

STRATEGIC SEALIFT SUPPORTING ARMY DEPLOYMENTS

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MASTER OF MILITARY ART AND SCIENCE
General Studies

by

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ABSTRACT

STRATEGIC SEALIFT SUPPORTING ARMY DEPLOYMENTS, by Major Matthew K. Thompson, 59 pages.

Mobility is a key element of the US Army's ability to project its forces globally. Getting personnel and equipment in position to operate effectively for long periods requires a variety of systems to work together. There are three means the Army relies on for strategic mobility: airlift, sealift, and pre-positioning. Each of these modes has advantages and disadvantages which allow them to complement each other. This paper is limited to the study of strategic sealift as it supports deployment operations. As the United States Army moves into a future of fiscal uncertainty, efficient use of its support systems and available resources is more important than ever. Strategic mobility by either airlift or sealift is among the largest of the force's routine expenditures and as such demands attention. The foregoing research aims at answering the question: "Is there an optimal approach to planning for strategic sealift to support Army deployments?"

TABLE OF CONTENTS

	Page
MASTER OF MILITARY ART AND SCIENCE THESIS APPROVAL PAGE	iii
ABSTRACT.....	iv
TABLE OF CONTENTS.....	v
ACRONYMS.....	vi
CHAPTER 1 INTRODUCTION	1
CHAPTER 2 LITERATURE REVIEW	7
CHAPTER 3 METHODOLOGY	12
CHAPTER 4 ANALYSIS	15
Why strategic sealift	15
Why choose sealift over APS	18
Why choose sealift over airlift.....	21
What Can Be Done?	23
What Can MSC Do?	25
What Can SDDC Do?	30
Sealift Selection Process	31
Single Port Manager	31
Joint Task Force–Port Opening	33
Joint Assessment Team.....	34
What Can JLOTS Do?	36
Are There Better Boats?	39
Is Change Needed?	43
CHAPTER 5 CONCLUSION.....	48
BIBLIOGRAPHY	52

ACRONYMS

APOD	Air Port of Debarkation
DDOC	Deployment Distribution Operations Center
DTR	Defense Transportation Regulation
DTS	Defense Transportation System
FSS	Fast Sealift Ship
JAT	Joint Assessment Team
JLOTS	Joint Logistics Over the Shore
JOPEs	Joint Operation Planning and Execution System
JTF-PO	Joint Task Force–Port Opening
LMSR	Light Medium-Speed Roll-On/Roll-Off
MARAD	Maritime Administration
MSC	Military Sealift Command
POD	Port of Debarkation
POE	Port of Embarkation
RPOE	Rapid Port Opening Element
RRF	Ready Reserve Force
SDDC	Surface Deployment and Distribution Command
SPOD	Sea Port of Debarkation
SPOE	Sea Port of Embarakation
TCC	Transportation Component Command
TCCC	USTRANSCOM Commander
TP	Transportation Policy
USC	Universal Services Contract

CHAPTER 1

INTRODUCTION

The current Defense Transportation System cannot support the Army's strategic mobility requirement to be able to move a medium brigade anywhere in the world in 96 hours, a division in 120 hours, and five divisions in 30 days, which limits the options available to the unified commanders. Each leg of the strategic mobility triad (airlift, sealift, and pre-positioning) depends on the other, but each has inherent weaknesses.

— Kenneth Hickins, *Strategic Mobility: The U.S. Military's Weakest Link*

Mobility is a key element of the US Army's ability to project its forces globally.

Getting personnel and equipment in position to operate effectively for long periods requires a variety of systems to work together. There are three means the Army relies on for strategic mobility: airlift, sealift, and pre-positioning. Together, these are known as the strategic mobility triad, and they each have their advantages and disadvantages.

For getting equipment across global distances quickly, airlift is the obvious means. The US Air Force's workhorse in this respect is the C17. A C-17A Globemaster III can carry 76.3 metric tons of cargo at a speed of 450 knots over a range of 2,400 nautical miles.¹ The monetary cost of this lift capacity and speed is also quite respectable in terms of fuel and routine maintenance. Essential as it is to the strategic mobility triad, airlift comes with a price tag.²

¹ Charles D. McDermott, "Joint Interagency Multinational Sea-based Logistics Platforms: Utilizing Strategic Sealift to Enhance Geographic Combatant Commanders' Theater Engagement Capabilities" (Monograph, School of Advanced Military Studies, Fort Leavenworth, KS, 2011), 27.

² Ibid.

Prepositioning means packaging equipment requirements in advance and locating them at various places around the world. This process requires identifying predictable packages of equipment that are expected to be needed for routine operations. time.³ The planning that goes into pre-positioning takes place long before the planning for any specific deployment operation, so the package of equipment may be suitable, but may lack particular needs for a given mission.

Sealift allows for a volume of cargo that airlift does not, and it allows for an accuracy of equipment needs that pre-positioning does not. However, it is much slower than the other two, requiring time for a vessel to arrive at a port of embarkation where it will be loaded and requiring more time to move to its destination to be unloaded.

When it comes to transporting large amounts of equipment across oceans, the Army will usually plan to move it using sealift due to the volume of cargo that can be transported on large ships. Strategic sealift supporting overseas deployments is arranged by two main methods—military sealift and contracted commercial vessels. Within these two options there are a couple of methods. Military sealift may be planned using ships that are already afloat and actively being used or it may make use of vessels in the Ready Reserve Fleet which would then have a crew contracted for the duration of the mission. Commercial contracts are also handled by a couple of different methods. They may be booked according to rate structures which have been agreed on by the carriers and the US Government under the Universal Services Contract, or sometimes under a Regional

³ Kenneth E. Hickins, “Strategic Mobility,” *Army Sustainment* 42, no. 2 (March-April 2010): 4.

Domestic Contract (RDC).⁴ Managing the timeliness of these options, as well as the suitability and the cost of each one is central to transportation planning for large deployments.

In the current global environment, the US Army is called upon for a wide variety of missions, deploying to areas where American military forces have had little or no previous presence. The lack of established support systems in these situations increases the volume of cargo to be transported. Also, as the nature of potential missions is not always the straightforward combat scenario, the types of units and therefore the types of equipment that will be needed is not always predictable. For this reason, use of prepositioned stocks is not always an adequate solution. In terms of the transportation requirement, it is often necessary to consider the availability of alternate means that can accommodate movement of large units into missions that were not anticipated.

As part of the mobility triad, sealift is a crucial factor for operational planners to understand. Before they know any specifics of the units equipment load, planners need to have an idea of the volume and variety of cargo that can be moved by available assets. While the timelines provided by Hickins in the quote that leads off this chapter have been repeatedly tested and refined, they are still mostly a goal and depend greatly on the current environment. Realities based on recent experiences are better indicators of the capabilities of the components of the mobility triad.

The primary research question this thesis attempts to answer is: “Is there an optimal approach to planning strategic sealift to support Army deployments?” This is

⁴ USTRANSCOM, *USTRANSCOM Instruction 24-7* (Scott Air Force Base, IL: United States Transportation Command, 2014), 3.

addressed as a qualitative analysis, making only subjective comparisons of the options for selecting strategic sealift based on capabilities of available vessels. The answer is ultimately an opinion supported by examining and balancing the issues pertinent to the topic.

The secondary research questions of this thesis are: “How much flexibility does USTRANSCOM have in the planning process?”, and “How much of the process is decided in advance by regulation or policy?”

Underlying assumptions behind this research are that the intent of the US Army is to continue deployments to operations overseas for both combat and non-combat operations. Further, that such deployments rely on unit movements from home station as a method of equipping the force for overseas missions. Building on this is the assumption that strategic sealift options will continue to be the high-volume leg of the mobility triad.

Throughout this thesis, the term strategic sealift refers to all oceangoing vessels used to transport military materiel overseas. This includes assets that are organic to the military, as well as vessels which are arranged under contractual relationships. The two main managers of strategic sealift are Military Surface Deployment and Distribution Command (SDDC) and Military Sealift Command (MSC).

Military Surface Deployment and Distribution Command is the Army service component command of USTRANSCOM that provides common-user ocean terminal support, surface traffic-management services, and transportation engineering support to the DOD.

Military Sealift Command is the US Navy service component command of USTRANSCOM that controls most of the military transport ships of the Navy. MSC

answers to USTRANSCOM for operational functions, but falls under the auspices of the Navy for service-related needs. MSC operates a fleet of vessels organic to its organization, but it also calls upon the Ready Reserve Force (RRF) to supplement operational requirements for sealift.

Ready Reserve Force refers to oceangoing vessels owned by the US Maritime Administration (MARAD) that are not active but are brought into an active capacity to support missions. The RRF provides nearly one-half of the government-owned surge sealift capability. As of this writing, the RRF consists of 46 ships including: 35 roll-on/roll off (RO/RO) vessels, two heavy-lift or barge carrying ships, six auxiliary craneships, one tanker, and two aviation repair vessels.⁵

An analysis of the impact of strategic sealift on deployment to all types of military operations would have too many possible variables to fit the scope of this paper. This paper is limited to the study of strategic sealift as it supports deployment operations. In turn, this narrows the body of literature available on the topic. While some papers address deployment principles from a larger systemic perspective, and there are articles that delve into the advantages and disadvantages of the military's approach to mobility, there are few that make a point to address sealift in depth.

Planners for mobility support ultimately operate under the policies of US Transportation Command, which gives guidance to the use of the strategic mobility triad in given situations. Given that, this paper does not present a solution to a problem. The research involved in this study will distill various bodies of knowledge around which

⁵ Division of Sealift Operations, *National Defense Reserve Fleet Inventory December 31, 2015* (Washington, DC: U.S. Department of Transportation Maritime Administration, 2015), 4.

mobility plans are made and inform the planning of Army deployments to overseas operations. With the continued variety of mission sets possible and likely for the US military, the ability of the planners to adapt expectations to match the specific needs of each mission is vital. In the end, this study will provide a resource of comparative study which will support the necessary thought processes for recommending one sealift option over another. The information provided here will give planners the understanding of sealift's effects on a deployment plan.

CHAPTER 2

LITERATURE REVIEW

The DOD will maintain and operate in peacetime only those owned or controlled transportation resources, including assets leased or chartered for periods greater than 90 days, needed to meet approved DOD emergency and wartime requirements that cannot be met readily from commercial transportation sources.

— United States Transportation Command, *Defense Transportation Regulation—Part III: General Provisions for Mobility Movements*

The Defense Transportation Regulation (DTR) establishes a basis of joint doctrine dealing with military movements by any mode of transportation. There are seven main sections to the DTR, including the movement of personal property shipments, human remains, and passengers, but the sections that pertain to the topic of this thesis are Part II, Cargo Movement and Part III, Mobility. These sections explain the interlocking sets of responsibilities between the planners at unit levels and the operators at the Transportation Component Commands (TCC). While much of the detail is of significance only to mobility Warrant Officers and Division Transportation Officers, there are some general guidelines and implicit themes laced through these sections which show the intent of USTRANSCOM policies and procedures. The DTR often uses passive voice, which makes it difficult to determine who is responsible for some of the tasks. Where the onus is not explicit, some analysis is required to determine whether the supported command or the supporting command should ensure compliance with the regulation.

USTRANSCOM regularly updates *Instruction 24-7* which provides Standardized Operating Procedures for selecting from among potential courses of action

of sealift options to support strategic mobility missions.⁶ Updated most recently as of February 27, 2014, this instruction prescribes methods of analyzing the requirements of ocean-going cargo and making recommendations to the USTRANSCOM operations section for final decision. The document also gives guidance to TCCs—Military Sealift Command (MSC) and Surface Deployment and Distribution Command (SDDC)—on the process by which vessels will be allocated to missions, contracted if needed, and activated from nationally-controlled assets as applicable. The letter offers considerable detail for conducting the process, including checklists; message templates for vessel activation, extension, and cancellation; flowcharts for the selection process; and instructions for comparing sealift options and performing analysis to establish the breakpoint at which cargo is preferred via charter service rather than liner service.⁷ Charter service gives the military access to a vessel’s entire capacity and control over its schedule and ports of call. Liner service under existing contracts makes use of space available at the discretion of commercial carriers to meet prescribed delivery timelines.

Another instruction letter issued by USTRANSCOM is *Instruction 10-27*, which lays out the purpose, composition, and operating procedures of the Joint Task Force–Port Opening (JTF-PO), an element which was added to the joint force structure in 2009. Volume 2 of the instruction was last updated in October 2013. The JTF-PO is not a standing task force, but is put together from among ready and trained personnel from

⁶ USTRANSCOM, *Instruction 24-7*, 2.

⁷ *Ibid.*, 16-30.

within the appropriate TCCs.⁸ JTF-PO can be tailored to conduct airport openings, seaport openings or both. The two major elements that make up a JTF-PO are a Joint Assessment Team (JAT) and a Rapid Port Opening Element (RPOE). The instruction specifies the joint training requirements for each of those elements depending on the mode for which each one is designed—air or sea. JTF-PO can be organized as Heavy, Medium, or Light, depending on the size of the operation and the security requirements the operating environment places on the task force. Heavy JTF-PO can conduct 24-hour operations in a non-permissive environment with throughput capabilities to support significant contingency operations.⁹ JTF-PO for SPOD does not include the option for light operations, as cargo operations for a vessel are expected to require more management of local contract labor and transportation support for onward movement.¹⁰

Throughout his career, Kenneth Hickins (Colonel, U.S. Army, Retired) wrote about the topic of strategic mobility. His articles in *Army Logistician Magazine* (and later *Army Sustainment Magazine*) point out numerous instances when the planning prescribed by Instruction 24-7 led to results that did not suit unexpected conditions of the operating environment. His ultimate conclusion at each turn is that the mobility triad is the “weakest link” in force projection.¹¹ Although he addressed this over the course of nearly a decade, he concluded in 2010 that despite many changes in the logistics chain that

⁸ USTRANSCOM, *USTRANSCOM Instruction 10-27, Volume 2* (Scott Air Force Base, IL: United States Transportation Command, 2013), 4.

⁹ USTRANSCOM, *Instruction 10-27*, 9-10.

¹⁰ *Ibid.*, 10.

¹¹ Hickins, “Strategic Mobility,” 6.

provides strategic transportation assets, overall the qualities that he had previously defined as critical weaknesses in the system had not been addressed. Mostly, Hickins addressed the nature of short-notice missions and the capabilities at the disposal of USTRANSCOM and its TCCs,¹² which includes not only the active vessels currently operated by MSC, but also vessels in RRF and the versatile potential of contracted options available through SDDC.

Monographs by Erik Hillberg and Charles McDermott challenge the idea that strategic mobility meets strategic requirements. McDermott's final recommendations for improving the results are two fold: first, to add to prepositioned stocks specially-configured packages to support the humanitarian assistance missions that arise in his study,¹³ and second, to establish a new program of using sealift platforms from a variety of multi-national and commercial sources to replace the existing MSP and RRF sources.¹⁴ He provides no depth to the recommendation and it leaves one to wonder how such a program would be structured and if the financial burden would be greatly reduced as he suggests without ample substantiation for the claim.¹⁵

The Mobility Capabilities and Requirements Study 2016 (MCRS-16) was published in February, 2010. It collects the results of scenario-based analysis of existing platforms and systems supporting airlift and sealift. Although the MCRS is classified, the executive summary is not and serves as insight into the basic methodology and

¹² Ibid., 1.

¹³ McDermott, 30.

¹⁴ Ibid., 29.

¹⁵ Ibid., 31.

recommendations of the study.¹⁶ It is the second mobility study conducted since 2001, and continues the effort of the first in assessing the ability of the US military to support the National Military Strategy on an ongoing basis. Secondary to the MCRS-16 is the Government Accountability Office's evaluation of the published version of the study, which lays out the shortcomings of the MCRS. The GAO issued their comments in memo GAO-11-82R, *Defense Transportation: Additional Information Is Needed for DOD's Mobility Capabilities and Requirements Study 2016 to Fully Address All of Its Study Objectives*.¹⁷

¹⁶ Department of Defense, *Mobility Capabilities and Requirements Study 2016* (Washington, DC: Government Printing Office, 2010), 1.

¹⁷ Government Accountability Office, GAO-11-82R, *Defense Transportation: Additional Information Is Needed for DOD's Mobility Capabilities and Requirements Study 2016 to Fully Address All of Its Study Objectives* (Washington, DC: Department of Defense, 2010), 1.

CHAPTER 3

METHODOLOGY

Ships from the US flag fleet are routinely chartered by MSC to meet government shipping demands. Shipping contracts are also negotiated for government cargo that does not have to move on dedicated shipping. When an expansion of government requirements occurs such that voluntary US and foreign flag charters no longer meet requirements, it is the US flag fleet that is expected to respond to meet the requirements. There are three acquisition processes not counting voluntary chartering, available for DOD to acquire additional US flag shipping. They are the VISA, Voluntary Tanker Agreement (VTA), and requisitioning.

— United States Transportation Command, *Defense Transportation Regulation – Part III: General Provisions for Mobility Movements*

This paper is a qualitative comparison of sealift transportation methods for deployment, or surge sealift, rather than sustainment. The author refined the research question during the course of researching strategic sealift and its use in a variety of US military operations. In addition to analyzing the chosen modes of strategic sealift, this paper mentions parallel mobility systems such as airlift and prepositioned stock to give context to the reasons for moving cargo from CONUS by sea. These comparisons established a basis for the significance of strategic sealift as a focus for the research as it applies to deployment operations.

Research began with articles and monographs that provided opinion and perspective on the problems with mobility in general and with sealift in particular. These sources provided insight by use of case studies, but were often short on reference to existing doctrinal publications which spell out the procedures that influence transportation planners. The examples used by previous authors make a case for the

failures of the Defense Transportation System (DTS), but they fail to acknowledge whether there are limitations built into the system which led to those failures.

Studying the analyses and opinions of Hickins and others leads the reader to suspect that the results of transportation planning do not always match the expectations set forth at the beginning of any given mission set. In some cases, timelines are not met, which may be the most egregious failure among professional transporters. The end results were always that support arrived in full, eventually, but the memory of the negative experience endures. When equipment and supplies are not delivered at the time and place where the Soldiers and personnel will operate, there is a significant waste of time and opportunity. Case studies exist for many of the examples, but complete details of the planning and execution are often outside of the intent of the author of the case study. It is enough for them to know that something went wrong and in what specific area. In situations where information about sealift planning and ensuing issues is not available, one is left to generalize about the process. The process of selecting sealift and managing its use, is, of course, of great significance to USTRANSCOM. It is the reason behind the instruction letter which guides its planning staff in the selection of the best means to support movement by sea.

Considering the policies and procedures was the next important step in the researching of this topic. The regulations and doctrinal publications mentioned in chapter 2 offer a general picture of how the Department of Defense intends its subordinate elements to properly support using strategic sealift. The instruction letters from USTRANSCOM articulate a more refined set of steps which describe how its planners will properly select the platforms, the nodes, and even the organization that will execute

the vessel support. Looking through those documents thoroughly leads to greater familiarity with all the elements that support sealift—MSC, SSDC, and JTF-PO—and how their missions relate to the need for proper vessel and port selection. It is clear that in every mission there is a combination of factors that requires prioritizing in order to address mission conditions and desired endstate. By definition, this kind of prioritization leaves some criteria at the bottom of the list, and the occasions when planners can meet every condition desired are not typical. Based on documents from USTRANSCOM, the planning process is strict, and forces the TCCs to meet the customers' needs explicitly. However, meeting the demands of the mission often requires that something in the process will not be executed according to policy or that the results of the process will not suit parameters that were unknown during planning, such as port suitability, or the unpredictability of a vessel's mechanical failure.

The research questions are phrased to produce straightforward answers, but balancing the perspective of doctrine against the physical realities of boats and ports leaves more analysis to be done on this topic.

CHAPTER 4

ANALYSIS

Government-owned or controlled vessels fall under control of the Department of Transportation (DOT) or the Department of Defense. The DOT Maritime Administration is responsible for maintenance of the Ready Reserve Force. The United States Transportation Command, through its sealift component command, Military Sealift Command, administers Large Medium Speed Roll-on/Roll-off (RO/RO) Ships, Fast Sealift Ships and Afloat Pre-Positioning Force Ships in their common-user role. The Afloat Pre-Positioning Force Ships are available for common use after initial discharge and release by the theater commander.

— United States Transportation Command, *Defense Transportation Regulation – Part III: General Provisions for Mobility Movements, Appendix C*

Why strategic sealift

Since the early 1990s, the concept of moving Army units to any given theater has been emphasized repeatedly through professional writings as well as national-level documents. Limitations in the systems and capabilities of the mobility triad have been analyzed but if these limitations constitute a substantial problem, no real solution has been put forth. An outcome will not be decisive if it is not enforced on the ground. The Army is the service that must be present to accomplish that outcome.¹⁸ The presence of ground forces is essential, and strategic mobility is designed to support that. In order to make a difference that is not easily undone by other actors, the US must put military forces on the ground in theater. The systems that make it possible for us to do that are at the front of all Army logistics planning. The principles of Force Projection, prepositioning, activity sets such as the European Activity Set, the Korean Enduring

¹⁸ Department of Defense, *Quadrennial Defense Review 2014* (Washington, DC: Department of Defense, 2014), 28-29.

Equipment Set, and rotational capabilities provided by the Force Generation Cycle are the backdrop on which strategic logistics leaders plan.¹⁹

Documents from the federal level underscore the connection between the strategic expectations of the US military and the ability of US-controlled assets to fulfill those expectations. Time after time, the National Security Strategy (NSS) references the mobility triad as an underlying component to exercising the military's impact as a strategic tool.²⁰ The NSS acknowledges that the assets represent a joint capability among different warfighting components, making the response not only sensitive to time spent planning and responding but also to the immediate needs of customer service.²¹ The Quadrennial Defense Review in 2006 and later in 2014 directs the integration of mobility capabilities within every geographic combatant command to respond within days, rather than weeks. "Sustaining superior power projection forces – enabled by mobility capabilities including airlift, aerial refueling, surface lift, sealift, and prepositioning – will remain a top priority for force planning and development, even in an austere fiscal environment."²² In addition to getting attention in the general scope of military thinking, the logistics world continues to spell out the need to address the state of the mobility triad. In the September, 2015 Logistics Strategic Planning Guidance the key elements of

¹⁹ Gustave F. Perna, *Logistics Strategic Planning Guidance* (Washington, DC: US Army G-4, 2015), 6.

²⁰ President of the United States, *National Security Strategy* (Washington, DC: The White House, 2015), 9.

²¹ Hickins. "Strategic Mobility," 3.

²² Department of Defense. *Quadrennial Defense Review 2014*, 36.

Army Strategic Readiness Assessment are defined as Strategic Mobility, Force Reception and Army Prepositioned Stock (APS).²³

With emphasis throughout the highest levels of DoD, a variety of systems to plan against, and multiple real-world opportunities to test them, the strategic mobility process should have been improved to a matter of science, but not all see it that way. “A major problem facing the United States is its inability to project land power into or within a theater of operations at the speed and tempo required,”²⁴ according to Kenneth Hickins in 2002. Sister services, the Navy and the Air Force, are constructed around their modes of transportation. They take themselves to the battle around the globe. As the Army is essentially still built around the infantry, the assets to get them to the campaign are not organic. It needs support.²⁵ Some of the systemic failures that Hickins saw are apparent in examples from various operations, from Operation Desert Storm twenty-five years ago to Operation Unified Response in Haiti only six years ago.

In the aftermath of Desert Storm, the US Army began to drastically decrease troop numbers and this had not only the primary effect of reducing personnel capabilities, but also a secondary effect on the density of US military presence in other countries. Reducing the footprint of the American military in permanent bases abroad puts further emphasis on the need to transport a brigade’s worth of equipment to any given location on Earth. The decrease in the size of the US military footprint outside of the continental

²³ Perna, 6.

²⁴ Kenneth E. Hickins, “Strategic Mobility: The U.S. Army’s Weakest Link,” *Army Logistician* 34, no. 6 (November-December 2002): 34.

²⁵ Perna, 3.

US adds significance to the two sealift legs of the mobility triad. During the 1990s, eighty-two US military installations abroad were closed, making power projection progressively more dependent on the elements of the mobility triad.²⁶ In that same time period, strategic mobility has repeatedly been identified as a necessary planning factor for US military and humanitarian actions worldwide. Without the ability to move to the area of operations, nothing else happens and no other planning matters.²⁷ The most visible payoff in the opening of theaters comes in the form of strategic assets, because they are not waiting on a request for forces to begin anticipating requirements and conducting preliminary planning ahead of a full-scale deployment.²⁸

Why choose sealift over APS

Prepositioning puts an anticipated need close to expected areas where it will be needed. The problems inherent in this are predicting both the need and the location accurately. The uncertainties that come into any planning effort are what ultimately undermine this leg of the triad.

Since before Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF), DoD has anticipated the need to respond to conflicts overlapping chronologically, but discrete geographically. Even considering the possibility of limited operations on a smaller scale, the model for such deployments is capabilities-based. A major part of the

²⁶ Perna, 12.

²⁷ Hickins, “Strategic Mobility,” 2.

²⁸ Ross M. Hertlein, “Operation United Assistance: Joint and Strategic Partners Enabling Success,” *CALL Newsletter Lessons and Best Practices No. 15-09* (June 2015): 15.

logistics planning for these operations is assigning specific capabilities to specific mission requirements. There is no standard answer. The kind of requirements that APS supports best are standard—anticipated combat operations. The nature of military missions will often demand a tailored requirement, which isn’t built into the APS framework. Locations which have been pre-designated for prepositioning are based on strategic analysis for the potential to execute operations requiring Brigade Combat Teams.²⁹ This applies to land-based locations as well as Prepositioned Afloat. Planned packages for Prepositioned Afloat are a Division for United States Central Command (CENTCOM) and a heavy Brigade Combat Team (BCT) for United States Pacific Command (PACOM). Humanitarian assistance operations usually require a much different configuration for which the BCT model is inappropriate.

Doctrinally, the concept of prepositioning fulfills the need for timely deployment of equipment without the need for significant troop presence in the area. However, as the number of worldwide basing locations decrease, APS locations become vulnerabilities of DoD’s ability to project force at will. Even in the short term, this places the onus on mobility via airlift and sealift to accomplish this task.³⁰ Additionally, land-based prepositioned stocks require transportation support whether by ground or air as part of the deployment chain. Transportation support is not routinely pre-staged, so there is additional lag time to arrange it, which adds to the planning factor for transit time.³¹

²⁹ Hickins, “Strategic Mobility,” 2.

³⁰ Jon D. Klaus, *Strategic Mobility Innovation: Options and Oversight Issues* (Washington, DC: Congressional Research Service, The Library of Congress, 2005), 1.

³¹ Hickins, “Strategic Mobility,” 4.

An underlying principle in prepositioning is the need for secure sea lines of communication, not only for the vessels' standard routes, but between the vessel and the intended port. Responses by the US Army are expected not in the areas where we have longstanding presence, but in areas where we have no military presence and where the infrastructure that would support our presence is underdeveloped.³² Hickins points out that nations in which we may plan to operate have their own plans, and their own regional relationships that would be threatened if they allowed us to operate without the compelling support of public opinion within the nation and among the nation's neighbors. Actors in those regions also have channels by which to exercise their version of diplomatic influence, which could prevent what we call 'host nation support.'³³ In these sorts of environments, establishing an area for reception of materiel and equipment would mostly likely rely on the establishment of an Intermediate Staging Base (ISB). Unless the ISB is in a friendly nation with a shared land border allowing ground assault, the use of an ISB as a pre-theater point of deployment minimizes the benefit of proximity that the APS model relies on. An ISB would simply be another node in the transportation of equipment to the final combat theater.

Swift response is expected more than ever, not only for major combat for supporting counterterrorism actions, UN peacekeeping missions, and the ever-present need for humanitarian assistance in all parts of the world.³⁴ Army training continues to focus on programs that support deployment by sea, including renewed emphasis on

³² Department of Defense, *Quadrennial Defense Review 2014*, 64.

³³ *Ibid.*, 63.

³⁴ President of the United States, *National Security Strategy 2015*, 23.

Deployment Readiness Exercises (DREs), including Sea Emergency DREs (SEDRE).³⁵ These activities will rely heavily on Army Prepositioned Stocks for the next decade or more,³⁶ but due to unpredictable mission requirements, potential for opposition, and the likelihood of poor quality port facilities, the flexibility inherent in the selection process of strategic sealift often makes it a better choice for an operation.

Why choose sealift over airlift

The clear advantage of moving by air is speed, and the limitation that comes with that is a much lower cargo capacity compared to the other legs of the triad. While this is good for initial must-have requirements, the bulk of a unit's equipment deployment has to come by modes other than strategic air.

In responding to the earthquake in Haiti in 2009, MSC activated the USNS Lummus to deliver humanitarian relief cargo to Port-au-Prince. As a class T-AK 3100, the lowest point of the Lummus sits at a draught of 33 feet below the water's surface, which makes it a challenge to fit into the available water depth at many austere ports. Its total cargo capacity footprint is over 19,500 metric tons. It cruises at 17.7 knots for a distance of over 11,000 nautical miles before refueling. Based on a daily operating cost of \$51,960, the hourly operating rate is \$2,165.³⁷ A C-17A Globemaster III carries a maximum of 76.3 metric tons of cargo, at a speed of 450 knots for a distance of 2,400 nautical miles before refueling. The cost of operating the C-17A for extended cargo

³⁵ Perna, 6.

³⁶ Ibid.

³⁷ McDermott, 28.

delivery is \$11,658 per hour, which gives us a basis of comparison to the expense of moving via airlift. Essential as the capability of its speed is to the strategic mobility triad, airlift comes with a price tag.³⁸

Sealift and airlift platforms both have optimal levels of cargo they can carry in order to make most efficient use of their space and of the fuel they can carry. In the cases of the Lummus and the C17, there is a point at which the weight of the cargo requires an amount of fuel that exceeds the functional capacity of the fuel tank and reduces the range of the craft. For that reason, the planning factors are not one hundred percent reliable when trying to maximize the volume of cargo space shown in the specifications. Adjusting for that possibility and looking at the two platforms on a level playing field in regard to their optimal capabilities, moving the amount of cargo that the Lummus can move in one trip would require twenty-seven C-17 flips, a total of 240 hours flight time, which would cost over 270,000 dollars a day—far beyond the 51,960-dollar daily operating cost of the Lummus for the same cargo at the same distance.³⁹

While the airlift fleet gets regular use for the money that it costs, the Ready Reserve Fleet costs money just to sit in Reduced Operating Status (ROS). To compare costs, some of the daily rates for running Navy cargo vessels at full operating status are \$180,927 for the USNS Comfort (FY 11), \$126, 037 for the USNS Mercy (FY 12). Maintaining those vessels at ROS cost \$42,041 per ship per day in FY 11 and increased to \$70,156 in FY12. Reducing the costs of full operations to hourly rates yields \$5,251

³⁸ McDermott, 27.

³⁹ Ibid., 28.

for the Mercy and \$7,538 for the Comfort.⁴⁰ Those rates are impressively lower than the figures for airlift, but while they are in storage they are contributing nothing to the movement picture.

Million ton-miles per day is a useful metric for airlift, since that mode is expected to deliver within the day. The metric is much less useful for sealift, as the movement is better measured in weeks or months, given that speed of transport is affected by weather to a greater degree than air, and seaports are often congested to the point that a cargo vessel can wait several days to enter a berth. Airlift clearly doesn't have to deal with these issues on a daily basis. Sealift variables enforce the need for forethought to allow for the unforeseen variables.⁴¹

In the end, the choice of sealift over airlift comes down to having enough time but not enough money.

What Can Be Done?

"Sixty percent of the world's politically significant urban areas are located within 25 miles of a coastline; 75 percent are located within 150 miles."⁴²

There are four major factors which contribute to overall deployment speed: size of a unit's equipment, capabilities of large transport aircraft and large cargo ships, security of both air and sea ports of debarkation, and security of lines of communication in and out of the area of operations. These essentially come down to requirements, capabilities,

⁴⁰ McDermott, 27.

⁴¹ Klaus, 4.

⁴² Hickins, "Weakest Link," 36.

and security.⁴³ Ocean transportation is much slower than air, and much like air, it requires the support of a port with modern equipment. Just as large, loaded cargo aircraft must have an airstrip in suitable condition for landing, a large, loaded cargo ship must have a berth of suitable length and suitable water depth to accommodate the physical size of the vessel.⁴⁴

USTRANSCOM published an instruction letter to formalize the process of making the right decisions to match appropriate sealift assets to the requirements of unit movements. The 2014 update of this letter spells out the purpose of the instruction: “to activate organic sealift vessels based on COA development.”⁴⁵ In other words, the specifications of the assets used for deployment should be specific to the parameters of the unit’s deployment timeline, total square footage of cargo, types of cargo, and planned port of debarkation, all of which are dependent on the course of action. More specifically, the instruction letter applies to cargo not categorized as sustainment, such as unit equipment, to include aggregated requirements identified in JOPES. This defines the purpose of the letter to be not only for deployment and redeployment cargo, but also for exercise deployments and retrograde movements.⁴⁶

⁴³ Perna, 3.

⁴⁴ Hickins. “Transforming Strategic Mobility,” 2-4.

⁴⁵ USTRANSCOM, *Instruction 24-7*, 2.

⁴⁶ Ibid.

What Can MSC Do?

As the owner and operator of a fleet of Navy-owned cargo vessels, MSC is generally the go-to solution for strategic sealift, and most of the ships it controls are designed and maintained solely to support that activity. However, platforms that meet square footage requirements to support strategic movements can lead to unforeseen operational hurdles when they turn out to be a mismatch for the physical parameters of the ports where they will be operating. The US military often prefers to operate bigger and heavier, which is in conflict with the conditions at many underdeveloped ports throughout the world.⁴⁷ Organic sealift under the control of MSC includes US Government sealift vessels. Additionally, ships in the prepositioning program can be deemed common user sealift for a particular duration.⁴⁸ Vessels managed and maintained in ready operational status by MARAD are assigned to the RRF. At this writing, the average ship in the RRF is 48 years old.⁴⁹ Chapter 301 of the DTR specifies that before activating an RRF vessel for deployment or an exercise it must be tested for readiness and operational performance.⁵⁰ This puts a limit on the number of days a vessel requires to come out of Reduced Operational Status.

⁴⁷ Erik Hilberg, “Does the United States’ Strategic Mobility Program Support the Needs of Operational Commanders?” (Monograph, School of Advanced Military Studies, Fort Leavenworth, KS, 2010), 2.

⁴⁸ USTRANSCOM, *Instruction 24-7*, 3.

⁴⁹ Hickins, “Strategic Mobility,” 4.

⁵⁰ USTRANSCOM, Defense Transportation Regulation 4500.9-R, Part III, *General Provisions for Mobility Movements* (Scott Air Force Base, IL: United States Transportation Command, 2013), III-301-10.

When it comes to deployment planning, MSC is designated as the provider of common-user strategic sealift capability and commercial sealift solutions. This may include gray-bottom vessels organic to the fleet or vessels chartered for a specific mission set.⁵¹

The LMSR is a RORO vessel, the military equivalent of the commercial car vessel essential to the export and import of automobiles between continents. Both vessels have a heavier construction in order to handle the considerable weight, but where the commercial crafts have a set of design specifications to meet the need to carry a limited style of automobile, the military RORO has to accommodate a greater variety of vehicles and rolling equipment. Military movements to new theaters inevitably require the transport of material handling equipment (MHE) such as cranes and container handlers, which is why LMSRS are built with adjustable deck heights, adding not only a mechanical difference in the design, but introducing a limitation on the amount of cargo that the ship can carry. As such, the comparison of commercial and military craft is imbalanced by differing performance needs.⁵² While the LMSR fills the requirement for cargo capacity, it does so at the cost of being larger and heavier in order to do so. The LMSR that carries a heavy BCT's equipment requires a berth with an overall length of over 950 feet and an available water depth of 34 feet.⁵³ Based on the specifications of the LMSR, its length and draught allows it to access only 27 percent of ports in the

⁵¹ USTRANSCOM, *Instruction 24-7*, 6.

⁵² Hilberg, 4.

⁵³ Department of Defense, Joint Publication 4-01.2, *Sealift Support to Joint Operations* (Washington, DC: United States Department of Defense, 2012), III-10.

CENTCOM and PACOM areas of responsibility.⁵⁴ During the deployment of Marines into Somalia for Operation Restore Hope, the LMSRs carrying Maritime Prepositioned Stocks were too large with draughts too deep to enter the available ports. The backup plan at that time was to disembark the cargo at the port of Mombasa, Kenya, a few hundred miles south on the African coast. This plan never materialized because the Kenyan authorities denied the US military access because of the ammunition. The vessels returned to Diego Garcia in the Indian Ocean and transloaded all of the equipment to vessels small enough to be received at Mogadishu. The trickle of second order effects caused by general unawareness of the details involved in planning strategic sealift caused a delay of nine weeks for the Restore Hope cargo.⁵⁵ That pivotal disconnect in the information about the vessel characteristics and the port characteristics cost days of operational time which could have been avoided.

Compounding the problem of being too long and bulky for some ports, LMSRs carry much more than many piers are capable of staging. Marshaling space for a heavy BCT's equipment is up to five times the actual square footage of the equipment itself. This accounts for the need to stage equipment in such a way that it can be maneuvered into lanes that make it manageable for clearing from the port facility. The planning factor for the amount of lost space is 65 percent.⁵⁶ This ratio captures the difference between the square footage of the vessel's cargo holds and the footprint of the equipment stowed

⁵⁴ Joseph P. Crowley, *Does the Army Need the Theater Support Vessel? If So, How Many?* (Carlisle Barracks, PA: US Army War College, 2004), 6.

⁵⁵ Hilberg, 15.

⁵⁶ *Ibid.*, 5.

in it. Of the LMSR's 380,000 square feet of cargo hold, only about 250,000 square feet can be used for rolling stock.⁵⁷ When transferred to shore, this becomes 1,250,000 square feet (nearly 29 acres) needed for marshaling operations. This combination of planning factors is an apparent disparity to operational planners who are not aware of it, and when you put it together with the factor for staging area, it becomes apparent how the capacity can overwhelm austere piers and quays without the throughput capability to clear it quickly.

As far back as the early 1990s, discrepancies between planning and execution of sealift during deployment have been responsible for creating operational delays. During deployment to Operation Desert Storm late arrivals of unit equipment were caused by mechanical failures as well as inefficiencies during outload. Slow loading at the port of embarkation caused three vessels to arrive behind schedule.⁵⁸ One Fast Sealift Ship was pulled out of routine maintenance before it was complete. Boiler problems occurred while it was afloat and the ship had to put in at Rota, Spain to finish the maintenance.⁵⁹ The other Fast Sealift Ships traveled at an average of only 23 knots, not the 33 knots promised in the vessel specifications. The reduced speed added five days to the transit time for the initial push of equipment into theater, and this problem did not improve

⁵⁷ Department of Defense, Joint Publication 4-01.2, III-10.

⁵⁸ Robert B. Lambert, *Sealift in Operation Desert Shield: An Individual Study Project* (Carlisle Barracks, Pennsylvania: US Army War College, 1991), 6.

⁵⁹ Ronald F. Rost, John F. Addams, and John J. Nelson, *Sealift in Operation Desert Shield/Desert Storm: 7 August 1990 to 17 February 1991* (Alexandria, VA: Center for Naval Analysis, 1991), 28.

immediately with succeeding shipments. Of the 71 ships that were activated from the RRF for the operation, only 18 reached Saudi Arabia on schedule.⁶⁰

Within the commercial world, the catamaran design stands out as a practical balance between the need for space and the need for speed. The Huakai is a commercial vessel of a design similar to a TSV, comparable in speed and shallow draught.⁶¹ Also referred to as a “super-ferry,” it was on contract with MARAD during Operation Unified Response in Haiti, making shuttle runs between Jacksonville and Haiti alleviating potential failures in the humanitarian assistance mission.⁶² MARAD also activated the identical vessel the Alakai, with the same capability of carrying 450 tons of cargo and up to 500 passengers, at a sustained speed of 40 knots. This was an ideal solution for humanitarian operations on the same side of the Atlantic.

As far back as Operation Iraqi Freedom, a catamaran model comparable to a TSV demonstrated the capability to correct some of the shortcomings the FSS models had shown during Desert Storm. The Spearhead was a shallow-draught, commercial catamaran similar to the TSV, which the Army leased to transport military police from Djibouti to Kuwait. The ship made the 2,000-mile trip in two and a half days, compared to the projected ten day trip that would have been required of an LSV. Speed is not the only virtue of the boat, as a typical TSV has a cargo capability seven times greater than a C-17 and 24 times greater than a C-130.⁶³ Although a high-speed catamaran design can

⁶⁰ Rost, *Sealift in Desert Storm*, 5.

⁶¹ Hilberg, 26.

⁶² Ibid., 31.

⁶³ Crowley, 7.

still have draught issues at certain ports when loaded,⁶⁴ the speed and size of boats with similar characteristics to the TSV makes it a demonstrably vital addition to the military cargo fleet.⁶⁵

What Can SDDC Do?

As the Army component of USTRANSCOM, SDDC manages surface movements—by sea and by land—SDDC exercises control over transportation assets through contracts including oceangoing vessels, over the road trucks and trailers, and government leased rail cars.⁶⁶ Although the truck and rail movements are entirely handled through habitual relationships, the types of vessels leveraged under contracts controlled by SDDC are normally not the first source for deployment vessels, because the volume of cargo in a unit move requires dedicated vessels. Commercial carriers contracted under the Universal Services Contract are generally preferred for sustainment. The contracts allow the carriers to move cargo on a “space available” basis, which does not meet the intent of a full scale unit deployment. DOD Instructions prefer the use of liner service unless it is not cost-effective or when operational requirements are better met by dedicated assets.⁶⁷ Requirements falling below the point at which load size would

⁶⁴ Hickins, “Strategic Mobility,” 5.

⁶⁵ Crowley, 8.

⁶⁶ Department of Defense, Joint Publication 4-01.5, *Joint Terminal Operations* (Washington, DC: United States Department of Defense, 2015), I-8.

⁶⁷ USTRANSCOM, *Instruction 24-7*, 3.

be more cost-effective with a chartered solution should be moved via commercially-contracted liner service.⁶⁸

Sealift Selection Process

In the instruction letter for planning sealift, SDDC is the proponent for feasibility analysis. Based on data inputted to JOPES by planners at the Division level, the operations section at USTRANSCOM assigns SDDC to perform an analysis of the data to determine what type of sealift is most appropriate to fulfill the requirement.⁶⁹ Through this systematic analysis, SDDC processes information and makes a recommendation which will be forwarded back through the operations section to the Geographic Combatant Commander, making the proper notation in JOPES as necessary.⁷⁰ In order to accomplish this task, SDDC considers the unit movement requirements, but must also consider vessel schedules, capabilities and restrictions of ports the vessel will call, technical suitability of potential vessel choices, and force protection concerns at all nodes the ship will call.⁷¹

Single Port Manager

Joint Publication 4-01.2, *Sealift Support to Joint Operations* appoints SDDC as the single port manager for common-user seaports,⁷² which gives them a clear interest in

⁶⁸ Ibid., 4.

⁶⁹ Ibid., 2.

⁷⁰ Ibid.

⁷¹ Ibid., 3.

⁷² Department of Defense, Joint Publication 4-01.2, II-7.

the decisions related to sealift. Single port manager duties includes whatever is required to support strategic flow of equipment and sustainment from SPOE to SPOD or a bare beach deployment.⁷³ To fulfill the designated mission, SDDC fields teams to support theater opening as it relates to incoming cargo by air and sea. These teams also develop the contractual requirements for commercial on-site stevedoring support and inland transportation in order to clear the port, often to leased staging areas in close proximity to the port.⁷⁴

During deployment into Somalia for Operation Restore Hope, 7th Transportation Group out of Fort Eustis was assigned to run operations at the port. The plan was for them to control select berths used by vessels carrying US Army equipment, to thereby sequence the onward movement of forces into the battlespace and to support the mission parameters by affording simultaneity and depth at the prescribed operational tempo.⁷⁵ Operational tempo got ahead of their response time, though. Marines and Navy Seals were in Mogadishu before a port assessment had ever been done. Forces were committed without anyone knowing what manner of sealift could be provided.⁷⁶ The eventual problem from a tightly scheduled operation is that it afforded no leeway to the tempo and the expected simultaneity, which accordingly led to second and third order negative effects on the operation.

⁷³ USTRANSCOM, *Instruction 10-27*, 38.

⁷⁴ Department of Defense, Joint Publication 4-01.5, IV-2.

⁷⁵ Hilberg, 12.

⁷⁶ *Ibid.*, 13.

Joint Task Force–Port Opening

Fielded in 2009, the JTF-PO concept was created to give “the supported [Geographic Combatant Commander (GCC)] rapid initial port opening capability to facilitate crisis response.”⁷⁷ The expeditionary nature of the task force requires joint elements to support rapid opening of airports and seaports with capabilities for onward movement. Operations of the JTF-PO proceed according to a five phase plan that takes it from activation to end of mission: Phase I: Preparation Prior to CCDR/JFCDR Request Process Phase II: Joint Assessment Phase III: Deployment Phase IV: Transition Phase V: Reconstitution

To provide a rapid response and ensure JTF-PO is fully mission capable at the deployed location, the initial deployment of JTF-PO is conducted under the authority of the TCCC in direct support of the supported commander.⁷⁹ Given the demand for the most rapid response in crisis action situations, an initial request for support may be as simple as a phone call to USTRANSCOM operations section from within a corresponding level within the supported command.⁸⁰ While this is enough to initiate JTF-PO deployment activities, USTRANSCOM will continue to engage the supported command to isolate the most appropriate JTF-PO design.

In addition to the operations of a POD, the task force is charged with establishing a forward distribution node with throughput and in-transit visibility for both cargo and

⁷⁷ Department of Defense, Joint Publication 4-01.5, II-9.

⁷⁸ USTRANSCOM, *Instruction 10-27*, 30.

⁷⁹ *Ibid.*

⁸⁰ *Ibid.*

passengers.⁸¹ The task force functions at a tactical level as a strategic enabler to the GCC but remains OPCON to the USTRANSCOM commander.⁸² Due to its relatively recent addition to the force structure, the JTF-PO is not well known as a resource for combatant commanders and at this writing has executed port opening operations for humanitarian assistance missions but has not opened a theater into a combat environment. Earthquake relief in Haiti was the first time the JTF-PO construct had been used in a contingency.⁸³ Timelines prescribed by joint doctrine emphasize the speed of response for the JTF-PO APOD JAT ready to deploy within 12 hours, SPOD JAT within 36, and ready to operate for 60 days before transitioning to follow-on forces.⁸⁴ Within 48 hours after notification, a JAT for APOD assessment, a JAT for SPOD assessment, and an RPOE were sent to Haiti.⁸⁵ Although they did not meet the timelines dictated by policy, the teams were on the ground quickly enough and with the right mix of personnel to identify the constraints caused by a natural disaster. This robust team was able to give feedback to the decision process and help provide appropriate sealift response, as noted previously.

Joint Assessment Team

For the purposes of this research, the most pertinent element in the JTF-PO is the JAT, which acts to determine the suitability of existing port facilities ahead of the actual

⁸¹ Ibid., 4.

⁸² Ibid., 7.

⁸³ Hilberg, 26

⁸⁴ Department of Defense, Joint Publication 4-01.5, II-14.

⁸⁵ SDDC Public Affairs. “Global Impact” *2012 Military Surface Deployment and Distribution Command Almanac* (Scott Air Force Base, IL: SDDC, 2012), 8.

operations. Depending on the mission, a JAT may be deployed independently to provide a recommendation for port usage or the possibility of conducting Joint Logistics Over the Shore (JLOTS) instead.⁸⁶ In the case of operations developed as deliberate plans, the rapid port opening capability of JTF-PO may not be necessary, and forces provided from individual services may be adequate to accomplish port support tasks.⁸⁷ Situations like that leave the JAT as the main reason for activating JTF-PO.

The JAT mission is to evaluate all aspects of opening deployment and distribution networks to include sea lines of communication from origin to destination, port throughput capability, and onward movement to a marshaling area.⁸⁸ Integration of joint knowledge within the JAT is critical. To preserve the function of such expertise, the team is authorized to deploy independently and to act autonomously from the JTF-PO main body. The JAT may deploy based on Verbal Orders of the Commander (VOCO) as relayed through the Distribution and Deployment Operations Center (DDOC).⁸⁹ Augmentation of the JAT provides a team that is appropriate to a specific mission. Additional personnel can come from JTF-PO component forces, USTRANSCOM component commands, other armed services, or resources within the GCC.⁹⁰

Due to its nature, the SPOD JAT has a lean minimal manning requirement. Only six positions are absolutely necessary in the published JTF-PO structure: JAT Lead,

⁸⁶ USTRANSCOM, *Instruction 10-27*, 10.

⁸⁷ *Ibid.*

⁸⁸ *Ibid.*, 31.

⁸⁹ *Ibid.*

⁹⁰ *Ibid.*, 32.

Operations Officer, Clearance Yard NCOIC, Forward Distribution Node NCOIC, Signals Soldier, and Marine Transportation Specialist. The first five positions are to be filled from the Army, specifically SDDC, and the final position is to be filled from MSC. Additions to these standard positions are filled through the standard request for forces process.⁹¹

This team is designed to have the expertise and experience to recommend valid options for the commander in a short period of time.⁹² While the final determination about options for theater transportation rests with the GCC, the JTF-PO is an attempt to give the commander a tool to facilitate the best possible decision.

What Can JLOTS Do?

Joint Logistics Over the Shore (JLOTS) is an operational solution to the strategic movement problem. In the absence of a useable port, a combination of Navy and Army watercraft construct pontoon piers on which they move equipment to shore without the benefit of either developed or unimproved port facilities. The reason that JLOTS would be executed is that the ports are damaged, unavailable, or in the absence of adequate fixed port facilities.⁹³ JLOTS is the accepted doctrinal method of ensuring mobility against any coastal environment. It is a way to deploy and sustain forces facing anti-access and area denial operations,⁹⁴ when elements within the nation attempt to prevent

⁹¹ USTRANSCOM, *Instruction 10-27*, 32.

⁹² *Ibid.*, 18.

⁹³ Department of Defense, Joint Publication 4-01.6, *Joint Logistics Over the Shore* (Washington, DC: United States Department of Defense, 2012), I-2.

⁹⁴ Perna, 6.

military entrance, and forcible entry becomes the appropriate solution.⁹⁵ JLOTS also provide a means of intratheater sealift to move forces, equipment, and sustainment cargo closer to tactical assembly areas.

After the earthquake in Haiti in 2010, the country's major port, Port-au-Prince, suffered damage to the facilities around the port rendering them unusable, despite an allowable water depth at the piers to accommodate vessels with deep draught that has caused problems in other examples cited previously.⁹⁶

JLOTS is considered to be an alternative to strategic sealift when the likely port of debarkation turns out to be too small or not developed enough to support the influx of military cargo needed for the operation.⁹⁷ For Unified Response, MSC activated 21 ships and more than 2,600 crew to support operations in Haiti, but very few of those were moving cargo. Ships carried medical, engineer, and sustainment personnel and equipment, but all such equipment was shipbound, not cargo to be delivered.⁹⁸ The activated fleet contained only six medium-sized RORO vessels with a draught less than the 34 foot at Port-au-Prince. Maximum speed for those vessels while loaded was 14 knots, which was much slower than the desired response time.⁹⁹ In order to make the port useable again, a salvage ship and a US Army Dive Engineer Team worked together to remove shipping containers and other debris that had fallen from the pier. Additional

⁹⁵ Hickins, "Strategic Mobility," 1.

⁹⁶ Hilberg, 24.

⁹⁷ Ibid., 6.

⁹⁸ McDermott, 16.

⁹⁹ Hilberg, 25.

vessels performed underwater surveys to determine the integrity of the piers and the terrain of the harbor to finally determine that the port in general would be of no use to incoming cargo ships until after the disaster had passed and reconstruction could take place.¹⁰⁰

Even though the Navy activated vessels to carry the cargo, and Army watercraft were there to shuttle cargo in smaller quantities to shore, the operation depended on the solicitation of a contract to a commercial logistics company, Crowley Maritime, to create the pontoon pier that allowed the discharge of the vessels. A self-sustaining solution is out of the scope of Army watercraft units anymore.¹⁰¹

Army Watercraft used in JLOTS also allows inland lighterage activities with shallow-draft vessels capable of riverine operations. This level of mobility must be considered operational level rather than the strategic, as it requires the initial deployment of the watercraft to a location geographically close to the area of operations ahead of the commencement of theater entry.¹⁰² The difficulty in trying to synchronize a JLOTS operation in response to contingencies will always be transporting Army watercraft to the desired location along with the cargo and the ancillary security requirements to protect the operation.¹⁰³

¹⁰⁰ Mark H. Buzby, “Commander’s Perspective: Haiti Earthquake Relief,” *Sealift* (March 2010): 2.

¹⁰¹ Hilberg, 27.

¹⁰² Ibid.

¹⁰³ Hickins, “Strategic Mobility,” 4.

Are There Better Boats?

The total number of merchant vessels owned by US companies and registered under the US flag is only about 348 ships. There are many more vessels owned by US concerns but registered elsewhere. On paper, there is an apparent lack of commercial vessels available for US military use, but the Maritime Administration has three main programs in place to give the US the capacity to mobilize across the ocean:¹⁰⁴ The National Defense Reserve Fleet (NDRF), the Voluntary Intermodal Sealift Agreement (VISA), and commercial charter.

A large portion of the NDRF is not maintained; they are older vessels waiting to be scrapped. These vessels are still considered suitable replacements for sustainment and economic support, but due to their condition would take up to 120 days to activate. As of December 31, 2015, there were 100 vessels in the NDRF.¹⁰⁵ Of this 100, 46 are within the Ready Reserve Fleet. Those in the Ready Reserve Fleet are available for activation by MARAD and are maintained at a much higher state of readiness than the rest. Although at Reduced Operating Status (ROS), they are ready to be activated in either five days or ten days, depending on their assigned activation status.¹⁰⁶ USTRANSCOM requires MARAD to activate vessels periodically in order to ensure ships will be able to meet deployment schedules when they are most needed.¹⁰⁷

VISA is considered to be the primary program for mobilizing military sealift. All

¹⁰⁴ McDermott, 22.

¹⁰⁵ Division of Sealift Operations, *NDRF Inventory December 31, 2015*, 4.

¹⁰⁶ Department of Defense, Joint Publication 4-01.2, VI-3.

¹⁰⁷ USTRANSCOM, *DTR Part III*, III-301-10.

major US flag carriers participate in the program, which includes container ships, RORO ships, heavy lift ships, tugs, and barges.¹⁰⁸ VISA participants includes all vessels enrolled in the Maritime Security Program (MSP).¹⁰⁹ MSP was created in 1996 to ensure that militarily useful ships can be used by the DOD during a national emergency.¹¹⁰ The MSP holds contractual authority to use privately-owned ships of military usefulness for the sake of defense or security of the US. The \$174 million per year price tag of the program possibly outweighs the need, given the evidence of available sealift from commercial sources.¹¹¹ The latest National Defense Authorization Act authorizes MSP through the year 2025.¹¹²

Commercial charters are routine commercial transactions to provide additional capacity. There is no way to guarantee ships will be available for short-notice needs as they are not chartered until needed. Depending on where the ship is at the time the charter is arranged, a month could pass before the ship is ready to load at the designated port.¹¹³

All three of the above methods have limitations built into them, whether it is a limitation of response time compared to expectations of immediate need that accompanies responses or a limitation of quality of older vessels being kept in working order though not in daily use. Hickins sees the mobility problem as a joint problem with a

¹⁰⁸ Department of Defense, Joint Publication 4-01.2, VI-7.

¹⁰⁹ Ibid.

¹¹⁰ Ibid., VI-6.

¹¹¹ McDermott, 23.

¹¹² Department of Defense, Joint Publication 4-01.2, VI-7.

¹¹³ Ibid.

necessarily joint solution.¹¹⁴ One proposed solution would be to transform the army from one that is based on heavy equipment to one that is lighter overall, reducing the logistical demands of moving it.¹¹⁵ This idea syncs well with what former USTRANSCOM commanders have acknowledged—the reality of fuel costs and the change in movement planning rising costs would eventually lead to.¹¹⁶ The change includes the way that multimodal operations are conducted. Traditionally, equipment is moved by rail to a seaport or carried on a flatbed truck to an airport—two modes of transportation in either case. The method is used to take advantage of the most efficient means in each case, weighing the balance between speed of delivery and cost of transportation.¹¹⁷ A mechanized Division has an equipment footprint equivalent to two hundred fully-loaded C-17s or eight fully-loaded FSSs. The tradeoff is speed as the eight ships travel at 24 knots and would take two weeks to get to some of the more remote locations on Earth.¹¹⁸ Looking back at the emphasis on getting a ground force in place quickly to support decisive action, this tradeoff is unlikely to be acceptable.

Ultimately, Hickins proposes that the development of new platforms for strategic lift will overcome inherent shortcomings of the mobility triad. To meet some of the challenges of mobility via sealift, experts have looked at other design options, which come with their own particular sets of advantages and disadvantages. Some would carry

¹¹⁴ Hickins, “Strategic Mobility,” 6.

¹¹⁵ *Ibid.*, 1.

¹¹⁶ McDermott, 9.

¹¹⁷ *Ibid.*

¹¹⁸ Klaus, 33.

cargo at impressive speeds, but, on the ocean, that speed is predicted to be faster than passengers can withstand and faster than ocean conditions can be counted on to allow.¹¹⁹

Shallow Draft High Speed Sealift (SDHSS) At a top speed of 75 knots and a range of 4,500 nautical miles, the SDHSS would have been three times faster than an LMSR, but with only 84,489 square feet of cargo space, it would have held only a third as much. Its 10'4" draught is alluring when considering the issues with shallow ports¹²⁰

Fast Sealift – Monohull is a commercially designed boat that uses a semi-planing hull, kind of like skimming on the water while carrying 8,000 short tons at up to 38 knots.¹²¹ A notable advantage of the Fast Sealift is the possibility of adapting an existing design, which reduces overall cost of the project. It is faster than current platforms in use for strategic sealift, but it has no capability for passengers and the draught of the vessel when loaded would be as much as 35 feet depending on the load, which is not an improvement over the current fleet. Its design creates unique requirements for loading and unloading and also creates performance issues when going through rough water at practical speeds.¹²²

At 1,060 feet long, the Navy Vision Trimaran High Speed Sealift (NVTHSS) would have not only exceeded ports that are too small for the LMSR (950 feet), but would have also exceeded the size of the berths at most shipyards. It would have been too wide to pass through the Panama Canal. To manage having a draught of only 28 feet, its

¹¹⁹ Ibid., 14.

¹²⁰ Ibid., 33.

¹²¹ Ibid., 15.

¹²² Ibid., 16.

capacity would be less than a third of the LMSR. Even constructing it and maintaining it would call on a different approach because the designed length exceeds standard shipyard berth dimensions.¹²³

The never-built Navy Vision Surface Effects Ship High Speed Sealift (NVSESHSS) would have been of comparable length to the LMSR. Designed to be 944 feet long with a maximum draught of 24.7 feet, but with a cargo capacity of only 97,700 square feet, or 4,500 short tons, and a cruising speed of 60 knots. Comparing it to the LMSR standard, tripling the speed of that vessel class is useful, but at a third of the LMSR's capacity and three-quarters of its range, it would have been a specialty choice rather than a replacement for current platforms.¹²⁴

None of these proposals made their way into reality, and likely for the reasons mentioned. In the comparison of assets, no sealift platform has shown itself to be so much better than the LMSR that it makes it worth the cost to replace them.

Is Change Needed?

The purpose of strategic mobility is to deliver specified capabilities to a designated place at a designated time. Mobility is a crucial link in the chain of actions that supports military decision makers' ability to decisively confront an adversary or situation. Airfields and seaports face the same problem with potential adversarial elements in the area and the possibility that they could attempt to deny use of those locations. For cargo operations of the size that the Army normally employs, the available

¹²³ Klaus, 17.

¹²⁴ Ibid., 18.

staging areas at less-developed ports are insufficient and open areas close to the port of debarkation are necessary. Those constraints offer an opportunity for adversaries to deny access, requiring a plan for counter-measures in the form of forced entry solutions.¹²⁵ Although the QDR recommends investing in appropriate types and amounts of cargo transport platforms and rethinking the nature of prepositioned stocks, the capability to project a physical response to worldwide threats has not noticeably improved, and in some instances has met new problems without resolving them.¹²⁶

Hickins says that the DoD has paid “lip service” to changing the mobility picture for the better, but the ability to project military power has atrophied considerably since Operation Desert Storm.¹²⁷ Logistics professionals have not moved beyond the planning impetus of “refighting the last war” anymore than other functional branches within the military. Hickins proposes that the entire mobility triad is broken, due to each leg having its own weaknesses. He suggests that focusing on prepositioning and developing a better program for using intratheater lift will overcome the weaknesses of the strategic triad at the operational level.¹²⁸ In contrast to Hickins’ assertions, the DOD Mobility Capabilities and Requirements Study 2016 (MCRS-16), conducted in 2010, determined that “the projected mobility capabilities in 2016 are sufficient to support the most demanding projected requirements.”¹²⁹ The study looked at vessels much like those

¹²⁵ Department of Defense, *Quadrennial Defense Review 2014*, 6.

¹²⁶ Hickins, “Strategic Mobility,” 1.

¹²⁷ *Ibid.*, 2.

¹²⁸ *Ibid.*, 5.

¹²⁹ Government Accountability Office, *Defense Transportation*, 1.

described by Klaus and the systems under attack by Hickins, yet did not forecast the problems with the assets available and the means of putting them to use.

Mobility a necessary function of the transportation branches of each service in order to support the combatant commander whether the mission is to deter or decisively defeat an adversary. Movements to humanitarian assistance and disaster relief operations serve as a demonstration of the ability to project military elements on a smaller scale, but those situations find the host nation welcoming and don't test the abilities of the system to logistically support a deployment in an inevitable forced entry situation.¹³⁰ MCRS-16 developed specific scenarios as a method of notionally testing the overall system of strategic mobility. The scenarios included conflict as well as natural disaster, irregular warfare as well as homeland defense, and combinations of conventional deployments concurrent with domestic operations.¹³¹

Although the mobility study found that in each of the scenarios current capabilities are adequate to meet projected objectives, a routine audit of the findings of the study found that the study fell short in its intent. According to the Government Accountability Office, the study did not explicitly answer the question of capability gaps in the mobility force structure, did not provide an assessment of risk undertaken by operating under those gaps, and did not offer insights and recommendations to support future decisions on defense spending to bridge the gaps.¹³² Among other classes of mobility assets, the specific sealift platforms where the GAO found the MCRS

¹³⁰ Hickins, "Strategic Mobility," 6.

¹³¹ Government Accountability Office, *Defense Transportation*, 2.

¹³² *Ibid.*, 3-4.

information to be lacking are the Joint High Speed Vessel, the Logistics Support Vessel and RO/RO vessels. While the MCRS states there is no shortfall in the identified types of vessels, the GAO finds the presentation of the data to be unconvincing due to it not being presented in a manner consistent with generally accepted research standards in those particular cases.¹³³

The Defense Transportation Regulation (DTR) outlines the duties of USTRANSCOM in supporting movements through its service component commands, but that regulation also place responsibility on the end users of the Defense Transportation System.¹³⁴ Planners must identify the key factors involved in the movement of unit equipment and associated cargo. Beyond the obvious information—cargo listing, POE, POD—shippers must also determine responsibilities such as consignee and consignor, transportation priorities, required delivery date, shipment units, pertinent commodity codes, and clearance requirements as needed. Cargo transportation specialists at Division and Corps level normally handle the processing of this information, but these Warrant Officers and Senior Non-Commissioned Officers formulate recommended transportation plans based on data entered at subordinate levels.¹³⁵

Chapter 301 of the DTR provides instructions to all Department of Defense activities on the use of the DTS and its related services. Instructions for USTRANSCOM

¹³³ Government Accountability Office, *Defense Transportation*, 12-13.

¹³⁴ USTRANSCOM, *Defense Transportation Regulation 4500.9-R, Part II, Cargo Movement* (Scott Air Force Base, IL: United States Transportation Command, 2016), II-203-1.

¹³⁵ Peter B. Everitt, “The Mobility Warrant Officer: Simplifying Deployment,” *Army Logistician* (January-February 2003): 2.

takes five pages to cover the broad scope of tasks needed to fulfill its role in the mobility process.¹³⁶ It follows this with duties and responsibilities of the TCCs to support the mobility process. A key point in that listing is the general tasking to “perform strategic deployment analysis of transportation systems... analyze constraints and capabilities of DTS modes and subsystems that support strategic mobility.”¹³⁷ This is a clear direction to the components to conduct ongoing analysis of their internal systems which produce the results of deployment transportation planning. Methods of meeting mobility requirements are not prescribed, but the need for taking a hard look at the changing realities is explicit.

¹³⁶ USTRANSCOM, *DTR Part III*, III-301-3-7.

¹³⁷ *Ibid.*, III-301-10.

CHAPTER 5

CONCLUSION

The national defense strategy of the United States requires a strong Defense Transportation System (DTS), operating within a national transportation system that is fully responsive and globally capable of meeting personnel and materiel movement requirements of the Department of Defense across the range of military operations. This strategy requires that an optimum mix be achieved that matches defense requirements with the various modes and methods of transportation, both military and commercial.

— Department of Defense, DOD Directive 4500.09E,
Transportation and Traffic Management

Mobility planning relies on USTRANSCOM policies and procedures, but there are other factors that come into the process. While doctrinal publications and strategic instruction letters give guidance to a level of detail that matches prior experiences, there are situations and conditions that defy the lessons learned from previous missions. As the United States Army moves into a future of fiscal uncertainty, efficient use of its support systems and available resources is more important than ever. Strategic mobility by either airlift or sealift is among the largest of the force's routine expenditures and as such demands attention. The foregoing research aims at answering the question: "Is there an optimal approach to planning for strategic sealift to support Army deployments?"

The primary research question this thesis attempts to answer is: "Is there an optimal approach to planning strategic sealift to support Army deployments?" Readings from doctrine, previous research projects, and articles by interested individuals lead to the answer, "yes, there is an optimal approach." Doctrine such as the DTR, applicable Joint Publications, and the instruction letter issued by SDDC have given the official approach adopted by the DOD, specifically by the DOD's ultimate transportation manager,

USTRANSCOM. The idea that there is an inherent problem in the system overlooks the policies in place, and the suggestion of solving the problem with new sealift platforms is not founded on a full analysis of the current situation.

Although there are clear cases where boats have not delivered when and where they were needed, it is hard to draw the conclusion that such instances were due to inherent flaws in the DTS. Hickins perpetuates the idea that DOD has a mobility problem not only in sealift but in the other two legs of the mobility triad. His answer seems to be in the development of new platforms for delivering military cargo to the kinds of ports we are called upon to use in various parts of the world. However, there is much more to the DTS than simply the assets it uses to accomplish its mission.

Planners cannot always foresee the need to exercise other options, because they trust existing systems to keep the RRF vessels in a useable condition despite infrequent use. Hickins' solution would be a temporary solution at best, as newer vessels would be less prone to mechanical failures, but would eventually begin to face the same fate as the existing fleet. Also, acquisition on the scale that would renew the MSC fleet and the RRF would set a precedent for an ongoing cycle of addressing systemic shortcomings by constantly acquiring newly-built vessels. Such a solution is not fiscally responsible and not sustainable even over the short term. Periodic activations serve the purpose of exposing maintenance issues and minimizing their likelihood by regular use. Following USTRANSCOM guidance not only in the letter but also in the intent, is the best recourse for this particular issue.

The secondary research questions of this thesis are: “How much flexibility does USTRANSCOM have in the planning process?”, “How much of the process is decided in advance by regulation or policy?”

USTRANSCOM has tremendous flexibility in the way it conducts the planning process, because that four-star command is the proponent of doctrine which covers strategic mobility among other functions of the DTS. Lack of flexibility in the process appears at levels subordinate to USTRANSCOM, in the form of regulations such as the DTR, and policies published via instruction letters. The DTR lays out the overall doctrinal approach to military movements. Chapters dealing with Cargo Movement and Mobility are the most pertinent to planners in the TCCs. Although the intent of these policies and procedures is clear, the tone of their writing does not clearly task subordinates, so planning cells must extract guidance as appropriate.

The process described by the DTR allows for the most effective use of either military or civilians assets to support a given mission. Stronger guidance is found in *Instruction 24-7*, the SOP for the sealift selection process.¹³⁸ That document specifies requirements by each of the units over which USTRANSCOM exercises operational control.¹³⁹ and provides such complete instructions for the process that MSC and SDDC are left only to ensure their organization supports the functions that are explicit in policy. What DTR suggests, *Instruction 24-7* enforces, and continues to examine by the implementation of yearly reviews by the 24-7 Working Group.¹⁴⁰

¹³⁸ USTRANSCOM, *Instruction 24-7*, 2.

¹³⁹ *Ibid.*, 16-30.

¹⁴⁰ *Ibid.*, 27.

In an uncertain fiscal environment, focus on systems rather than equipment is essential to continuing operations. The development of new vessels and the replacement of satisfactory vessels within the RRF is less and less likely at this time. Attention to the sealift selection process and its importance to deployment and distribution is a built-in operating cost, taking time instead of money. Failure to implement proper selection as prescribed by policy is the more costly result in the long run. In the end, enforcing proper vessel selection techniques and supporting the use of port opening elements will yield much-needed improvements in the use of sealift to deploy forces.

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