	263	
MISC - DOD AGENCIES	274	
CODED - NON DOD	981	
ARMY CODED		14090
USAR	2946	
ARNG	2524	
FORSCOM	2484	
TRADOC	1942	
USAREUR	1604	
ALL OTHER ARMY	2590	

WHO ARE CUSTOMERS

OF TOTAL ACCOUNTS - ABOUT	3%	ONE TIME OR SPECIAL (UNCODED)
ABOUT	85%	CODED TO ARMY
ABOUT	28%	RPI
ABOUT	8%	NON-DOD
ABOUT	22%	RESERVE AND ARNG
ABOUT	4%	DOD AGENCIES/COMMANDS
OF SPECIAL ACCOUNTS ABOUT	78%	RPI ACCOUNTS
ABOUT	18%	NON-DOD
ABOUT	4%	UNCODED
OF REGULAR ACCOUNTS ABOUT	2%	UNCODED
ABOUT	10%	NON-ARMY
ABOUT	6%	DOD AGENCIES/COMMANDS
ABOUT	18%	USAR
ABOUT	16%	ARNG
ABOUT	16%	FORSCOM
ABOUT	12%	TRADOC
ABOUT	10%	USAREUR
ABOUT	16%	ALL OTHER ARMY

RESUPPLY STATISTICAL SUMMARY

ARMY MACOM

<u>COMMAND</u>	<u>ACCOUNTS</u>		<u>6 MONTHS LINES REQUESTED</u>		<u>AVG LINES PER ACCOUNT</u>
	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	
FORSCOM	2484	11.8	727767	27.7	293
USAREUR	1604	7.6	482744	18.4	301
ARNG	2524	12.0	465970	17.7	185
USAR	2947	14.0	274361	10.4	93
TRADOC	3164	15.1	195232	7.4	62
USAREC	6065	28.9	89852	3.4	15
ALL OTHER	2228	10.6	390189	14.9	175
TOTAL	21016	100.0	2626115	100.0	125
(LESS USAREC) (14951)			(2536263)		(170)

PUBLICATION STOCKROOMS; EAST

- (1) FT. DEVENS, MA
- (2) WATERVLIET ARSENAL, NY
- (3) USMA, WEST POINT, NY
- (4) SENECA ARMY DEPOT, NY
- (5) FT. DRUM, NY
- (6) FT. MONMOUTH, NJ
- (7) FT. DIX, NJ
- (8) USA, ARDC DOVER, NJ
- (9) MTMC, BAYONNE, NJ
- (10) TOBYHANNA ARMY DEPOT, PA
- (11) FT. INDIANTOWN GAP, PA
- (12) CARLISLE BARRACKS, PA
- (13) NEW CUMBERLAND DEPOT, PA
- (14) LETTERKENNY DEPOT, PA
- (15) ABERDEEN PG, MD
- (16) FT. MEADE, MD
- (17) FT. RITCHIE, MD
- (18) FT. DETRICK, MD
- (19) WRAMC, WASHINGTON, D.C.
- (20) FT. MONROE, VA
- (21) FT. BELVOIR, VA
- (22) VINT HILL FARM STATION, VA
- (23) ARLINGTON HALL STATION, VA
- (24) FT. EUSTIS, VA
- (25) FT. LEE, VA
- (26) FT. BRAGG, NC
- (27) FT. JACKSON, SC
- (28) FT. GORDON, GA
- (29) FT. STEWART, GA
- (30) FT. BENNING, GA
- (31) FT. GILLEM, GA
- (32) APO, MIAMI, FL
- (33) FT. BUCHANAN, PP

PUBLICATION STOCKROOMS: MIDEAST

- (34) FT. CAMPBELL KY
- (35) LEXINGTON BLUE GRASS DEPOT, KY
- (36) FT. KNOX, KY
- (37) ROCK ISLAND ARSENAL, IL
- (38) FT. SHERIDAN, IL
- (39) JEFFERSON PG, IN
- (40) FT. BEN HARRISON, IN
- (41) FT. RUCKER, AL
- (42) ANNISTON, AL
- (43) FT. MCCLELLAN, AL
- (44) FT. POLK, LA
- (45) PINE BLUFF ARSENAL, AR
- (46) FT. MCCOY, WI
- (47) FT. LEONARD WOOD, MO

PUBLICATION STOCKROOMS: WEST

- (62) DUGWAY PG, UT
- (63) TOOELE ARMY DEPOT, UT
- (64) YUMA PG, AZ
- (65) FT. HUACHUCA, AZ
- (66) NAVAJO ARMY DEPOT, AZ
- (67) FT. WINGATE DEPOT, MN
- (68) WHITE SANDS MSL RNG, MN
- (69) SACRAMENTO ARMY DEPOT, CA
- (70) FT. ORD, CA
- (71) SHARPE ARMY DEPOT, CA
- (72) PRESIDIO OF S.F., CA
- (73) APO, S.F., USA AG PRT. AND PUB CNT., CA
- (74) APO, S.F. USAGO, CA
- (75) SIERRA ARMY DEPOT, CA
- (76) FT. LEWIS, WA
- (77) MADIGAN ARMY MEDICAL CENTER, WA
- (78) FT. RICHARDSON, AK
- (79) FT. SHAFTER, HI

FURTHER ANALYSIS

GEOGRAPHIC DISTRIBUTION

RELATE TYPES OF PUBS TO ACCOUNTS

RELATE QUANTITY TO ACCOUNTS

TRANSLATE INTO COSTS

CUSTOMER ACCOUNTS

IMPRECISE DEFINITION - WHO CAN HAVE ACCOUNT

IS THE ACCOUNT THE CUSTOMER?

SINGLE CUSTOMER SEVERAL ACCOUNTS

SUPPORT OF USER NOT ELIGIBLE FOR ACCOUNT

TREATMENT OF CLASS II'S

VALIDATION OF CUSTOMER NEEDS

STANDARD SINGLE ACCOUNT FILE VALIDTION

ACCOUNT NUMBERING SYSTEM RATIONALE



US ARMY AG PUBLICATIONS CENTER
 2800 Eastern Boulevard
 Baltimore, Maryland 21220

Comd (301) 962 ext
 ATTENTION 584 AV ext
 FTS 922 Comd ext

DAAG FAS: 0730 1000
 After duty hours
 To record messages AV 584 2533

LIO - Mr. A. Rice 7429
 PNP - Mrs. M. Duluna 7206

OFFICE OF THE COMMANDER
 AGIM-2

Commander	Comd/AV	7201/3887
LTC Gordon C. Rollins		
Secretary		7201/3887
Mrs. Gloria L. Myers		
Executive Officer (AGIM-ZX)		
MAJ Karl F. Carson	7202/3887	
Secretary		7202/3887
Vacant		7231/-----
Word Processing Center		
Publications Ln W30 (AGIM-A)		7223/4163
SFC John Mithen		

MANAGEMENT INFORMATION SYSTEMS DIVISION
 DAAG FAL

Chief	Comd/AV	7236/3916
Mr. William J. McFadden		
Secretary		7236/3916
Mrs. Betty Rye		

LOGISTICS DIVISION
 AGIM-L

Chief	Comd/AV	7220/3033
Mr. Walter Patrick		
Supply		7225/3033
Mrs. Yukone Bell		
Mrs. Drena Brocato		7256/3033
Maintenance		
Mr. Jesse Dalton		
*Safety Officer		

OPERATIONS OFFICE
 AGIM-O

Chief	Comd/AV	7202/3887
Vacant		
Deputy		7202/3887
Mr. Charles Havens*		
*Acting Chief		

RESOURCE MANAGEMENT OFFICE
 AGIM-R

Chief	Comd/AV	7204/2893
Ms. Thelma Thornbloom		
Administration		7204/2893
Vacant		
Management Analyst		7204/2893
Vacant		
Budget		7204/2893
Mrs. Mary Royston		
Quality Assurance		7204/2893
Mrs. Nattie Murray		
Mr. Nathaniel Gordon		
Mrs. Margaret Duluna		

DISTRIBUTION MANAGEMENT DIVISION
 AGIM-O-D

Chief	Comd/AV	7237/2272
Mrs. Helen Surman		
Inventory Management Br		7277/2740
Mr. Karen Slough, Chief		
Document Control Branch		7230/3775
Mrs. Jean Payne, Chief		

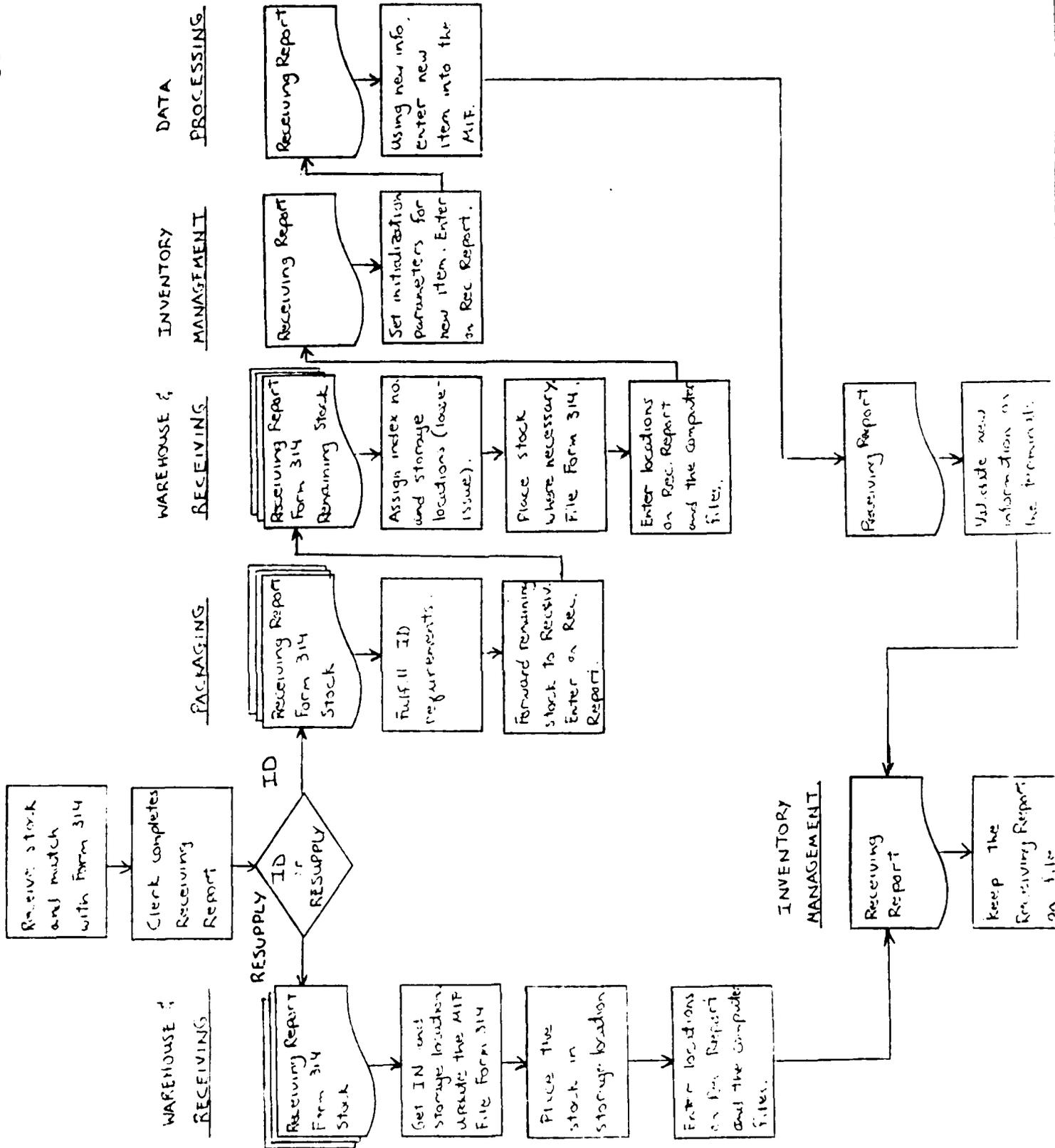
STORAGE & DISTRIBUTION DIVISION
 AGIM-O-SD

Chief	Comd/AV	7243/-----
Mr. Jesse Armentrout		
Warehousing Branch		7264/
Mr. Cornelius Lee, Chief		
Packaging Branch		7270/-----
Mr. Melvin Ernst, Chief		
Receiving & Shipping Br		7269/-----
Mr. W. Washington, Chief		
Classified & Accountable Br		7257/2740
Mr. Freddie Melcher, Chief		

TRANSPORTATION OFFICE
 AGIM-O-T

Chief	Comd/AV	7247/4230
Ms. Katherine Rosegrant		
Freight Rate Specialist		7247/4230
Ms. M. Joan Buebel		
Shipment Clerk		7247/4230
Ms. Jeanne Macko		

RECEIVING REPORT AGDL FORM 93



RECEIVING REPORT

NO 67768

2 NOMENCLATURE												
3 UNIT OF MEAS			4 TYPE	5 CHANGE NO		6 INCLUDING CHANGES		7 PUBL FORM DATE Y M M		8 CARTON QUANTITY		
9 QUANTITY PER CARTON				10 WEIGHT PER PAGE				11 LOOSE LEAF INDICATION		12 CODE (SEE CAPACITY)	13 CATION CODE	
14 ORDER POINT			15 NUMBER OF PAGES		16 UNIT PRICE		17 PERCEDED ITEM NUMBER		18 WEIGHT OF ITEM			
19 CARTON DATE			20 LOOSE LEAF	21 NUMBER OF CARTONS		22 QUANTITY PER CARTON		23 TOTAL QUANTITY		24 NEW ITEM COMP'T PART'L	25 REPRINT COMP'T PART'L	
26 WEIGHT OF SHIPMENT				27 QUANTITY PER SHIPMENT				28 PRIORITY	29 PRINTER INIT. LIST	30 SHORT SHIPMENT		
31 QUANTITY PER SHIPMENT				32 QUANTITY PER SHIPMENT				33 RETURNED STOCK	34 STOCK TRANSFER		35 SHIPPING PACKING	
36 QUANTITY PER SHIPMENT				37 RECEIVED FROM (ENTER NAME)								
38 TEMPORARY LOCATION				39 COMMENTS				40 COMMENTS				
41 TAXITE			42 TAXITE			43 TAXITE			44 TAXITE			

RECEIVING REPORT

NO

2 NOMENCLATURE													
3 UNIT OF ISSUE		4 TYPE	5 CHANGE NO		6 INCLUDING CHANGES			7 PUBL FORM DATE Y M M		8 CARTON QUANTITY	9 CIC	10 CLASS CODE	
11 QUANTITY FOR STOCK			12 ITEM NUMBER			13 LOOSE ISSUE LOCATION			14 LOOSE ISSUE CAPACITY	15 CAT CODE	16 FORMS CODE	17 PROPONENT CODE	
18 ORDER POINT			19 NUMBER OF PAGES		20 UNIT PRICE		21 SUPERSEDED ITEM NUMBER			22 WEIGHT OF ITEM			
23 CARTON SIZE		24 LOOSE LEAF	25 NUMBER OF CARTONS		26 QUANTITY PER CARTON		27 TOTAL QUANTITY		28 NEW ITEM COMPT PARTL		29 REPRINT COMPT PARTL		
30 WEIGHT OF SHIPMENT			31 PRIORITY			32 PRINTER INIT DIST		33 SHORT SHIPMENT		34 RETURNED STOCK		35 STOCK TRANSFER	36 SHIPPING INSTRUCTIONS
37 QUANTITY FOR INIT DIST			38 QUANTITY FOR INIT DIST			39 RECEIVED FROM (PRINTER NAME)							
40 TEMPORARY LOCATION			41 QUANTITY			42 APPROVED BY (NUMBER)							
43			44			45							
46			47			48							
49			50			51							
52			53			54							
55			56			57							
58			59			60							
61			62			63							
64			65			66							
67			68			69							
70			71			72							
73			74			75							
76			77			78							
79			80			81							
82			83			84							
85			86			87							
88			89			90							
91			92			93							
94			95			96							
97			98			99							
100			101			102							

RECEIVING REPORT

1. REPORT NO	2. ITEM NO	3. ILLUSTRATION, FORM NOMENCLATURE	4. U/Z
5. FOR WHAT UNIT	6. QTY RECEIVED	7. DATE RECEIVED	8. NO CTNS & PIECES
			8a. CTN QTY

9. FROM: _____

10. RECEIVED BY: _____

11. REMARKS:

a. PRINTERS NAME _____

b. GBL NO _____

c. DA EQUIPMENT ORDER NO _____

12.	13.
a. <input type="checkbox"/> NEW	a. QTY FOR WHSE (if split) _____
b. <input type="checkbox"/> REPRINT	b. QTY FOR ID _____
c. <input type="checkbox"/> STK TRSP	c. QTY FOR STOCK AFTER ID _____
d. <input type="checkbox"/> RETURN	d. TOTAL QTY IN WHSE (a+c) _____
e. <input type="checkbox"/> PARTIAL	
f. <input type="checkbox"/> COMPLETE	

14. LOCATION

15. REMARKS

NO-A103 021

THE ADJUTANT GENERAL'S PUBLICATIONS CENTERS HOW MANY
AND WHERE(U) MANAGEMENT ANALYSIS INC VIENNA VA
03 AUG 84 MDA903-83-C-0491

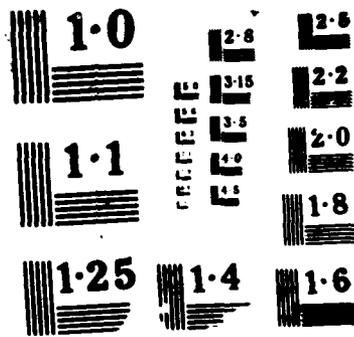
2/2

UNCLASSIFIED

F/G 5/2

NL





RECEIVING REPORT

1. REPORT NO	2. ITEM NO	3. PUBLICATION/FORM NOMENCLATURE	4. U/I
--------------	------------	----------------------------------	--------

5. PUB/FORM DATE	6. QTY RECEIVED	7. DATE RECEIVED	8. NO CTNS & PIECES
			8a. CTN QTY

9. WEIGHT	10. RECEIVED BY
-----------	-----------------

11. RECEIVED FROM

a. PRINTERS NAME _____

b. GBL NO _____

c. DA RQN/PRINT ORDER NO _____

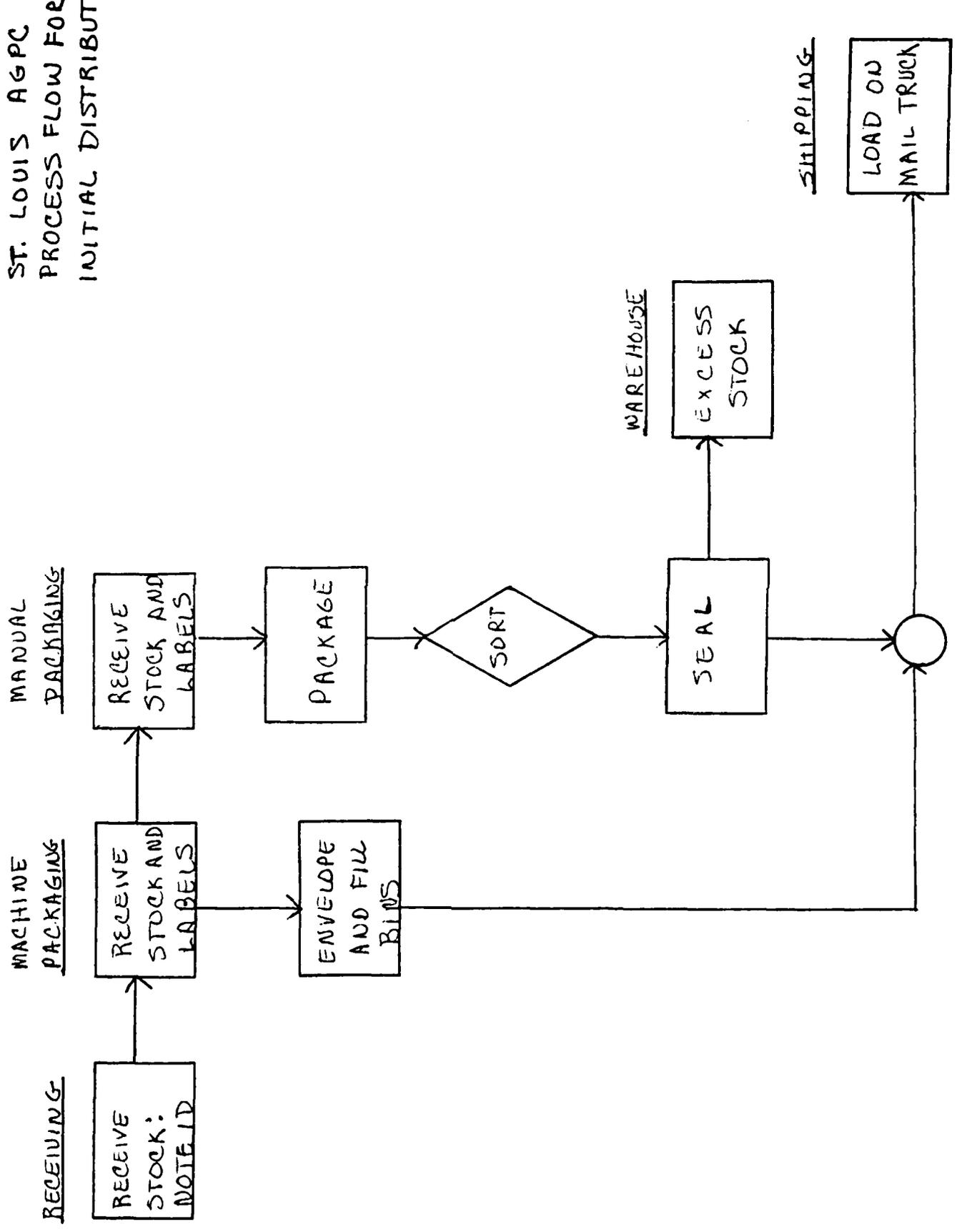
<p>12.</p> <p>a. <input type="checkbox"/> NEW</p> <p>b. <input type="checkbox"/> REPRINT</p> <p>c. <input type="checkbox"/> STK TRSF</p> <p>d. <input type="checkbox"/> RETURN</p> <p>e. <input type="checkbox"/> PARTIAL</p> <p>f. <input type="checkbox"/> COMPLETE</p>	<p>13.</p> <p>a. QTY FOR WHSE (if split) _____</p> <p>b. QTY FOR ID _____</p> <p>c. QTY FOR STOCK AFTER ID _____</p> <p>d. TOTAL QTY IN WHSE (a+c) _____</p>
---	--

14. LOCATION		

15. REMARKS

COPIES PULLED _____

ST. LOUIS AGPC
PROCESS FLOW FOR
INITIAL DISTRIBUTION



RECEIVING

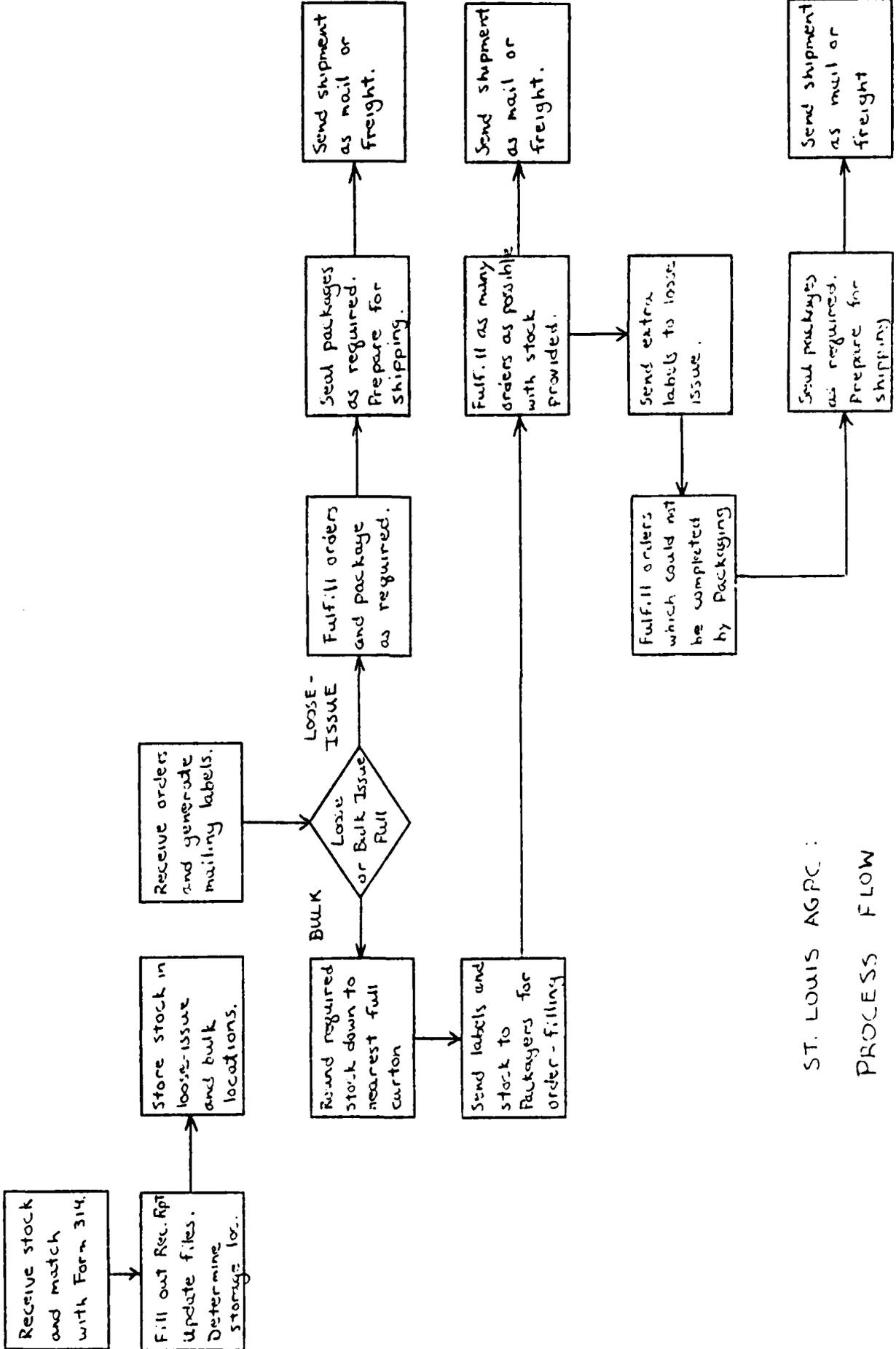
WHOUSING

MISD

LOOSE - ISSUE

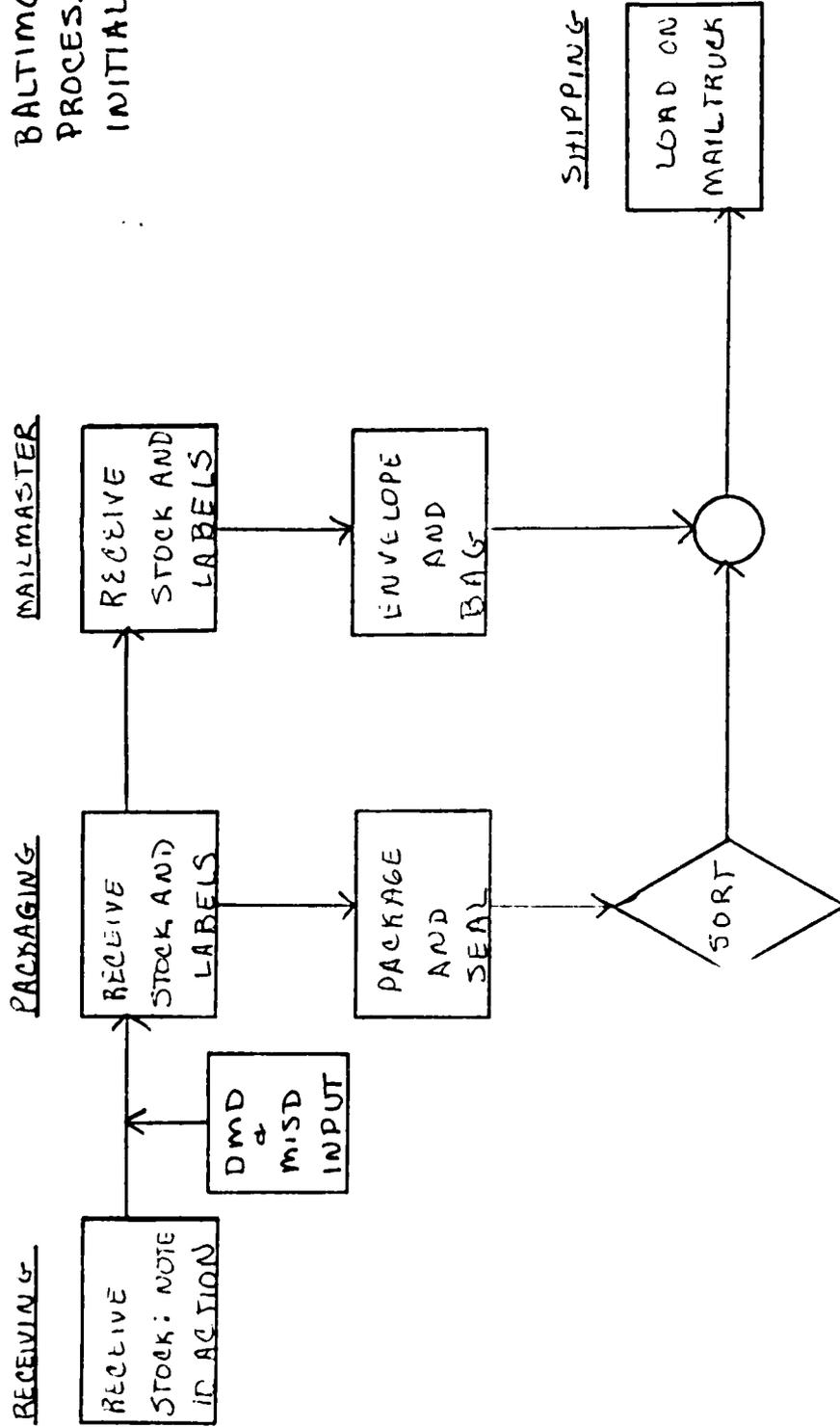
PACKAGERS

SHIPPING



ST. LOUIS AGRC :
 PROCESS FLOW
 OF RESUPPLY

BALTIMORE AGPC
PROCESS FLOW FOR
INITIAL DISTRIBUTION



RECEIVING

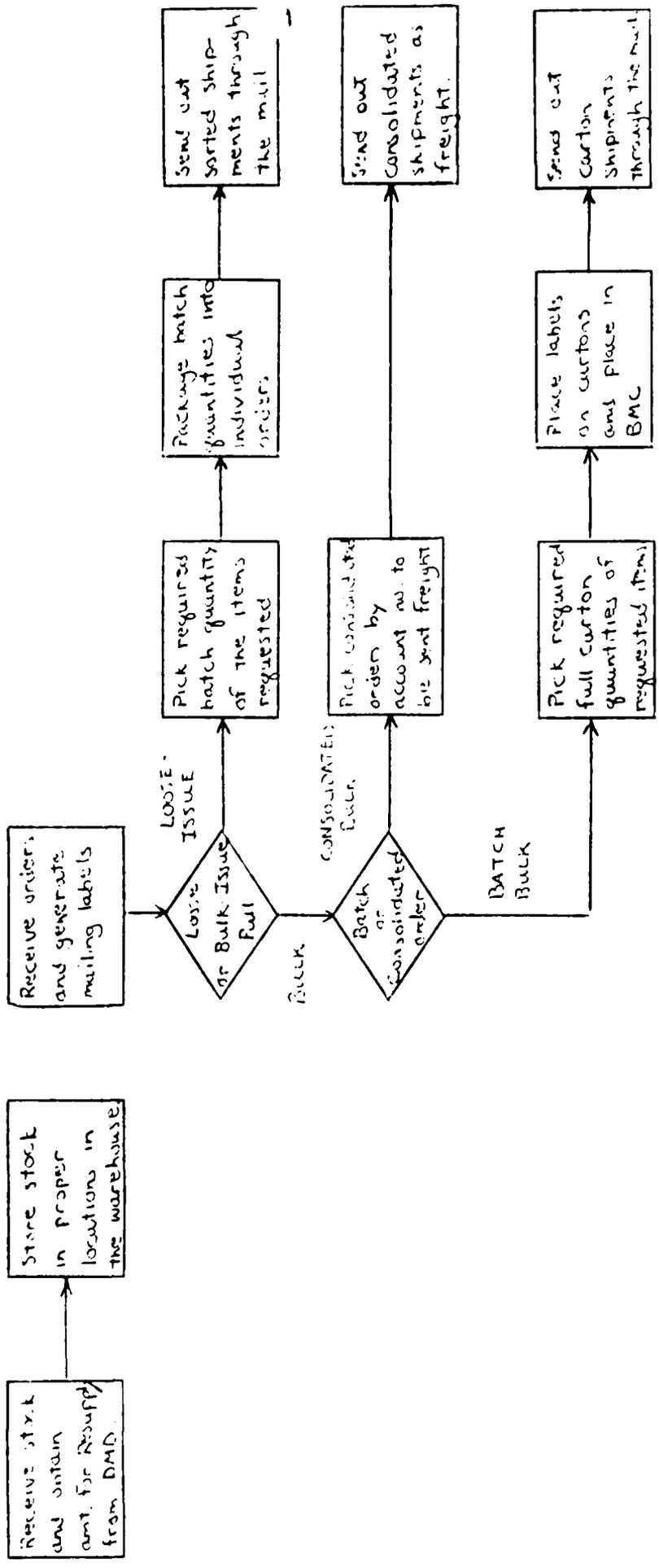
WHOUSING (STORAGE)

MISD

WHOUSING (PICKERS)

PACKAGING

SHIPPING



BALTIMORE AGPC
 PROCESS FLOW
 OF RESUPPLY

WORKLOAD FACTORS

FUNCTION	BALTIMORE	ST. LOUIS
PACKAGING ID	LINE ITEMS CASES	PIECES PIECES
SORTATION	PACKAGES	-
BULK PICKERS	ITEMS	ITEMS
LOOSE-ISSUE PICK	ITEMS	LINE ITEMS

MINIMUM WAGE DETERMINATIONS
under the
WALSH-HEALEY PUBLIC CONTRACTS ACT



UNITED STATES DEPARTMENT OF LABOR
W. WILLARD WIRTZ, *Secretary*
Wage and Hour and Public Contracts Divisions

WASHINGTON, D.C. 20210

WHPC Publication 1202
Printed March 1967

EXHIBIT 17

BAGPC
ZERO DEMAND ITEMS FOR
18 MONTHS ENDING OCT. 18, 1983

# ITEMS	653
BOH OF ITEMS	32,297,936
ITEMS W/ BOH>1,000,000	8
ITEMS W/ BOH>10,000	132
ITEMS W/ BOH = 0	17

SLAGPC
ZERO DEMAND FORMS FOR
18 MONTHS ENDING FEB. 12, 1983

# ITEMS	72
BOH OF ITEMS	5,706,938
ITEMS W/ BOH>1,000,000	12
ITEMS W/ BOH>10,000	35
ITEMS W/ BOH = 0	0

SAMPLE OF SPECIAL DISTRIBUTION LISTS
TM'S

11-5410- 216-24P	11-6625- 2773-30P	11-6625 3005-24P	11-6625 3004-24P	11-6625 435-12-1,C3
---------------------	----------------------	---------------------	---------------------	------------------------

1	X	X	X	X	
2	X	X	X	X	
3	X	X	X	X	
4	X	X	X	X	
5	X	X	X	X	
6	X	X	X	X	
7	X	X	X	X	
8	X	X	X	X	
9	X	X	X	X	
10	X	X	X	X	
11	X	X	X	X	
12	X	X	X	X	
13	X	X	X	X	
14	X	X	X	X	
15	X	X	X	X	
16	X	X	X	X	
17	X	X	X	X	
18	X	X	X	X	
19	X	X	X	X	
20	X	X	X	X	
21	X	X	X	X	
22	X	X	X	X	
23	X	X	X	X	
24	X	X	X	X	
25	X	X	X	X	
26	X	X	X	X	
27	X	X	X	X	
28	X	X	X	X	
29	X	X	X	X	
30	X	X	X	X	
31	X	X	X	X	
32	X	X	X	X	
33	X	X	X	X	
34	X	X	X	X	
35	X	X	X	X	
36	X	X	X	X	
37	X	X	X	X	
38	X	X	X	X	
39	X	X	X	X	
40			X	X	X
41				X	X
42				X	X
43				X	X
44				X	X
45				X	X

ST. LOUIS ZERO BALANCE ANALYSIS
FY 83

Pubs - Total Sample Size	346,354
- % Stock Out	11%
- % of Stock Outs with Backorders	59%
Forms - Total Sample Size	34,822
- % Stock Out	9%
- % of Stock Outs with Backorders	68%

PAPER EXCESS SUMMARY

CATEGORY CODE	CATEGORY OF ITEM	NO. OF ITEMS MANAGED	NO. OF ITEM EXCEL'S TRACK	NO. OF ITEM HAVING EXCEL'S TRACK	PERCENTAGE OF ITEMS IN EXCESS (COMBINATION)
0	BLANK FORMS	2,422	639		26
1	ARTIST'S, FM'S, & TOE'S	2,023	221		11
2	ART'S & CIP'S	1,009	107		11
3	ART'S, ATT'S, ASUBJSD'S, FT'S, JTA'S, PAM'S & TOE'S	1,302	140		11
4	MISC PUR'S (NUMBERED)	327	38		12
5	CLASSIFIED	588	38		6
6	CMH PUR'S	239	88		37
7	FEMA	131	-		-
8	MISC PUR'S (OTHER)	1,218	151		12
-	UNREPORTED CATEGORY CODE	1	-		-
	GRAND TOTAL	9,780	1,465		15
	NFT EXCESS (EXCEL FORMS & CMH PURS)		789		10

BAGPC - STOCK HELD MORE THAN ONE WEEK

<u>Week of</u>	<u># Copies</u>	<u># Classified Copies</u>	<u># Items</u>	<u># Classified Items</u>
11/07/83	43,916	698	10	2
10/31/83	43,683	200	6	1
10/24/83	39,698	-	4	-
10/17/83	39,698	-	4	-
10/10/83	36,798	-	3	-
10/03/83	37,018	-	5	-
9/26/83	47,105	-	6	-
9/19/83	93,600	-	2	-
9/12/83	36,000	-	1	-
9/05/83	53,023	225	5	2
8/29/83	58,274	1,023	12	3
8/22/83	39,428	225	8	2
8/15/83	69,428	225	10	2
8/08/83	49,695	225	9	2
8/01/83	56,718	225	7	2
7/25/83	107,851	225	8	2
7/17/83	216,653	225	16	2
*7/10/83	2,487,325	75	17	1
7/03/83	2,408,671	75	12	1
6/26/83	<u>2,371,777</u>	<u>75</u>	<u>11</u>	<u>1</u>
20 weeks	8,336,359	3,621	156	23
Avg/week	416,818	181	7.8	1.2
*Avg/week	62,858			

- * Receipt of 2,227,500 Champus poster.
- * Weekly average without Champus posters

RAGPC-CUSTOMER SERVICE SECTION

TYPES OF INQUIRES

	AUG	SEP	OCT	NOV
NEW ACCOUNT	101	96	74	101
PREP. OF 12-SERIES	53	54	32	73
VALIDATION	176	180	93	62
NON-RECEIPT OF ID	88	68	42	92
ID PRINTOUT REQUEST	407	404	485	536
TRACER ACTION FOR ST.L	88	80	59	68
ERROR REJECTS	848	1300	1424	1546
PRIORITY	795	1332	1398	1506
GENERAL PUBLIC	103	67	96	73
TOTAL	2659	3514	3703	3984

SLAGPC _ CUSTOMER SERVICE SECTION

TYPES OF INQUIRES

	MAY	JUN	JUL	AUG	SEP	OCT	TOTAL
NEW ACCOUNTS	7	44	48	90	0	1	190
PREP. OF 12 -SERIES	17	25	17	8	2	13	82
STATUS OF PUBLICATION	354	543	417	462	444	247	2467
MONRECEIPT OF ID	17	23	20	3	5	4	72
ID PRINTOUT REQUEST	7	12	5	3	4	0	31
STATUS OF SHIPMENT	281	368	287	186	79	122	1323
TRACER ACTION ON SHIPMENT	223	358	223	83	31	49	967
REJECT CODES	139	295	228	172	136	165	1135
PRIORITY RESUPPLY REQUESTS	39	29	50	57	27	128	330
	1084	1697	1295	1064	728	729	6597

-HOT LINE - 2%

INITIAL DISTRIBUTION

PROBLEMS WITH DA 12 SERIES -

BLOCKS VS INDIVIDUAL PUBS
TREATMENT OF COMMON VS UNIQUE PUBS
WHO SHOULD SUBMIT
TIMELINESS

REQUIREMENTS DETERMINATION -

DA 12 SERIES ARE ONLY PART
SPECIAL DISTRIBUTION
"WHO" SHOULD APPROVE

CONCEPTUAL

DOES NOT "PRACTICE WHAT IT PREACHES"
NEED FOR PRO-RATION PROCESS
LACK OF KNOWLEDGE IN FIELD

NO RELATIONSHIP TO RESUPPLY

INVENTORY MANAGEMENT

NO ONE IN CHARGE OF FUNCTION AS A WHOLE:

CONTROL ACQUISITION, ALLOCATION, DISPOSAL

INCLUDES: CATALOGING
REQUIREMENTS DETERMINATION
PROCUREMENT & PRODUCTION
DISTRIBUTION
DISPOSAL

DECENTRALIZED-SUPPLY CONTROL - CENTERS

CONTROL ITEMS WITHIN THE "SUPPLY" SYSTEM

- REQUISITIONING
- RECEIPT, STORAGE, ISSUE

DECENTRALIZED STOCK CONTROL - CENTERS/MISD

MAINTAIN DATA ON - QUANTITY, LOCATION, CONDITION,
DUE IN, ON-HAND, DUE OUT,
QUANTITIES AVAILABLE FOR ISSUE

TO FACILITATE DISTRIBUTION AND MANAGEMENT OF MATERIAL

OPERATING A RETAIL SYSTEM WITH WHOLESALE CONCEPTS; AND NO ONE
TAKING A SYSTEM VIEW.

BALTIMORE MODERNIZATION EFFORTS

- ° ISMHS - INTEGRATED STORAGE & MATERIAL HANDLING SYSTEM
- ° PACS - PACKAGE ASSEMBLY & CONVEYING SYSTEM
- ° WCS - WAREHOUSE CONTROL SYSTEM

- HIGH STORAGE
- DECREASED SPACE REQUIREMENTS
- COMPLETION DATE - 1985
- NARROW AISLE
- 490,000 SQ. FT.

ST. LOUIS MODERNIZATION EFFORTS

- ° TOPS - TRANSPORTATION OF PALLETS SYSTEM
- ° ASRS - AUTOMATED STORAGE & RETRIEVAL SYSTEM
- ° AGVS - AUTOMATED GUIDED VEHICULAR SYSTEM

- HIGH STORAGE
- INCREASED SPACE REQUIREMENTS
- COMPLETION DATE - 1988
- NARROW AISLE
- 50% - 70%

COST FIGURES
FY 83

BAGPC

SLUC	\$2,431,435
\$/square foot	\$2.42

SLAGPC

Woodson Road SLUC	\$1,080,181
Woodson Rd. \$/S.F.	\$3.18
Vinita Park SLUC	\$ 56,010
Vinita Park \$/S.F.	\$2.34

NEXT STEPS

VISITS TO INSTALLATIONS

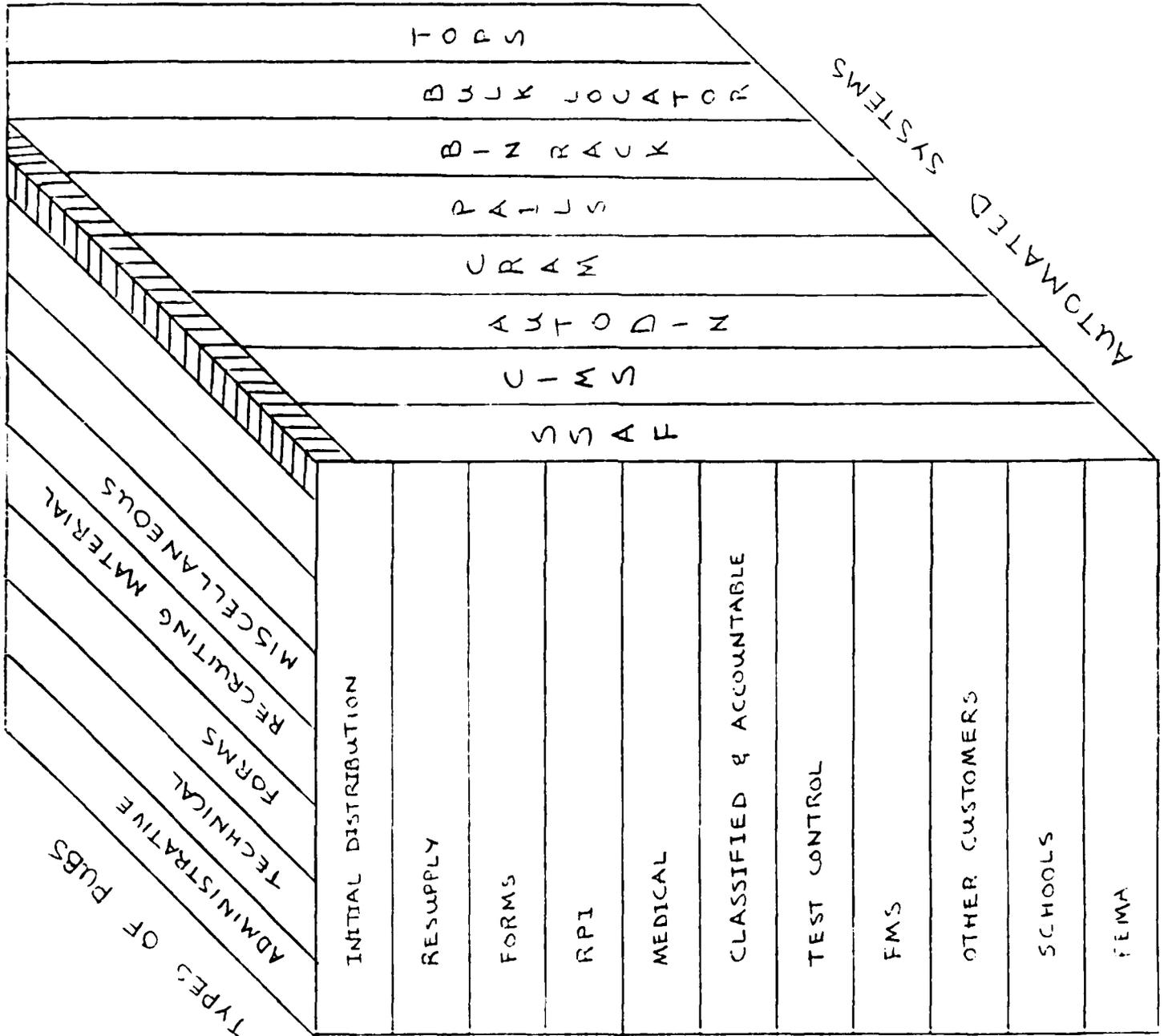
FILL GAPS IN DATA
REVISIT BALTIMORE

REVIEW FINANCIAL INVENTORY DATA

FOCUS ATTENTION ON TECHNICAL PUBLICATIONS MGMT.

GEOGRAPHIC DISTRIBUTION

PREPARE OVERALL SYSTEM ASSESSMENT



S Y S T E M S

END

9-87

Dtic