STRATEGY RESEARCH PROJECT

MTMC TERMINAL OPERATIONS: RESTRUCTURING FOR THE FUTURE

BY

LIEUTENANT COLONEL THOMAS A. HARVEY
United States Army

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U.S. ARMY WAR COLLEGE, CARLISLE BARRACKS, PA 17013-5050

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LIEUTENANT COLONEL THOMAS A. HARVEY
United States Army

Professor Tom Sweeney
Project Advisor

U.S. Army War College
CARLISLE BARRACKS, PENNSYLVANIA 17013

ABSTRACT

AUTHOR: Thomas A. Harvey

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The current Military Traffic Management Command terminal organizations and structure were developed during the Cold War and have changed little since that time. The time is right to restructure the terminal operations capability to achieve the deployment requirements of the Mobility Requirements Study 05 and the Army Transformation Objective Force in an efficient and effective manner. The efficiency and effectiveness of terminal operations is tied to the units' design, capability, and employment concept. These factors have second order effects as to the corresponding size, agility, and composition of the structure. The Active Component (AC) and Reserve Component (RC) terminal operations units can be streamlined and integrated to align the resources more closely to the tasks. The development of standardized, multi-component AC/RC terminal units will improve effectiveness and enhanced agility will allow for reductions in the current terminal structure while meeting near term and future deployment timeline objectives.

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There is nothing permanent except change

—Heraclitus (540-475 B.C.)

As the Army moves into the new millennium, it is undertaking a complex transformation that emphasizes strategic responsiveness and power projection. The Military Traffic Management Command (MTMC), an Army command and component of the United States Transportation Command (USTRANSCOM), fills a vital role in that power projection capability through its terminal management and operations at strategic seaports. The current terminal operations capability, a command core competency, was developed during the Cold War and has undergone only minor structural changes since the 1980's. Since that time, the world has changed. Change is necessary in order for the MTMC to move forward deliberately to support the Army Transformation.

This paper provides a comprehensive study of the current MTMC terminal organization structure and recommends more efficient and effective organization design concepts to support Army Transformation. The efficiency and effectiveness of seaport management and terminal operations as a core competency are closely tied to the size, composition, and agility of the force structure. The challenge is to analyze capabilities and design a structure that is more efficient and effective in meeting future requirements.

This study explores the various MTMC terminal operations units and their capabilities in light of future power projection requirements. It represents a search for new ideas to improve effectiveness in wartime while efficiently meeting changing strategic requirements. These goals can be achieved through organizational reforms. To that end, the paper provides more efficient alternatives to the current structure and concept of employment along with recommendations to improve effectiveness. Now is the time to take a hard look at the Cold War-era terminal operations organizational structure and redesign that structure to meet the operational requirements and the target deployment timelines envisioned for the near term requirements of the Mobility Requirements Study 05 (MRS 05) and the far term Army Transformation Objective Force requirements. The paper begins with a look at the strategic considerations for change.

UNDERLYING CONSIDERATIONS FOR CHANGE

STRATEGIC CONTEXT

In the aftermath of the events of 11 September, the emerging strategic environment remains uncertain. One of the enduring challenges is to devise means for the rapid deployment of forces to accommodate political needs within the national and military strategies. Terminal operations constitute a part of that deployment process. As such, they constitute 'ways' to achieve strategic 'ends' specified in the strategy. A quick review of the principal strategy documents underlines the need to change.

Despite the uncertainty, the current version of the National Security Strategy (NSS), published in December 2000, calls for the military to transform its capabilities and organizations in order to prepare for this uncertain environment. As part of this call for change, the NSS requires new and innovative approaches to transform into a capabilities-based organization. Likewise, the NSS focus on engagement highlights the importance of power projection and agile organizations. "Equally essential is effective global power projection, which is key to the flexibility demanded of our forces and provides options for responding to potential crises and conflicts even when we have no permanent presence or a limited infrastructure in the region."[1]

The National Military Strategy (NMS), published in 1997, echoes the concept of transformation. Additionally, it affirmed the strategy of two, overlapping Major Theater Wars (MTWs).[2] The NMS details several important strategic concepts including two key concepts affecting the ability to respond: strategic agility and power projection.[3] With regard to terminal operations, strategic agility refers to versatile units capable of multiple missions simultaneously in geographically separated locations. Similarly, power projection requires terminal organizational structure capable of rapidly and effectively enabling force deployment and sustainment from multiple, dispersed seaports and transportation nodes.

Continuing with the cascading strategic guidance, the Joint Vision 2020 (JV 2020), published in June 2000, reaffirms the importance of power projection and highlights the need for innovation. "It is important, however, to broaden our focus beyond technology and capture the importance of organizational and conceptual innovation as well. Innovation...may result from fielding new things, or the imaginative recombination of old things in new ways, or something in between."[4] This paper follows the JV 2020 premise that innovation can shift from the current technology focus. Other changes, particularly in organizational structure, can substantially improve both the efficiency and the effectiveness of terminal operations.

In translating strategy into criteria for sizing and shaping organizations, we must also look at the Quadrennial Defense Review Report (QDR) of 2001. The QDR, while not considered the formal defense strategy, established a new strategic framework for the administration. Without being overly detailed, the QDR calls for investments in strategic mobility and transformation with wide ranging change across the spectrum of technologies, organizations, concepts, and doctrine.[5] It envisions opportunities to reduce costs with moderate risk and transform to achieve desired future capabilities.

Perhaps the biggest potential impact of the QDR on terminal operations involves changes to the two-MTW scenario. The QDR 2001 moves defense strategy away from the two-MTW scenario to a capabilities-based strategy. The change is less of an abandonment of the current strategy and more of a change in end state requiring decisive defeat in one of the two operational theaters.[6] The report hedges slightly noting: "For planning purposes, U.S. forces will remain capable of swiftly defeating attacks against U.S. allies and friends in any two theaters of operation in overlapping timeframes."[7] Changes to the two-MTW strategy may impact deployment requirements and the corresponding terminal support requirements. For example, terminal units may face a reduced workload in terms of ship requirements if defeat in one theater can be achieved without the deployment of substantial heavy ground forces. Likewise, the emerging strategy envisions the possibility of an anti-access environment that denies or limits our use of existing theater seaports. This may require terminal operations from more dispersed locations. Additionally, the QDR noted that force mix decisions are necessary to support a paradigm shift in force planning. To that end, it calls for a DOD review to determine structure changes in the active component (AC) and reserve component (RC) mix to ensure the appropriate use of the RC.[8] This review may provide options for utilizing the existing force structure in innovative ways, perhaps in the upcoming Program Objective Memorandum (POM).

In the book QDR 2001: Strategy-Driven Choices for America's Security, Michele Flournoy analyzed the principal QDR strategy alternatives. Part of this analysis utilized key factors to distinguish differences and similarities in the strategies. One of the key factors used to differentiate between the defense strategy options was force structure. While the strategy alternatives and force structure analysis do not include any discussion of power projection, it is interesting to note the following conceptual tradeoffs associated with the analysis.

> In a resource-constrained environment, the four strategies would take somewhat different approaches to delineating the force structure tradespace – that is, determining the tradeoffs or approaches to be considered in an effort to reduce costs while accepting no more than moderate risk. For Strategies A, B, and C, the tradespace candidates might include both dual-apportioning and swinging some forces between two different MTWs; greater reliance on the Reserve

> Component in MTWs; conversion of less critical forces to fill higher priority requirements... Here, the focus is on reducing the force structure requirements, primarily through different approaches to meeting the requirements of a second MTW.[9]

Several recommendations developed in this paper follow in part the 'tradespace' concepts outlined by Ms. Flournoy. The 'tradespace' concepts may very well have utility for a MTMC terminal operations organization looking to increase efficiency.

The conditions are right to improve terminal operations to keep pace with the changing defense strategy. With continued support from the Congress and DOD, Service transformation programs are progressing rapidly, but the impetus to transform has been especially pronounced in the Army.

ARMY TRANSFORMATION

The operational concept for the Army Transformation Objective Force describes several characteristics the force must possess.[10] Three of these characteristics – responsiveness, deployability, and agility – support the need to restructure the terminal organization in order to provide more efficient and effective support. In the end, the deployability of the Objective Force will be dependent to a great extent on power projection enablers, including MTMC terminal operations.

The Objective Force will gain responsiveness through the deployment of smaller formations into multiple entry points to mitigate the enemy's anti-access strategy. It seeks to capitalize on all military and commercial strategic sealift, including high speed, shallow draft vessels.[11] For terminal units operating in an anti-access environment, there may be a greater reliance on transloading operations at Intermediate Staging Bases (ISBs) to facilitate changes in transportation modes. The MTMC elements operating the CONUS Seaports of Embarkation (SPOEs) must be capable of responding to deployment requirements in advance of the forces they support. Similarly, the OCONUS elements operating Seaports of Debarkation (SPODs) and transloading points may be employed more quickly. The responsiveness of RC terminal forces must match that of the AC forces in order to respond effectively.

The deployability of the Objective Force is based on several assumptions relating to combat systems, sustainment, and support from the other Services. Assumptions notwithstanding, the deployability goal of five divisions in theater in 30 days will drive the MTMC terminal operations requirements at the high end of the spectrum.[12] Terminal operations may encompass the spectrum from world-class commercial ports to austere beachheads. Terminal operators may seek to establish multiple nodal operations as part of the overall force

deployment. The deployability of the OCONUS AC and RC terminal elements must be improved to increase responsiveness. Beyond the structure and equipment factors, deployability can be enhanced through a readiness mindset across the Army that postures forces for rapid deployment at any time to any place.

Physical and mental agility in the force allows for seamless transitions during operations.[13] Agility will be the key to improvements in terminal operations effectiveness. Agile terminal elements can shift locations and establish operations in a different location within hours, not days. To facilitate agility, MTMC will be required to restructure terminal units to allow for rapid task organization and split-based operations. The development of a modular, integrated AC-RC structure that allows for rapid task organization is likely to be challenging. Additionally, integrated terminal units will require improved automation and communication capabilities to facilitate transitions between operations. In order to posture the command to support the Army's transformation concept, MTMC developed a Strategic Plan to provide a roadmap for change.[14]

STRATEGIC PLAN

Actions to streamline port management and terminal operations, key components of the surface movements core process, began in earnest with the publication of the MTMC Strategic Plan 2000. Recent streamlining efforts focused on reducing hierarchical layers and standardizing the AC structure. The plan recognized that this streamlining process must ensure the command retains both a focus on effective peacetime operations and wartime readiness. The goal was more cost efficient and effective service to customers while performing as DOD's single port manager worldwide. The challenge is to balance this goal with the responsibility to expand port operations in the event of war.

The Strategic Plan identified readiness as one of the command imperatives. The readiness goal is to ensure the command has the capabilities to support USTRANSCOM taskings across the spectrum of conflict[15] The key to current and future wartime terminal capabilities lies with the command's wartrace RC units. The plan's subsequent 'target' calls for "establishing of multi-component units where possible."[16] While MTMC is moving forward with streamlining efforts as noted above, there is no discernable program to integrate the AC-RC units as noted in the plan.

Taken as a whole, the various levels of defense strategy and the Army Transformation program will drive a comprehensive review of the operational concepts and structure of all Army units to determine if they remain valid. The MTMC Strategic Plan is doing the same for the

command. To understand the possibilities inherent in any restructuring in terminal operations, one must first understand the current capabilities and employment concepts, and analyze them in light of future requirements.

CURRENT CAPABILITIES AND FUTURE REQUIREMENTS

UNIT CAPABILITIES

The current MTMC terminal structure is composed of AC and RC units. More than 50% of the MTMC terminal capability lies in the RC.[17] MTMC RC terminal units include: Transportation Terminal Brigades (TTBdes); Transportation Terminal Battalions (TTBns); and Contract Supervision (CS), Cargo Documentation (CD), and Automated Cargo Documentation (ACD) detachments. The TTBdes and TTBns normally conduct terminal operations at CONUS SPOEs and focus on ship loading operations. The RC CS, CD, and ACD detachments normally conduct ship discharge operations at OCONUS SPODs. All units require commercial and/or military stevedores to conduct terminal operations.

It should be noted that the CS, CD, and ACD detachments are undergoing redesign to provide 24-hour capable teams.[18] In that regard, the CS detachments will be redesigned as Transportation Contract (or Terminal) Supervision Teams with increased personnel strength. Likewise, the CD and ACD detachments are being redesigned into the enhanced Port Management Team. These redesigned units will continue to be assigned to a Terminal Group and designed to operate together for ship operations. Operating together, the teams will have the capability to work one ship, but can be configured to work two simultaneous ship operations for a short duration. The projected operational capability for these teams is similar to the current detachments, albeit with the ability to operate continuously with dual shifts.

The MTMC AC structure is composed of Transportation Groups for command and control (C2) and Transportation Battalions (with some separate transportation terminal companies) for terminal operations. The Groups execute the command's DOD-assigned responsibility as the single port manager for common user seaports.[19] The battalions conduct both CONUS and OCONUS terminal operations.

In 2000, MTMC initiated a program to streamline the AC battalions. The program resulted in the standardization of AC unit staffing at reduced strengths. Much of these reductions came about through the centralization of support functions at the headquarters. The AC battalion streamlining effort increased efficiency saving the Army over 300 personnel authorizations.[20] As John Randt, MTMC Director of Command Affairs, noted: "The future shape of MTMC is still taking form, but it will be smaller in size and its operating functions will resemble commercial

transportation firms."[21] Continued improvements across the command have allowed MTMC to provide more cost effective support in many areas.

In an effort to improve their agility, the AC battalion units have developed the ability to field small, deployable teams capable of managing ports and conducting ship operations at non-DOD seaports. The evolution of the Deployment Support Team (DST) marked a significant step in the command's ability to respond in the post-Cold War environment. The DSTs provide a flexible, efficient, and responsive port operations capability to any location in the world to meet mission requirements. The ability to task-organize and integrate a DST composed of military, civilian, commercial, and host nation personnel requires a standard training program. With a common set of tasks and skills, DST members can be pulled from any unit and operate as an effective team.

The AC and RC terminal units vary in terms of personnel authorizations and capability. Table 1 depicts the number of authorized personnel and ships each unit can work in a 24-hour period. This number of workable ships represents the unit's capability and will factor heavily in the analysis that follows. The table includes terminal units with the ability to conduct ship operations. As such, the Transportation Group headquarters is excluded due to its lack of operational capability. Likewise, the DSTs are excluded since they are not permanent terminal organizations and their temporary capabilities are derived through task organization.

	AC Bn	TTBde	TTBn	CS Det	CD Det	ACD
Authorized Strength	**26**	**115**	**70**	**12**	**8**	**27**
Ship Capability*	**1**	**3**	**2**	**1****	**1****	**2*****

- * In a 24-hour period
- ** When combined, CS and CD detachments can discharge 1 ship.
- *** When combined with the CS and CD detachment, the ACD detachment can discharge 2 ships.

TABLE 1 UNIT STRENGTHS AND CAPABILITY

The variations in unit capability are problematic. As noted earlier, the AC battalions have recently reduced their personnel to a baseline strength of 26 personnel. The RC units, while aware of the AC streamlining efforts, did not take the opportunity to follow suit. The RC terminal brigade and battalion units have relatively limited capabilities despite their large size. The

brigades do not command the battalions. This issue provides a dilemma for the MTMC who exercises C2 for RC units in wartime, but lacks the authority to change the RC unit organizational structure.

The problem has its roots in the various terminal units' design and employment concept. The units lack both a standard baseline design and a modular capability that would allow for seamless task organization to meet multiple ship requirements. While RC detachments (i.e. cargo documentation) are capable of employment anywhere, they are used exclusively for OCONUS operations. Conversely, RC terminal brigades and battalions are capable of operations anywhere, but utilized in CONUS operations. This paper uses the current ship capabilities below to assess terminal efficiency and effectiveness in meeting requirements.

EMPLOYMENT CONCEPT

The current employment concept has its roots in the Cold War era 'big bang' concept that brings the CONUS strategic seaports and all assigned terminal units to full capacity no later than C+3. The concept targets specific AC and RC units to specific strategic seaports in the CONUS and OCONUS. Assigned units then remain at those ports for the duration of the contingency regardless of workload. Figure 1 shows the CONUS terminal unit structure and the associated SPOEs to support MTW deployment operations. The OCONUS terminal units and their locations are classified, however the MRS 05 uses a notional East-West illustrative planning scenario that allows for unclassified quantitative analysis of capabilities and requirements.

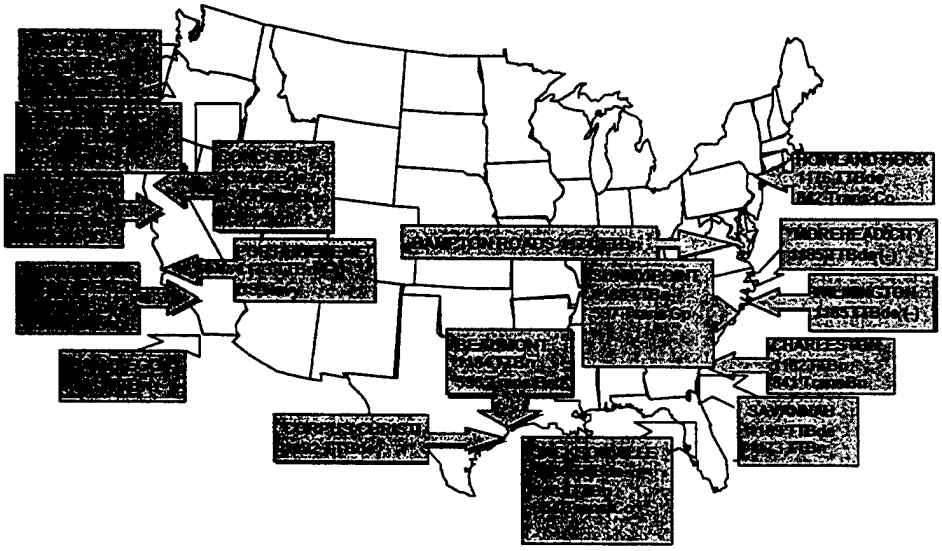


FIGURE 1 CONUS STRATEGIC SEAPORT TERMINAL UNIT STRUCTURE

Prior to C-day, AC terminal units conduct operations at limited CONUS and OCONUS seaports. During a contingency, volunteers or mobilized personnel from the RC terminal units open additional strategic seaports or augment operations at AC ports. All RC terminal units are activated early to support an MTW-size deployment. This employment concept assumes CONUS RC terminal units will be at 75%-100% unit strength and maintain a unit readiness status of C3 or higher. Additionally, they must be operational in the port 72 hours after activation. This is generally assumed to be the C+3 timeframe (M day = C day). The OCONUS RC units are assumed to have the same readiness levels and deploy per the TPFDD. No AC or RC units are dual tasked for terminal operations, however three RC units are split between seaports that are in close proximity such as Concord and Oakland. Likewise, no AC or RC units are dual apportioned. The CONUS terminal units remain fixed at their respective port(s) throughout the crisis regardless of workload requirements. Likewise, terminal units scheduled to deploy OCONUS are considered unavailable for CONUS operations regardless of their required date in theater.

INTERFACE WITH AC TABLE OF ORGANIZATION AND EQUIPMENT (TOE) TERMINAL UNITS

At this point it is important to understand the relationship between MTMC terminal units (AC and RC) and the AC TOE units with terminal service capabilities. The AC TOE units are composed of multifunctional transportation battalions with limited Cargo Transfer Companies (CTC) capable of conducting terminal operations. These companies are designed to operate OCONUS distribution nodes at aerial and seaports, and conduct Logistics Over the Shore (LOTS) operations. The MRS 05 model followed this construct with CTCs operating distribution nodes independently or as stevedore labor interchangeable with civilian stevedores. In the latter the CTCs were paired with MTMC detachments or battalions for C2, contract supervision, and automated cargo documentation.

With organic military stevedores, the CTCs can provide limited terminal operations at seaports. However, these units are normally employed in unsecured port operations when civilian contract or host nation support stevedore labor is unavailable. The concept for all theaters of operations is to establish lodgments and secure improved port facilities as quickly as possible to allow for the rapid deployment of forces deploying by sealift. To that end, AC TOE units may be required initially in a hostile environment, but transition terminal operations to MTMC terminal elements as quickly as possible. The CTCs remain the units of choice for LOTS operations and terminal operations in a degraded port lacking labor and cargo handling

equipment. In all operations, MTMC remains the port manager for theater terminal operations with responsibility for assigning ships to berths and directing terminal units to work those ships.

DEPLOYMENT REQUIREMENTS: TRANSFORMATION AND MRS 05

The Army envisions a transformation timeline through the year 2030.[22] MTMC's Transportation Engineering Agency (TEA) conducted initial analysis of the Army Transformation terminal requirements during the Transformation Wargame conducted in 2000. The TEA provided an initial, front-end analysis of high level (level 2) time-phased force deployment data (TPFDD) for a notional force mix of five divisions and associated sustainment set in the 2015 timeframe. The force mix included the Army Transformation Legacy, Interim, and Objective Forces. It included assumptions on RC readiness, available strategic lift, and stevedore labor that are similar to those used in the MRS 05. The findings indicate that the current terminal organizational capabilities exceed the requirements for that scenario.[23]

Much of the design and analysis for the Objective Force is still in the conceptual phase. Until the Objective Force concept matures, it will be difficult to conduct the detailed supporting analysis of the required terminal force structure. Detailed supporting analysis requires a notional scenario and TPFDD. However, the stated Army goal to deploy five divisions in 30 days allows for parallel analysis using similar model data.

An analysis of terminal requirements and capabilities, conducted using notional MRS 05 seaport and ship data, provides a favorable starting point for reviewing the Army's objective deployment timeline. The MRS 05 developed comprehensive estimates of mobility requirements using programmed mobility and Legacy equipment, forces, and capabilities. The model used a TPFDD set in the FY 2005 timeframe. The study modeled both of the dual-MTW scenarios in the FY 2000-2005 Defense Planning Guidance: the Southwest Asia-Northeast Asia (SWA-NEA) scenario and the NEA-SWA scenario.[24] The model utilized all terminal operations capabilities based on the current employment concept. In other words, the Army Transformation deployment timeline requirement of five divisions in 30 days compares favorably with the deployment requirements for a MRS 05 single MTW requirement. Assuming the Objective Force and its associated sustainment will indeed be lighter and smaller than the current Legacy Force, it follows that the terminal workload requirements for a deployment of five divisions will most likely be less than the current structure supports.

The workload requirements used in the analysis that follows are based on the specific ships and ports modeled in the MRS 05. This analysis was conducted in phases. The first phase involved the development of requirement spreadsheets depicting the ships'

loading/discharge days on berth at the programmed SPOE/SPOD. The corresponding sensitivity analysis accounted for the type of ship, standard loading/discharge times for specific vessel types, and seaport capabilities. Next, the ship workload requirements were input into individual seaport (SPOE and SPOD) spreadsheets over a 120-day deployment timeline. To facilitate analysis, the requirements were grouped into ten-day increments.

The next phase of the study involved comparative analysis of the AC and RC terminal unit current capabilities and the ship requirements by seaport. The unit's capability, or unit factor, is expressed as the number of ships it is capable of working in a 24-hour period as discussed earlier in the unit capabilities section. All ships were given a ship factor of 1 with the exception of the Large, Medium Speed, Roll On-Roll Off (LMSR) ships which were given a working factor of 1.5 due to their size. The charts that follow compare the MRS 05 ship factor requirements against the unit factors to determine the difference. The difference is expressed numerically as a unit factor excess or shortfall (denoted as a negative, or -) capability. The data is presented in both table and graph form in C-day increments of ten.

ANALYSIS OF CAPABILITIES AND REQUIREMENTS

CONUS PARADIGMS

An analysis of each seaport's vessel projected workload requirement against the terminal unit capabilities allows an objective assessment of the capacity of the current force structure. The study begins with the capabilities and requirements identified for the 18 CONUS strategic seaports. Each port was analyzed for both MTW scenarios in the model. This analysis was initially portrayed in 36 strategic seaport graph charts highlighting shortfalls and excess capabilities by 10-day increments. The data was then summarized into three regions – east coast, west coast, and gulf coast.[25] The analysis highlights the undesired effects of the 'big bang' employment concept discussed earlier. Terminal units at assigned ports operating without regard for fluctuating workload are inefficient in meeting requirements.

Figure 2 contains the summarized analysis by region for the scenario involving an 'east first' deployment for a notional dual-MTW scenario. The spreadsheet points to a terminal operations shortfall of six ships on the gulf coast and two ships on the west coast in the first 10 days. Additionally, there are some shortfalls on the west coast in the C+100 to C+129 timeframe. The line chart graphically portrays the spread sheet data for each region with fluctuating workload requirements and static (straight line) capabilities. Taken together, the charts in Figure 2 highlight excess capabilities virtually throughout the scenario with significant excess capabilities on the east coast.

C-Day	Gulf			West			East		
	MRS 05	OH Cap	Diff	MRS 05	OH Cap	Diff	MRS 05	OH Cap	Diff
C - C+9	12	6	-6	12	10	-2	21	23	2
C+10 - C+19	1.5	6	4.5	7.5	11	3.5	10.5	23	12.5
C+20 - C+29	3	6	3	7.5	11	3.5	12	23	11
C+30 - C+39	1	6	5	4	11	7	9	23	14
C+40 - C+49	3	6	3	9	11	2	9.5	23	13.5
C+50 - C+59	3	6	3	5.5	11	5.5	12	23	11
C+60 - C+69	2	6	4	10.5	11	0.5	13	23	10
C+70 - C+79	0	6	6	7	11	4	15.5	23	7.5
C+80 - C+89	0	6	6	10.5	11	0.5	17	23	6
C+90 - C+99	3	6	3	6	11	5	12	23	11
C+100 - C+109	0	6	6	14	11	-3	10.5	23	12.5
C+110 - C+120	0	6	6	18	11	-7	13	23	10
C+120 - C+129	0	6	6	13.5	11	-2.5	10	23	13
C+130 - C+139	0	6	6	10.5	11	0.5	4	23	19
C+140 - C+150	0	6	6	6.5	11	4.5	2	23	21

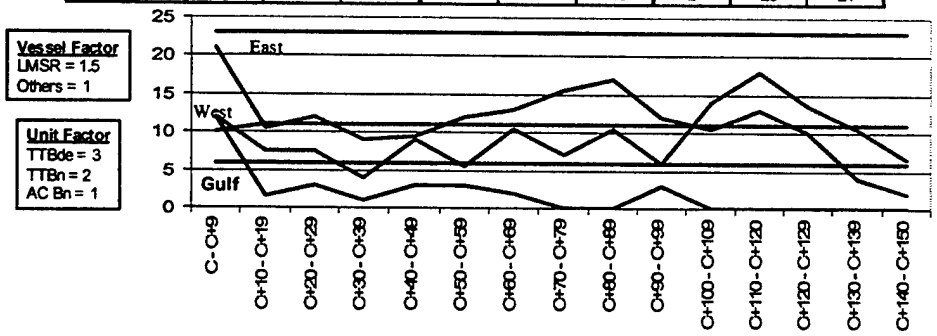


FIGURE 2 CONUS ANALYSIS (EAST-WEST)

Looking at a 'west first' dual-MTW scenario in Figure 3, we see striking similarities in the

C-Day	Gulf			West			East		
	MRS 05	OH Cap	Diff	MRS 05	OH Cap	Diff	MRS 05	OH Cap	Diff
C - C+9	12	6	-6	12	11	-1	21	23	2
C+10 - C+19	1.5	6	4.5	7.5	11	3.5	10.5	23	12.5
C+20 - C+29	3	6	3	7.5	11	3.5	12	23	11
C+30 - C+39	1	6	5	4	11	7	9	23	14
C+40 - C+49	3	6	3	9	11	2	9.5	23	13.5
C+50 - C+59	3	6	3	5.5	11	5.5	12	23	11
C+60 - C+69	2	6	4	10.5	11	0.5	13	23	10
C+70 - C+79	0	6	6	7	11	4	15.5	23	7.5
C+80 - C+89	0	6	6	10.5	11	0.5	17	23	6
C+90 - C+99	3	6	3	6	11	5	12	23	11
C+100 - C+109	0	6	6	14	11	-3	10.5	23	12.5
C+110 - C+119	0	6	6	18	11	-7	13	23	10
C+120 - C+129	3	6	3	20.5	11	-9.5	12.5	23	10.5
C+130 - C+139	0	6	6	21	11	-10	13	23	10
C+140 - C+150	1	6	5	5	11	6	5	23	18

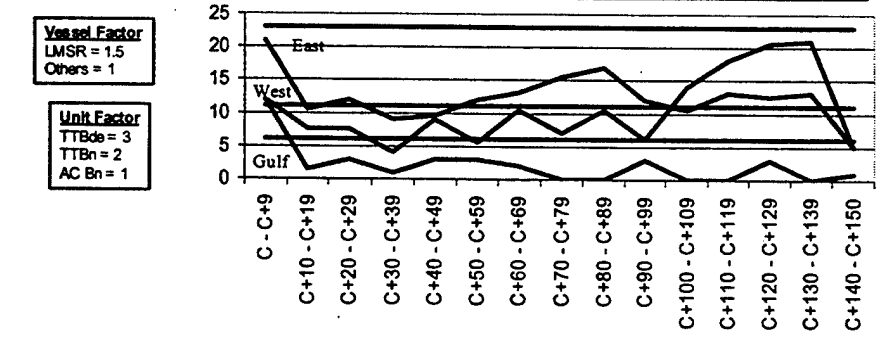


FIGURE 3 CONUS ANALYSIS (WEST-EAST)

analysis. The overall CONUS capabilities are very robust with minor exceptions. The few projected shortfalls can be met by temporarily shifting excess unit capabilities from across the CONUS regions. For example, all of the west coast shortfalls could be met by shifting excess capabilities from the east coast. Alternatively, CONUS shortfalls could possibly be met by employing select OCONUS units prior to their deployment. This is particularly true for the OCONUS swing units apportioned to the second MTW.

OCONUS PARADIGMS

The OCONUS analysis is summarized for two, notional MTW scenarios – east and west. Each dual-MTW scenario contains deployments to two theaters – the 'first' theater (east or west) and the overlapping theater with requirements commencing at C+40. Similar to the CONUS analysis, the OCONUS figures contain spreadsheet data analysis and line charts to portray the analysis. Figure 4 assesses the OCONUS terminal unit capabilities in the 'east first' scenario. It shows a 5.5 ship shortfall in terminal unit discharge capabilities for the first 10 days and varying degrees of shortfall and excess capacity following that first surge.

C-Day	MRS 05	OH Cap	Diff
C - C+9	20	14.5	-5.5
C+10 - C+19	4	14.5	10.5
C+20 - C+29	16.5	14.5	-2
C+30 - C+39	15.5	14.5	-1
C+40 - C+49	13.5	14.5	1
C+50 - C+59	12.5	14.5	2
C+60 - C+69	13	14.5	1.5
C+70 - C+79	12	14.5	2.5
C+80 - C+89	12.5	14.5	2
C+90 - C+99	14	14.5	0.5
C+100 - C+109	15	14.5	-0.5
C+110 - C+120	7.5	14.5	7
C+120 - C+129	8	14.5	6.5
C+130 - C+139	5.5	14.5	9
C+140 - C+ 150	3.5	14.5	11

Vessel Factor
LMSR = 1.5
Others = 1

Unit Factor
AC Bn = 1
ACD/CS/CD = 2
CS/CD = 1

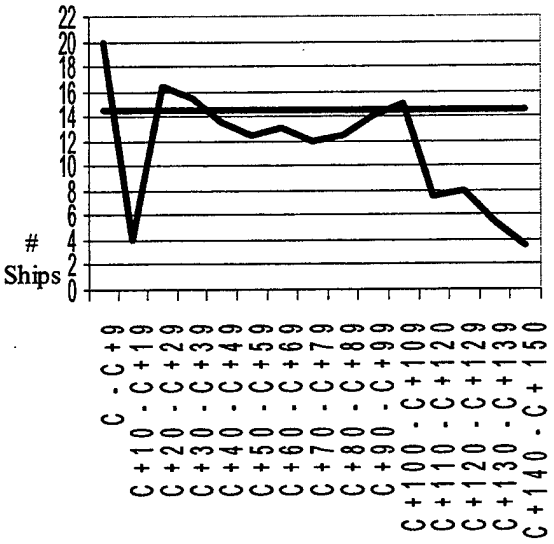


FIGURE 4 OCONUS ANALYSIS (EAST FIRST)

Figure 5 depicts the overlapping theater requirements and capabilities in the 'east first" scenario. The assumptions for this model dictate the C-day deployment timeframe and are reflected in the requirements starting at C+40. At that time, the terminal unit capability for 13.5 ships is available throughout the deployment reception operations. The overall assessment includes OCONUS port requirements at ISBs in the area of responsibility. Those requirements, while not portrayed here, were included in the model and satisfied with terminal units. There are some shortfalls in the C+70 to C+89 timeframe for the overlapping scenario. Overall, the capabilities are relatively close to the requirements.

C-Day	MRS 05	OH Cap	Diff
C - C+9	0	0	0
C+10 - C+19	0	0	0
C+20 - C+29	0	0	0
C+30 - C+39	0	0	0
C+40 - C+49	10	13.5	3.5
C+50 - C+59	5.5	13.5	8
C+60 - C+69	13	13.5	0.5
C+70 - C+79	19.5	13.5	-6
C+80 - C+89	18	13.5	-4.5
C+90 - C+99	8	13.5	5.5
C+100 - C+109	8.5	13.5	5
C+110 - C+120	9	13.5	4.5
C+120 - C+129	12.5	13.5	1
C+130 - C+139	16	13.5	-2.5
C+140 - C+ 150	8.5	13.5	5

Vessel Factor
LMSR = 1.5
Others = 1

Unit Factor
AC Bn = 1
ACD/CS/CD = 2
CS/CD = 1

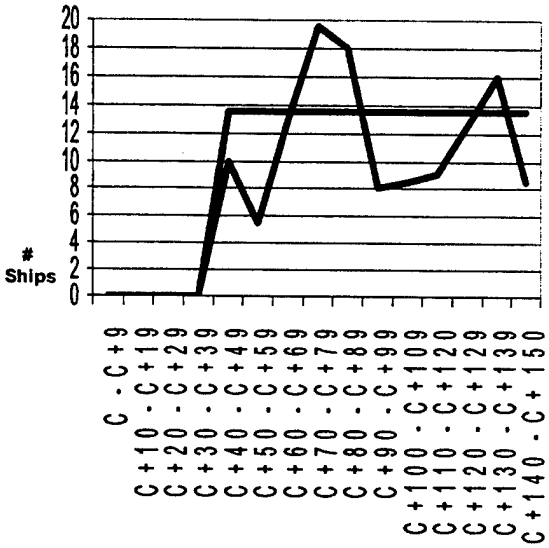
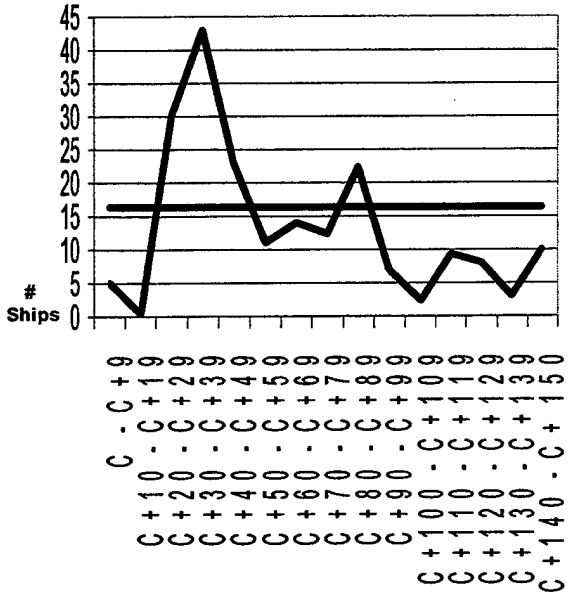


FIGURE 5 OCONUS ANALYSIS (OVERLAPPING MTW)

The assessment of the 'west first' scenario in Figure 6 indicates significant shortfalls between C+20 and C+49. The 26.5 ship operation shortfall between C+30 and C+39 represents the largest capability shortfall of the study and potentially the most difficult to fix. However, it may be possible to alleviate these shortfalls through a combination of employment changes. The most practical approach would involve the deployment of excess CONUS terminal units, or elements of those units, from all three regions. Similarly, deploying OCONUS AC elements from outside the theater can alleviate the problem. Alternatively, MTMC could explore the possibility of dual apportionment for some units in the current OCONUS structure. Mobilizing and deploying units earmarked for follow-on MTW operations will meet the

requirement. Thos elements would still be available as swing forces in the event of a second, overlapping MTW.

C-Day	MRS 05	OH Cap	Diff
C - C+9	5	16.5	11.5
C+10 - C+19	0.5	16.5	16
C+20 - C+29	30	16.5	-13.5
C+30 - C+39	43	16.5	-26.5
C+40 - C+49	23	16.5	-6.5
C+50 - C+59	11	16.5	5.5
C+60 - C+69	14	16.5	2.5
C+70 - C+79	12.5	16.5	4
C+80 - C+89	22.5	16.5	-6
C+90 - C+99	7	16.5	9.5
C+100 - C+109	2.5	16.5	14
C+110 - C+119	9.5	16.5	7
C+120 - C+129	8	16.5	8.5
C+130 - C+139	3	16.5	13.5
C+140 - C+ 150	10	16.5	6.5



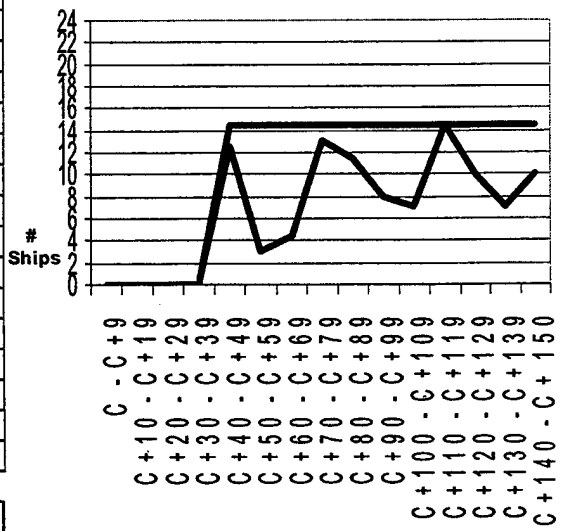
Vessel Factor
LMSR = 1.5
Others = 1

Unit Factor
AC Bn = 1
ACD/CS/CD = 2
CS/CD = 1

FIGURE 6 OCONUS ANALYSIS (WEST FIRST)

There are no shortfalls in the overlapping theater for the 'west first' scenario as shown in Figure 7. The terminal capability of 14.5 ships, while meeting the peak requirement during one

C-Day	MRS 05	OH Cap	Diff
C - C+9	0	0	0
C+10 - C+19	0	0	0
C+20 - C+29	0	0	0
C+30 - C+39	0	0	0
C+40 - C+49	12.5	14.5	2
C+50 - C+59	3	14.5	11.5
C+60 - C+69	4.5	14.5	10
C+70 - C+79	13	14.5	1.5
C+80 - C+89	11.5	14.5	3
C+90 - C+99	8	14.5	6.5
C+100 - C+109	7	14.5	7.5
C+110 - C+119	14.5	14.5	0
C+120 - C+129	10	14.5	4.5
C+130 - C+139	7	14.5	7.5
C+140 - C+ 150	10	14.5	4.5



Vessel Factor
LMSR = 1.5
Others = 1

Unit Factor
AC Bn = 1
ACD/CS/CD = 2
CS/CD = 1

FIGURE 7 OCONUS ANALYSIS (OVERLAPPING MTW)

ten-day window, exceeds the requirements and consumes capabilities that are required in the 'first' theater.

Taken in its entirety, the analysis of terminal capabilities and requirements in the most demanding scenarios points to inefficiencies in the employment concept. The few CONUS shortfalls can be satisfied by shifting units from regions with excess capabilities. The development of terminal units with increased agility will enhance effectiveness and allow units to shift rapidly both in the CONUS and OCONUS to meet changing requirements. The dual apportionment of OCONUS units currently required for the 'second' or overlapping theater will provide additional capabilities for early requirements. Changing the structure and employment concept will generate a more effective and robust terminal capability that, in the end, could be streamlined to increase efficiency.

RC TERMINAL ORGANIZATIONS AND C2 PARADIGMS

Past restructuring initiatives in MTMC include the elimination of the Eastern and Western Area commands, substantial downsizing at the headquarters, and the recent elimination of the Deployment Support Command headquarters. Despite a program to reduce the size and standardize the design of the AC terminal units, the RC terminal organizations and structure remain unchanged. Part of the problem can be traced to the split responsibilities between the MTMC and the Army Reserve. MTMC has C2 responsibilities for RC terminal units in wartime. In peacetime, RC terminal unit functional responsibilities, including resources, belong to the Army Reserve. The Army Reserve has yet to accept the need to change the current terminal organizations and their associated brigade and battalion command structures.

The current MTMC terminal organizational structure fails to provide efficient and effective support in wartime. It is supported by a patchwork of AC and RC units that seek to meet individual port requirements at the expense of functional efficiency when viewed as a CONUS-wide or regional capability. Each terminal unit concentrates on its assigned port location to the detriment of overall requirements. The result is excess capacity.

The current employment concept that assigns RC terminal units to the strategic seaports limits the effectiveness of the organizational structure. While some AC and RC units train together on occasion, none of the units are integrated during operations. AC and RC units conduct training and measure performance differently. Other problems include a lack of standard equipment and readiness issues. Lieutenant Colonel Terry Haston presents these types of problems as barriers to meeting the Army Chief of Staff's vision of 'The Army'.

Lieutenant Colonel Haston concludes that despite the difficulties, integrating the AC and RC forces can be done if resourced accordingly.[26]

The problems in AC-RC compatibility are symptomatic of the fact that terminal units lack a standardized unit design. This prevents seamless integration between the two components. As indicated in the analysis, the authorized unit strength of the various terminal units is not an indicator of unit capability. The current RC TTBdes and TTBns have significantly more personnel than their AC battalion counterpart, but lack the corresponding increase in capability. This fragmented terminal unit design and corresponding force structure fails to provide MTMC with the agility to shift units and subunits based on requirements. The question for MTMC is how to restructure the current force into a force that is both smaller and more agile. The answer is relatively simple – paradigm shifts in the way we organize, structure, and employ the terminal units.

RECOMMENDATIONS

While the command has made significant progress in streamlining, more needs to be done if the command expects to create savings and be more responsive to warfighter needs. MTMC must address the inefficiencies in the structure. An outmoded terminal organization has created challenges for the command that can be addressed with restructuring solutions. The restructuring recommendations that follow will be challenging and involve changes in employment concepts. A coordinated approach led by MTMC and supported by the Army Reserve will ensure that efforts are focused on meeting wartime requirements as efficiently and effectively as possible.

REDUCE THE STRUCTURE

While the current terminal structure is fully capable, it is also inefficient. From a terminal operations perspective, the Objective Force deployment of five divisions in 30 days can be accomplished using smaller, more agile units and deployment support teams instead of large, static terminal units. This deployment timeline, while demanding for elements of the overall deployment triad (airlift, sealift, and prepositioning), represents less of a challenge when compared to current terminal operations capabilities. Asymmetrical, anti-access strategies may impact attempts to speed the deployment process. At the macro level, the SPOE/SPOD deployment process inevitably points to limitations beyond organization capabilities such as infrastructure capacities or vessel availability. At a more detailed level of analysis, the current terminal force structure is larger than necessary.

The excess unit capability revealed in the analysis suggests the opportunity to reduce the number of terminal units. The AC terminal battalions recently restructured reducing both the size and number of units. The size and number of TTBdes and TTBns is larger than necessary. There should be no more than one headquarters element, AC Group or TTBde, in each of the three regions for C2. Additional modeling of a completely restructured battalion terminal unit, incorporating the recommendations below, will allow for a significant reduction in the overall number of units. Likewise, dual apportioning RC units planned for OCONUS operations will allow for a reduction in the CS/CD/ACD Detachment structure. Any future change in strategy away from the two-MTW force sizing mechanism may allow for additional reductions of CONUS and OCONUS terminal units. These reductions are in line with the Army Transformation concept that calls for a much smaller 'tooth to tail" ratio of support personnel.

DEVELOP STANDARD, MULTI-COMPONENT TERMINAL UNITS

The Army's AC-RC integration efforts, particularly the development of multi-component units, present MTMC with the opportunity to restructure for the future. "Creating multi-component units will be a key enabler in building...agile, dynamic forces we will need in the 21st Century. This will fundamentally change the way we do business."[27] The multi-component MTOE units program is an experimental approach to combining AC and RC authorized personnel and equipment on a single document without changing the original unit MTOE requirements. The current program seeks to maximize AC and RC resources. Across the Army there will be 37 units activated in FY 01. It includes 62 units documented as multi-component units through the end of FY 03 and a total of 113 units and 21,700 authorizations activated by FY07.[28] Currently, there are no MTMC terminal units in the multi-component unit program.

Developing a multi-component terminal unit structure will allow MTMC to meet wartime requirements more efficiently while setting the stage for the reduction in units noted earlier. For example, the current program allows 34% of the AC authorizations in AC flagged, multi-component units to be replaced with RC authorizations. Integrated AC personnel into RC flagged, multi-component terminal units will improve responsiveness and effectiveness with better training, better equipment, and higher readiness level. The current program substitutes 14% of the RC flagged personnel authorizations with AC personnel.[29] Converting the current patchwork of MTMC battalions and detachments into the multi-component terminal unit structure will improve efficiency by reducing redundancy in the structure and utilizing RC 'tradespace' personnel authorizations. It will increase effectiveness by ensuring all units and personnel are trained (and cross trained) to the same standard

The key to this integration within MTMC is the restructuring of the AC battalion and RC TTBn into one standard unit with standard vessel capabilities. Similarly, the current OCONUS RC detachment units (CS/CD/ACD) should be combined into one standard terminal unit. Both of these standard units, one for terminal operations and one for limited terminal operations and contracting, would be modular in design to ensure the agility to conduct efficient, split-based terminal operations at multiple locations. Likewise, all units will retain similar capabilities and readiness levels. Their reach-back capability will be assured with new automation and communications packages.

Making all of the units more agile can mitigate any risk associated with the surge capability and requirements identified in the analysis. The change in force mix assumes increased accessibility to RC forces. Modularity is best accomplished by structuring the units to provide multiple DSTs capable of independent vessel operations. In this manner, the organization can deploy teams from anywhere in CONUS or OCONUS to any port for operations on short notice. Their agility lies in the ability to unplug quickly from the parent unit and conduct any vessel operation. Equipped with lightweight, flyaway commercial communications and computer systems for reach-back capability, these teams would provide the agility necessary to meet short notice missions in one location and redeploy to another location in hours instead of days. This will ensure the capability to satisfy the shortfall requirements in the first 10 days of an MTW deployment.

There are other options beyond split-based CONUS DSTs that demonstrate how agile units can best meet requirements. Using idle RC detachments waiting for OCONUS deployment can fill CONUS shortfalls in the first 10 days. Initial combat unit equipment moving by sealift will require time to arrive in theater even with the development of high-speed sealift. The result is that OCONUS RC units are idle and do not deploy in the first 10 days. Additionally, deploying RC detachment swing units designated for the second MTW can meet the requirement.

STREAMLINE COMMAND AND CONTROL

Information technology increasingly enables MTMC to conduct operations as though the terminal units are fully autonomous. At the same time, MTMC can increase effectiveness through reduced layering and the economies of scale that centralization affords. A streamlined C2 function will improve the planning and execution process in and enhance the terminal unit commander's ability to make time sensitive operational decisions. It will simultaneously improve C2 during dynamic operations.

At the top, the MTMC Deputy Commanding General (DCG) for operations should maintain operational and tactical control of all terminal units. This centralized control allows the DCG to take a global look at the various CINCs' requirements passed from the J-3 Mobility Control Center at USTRANSCOM, and support those requirements as efficiently and effectively as possible. The DCG can perform this function with an enhanced crisis action operations center (CAOC).

In the CONUS, wartime directions would flow directly from the DCG to the terminal battalions with concurrent information flowing to the regional brigade or group headquarters. These elements would be designed as true headquarters staff with no additional terminal operations responsibilities as is the case with the current TTBde and AC Group structure. They would be small in size and focus on current operations to meet regional requirements. Anticipated shortfalls beyond the regional commander would be passed immediately to the CAOC. These headquarters elements would focus on the deploying units and movement schedules associated with the power projection platforms in their regions. These brigade/group headquarters would act as a linking pin for other MTMC units operating in the region such as rail units, port security units, and the Deployment Support Brigade teams at the installations. For OCONUS operations, every combatant command would receive a brigade-level headquarters element to execute the single port manager function. The C2 would be the same as with the CONUS concept.

Technology is an obvious requirement when removing organizational layers. Terminal units require improved systems in order to conduct deployment planning and execution planning, monitoring, and controlling. Laptop computers could be utilized to access web-based systems that allow terminal units to determine requirements, book cargo, access approved schedules, view the availability and movements of supported units, and send taskings to supported units. Likewise, the terminal units could receive intelligence and weather updates, determine where bottlenecks will occur, and take action to resolve them. The CAOC could operate the system to centralize management of the terminal units and commercial transportation operations, and act as the hub to ensure synchronization in a dynamic transportation environment.

One alternative to the recommended C2 reorganization could include the establishment of three multi-component, RC-flagged brigade headquarters to provide regional C2 for the gulf, west, and east coast terminal battalion units. These organizations would not be organized for terminal operations as the current TTBdes are structured, but limited to command and staff functions. Currently, all AC terminal battalions are aligned under one AC Transportation Group

in CONUS. The current alignment of RC TTBdes and TTBns is less clear. Converting the current AC Transportation Group to a multi-component Brigade/Group headquarters for the east coast, along with the addition of Brigade/Group headquarters for the west and gulf coast, would eliminate the current uncertainty with the C2 structure. While adding a layer in the wartime chain of command, the additional resources required could be offset by limiting the size and functions of the brigade headquarters. These headquarters would focus on task organizing the agile deployment support teams from the existing multi-component terminal units assigned to the region and synchronizing terminal operations as requirements change.

CONSIDER OUTSOURCING

Over the years, proponents for change in MTMC, both internal and external, called for better service at lower cost, both in peace and in war. In response, MTMC began to downsize, reduce layers of command and force structure, and outsource activities to other DOD organizations and the commercial transportation industry. Examples of outsourced activities include POV movements, personal property shipments, container management, and container freight stations. In the future, outsourced activities are likely to include financial management, information management, rail fleet management, and CONUS surface transportation.

MTMC should explore possibilities to outsource selected elements of terminal operations. Terminal operations will be increasingly tied to commercial information systems and intermodal capabilities that provide not only near real time intransit visibility, but supply chain asset visibility including production and inventory. The potential exists to outsource the CONUS terminal operations while retaining smaller, multi-component military terminal units for wartime expansion and terminal operations at austere ports. As an interim step in that direction, the Stevedore and Related Terminal Services contracts at the CONUS AC battalion terminals could be adjusted to allow for variations in the mix of MTMC and contractor personnel. Commercial stevedore companies are capable of providing trained personnel for all terminal functions, not just the traditional stevedore functions involving cargo handling. For example, responsibility for cargo documentation could be shifted to contract cargo checker personnel. Wartime expansion capabilities of the strategic seaports could be assured through the development of contracts similar to those in the Logistics Civil Augmentation Program (LOGCAP). The remaining multi-component military units should be multifunctional in terms of transportation skills capable of augmenting Deployment Support Brigade teams, Cargo Transfer Companies, or theater Reception, Staging, and Onward Movement missions. While much has been accomplished in outsourcing, more can and must be done to reduce costs.

CONCLUSION

Many organizations are just beginning to understand the need for a major change. For the MTMC, a series of internal organizational and process changes over the past three years have had the cumulative effect of transforming the command. As Secretary of Defense Donald H. Rumsfeld noted in recent congressional testimony: "It can be in interoperability. It can be in taking things that every single one of which exists presently and managing them, using them, connecting them, arraying them in a way that has a result that is transformational."[30] While the command is improving its operations through internal reorganization, additional change is necessary to continue the transformation process for terminal operations.

The MTMC objective for streamlining the terminal organization should be to efficiently match the Transformation deployment timeline requirements of the Objective Force with the capabilities of the organization. The core problem that prevents efficient wartime mission accomplishment of terminal operations is a combination of organizational structure and employment concepts. Current employment concepts based on the 'big bang' theory require a larger than necessary terminal force structure to operate ports. This structure fails to accommodate for fluctuations in workload associated with planned ship schedules for deployment and sustainment operations. Likewise, problems in force structure can be linked to the fragmented AC/RC terminal unit design and structure with corresponding differences in unit strength, readiness, agility, and capabilities. The net result of the current structure and employment concept is that MTMC cannot conduct effective wartime terminal operations and the force structure is larger than required.

The future MTMC terminal management organization provides both challenges and opportunities to be more efficient while improving effectiveness in wartime. There are several imperatives to making this happen. First, restructuring will allow the organization to reduce the overall number and size of terminal units while garnering efficiencies wherever possible. MTMC must seize the opportunity to integrate AC and RC terminal units. Standard, multi-composition AC-RC terminal units capable of independent subunit operations provide the effectiveness and agility necessary for future deployment operations. As the port management structure is streamlined, MTMC and the Army Reserve must invest in mission-critical equipment and other modernization efforts to maintain the necessary readiness levels. This restructuring could be the final step in the MTMC command-wide restructuring effort to ensure greater efficiency. Numbers do not equal capability.

The paper's recommendations provide a roadmap for change. They suggest ways that MTMC can ensure success in meeting future requirements by restructuring the organization,

integrating units, and increasing their agility. The time is right to initiate a substantial restructuring in terminal operations. With ongoing transformation initiatives and changing national strategy, the MTMC leadership is in a position to shape change as never before. The recommended changes can pay big dividends. Every dollar saved and every unit reduced provides an additional dollar or force structure addition that can potentially be applied to support Transformation.

WORD COUNT= 7622

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