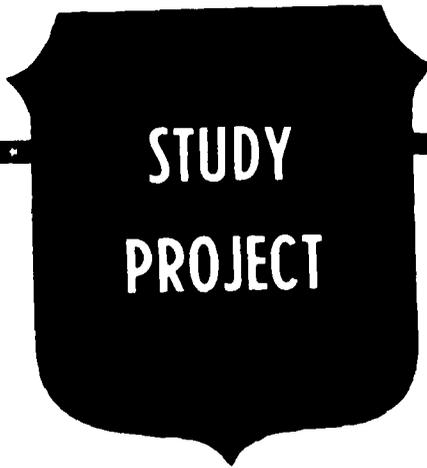


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WILL THE CURRENT CONUS TRANSPORTATION SYSTEM PROVIDE ADEQUATE HIGHWAY MOVEMENT CONTROL DURING MOBILIZATION?

BY

COLONEL JERRY W. FIELDS

29 MARCH 1990

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ABSTRACT

AUTHOR: Jerry W. Fields, COL, MP

TITLE: Will the Current CONUS Transportation System Provide Adequate Highway Movement Control during Mobilization?

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The automation of systems which support movement control during mobilization is an important part of this assessment. Progress has been made in various organizations towards automating complex, repetitive, time consuming, and controllable tasks. This study evaluates these systems and determines their compatibility with each other. The plans for future automation are considered regarding systems compatibility and timeliness.

Finally, conclusions are drawn, problem areas highlighted and potential solutions or approaches are offered to meet the extremely critical need for an adequate highway movement control system for mobilization.

USAWC MILITARY STUDIES PROGRAM PAPER

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ADEQUATE HIGHWAY MOVEMENT CONTROL DURING MOBILIZATION?

AN INDIVIDUAL STUDY PROJECT

by

Colonel Jerry W. Fields, MP

Colonel Richard D. Wilhelm
Project Adviser

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U.S. Army War College
Carlisle Barracks, Pennsylvania 17013
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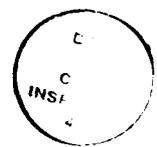


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**WILL THE CURRENT CONUS TRANSPORTATION SYSTEM PROVIDE
ADEQUATE HIGHWAY MOVEMENT CONTROL DURING MOBILIZATION?**

CHAPTER I

INTRODUCTION

The question as to whether the current Continental United States (CONUS) Transportation System will provide adequate highway movement control during mobilization is being asked with increasing frequency. This paper analyzes whether the CONUS transportation system can provide effective movement control for those military units moving by highway during mobilization.

The movement of military units during mobilization is a critical element of our countries national defense plans. In addition to the active army and other services, it involves the potential mobilization of over 700,000 members of the United States Army Reserve (USAR) and Army National Guard (ARNG), associated with over 4000 units located at over 6500 home armories, reserve centers, or training bases. Upon mobilization these reservists move with their equipment to 51 mobilization stations (MS) for processing. Once these units are validated and declared ready at the MS, they move to the theatre of operations through some 22 seaports of embarkation (SPOE) and 36 airports of embarkation (APOE). The majority of the movements between armories and MS and from MS to SPOE/APOE will be conducted on the nations highway system.

Plans for the mobilization and movement of military units

are evaluated in conjunction with regularly scheduled Joint Chiefs of Staff (JCS) exercises. The results from these JCS exercises identify a number of serious problems with the CONUS highway movement control system. An analysis of these problems suggest that the system would not be able to accomplish the planned missions. Results from "Nifty Nugget", a JCS mobilization exercise in 1978, indicated difficulties in moving personnel and material to support the deployed forces in a European scenario. The Army identified 458 issues that had some adverse effect on the service's ability to mobilize and deploy¹.

The identification of these issues stimulated actions to resolve many of the problems with movement control and many had been resolved prior to the next exercise. However, a review of results of "Proud Spirit", a 1980 JCS exercise, indicated the mobilization potential of the United States in response to a NATO military crisis continued to be woefully inadequate². The latest JCS mobilization exercise, "Proud Eagle" (PE-90) was conducted in October 1989. Many improvements had been made to the mobilization movement process and PE-90 attempted to validate these changes.

One of the most important changes to the mobilization movement control process has been the introduction of Mobilization Movement Control (MOBCON) and its associated computer support system MOBCON Automated Support System (MASS). MOBCON is the DA approved program that establishes movement control responsibilities in each State Area Command (STARAC). MASS

allows the STARC's to automate movement planning to include convoy deconfliction.

The stated objectives of PE-90 related to MOBCON actions were: (1) evaluate policies, procedures related to the MOBCON/MASS process; (2) evaluate Army convoy movements; (3) process ARNG and USAR convoys from home station (HS) to MS in all states where MASS has been implemented and (4) process deployment convoy movements to the SPOE/APOE in the states of California, Georgia, and Texas ³.

After action information from PE-90 indicate that the automation systems, i.e. Transportation Coordinator Automated Command and Control Information System (TC ACCIS) and MASS, still require improvements to make them fully functional ⁴. Some additional user training is also indicated for the installations that have TC ACCIS implemented. Additional difficulties reduced the evaluation of MOBCON/ MASS as the computer support was transferred from Oakridge National Laboratory to the DARMS VS-100 just before the exercise and operation of the system at its new location was never stabilized during the exercise. Because of this problem the processing was moved back to Oakridge prior to the end of exercise, but only one STARC Defense Movement Coordinator was successful in processing movement information during the exercise.

MOBCON has been identified as the management system for CONUS convoy movement control during peacetime and mobilization ⁵ but has yet to be fully implemented in the STARCs. The question

of adequate highway movement control must address both the current processes and those proposed for future implementation.

ENDNOTES

1. John J. Flalka, "The Grim Lesson of Nifty Nugget", Army, April 1980, p. 2
2. John J. Flalka, "The Pentagon's Exercise 'Proud Spirit': Little Cause For Pride", Parameters, March 1981, p. 38
3. J4-TRU, Forces Command, Briefing Charts, Exercise Proud Eagle, September 1989
4. J. Steven Koons, COL, Chief Trans & Svcs Div, FORSCOM, Memorandum Subject " Proud Eagle 90 Analysis & Data Collection Plan (A&DCP), 3 November 1989, pp.1-2
5. U.S. Department of the Army, Forces Command Regulations 55-1, p. 3 (hereafter referred to as "FORSCOM Reg 55-1")

CHAPTER II
ORGANIZATIONS
INTRODUCTION

This chapter reviews the organizations involved in highway movement control within CONUS. Missions are explained as well as responsibilities and functions specifically related to coordination of highway movement control during mobilization.

UNITED STATES TRANSPORTATION COMMAND

The United States Transportation Command (USTRANSCOM) was activated on 15 April 1987 at Scott Air Force base, Illinois, as the result of many years of study and analysis of the strategic transportation needs of the military services. USTRANSCOM is a unified command, which is organized along functional lines. The three major subordinate commands are the Military Airlift Command (MAC), Military Sealift Command (MSC), and Military Traffic Management Command (MTMC). The assigned mission of USTRANSCOM is to provide global air, land, and sea transportation to meet national security objectives. USTRANSCOM is responsible for the following:

Transportation aspects of worldwide strategic mobility planning (deliberate and execution), deployment related ADP systems integration and centralized wartime traffic management including:

(a) Receiving, evaluating, tasking, and coordinating global mobility requirements in support of the commanders in chief (CINCs) of the other unified and specified commands.

(b) Directing deployment execution and redirecting transportation to meet National Command Authority (NCA) and CINC tasking.

These responsibilities are the origin of the troop flow requirements in the CONUS and directly influence the loads placed on the highway transportation network, mobilization stations, and ports of embarkation (POE).

MILITARY TRAFFIC MANAGEMENT COMMAND

The Military Traffic Management Command (MTMC) is the Army component command of USTRANSCOM that manages military traffic land transportation. MTMC is a major command within the Department of the Army and has command elements throughout the world. The Eastern Area Command, located in Bayonne, New Jersey and the Western Area Command, located in Oakland, California are the traffic managers for MTMC and split the CONUS roughly in half to accomplish their assigned responsibilities.

MTMC is the Department of Defense (DOD) executive agent for all public highway matters. In coordination with the Federal Highway Administration (FHWA), they identify strategic highway network needs, connector road needs, and highway operational needs which must be integrated into civil programs to satisfy national defense². This effort lead to the creation of the Strategic Highway Corridor Network (STRAHNET) which is discussed later in this chapter. The importance of this relationship is

outlined in Army Regulation 55-80 which states:

MTMC will insure that FHWA integrates the operational requirements of the military departments into this national program. MTMC will inform DCSOPS DA promptly of any actual or foreseen interference with military operational requirements.

The commander, MTMC is further chartered to:

(a) Consolidate, collate and evaluate submitted transportation requirements from a traffic management standpoint.

(b) Submit consolidated transportation requirements with analysis indicating shortages of capability and recommended courses of action to the JCS.

(c) After JCS has suballocated capacity to DOD components, the Cdr, MTMC will, in coordination with DOD components, manage the movement of traffic to conform with established movement priorities. The Cdr, MTMC, upon request, will give the Military Services, other DOD components, or the JCS statistics on MTMC-controlled traffic moving under assigned allocations.

In accomplishing these responsibilities MTMC consolidates, summarizes and interprets requirements in terms of units of equipment by type and mode. These are then collated with transportation capabilities. This information is then formulated into data summaries and analysis, and with recommended courses of action, are then sent to the JCS⁵.

In day to day operations, MTMC develops and coordinates policy and related procedures for special military movement on public highways. This is done in cooperation with the American Association of State Highway and Transportation Officials (AASHTO) and the FHWA⁶.

In concert with USTRANSCOM movement policies, MTMC issues port call messages to the MS, advising them of unit arrival windows and the POE. This process establishes the movement flow over the CONUS highway systems that must be managed.

UNITED STATES FORCES COMMAND

The United States Forces Command (FORSCOM) is a DOD specified command. The FORSCOM mission statement states in part:

(a) Plan for and execute on order, Land Defense of the Continental United States, combined Canada - US Defense, Military Support to Civil Defense and plan for Defense of Alaska, less aerospace and the Aleutians.

(b) Provide a general reserve of deployable Army forces to reinforce other commands as directed.

(c) Ensure the readiness and related deployment planning for assigned or programmed forces to reinforce the other unified and specified commands.

(d) Conduct joint training and exercises.

To accomplish this mission, FORSCOM's command structure consists of five numbered Armies of the CONUS (CONUSA) and assigned Army troop programs within CONUS. FORSCOM manages the USAR troop program through the CONUSAs and supervises the training and readiness of the ARNG.

FORSCOM functions and responsibilities that relate to mobilization unit movement control are:

(a) Develop and maintain unit movement planning and execution guidance to allow

commanders at all the levels to understand their roles in the collective process.

(b) Serve as the supported Commander for all the forces in support of Land Defense of CONUS (LDC) or Military Support of Civil Defense (MSCD) operations and serves as the commander in other mobilization and deployment operations. In so doing, coordinate unit movement requirements with units, installations, transportation operating agencies, OCONUS theater commanders and other deployment community members as necessary for JCS exercises and contingencies.

(c) Maintain the DA master file of standard unit movement data (UMD) and standard unit movement reporting procedures for CONUS based Army units to support AMOPS and FORMDEPS, in accordance with FORSCOM Regulation 55-2.

(d) Ensure the Emergency Highway Traffic regulation (EHTR) interests are coordinated with all DOD installations and activities.

CONTINENTAL UNITED STATES ARMIES

The five Continental United States Armies (CONUSA) have important roles and responsibilities related to movement control prior to and during mobilization. CONUSAs are configured as shown in Figure 1, with units and installations assigned according to regional alignments. The primary subordinates that CONUSAs deal with in planning for mobilization movement are the MS's, Support Installations (SI), Coordinating Installations (CI), STARC's, Major U.S. Army Reserve Commands (MUSARC) and the individual mobilizing unit.

The CONUSA responsibilities as they relate to mobilization movement control are:

(a) Submit supplemental guidance to assist installations and reserve component (RC) units in developing movement plans and data for contingencies and JCS exercises to

FORSCOM for approval prior to publication.

(b) Ensure that RC-mobilization (MOB) and RC-preparation for overseas movement (POM) plans are maintained by the unit with a copy of the approved plan provided to the Unit Movement Coordinator, SI/CI, and mobilization station.

(c) Coordinate RC unit movement plans as necessary within geographical areas of responsibility to ensure supportability by all commands concerned.

(d) Review and approve installation mobilization plans.

(e) Assist and coordinate with STARC/MUSARCs training programs associated with unit movement planning and automated unit equipment list (AUEL) submission procedures.

(f) Maintain, coordinate and publish an Emergency Highway Traffic Regulation (EHTR) plan, coordinating the interest of all DOD installations and activities for implementation when directed by FORSCOM³.

The CONUSAs must also accomplish the following in management of the public highway system during both peace time and mobilization:

(a) Establish procedures to ensure that Road Movement Orders (RMO) are obtained by installations or activities who originate convoys and that movements comply with the provisions of FORSCOM Regulation 55-1, AR 55-29, and FM 55-312.

(b) Ensure the training of STARCs /MUSARCs /installations on the principles and procedures of convoy operations and movement control.

The following CONUSA commander responsibilities extend to assisting the FORSCOM commander in the management of the convoys:

(a) Resolve movement control conflicts that

cannot be resolved at the STARC /installation /MUSARC level.

(b) Develop training guidance and provide training assistance to all agencies involved in convoy movement process IAW FORSCOM Regulation 55-1.

(c) Assist the various agencies in obtaining the resources required to support the mobilization convoy movement control process.

The CONUSA becomes a Joint Regional Defense Command (JRDC) in peacetime or mobilization for execution of the Land Defense of CONUS (LDC) and Military Support of Civil Defense (MSCD) missions.

INSTALLATIONS

CONUS Army installations perform important roles in the mobilization process. As a CI they are assigned to coordinate specific types of intra-service support within a geographic area. A CI will designate SI's to provide or arrange off-post support and assist in resolving support conflicts, within a geographic area. They also provide assistance to mobilizing RC units.

A SI is an installation or activity that provides specific types of support to off-post units and activities within a geographic area. The SI will provide support within its functional capability and must be prepared to support mobilized units as requested by JRDC, STARC or MUSARC, and support mobilized USAR unit movement to their Mobilization Station (MS).

In some instances the CI and SI has the additional function of being a MS (see Figure 1). The MS is the designated military installation to which a RC unit is moved for further processing,

organizing, equipping, training, and validation for employment, and from which the unit may move to a port of embarkation.

While all installations have a vested interest in movement control, the following are the primary MS movement control functions:

- (a) Appointment of a Unit Movement Coordinator (UMC) on orders.
- (b) Set up procedures for reviewing, approving, and coordinating assigned and tenant Active Component (AC) unit contingency movement planning and Unit Movement Data (UMD) development annually to insure plans adequately cover movement requirements and review, approve and coordinate RC mobilization movement plans every 2 years.
- (c) Publish guidance applicable to commanders of AC and RC units and other sites directing which documents that will be prepositioned with the installation UMC for unit movements. Examples are Request For Convoy Clearance; special hauling permits; and commercial transportation.
- (d) Coordinate requirements for appropriate installations, CONUSAs, MUSARCs, and STARCs for transportation, movement documentation and support requirements for unit movements.
- (e) Assist STARCs and MUSARCs as necessary in their areas of support responsibility in unit movement planning and reporting UMD.
- (f) Maintain the mobilization/deployment guidance in installation mobilization plans.
- (g) Designate gates to be used for inbound convoy, outbound convoy, and commercial truck / bus traffic during mobilization and deployment ..

MAJOR U.S. ARMY RESERVE COMMAND

The Major U.S. Army Reserve Command (MUSARC) is an

administrative command and control headquarters that has USAR units assigned. This organization is specifically tasked for troop management responsibilities during peacetime. Its' functions related to mobilization movement preparation by subordinate units are similar to the ARNG STARC. MUSARC responsibilities are:

- (a) Appoint an individual on orders to perform UMC functions as a primary duty.
- (b) Set up procedures for reviewing, approving, and coordinating subordinate unit contingency movement planning and unit movement data (UMD) development.
- (c) Ensure movement plans of subordinate units are coordinated with the coordinating installation and approved by the mobilization station UMCs.
- (d) Train UMOs in movement planning concepts, techniques, and data collection.
- (e) Establish a mechanism to ensure timely submission of movement requirements for JCS exercises and cyclic updates by subordinate USAR units.
- (f) Submit request for convoys clearances for assigned units to the Defense Movement Coordinator (DMC) at the appropriate STARC .

STATE AREA COMMAND

The State Area Command (STARC) is an ARNG organization with area movement control responsibilities. It is a Command and Control headquarters that can function in either a state or federal role. Regulations that identify roles and responsibilities use the terms State Adjutant General for Army National Guard and STARC somewhat interchangeably. STARC is

structured to accomplish all pre-mobilization missions and, at mobilization, becomes a Joint State Area Command (JSAC). The JSAC is subordinate to the CONUSA/JRDC. Army Regulation 55-29 (C1) requires that the Adjutants General (AG):

Insure that advance convoy movement clearances are obtained by installations or activities under their jurisdiction who originate convoy(s) and that clearances comply with AR 55-162 pertaining to oversize, overweight, or other special military movements over public roads.

STARC responsibilities are further identified as:

Direct and coordinate the movement of mobilized units to mobilization stations or ports of embarkation.

These responsibilities begin the process of movement control for the states. STARC's will:

- (a) Appoint a Defense Movement Coordinator (DMC).
- (b) Set up procedures for reviewing, validating, approving, and coordinating subordinate unit mobilization plans ... Publish procedures for units to submit and update plans and requirements and for the DMC to maintain files of approved mobilization movement plans with all attachments.
- (c) Ensure mobilization plans of subordinate units are approved by mobilization station UMC.
- (d) Establish mechanism to ensure timely submission of movement requirements.

The DMC plays a significant role in the mobilization process and has duties similar to the Unit Movement Coordinator (UMC) with the following additions.

- (a) Assist ARNG units with implementation of mobilization movement plans.

- (b) Approve ARNG/USAR convoy movements.
- (c) Obtain civil permits for ARNG units originating movements within the state.
- (d) Upon mobilization, operate a State Movement Control Center to monitor convoys.
- (e) Receive and forward Expedited Movement Reports (EXMOVREP). IAW AR 55-112.
- (f) Approve mobilization and deployment convoy movements from home station to mobilization station and to ports of embarkation.

UNITS

The unit is the basic building block for mobilization movement and the commander has numerous tasks to complete in preparing the unit for mobilization. A Unit Movement Officer (UMO) and an alternate are required to be appointed on orders and have the primary role in accomplishing activities associated with movement of the unit during the mobilization process. The UMO's can be either a senior NCO (E-6 or above) or an officer. All units are required to develop movement plans and transmit them through their chain of command for review and approval. National Guard units submit their Unit Movement Data (UMD) to their state STARC and active component (AC) and USAR units submit their information to their SI Installation Transportation Office (ITO) or MUSARC Unit Movement Coordinator (UMC).

Key responsibilities of the UMO are:

- (a) Prepare and maintain unit movement and load plans.

- (b) Review unit movement plans to ensure they conform to directives of higher headquarters.
- (c) Prepare and maintain documentation needed for unit movements to include AUER reports.
- (d) Coordinate operational and logistical movement requirements for the move.
- (e) Submit and change UMD as required by FORSCOM Regulation 55-2.
- (f) Notify the UMC/DMC between update cycles of changes in unit circumstances which affect the unit's transportation requirements and UMD.

OTHER FEDERAL AND STATE AGENCIES

FEDERAL EMERGENCY MANAGEMENT AGENCY

The Federal Emergency Management Agency (FEMA) is the government's overall coordinator of emergency management activities during peace and during a national emergency. FEMA's responsibilities range from emergency management planning to management of resources during a mobilization. FEMA has important responsibilities during an emergency that might result in a mobilization but does not have actual responsibilities in movement management.

FEDERAL HIGHWAY ADMINISTRATION

The Federal Highway Administration (FHWA) is the agency responsible for developing Emergency Highway Traffic Regulations (EHTR) for implementation IAW Executive Order 12656 by civilian authorities. EHTR's are initiated during a national emergency. Some of the responsibilities delegated to the FHWA are:

Emergency resource management of all Federal,

State, city, local, and other highways, roads, streets, bridges, tunnels and appurtenant structures, including:
(a) the adaptation, development, construction, reconstruction, and maintenance of the Nation's highway and street systems to meet emergency requirements; and

(b) The regulation of highway traffic in an emergency through a national program in cooperation with all Federal, State, and local governmental units concerned to assure efficient and safe utilization of available road space.

The FHWA also works with MTMC to ensure that US highways satisfy DOD needs. A principle element of the program is the designation of the Strategic Highway Corridor Network (STRAHNET). The STRAHNET (figure 2) includes the 43,000 miles of interstate highway systems and 16,500 miles of non-interstate highways. To connect strategic locations (such as critical defense installations) to STRAHNET, over 7,000 miles of additional roads are designated as STRAHNET Connectors. This identifies a vital and accessible highway system which is used for mobilization movement planning.

STATE ORGANIZATIONS

Each state has agencies with designated highway movement control responsibilities. Because of variations in the organization of state governments there are some differences in how states plan and conduct mobilization movement control.

However, each state has some form of transportation or highway department responsible for EHTR within the state. In

preparing for and operating emergency highway traffic regulation the state enlists the cooperation of county and local highway departments as necessary. The State EHTR center is the focal point for orderly movement of traffic within the state.

An Emergency Operating Center (EOC) is established by each state and has a minimum staff of key state officials who implement emergency plans. The EOC staffing expands as emergency or mobilization requirements increase.

State Police, assisted by local police organizations as needed, actually control the regulated traffic movements that are authorized by the state EHTR organization.

ENDNOTES

1. Organization of the Joint Chiefs of Staff, Implementation Plan for the Establishment of the United States Transportation Command, 12 March 1987, p. 2-3 (hereafter referred to as "OJCS, Implementation Plan").
2. Department of the Army, Military Traffic Management Command, Defense Highway Requirements To The Year 2020, July 1989, p. 1
3. U.S. Department of the Army, Army Regulation 55-80, p. 4-2 (hereafter referred to as "AR 55-80")
4. U.S. Department of the Army, Army Regulation 55-36, p. 3 (hereafter referred to as "AR 55-36")
5. Ibid., p. 4
6. AR 55-80, p. 4-1
7. FORSCOM Reg 55-1, p. 3
8. Ibid., p. 4
9. Ibid.
10. Ibid.

11. Ibid., p. 5
12. Ibid., p. 4
13. U.S. Department of the ARMY, Army Regulation 55-29, p. 2 (hereafter referred to as AR 55-29)
14. U.S. Department of the Army, National Guard Regulation 10-2, p. 1 (hereafter referred to as NGR 10-2)
15. FORSCOM Reg 55-1, p. 4
16. Ibid., p. 8-9
17. Ibid.
18. Ibid., p. 9
19. U.S. Department of Transportation, A Guide For Emergency Highway Traffic Regulation, p. I-4

CHAPTER III

SYSTEMS

INTRODUCTION

This chapter reviews the systems that are directly involved in highway movement control during mobilization. Systems refers to the procedures and processes that are used to identify the mobilization needs (primarily who and when), the flow of information to required agencies, and controls for unit movements to the theatre of operations. Some systems have been automated and their automatic data processing capabilities are discussed.

JOINT DEPLOYMENT SYSTEM

The Joint Deployment System (JDS) consists of personnel, procedures, directives, communication systems, and electronic data processing systems to directly support time-sensitive planning and execution, and to complement peacetime deliberate planning. The JDS assists the processes that plan, coordinate and monitor convoy movements and deployments.

WORLDWIDE MILITARY COMMAND AND CONTROL SYSTEM

The Worldwide Military Command and Control System (WWMCCSA) provides the means for operational direction and technical administrative support for command and control of US military forces. It includes the facilities, equipment, personnel,

procedures, data processing systems, display systems, message preparation systems, intercomputer networks, and voice, data, and record communications systems.

TIME-PHASED FORCE DEPLOYMENT DATA

The Time-Phased Force Deployment Data (TPFDD) is the computer-supported data base portion of an operation plan that contains time-phased force data, non unit related cargo, personnel data, and movement data for the operations plan. Information includes in-place units, prioritized arrival of units deployed to support the OPLAN, routing of forces to be deployed, movement data associated with deploying forces, estimates of non-unit related cargo and personnel movements to be coordinated concurrently with deployment of forces and estimate of transportation requirements.

CRISIS ACTION MANAGEMENT SYSTEM

The Crisis Action Management System (CAMS) provides MTMC the capability to develop and modify data bases for use in OPLAN development and maintenance, to expedite support for immediate crisis situations, and to transition into execution planning and execution. The CAMS MTMC/ITO interface module, sometimes referred to as "interim TC ACCIS", provides TC ACCIS like capabilities until it becomes active. CAMS allows automatic transmission of unit movement requirements and adjustments to Automated System for Processing Unit Requirements (ASPUR) as well as receiving

data. It also provides an automatic update capability for Computer Movement Planning and Status System (COMPASS) information. Unit equipment lists are maintained and movement requirements can be transmitted electronically.

AUTOMATED SYSTEM FOR PROCESSING UNIT REQUIREMENTS

ASPUR is an automated interface between the TC ACCIS system at the installation level and the MTMC-based systems that manage surface movement to and through the POE. ASPUR provides a system to: (1) receive, process and store unit movement requirements from the installation ITO supported by TC ACCIS; (2) receive and process AUEL data from FORSCOM; and provide assistance in consolidating unit movement information available in existing MTMC cargo systems³.

COMPUTERIZED MOVEMENT PLANNING AND STATUS SYSTEM

COMPASS is an information system and data base that provides accurate and timely unit movement data to DOD, JCS, HQDA, and Army installations and units in support of employment, deployment, mobilization planning, and execution for a wide range of military operations.

TRANSPORTATION COORDINATOR AUTOMATED COMMAND AND CONTROL INFORMATION SYSTEM

TC ACCIS is the Army's automated initiative to accomplish transportation functions at installation level. TC ACCIS allows

units to create, update, or modify unit movement data of transportation documentation for peacetime and mobilization and deployment moves. These functions are accomplished by a combination of manual processes and use of the CAMS ITO modules. The functions of TC ACCIS are included in the Reserve Components Automation System (RCAS) for the USAR.

MOBILIZATION MOVEMENT CONTROL

A DA approved program to establish a movement control center at each STARC . The STARC movement control center (SMCC) will collect, analyze and consolidate all DOD convoy movements and develop a master movement plan for mobilization and deployment. An electronic data processing system, MOBCON Automated Support System (MASS), has been developed to automate many of the MOBCON functions such as convoy deconfliction. A prototype system was developed in 1983 which demonstrated the need for MOBCON cells to be added in the STARC organization to provide convoy visibility during peacetime and during contingencies / mobilization. A demonstration automation system was installed in nine STARCs in 1986 and this system has recently been approved, with upgrades, as an interim system to be installed at an additional 29 STARCs prior to being replaced by the RCAS. The functions of MOBCON are included in the RCAS capabilities and are scheduled for early implementation in the critical elements fielding.

RESERVE COMPONENT AUTOMATION SYSTEM

RCAS is an automated information system which supports decision-making needs of commanders, staffs, and functional managers responsible for Reserve Component (RC) forces. It will use state-of-the-art office automation, telecommunications, distributed data bases, and processing capability to provide timely and accurate information to plan, prepare, and execute mobilization. It is also designed to improve the accomplishment of routine administrative tasks. It will be a self-sufficient system capable of exchanging RC data with related information systems, such as TC ACCIS, in the AC. Current development of RCAS has identified high priority "critical elements" that will be scheduled for priority implementation. RCAS is designed to replace MASS the automated system that supports MOBCON. Due to the size of the developmental effort, RCAS has established priority elements for early implementation. These are referred to as "critical elements" and the movement control requirements are included in these. The initial system with the critical elements is expected to be fielded in fourth quarter FY1992.

ENDNOTES

1. United States Forces Command, Joint Command Readiness Program, Situation Manual, October 1989, p. 98 (hereafter referred to as "Sitman")
2. Ibid., p. 97
3. Ibid., p. 91

CHAPTER IV

DISCUSSION

INTRODUCTION

This chapter will describe the mobilization movement process from pre-mobilization preparation tasks to the units arrival at the port of embarkation (POE). The full mobilization scenario will be used as a method to describe the mobilization process and the sequential flow of events (phases) that most RC units will follow in the conduct of mobilization. Full mobilization requires that Congress pass public law or joint resolution declaring war or national emergency. It involves the mobilization of all RC units in the existing force structure. Figure 3 depicts the flow of the mobilization process and allows the reader to follow this process with specific interest on highway movement requirements.

PREPARATORY

This phase involves the time RC units are at their home stations during peacetime. During this phase specific tasks required in preparation for mobilization are accomplished. The unit prepares plans in accordance with FORSCOM, CONUSA and STARC/MUSARCs guidance. Their primary source of guidance is the Forces Command Mobilization and Deployment Planning System (FORMDEPS). FORMDEPS describes the mobilization process, support

of deployment, deployment, and relationships of FORSCOM with the unified and specified commands; Headquarters Department of the Army (HQDA); National Guard Bureau (NGB); major Army commands (MACOM); and subordinate headquarters. It consolidates procedures and requirements and assigns responsibility for planning and execution.

During this phase RC units formulate load plans and identify needed materials and their potential sources. They submit periodic Automated Unit Equipment Lists (AUEL) and COMPASS updates to FORSCOM. Movement plans are prepared and requirements for movement of passengers, cargo, and specialized equipment are identified. Outputs from this planning phase are unit movement plans that are the key for accurate unit movement data (UMD). UMD is reviewed by planners at several levels in the chain of command to develop their own plans for execution.

The Installation Transportation Office (ITO) at each mobilization station maintains current UMD on all RC units that will mobilize at their installation. The information is reviewed for accuracy and completeness.

USAR units that have access to the TC ACCIS system enter the information directly to the MS computer utilizing terminals at the ITO location. This information can then be electronically forwarded to the FORSCOM COMPASS. FORSCOM then forwards a magnetic tape to update the ASPUR system which processes the information for MTMC requirements.

Not all MS and USAR units have the TC ACCIS system

installed at this time. Currently 19 systems are installed and 15 are planned for FY90. Those without TC ACCIS manually process the data and transmit by either the mail or telephonically. Discussions with various installations indicate several local innovations that utilize local computers with Dialcom networks to speed this process and some use facsimile machines to improve mail time.

ARNG units also complete the movement planning described above and forward the information to the STARC DMC for review and approval. The UMD is then forwarded through the MS to FORSCOM. Once the MS has reviewed the UMD they assign the arrival time and arrival gate and return it to the STARC for final review and approval.

To facilitate the review and approval of movement plans each STARC establishes liaison with state agencies that authorize highway movements. In some states, especially those with mobilization stations, this can be an extremely important and time consuming process. Each STARC is authorized the full-time staffing of the DMC position(s), but funds have not been provided by NGB for these positions. Because each state has had to staff these positions using existing funds, many states have not filled the position(s). At this time 27 states have full-time DMC's. In those states where the position is not staffed, the functions are accomplished by other full-time personnel or by drill status personnel.

Nine DMCs have the MOBCON Automated Support System (MASS)

installed and they enter the unit movement information into MASS for analyzing and deconflicting convoy movements. If the requested times for the unit movement cannot be met the DMC offers alternatives that might include different routing or arrival time. The process continues until the MS and STARC DMC agree on the timing of all movements.

In the states that do not have MOBCON automation, the process of deconflicting convoys is either not accomplished or is crudely done with manual methods which are time consuming and prone to error. Under these circumstances the arrival time at the MS is usually the only item deconflicted.

The end product of this phase is the development of movement plans which are completed by the RC unit and reviewed by the appropriate authorities. These plans are filed at the STARC DMC and the ITO. The process is completed with various degrees of success and ranges from a fully automated process to the use of manual methods that are time consuming and not as comprehensive.

ALERT AND MOBILIZATION AT HOME STATIONS

During this phase the unit is notified of a pending order to active duty and begins specific actions for the transition to active duty. Members assemble at the home station and prepare equipment for movement to MS or direct deployment. AUEL and COMPASS information is updated and movement plans confirmed. Most units will move by their own assigned transportation assets or contracted commercial transportation to the MS. Actions to be

completed are similar for both USAR and ARNG units.

A STARC Movement Control Center (SMCC) is activated during this time at each CONUS STARC and assumes the function of monitoring convoy movements³. Coordination is established with state agencies that interact with highway movements, i.e. emergency operations center, emergency highway traffic regulating elements, state police, etc. These actions normally consist of executing preplanned procedures which have been pretested during exercises conducted during peacetime..

The MS begin to execute plans for assimilating activated units on the installation while simultaneously initiating plans to deploy AC tenant units to ports of embarkation. They update arrival times and gate information for the mobilizing RC units.

MOBCON/MASS and TC ACCIS systems are updated as needed and programmed actions are completed. Those STARCs and installations that do not have these systems use manual methods to accomplish these tasks. These systems insure that units are ready to move to the MS when notified or at the prearranged time.

MOVEMENT TO MOBILIZATION STATIONS

Units depart HS to arrive at the MS at the designated time. This movement will be accomplished by the most expeditious and practical means available. Organic wheeled vehicles will generally be used when the MS is within a one-day road march. Personnel and equipment in excess of unit capability will be moved by non-organic and commercial transportation⁴.

USAR and ARNG units that mobilize at the same installation where they perform annual training usually have had the opportunity to practice and evaluate their movement plans. They usually execute these movement plans annually and sometimes more often if they perform inactive duty training at the installation. The density of vehicles on the road networks may be heavier during a mobilization process since the time, amount of equipment and volume of movements will be compressed and AC units will be moving to their POEs.

DEPLOYMENT

The mobilization station has the task of validating the unit for deployment. Once this validation is completed the unit is ready for deployment based on the needs of the supported Commander in Chief (CINC). Port calls are coordinated by MTMC. Once the port call is established for the unit, movement planning can be executed. TC ACCIS or manual methods are used to develop the required documents and coordination for approval of movement plans established with the STARC DMC. Once approved the unit moves its' equipment to the identified port following the established movement plans. The existing mix of automated and manual systems create a much more complex environment than is desirable.

ENDNOTES

1. Sitman, p. 15

2. FORSCOM Reg 55-1, p. 3

3. Ibid., p. 8

4. Sitman, p. 15

CHAPTER V

CONCLUSIONS

Relationships between systems and organizations are extremely important. This becomes very obvious when the complicated task of coordinating the movement control of large numbers of units over extended distances is planned. Major General Samuel N. Wakefield said it very well in a recent article in the Army Logistician where he said, "Strategic transportation can best be described as a 'system of systems.' To ensure the readiness of the system it is vital that military and civilian transportation leaders work together closely to maximize our strategic transport capability". In those instances where automated systems are established and utilized and where relationships have been established with civilian agencies, mobilization movement planning and control has worked very well. Examples can be found in California and Georgia. In these states the STARC DMCs work closely with mobilization station ITOs, RC units and state agencies. The positions are manned by full-time personnel fully dedicated to the movement control functions. The TC ACCIS and MOBCON/MASS systems are installed and their capabilities are being utilized. Problems do exist, but the DMC/ITOs are working closely with the project manager and developers to identify needed upgrades.

In other STARCs the DMC positions are not staffed full-time

and the day-to-day responsibilities of the position are handled as an additional duty by existing full-time personnel. This condition doesn't allow the relationships to be developed with state agencies and mobilization stations as fully as could be realized by a dedicated DMC. As a result plans are inadequately developed and there are numerous concerns about the effectiveness of implementing existing plans.

Another complication is the lack of automation of functions at both the STARCs and mobilization stations. Where a mix of manual and automated systems exist there seems to be a wait and see attitude. The message seems to be that if it's not funded or automated it can't be that important. It should be noted that at least one installation has made local innovations to their Personal Computers (PC) and connected with the STARC DMC to transmit their movement requests via the Dialcom network.

The installation of TC ACCIS and MOBCON/MASS has not been a coordinated effort. Project Managers have established installation schedules without considering the other system's planned implementation dates. Various project planning documents indicate the need for an electronic interchange between the two systems, however, the systems currently installed do not have this capability. Many variations of the systems currently exist and causes a confusing operating environment. Some of the existing system variations that exist are: (1) STARC has MOBCON/MASS and MS has TC ACCIS, (2) STARC has MOBCON/MASS and MS doesn't have TC ACCIS, (3) STARC doesn't have MOBCON/MASS and MS

has TC ACCIS, and (4) STARC doesn't have MOBCON/MASS and MS doesn't have TC ACCIS. A coordinated effort is the most effective way to install automated systems. This allows all of the system operators to go through the change at the same time and problems can't be blamed on the lack of the other parts of the system.

Future automation efforts such as RCAS may cause people to ignore current problems and wait for the new system to provide solutions. While these new systems are needed and will solve many problems, work should go on to solve current problems with timely solutions. It should be kept in mind that there is a requirement to insure the systems function during the interim period no matter how long or short the period of time involved. This is especially important in such a key area as mobilization movement control.

The ability for the STARC DMC/SMCC to coordinate all DOD highway movements has been inhibited by the lack of cooperation of other services. Some STARCs have begun to approve and coordinate USAR, as well as ARNG movements during peacetime, but none have received all service's cooperation.

TC ACCIS and MOBCON/MASS do not exchange information electronically causing data to be entered multiple times. It is important that systems changes identified for this capability be developed so this kind of duplicating of data can be eliminated.

Highway visibility is limited to information from civilian authorities, such as Highway Patrol and State Police, and convoy

commanders telephonically contacting STARC SMCC if possible. The addition of Highway Regulating Teams has been discussed as potential additions to the STARC TDA but this has not occurred.

Command leadership and budget support are missing and necessary to complete the implementation of procedures and processes already developed that can automate functions and establish relationships with the key organizations that interact with highway movement control during mobilization. Without these changes we take serious risks in our ability to mobilize forces during a national emergency.

ENDNOTES

1. MG Samuel N. Wakefield, "Transportation's Warfighting Role," Army Logistician, September-October 1989, p. 9

CHAPTER VI
RECOMMENDATIONS

It is important that the military leaders recognize the absolute need for command emphasis and an oversight authority for the development, implementation and utilization of systems, such as TC ACCIS and MOBCON/MASS, that automate similar and related functions. This will require that TRANSCOM, MTMC, FORSCOM and NGB agree on the application of authority and then actively support the effort.

The National Guard Bureau (NGB) should fund the staffing of the DMC position(s) in all states. This key position should be staffed by personnel totally dedicated to the missions described in FORSCOM Regulation 55-1. In addition, the NGB should accelerate the staffing of the Highway Traffic Regulation Teams in the STARC TDA. This position can be manned by the traditional guardsman who can become proficient at the functions through the normal training process.

A critical element in the ability of systems to achieve maximum utility is the need for the development of an electronic exchange interface between TC ACCIS and MOBCON/MASS so that convoy movement information can be shared without manual actions. While this feature is planned for RCAS the function is not available in the present operative systems. The Project Managers for TC ACCIS, MOBCON, and RCAS must resolve this issue and

establish this critical interface.

The military should continue to install the MOBCON/MASS system as an effective interim system until RCAS comes on line in Fourth Quarter FY1992. It is also important to continue to install TC ACCIS as rapidly as possible. The oversight authority should enforce the utilization of the system.

No attempt should be made to integrate the other services into the MOBCON process until all automated systems have been installed and the overall system validated by a JCS exercise. There are many uncertainties and problems to be worked out with just the USAR and ARNG components.

The failure of the MOBCON automation system to function effectively during Proud Eagle 90 was a disappointment. If the system had been properly implemented this exercise could have shown that the states with TC ACCIS and MOBCON/MASS implemented and operated by dedicated professionals can effectively control highway movement during the mobilization process and that the total system can provide an adequate movement control system required by regulations. The system will work once the staffing and automation steps are taken.

An adequate movement control environment is an essential part of the capability to rapidly mobilize forces for national security requirements and must exist if we expect mobilization to be considered a deterrent. Our supported CINC's must be able to plan on mobilized forces to expand their commands as they execute their plans to meet the threat. At this time the ability to

accomplish this requirement is questionable and the efforts of the Army leaders must be directed to implement the planned upgrades and the automation of functions.

APPENDIX 1

FIGURES

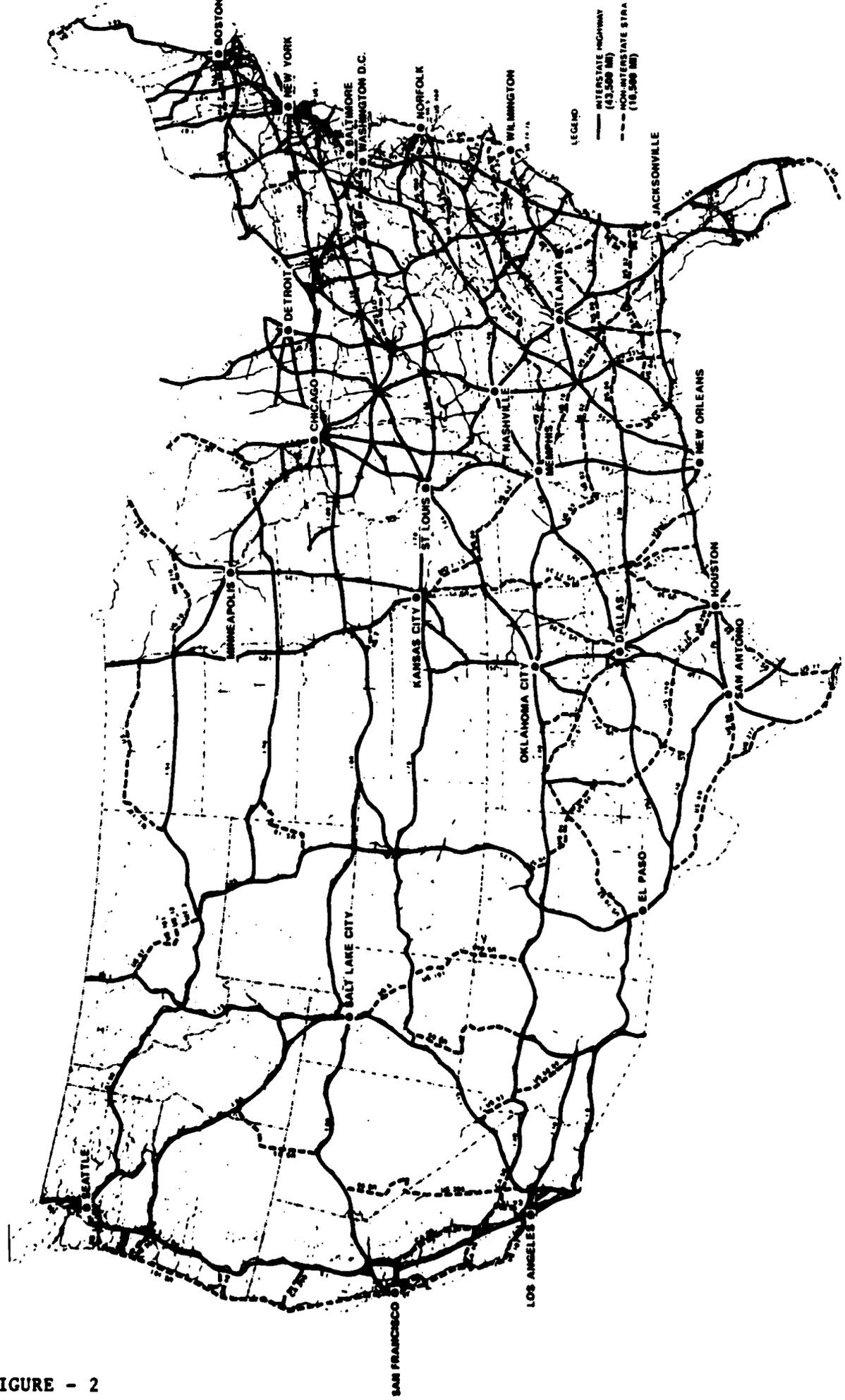


FIGURE - 2

Revised STRAHNET - 1988.

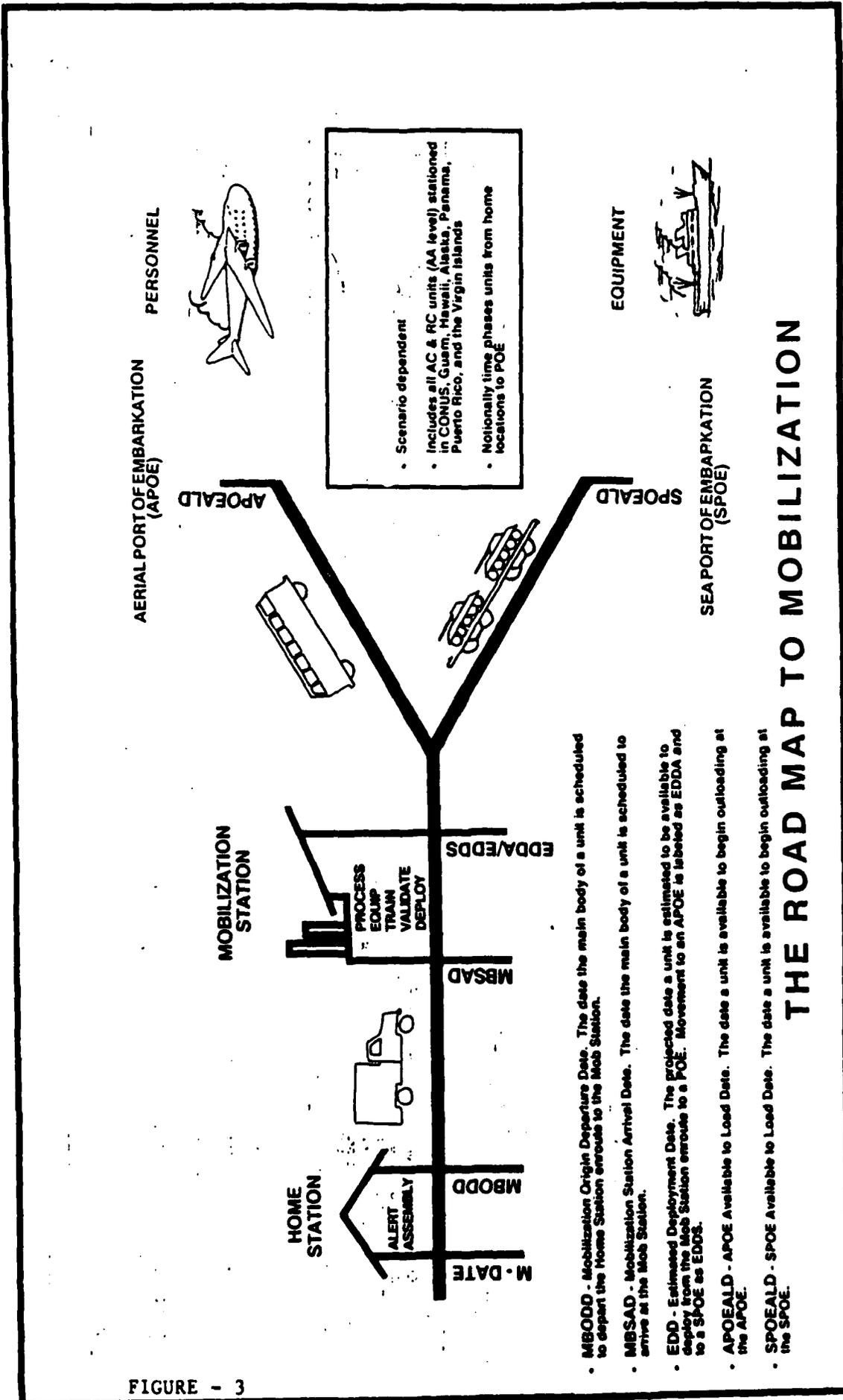


FIGURE - 3

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