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STATEGIC LIFT: CAN THE UNITED STATES CONDUCT TWO NEARLY- SIMULTANEOUS MAJOR REGIONAL CONTINGENCIES

A Monograph
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ABSTRACT

STRATEGIC LIFT: CAN THE UNTIED STATES CONDUCT TWO NEARLY SIMULTANEOUS MRCs? by MAJ Mark R. Pires and MAJ Darrell K. Williams, 97 pages.

This monograph examines whether or not the U.S. possesses the strategic mobility assets required to win successfully two nearly simultaneous major regional conflicts (MRCs). The current National Security Strategy (NSS) states that the U.S. must have the ability to win two nearly simultaneous MRCs. The two MRC strategy requires a tremendous amount of strategic lift assets. The U.S. has historically lacked sufficient strategic lift capability. Recent studies and statements by high ranking military officers indicate the U.S. lacks sufficient strategic lift assets to execute two nearly simultaneous MRCs.

This monograph is divided into eight sections. Section one, the introduction, establishes the purpose of the study and the significance of the research question to the U.S. military. Section two presents a theoretical and historical perspective to the problem of strategic deployment. Section three discusses current strategic lift assets, and examines the strengths and weaknesses of each leg of the mobility triad. Section four presents case studies of three recent nearly simultaneous operations, the 1994 deployment to Haiti (Operation Uphold Democracy), the October 1994 redeployment to Kuwait, and the concurrent tension on the Korean peninsula. Section five analyzes the ability of the U.S. to deploy and sustain forces in two nearly simultaneous MRCs. Two criteria, speed and sufficiency, are used to evaluate strategic lift assets. Section six presents an analysis of future strategic lift assets. Section seven answers the research question and presents conclusions. This final section also discusses implications for strategic mobility planners. Section eight offers recommendations.

Conclusions of this study indicate that the U.S. currently lacks sufficient strategic lift assets to conduct two nearly simultaneous MRCs. The U.S. is significantly short of sealift assets for moving heavy equipment. Current acquisition programs could provide sufficient sealift assets by 2001. The U.S. is also short of strategic airlift assets. Although this shortage is not as significant as the shortage in sealift, the shortage in airlift will not be remedied until 2006. Future operational planners must be aware of the limitations that they will face due to insufficient strategic lift assets.

The monograph offers four recommendations: (1) DOD reassessment of the BUR, (2) reprioritize the purchase of airlift assets, (3) increase the amount of APS and MPS, (4) and expand the use of HNS and LOGCAP, particularly in OOTW situations.

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I. Introduction

> A new era is upon us. The Cold War is over. The dissolution of the Soviet empire has radically transformed the security environment facing the United States and our allies. The primary security imperative of the past century--containing communist expansion--is gone. We no longer face massive Soviet forces across an East-West divide nor Soviet missiles targeted on the United States and ready to fire. Yet there remains a complex array of new and old security challenges America must meet as we approach a new century.[1]

The end of the Cold War and breakup of the former Soviet Union has caused a fundamental change in the focus of United States security efforts. The all-consuming obsession with countering the threat posed by the Soviet Union has been replaced by concerns with many smaller, but still highly dangerous threats. The 1994 National Security Strategy discusses the nature of these new threats.

Ethnic and religious conflicts are sources of regional instability in areas such as the Balkans and the Middle East. The proliferation of weapons of mass destruction endangers the security of all nations, including the United States. Recent attempts to smuggle weapons grade plutonium out of the former Soviet Union, and the production of chemical weapons in Iraq are but two examples of this growing problem. Violent extremists threaten the peace in countless areas of the world. Terrorist attacks, common in areas such as the Middle East, have begun to reach the United States. A rise in militant nationalism also threatens the peace and stability of many regions. The current conflict in Bosnia, concern over potential North Korean production of nuclear weapons, continuing belligerence by

Iraq, and violence in break-away Russian republics, attest to the number and variety of regional problems facing the United States.

These threats are spread throughout the world, and the United States must be ready to respond wherever necessary in order to protect its national interests, as well as the interests of its allies. Because of the uncertainties of this new world order, and the wide range of potential areas of conflict, the 1994 National Security Strategy has established the need for the United States to be able to win two nearly simultaneous major regional conflicts (MRCs).[2] The purpose of the two MRC strategy is deterrence. If the U.S. gets involved in a conflict in one region, it wants potential enemies in other regions to believe it could still respond to stop aggression. Potential enemies who believe that the U.S. can respond to two MRCs may be deterred from taking advantage of U.S. involvement in another conflict. The strategy of being able to win two nearly simultaneous MRCs was first discussed in the Bottom-Up Review (BUR) published in September 1993.

The BUR was the result of a comprehensive study conducted by the Department of Defense (DOD). The BUR examined all major elements of defense planning: formulation of strategy, construction of force structure, weapon system modernization, and reconfiguring DOD infrastructure. The BUR concluded that the U.S. could in fact win two "nearly simultaneous" MRCs. "Nearly simultaneous" meant that the two MRCs must begin at least 42 days apart.[3] The BUR calculated that there must be 42 days between MRCs for the U.S. to have enough time to shift forces between theaters. The nearly simultaneous two MRC

strategy was based on a "Win-Hold-Win" formula involving three steps. In step one the bulk of U.S. combat power is committed into one theater to quickly and decisively defeat an enemy force. Step two is simultaneously committing a smaller force against a second enemy force in another theater. This economy of force mission "holds" the enemy until the conclusion of the first major conflict. Finally, all available forces are committed decisively to defeat the second enemy force.

A critical aspect of this two MRC strategy is the ability to deploy and sustain substantial numbers of U.S. forces in two separate regions of the world. One of the primary reasons for adopting a "nearly simultaneous" strategy was that analysts determined that the lift assets required for two simultaneous MRCs would be too expensive to acquire. The ability to deploy and sustain such forces requires a tremendous amount of strategic lift assets. Many senior military leaders, defense analysts, and public officials have questioned whether the U.S. possesses the strategic lift assets necessary to deploy and sustain forces in two nearly simultaneous MRCs.

The purpose of this monograph is to explore whether or not the U.S. possesses the strategic mobility assets required to win successfully two nearly simultaneous major regional conflicts. It will examine the reasons behind the considerable doubt as to the ability of the U.S. to execute the two MRC strategy. At the heart of this controversy are two questions. First, do adequate strategic lift assets exist within the force structure to deploy U.S. forces into the two separate campaign theaters. Second, can currently available assets sustain forces in two

different regions. Before examining why many people question the adequacy of our strategic lift assets, it is necessary to discuss another byproduct of the end of the Cold War: the down sizing of the U.S. military.

As stated earlier, the dissolution of the Soviet Union and the end of the Cold War did not usher in an era of world peace and stability. One overriding threat was replaced by many smaller, yet highly dangerous ones. Despite the presence of these numerous threats to regional and world stability, the break up of the Soviet Union has created a pervasive perspective that the U.S. no longer faces a substantial threat to world peace. This feeling of security has caused public opinion in the U.S. to place greater emphasis on domestic concerns. Worries over domestic issues such as crime, the declining dollar, budget deficits, the Mexican economic crisis, and low economic growth have supplanted concerns with foreign affairs. This change in orientation has resulted in smaller defense budgets. By the end of the century annual defense budgets will total less than half of their 1988 Cold War apex.[4] These smaller budgets and changing threats led to a reduction in the size of the U.S. military.

The resultant force drawdown has greatly altered the size and shape of the U.S. military. The U.S. Army will deactivate two active divisions by the end of FY 97, which will leave an active force of ten divisions. In addition to cutting substantial numbers of forces, the military has also withdrawn a substantial number of forces from overseas bases. By 1999, ninety-three percent of U.S. Army forces will be located in the continental United States (CONUS). The other service

components are undergoing similar reductions in active and reserve forces and forces located overseas.

The tension between a shrinking defense budget, smaller force structure, located predominantly in CONUS, and an uncertain world situation necessitates the ability to conduct two nearly simultaneous MRCs. Unfortunately, these factors have created a paradox for the U.S. military. As former President George Bush noted: "....no amount of political change will alter the fact that we are separated from many of our most important allies and interests by thousands of miles of water."[5] The U.S. military needs more strategic lift assets to carry its forces greater distances, to more places, but with fewer dollars to finance its requirements.

The two MRC strategy requires tremendous strategic mobility assets. Responding to a greater number of areas, from locations farther away, places an even greater stress on mobility assets. Strategic mobility assets consist of a triad. Each leg of the mobility triad, airlift, sealift, and prepositioned equipment, is vital for successful deployment and sustainment. America must remain strong in each of these three areas to project power around the world.

The key to the mobility triad lies in balancing the strengths and weaknesses of each part. Airlift is invaluable in that it provides the quickest response time, but it is extremely expensive. The U.S. used strategic airlift to deploy forces to Grenada, Panama, Desert Shield/Desert Storm, and countless other operations. Prepositioning equipment provides forces immediately on the ground. However,

prepositioned forces are inflexible in that they are not easily moved to other theaters, and are expensive to procure and maintain. Throughout the Cold War the U.S. relied heavily on prepositioned equipment in Europe (POMCUS) and is now prepositioning equipment in potential crisis areas such as Kuwait.

Sealift provides the greatest capability to move heavy equipment, but is the slowest option. Historically, sealift has transported the majority of U.S. military cargo requirements. As U.S. forces move back to CONUS, airlift assets such as the C-141 near the end of their useful life, and sealift suffers from a declining Merchant Marine fleet, current strategic mobility assets are in need of upgrading. Yet, as the military downsizes and budgets continue to shrink, strategic mobility assets also decline.

The U.S. has traditionally suffered from a gap between its strategic lift requirements and actual capabilities. There are four primary reasons for this long-standing problem. First, the U.S. has steadily expanded its defense commitments overseas since the end of World War II. Second, many people, including some political officials, identify strategic lift with unwarranted involvement in countries where the U.S. does not have vital national interests. As Senator Richard B. Russell once said, "If it is easy for us to go anywhere and do anything, we will always be going somewhere and doing something."[6] Third, the Air Force would rather spend money on jet fighters than cargo planes, and the Navy prefers to buy fighting ships rather than cargo vessels. Thus, the services have often treated

strategic lift assets as an unwanted stepchild. Finally, strategic lift assets are very expensive. Shrinking budgets magnify this problem.

These problems raised substantial doubt as to whether or not our current strategic mobility assets can support two nearly simultaneous MRCs. John Deutch, Deputy Secretary of Defense, in testimony before the House Armed Services Committee in 1994, stated, "During the BUR it was clear that strategic lift was the single greatest shortage from meeting our ability to deal with major regional conflicts, and comments have been made to that regard by all the involved CINCs."[7] One of the CINCs, General Joseph P. Hoar, of Central Command (CENTCOM) confirms, "Strategic lift in this country is broken right now."[8] In the same vein, former Chief of Staff of the Army, retired General Edward Myer stated, "....all you have to do is look at the strategic lift data and it tells you that there's a shortfall in the strategic lift."[9]

Numerous studies have been conducted on all aspects of strategic lift. One study on airlift noted that even Operation Just Cause, considered a small, local contingency operation of short duration, severely taxed available strategic airlift assets. The same study concluded that "Unfortunately, the prognosis for any improvement, especially sealift, of the magnitude required to overcome our capabilities versus requirements disconnect is not encouraging."[10] Another study concluded, "To sum up, strategic airlift capabilities and requirements are dangerously out of balance, calling into question the ability of the U.S. to fulfill its extensive overseas military commitments...."[11]

Concerns over the ability of U.S. forces to execute the two MRC strategy have caused some DOD officials to consider the "Win-Hold-Win" scenario unachievable. Some officials now believe that a "Hold-Hold-Win-Win" plan is more reasonable. They believe that the U.S. would only have the ability to initially send in enough forces to stop an invasion. To send in the forces necessary to drive the enemy forces back and win the war would require several weeks or months. The same timeline would hold true for a second MRC, with U.S. forces taxed even farther.[12]

The deployment and sustainment of forces for Operation Desert Shield/Desert Storm is often used as a model of success that demonstrates that the U.S. does possess adequate strategic lift assets. However, as successful as the deployment and sustainment of forces were in Desert Shield/Desert Storm, some aspects of the operation still leave doubts concerning strategic lift assets. The military had six months to build up the necessary forces before counterattacking. Future MRCs may not provide the luxury of so much time. The six months build up time allowed ample time to overcome strategic lift shortfalls and resolve any lift problems. Additionally, the enemy did not interfere with deployment or sustainment operations, so no lift assets were lost to enemy action, nor were deployment plans adversely effected. Despite these favorable factors, overall lift operations fell up to three weeks behind CENTCOM requirements during much of the deployment. If a future enemy attacks our lift assets, or attacks our forces

during the build up stage, the problem of deploying and sustaining forces will increase greatly.

This monograph will answer the question of whether or not the U.S. possesses the strategic lift assets needed to conduct two nearly simultaneous MRCs in seven major sections. Section one will lend a theoretical and historical perspective to the problem of strategic deployment. Operation Torch, the allied invasion of North Africa during World War II, will provide a historical perspective on the use of strategic lift assets in a combined, joint operation. Section two will discuss current strategic lift assets, and examine the strengths and weaknesses of each leg of the mobility triad. Section three will present case studies of three recent nearly simultaneous operations, the 1994 deployment to Haiti (Operation Uphold Democracy), the October 1994 redeployment to Kuwait, and the concurrent tension on the Korean peninsula. Although Uphold Democracy was not considered a major regional contingency, the three crisis occurred close enough together to provide insights into the U.S.'s ability to execute two MRCs.

Section four will analyze the ability of the U.S. to deploy and sustain forces in two nearly simultaneous MRCs. This section will also compare and contrast the assets discussed in section three against what numerous studies, including the Congressionally Mandated Mobility Study and the Mobility Requirements Study, state the U.S. requires to deploy various forces. Two criteria, speed and sufficiency, will be used to evaluate strategic lift assets. This section will also factor in the overlap between the ongoing deployment of forces

and sustainment. Section five will present an analysis of future strategic lift assets. It will examine projected acquisitions of lift assets and compare them to future requirements. Finally, section six will answer the research question, present conclusions, and discuss implications for strategic mobility planners. Section seven will offer recommendations.

Examining the sufficiency of strategic mobility assets presents the researcher with many challenges. There is not a shortage of information on the topic. Countless articles, papers, theses, analytical models, opinions from senior civilian and military officials, and other sources are available regarding U.S. strategic mobility. The difficulty is in sifting through all of the information. Some studies analyze the question of mobility assets in terms of gross numbers of aircraft or ships. Other sources describe capabilities in terms of million of ton miles moved per day. Still others calculate square feet of available cargo space. Many sources contain conflicting information on exactly what strategic mobility assets the U.S. currently possesses. Determining which assets will be available in the future is even more difficult. In addition to the questions of what strategic mobility assets the U.S. possesses, and how to measure their hauling capability, is the question of how much lift is required to move certain sized units.

Determining requirements and capabilities for responding to two nearly simultaneous MRCs also depends upon deciding what size forces are needed to resolve the conflicts. Determining the size and number of forces to be deployed and sustained requires assumptions about future enemies and conflict locations.

Calculating required forces also involves assumptions about accepting risk. It is an inexact science at best. Although much information is available, many studies and conclusions drawn by various organizations are classified. This monograph will use only unclassified sources. It will attempt to answer a very complex question by combining varied and sometimes contradictory information. Answering the research question requires making our own assumptions, in addition to those stated in the BUR. Those assumptions will be discussed throughout the monograph.

II. Theoretical and Historical Perspective

Today's concept of strategic deployment falls well outside of the Clausewitzian and Jominian *theoretical* frameworks. The size and complexity of the Gulf War deployment was something neither theorist could ever have imagined. Their theories applied largely to land based forces conducting operations on a single continent.

Both theorists, however, understood the importance of logistics in the conduct of war. In fact, Jomini described logistics as "...the practical art of moving armies."[13] Further, he "...understood the importance of supply in the scheme of mobile warfare."[14] Jomini wrote extensively on the significance of secured lines of communication and bases of operation, recognizing them as limiting factors in both strategical and tactical operations. He viewed logistics as fundamental to the conduct of large-scale military operations.

Although Clausewitz attempted to "...separate supply from the business of war..." he displayed an understanding for the necessity of effective logistical support.[15] He addressed logistics in terms of billets, maintenance and supply, bases of operation, and lines of supply. Regarding supply, he wrote that "For two reasons the problem of supply has assumed much greater importance in modern warfare. First, armies are much larger than those of the Middle Ages, or even those of the *ancien regime.* Second, a war tends to be more of one piece, and fighting forces are in constant readiness for action."[16] Here, Clausewitz recognized that warfare and the associated logistical support had changed. It is equally

important to recognize that the geostrategic nature of war today is far different from war during the Clausewitzian and Jominian era.

Evidently, both Clausewitz and Jomini appreciated the logistics of war; however, attempting to apply their logistical paradigms to today's operations would be to use them out of context. Their theories do not account for the large-scale movement of equipment by sea. Nor do they address the movement of over 500,000 personnel and the movement of millions of tons of equipment and supplies by air into a theater of operations. In short, Clausewitzian and Jominian theories, with respect to the logistics of long distance and large-scale deployment, do not apply to 20th Century warfare.

From a *historical perspective*, the difficulty of projecting military forces over great distances and the parallel demand for strategic lift are hardly new issues. There are both similarities and differences between the strategic deployment of forces in the distant and recent past and strategic deployment of forces today. For example, today's joint force deployment planners face many of the same challenges encountered by planners for America's large-scale deployments during World War II. Operation Torch, the November 1942 Allied invasion of the North Africa (Algiers and Tunisia), offers an excellent basis for comparison of strategic deployment and joint power projection, past versus present.

"Operation Torch was the first major Allied land-sea-air offensive in the European Theater during World War II. Its objective was to gain control of North Africa from the Atlantic to the Red Sea."[17] To accomplish this objective, the allies

organized into three task force: Western, Center, and Eastern. "The intermediate objectives were: *Casablanca* (Western Task Force), 29,000 U.S. troops from the United States; *Oran* (Center Task Force), 25,000 U.S. troops from the United Kingdom; and *Algiers* (Eastern Task Force), 10,000 U.S. troops from the United Kingdom as a spearhead, to be closely followed by larger British forces."[18] Torch was a complex operation, involving simultaneous strategic deployment of troops and equipment from both the U.S. and Britain.

Operation Torch severely taxed already scarce strategic lift assets for the British and the Americans. The British "...managed to *scrape* together enough assault shipping for thirty thousand troops."[19] They were to "...provide assault shipping for the Oran force and half the Algiers force, or almost half the entire attack."[20] In the U.S., ships previously dedicated to the build up of forces and supplies in Europe were diverted to support Torch. Thus, U.S. strategic lift assets became divided between European and North African operations. The U.S. National Military Strategy, predicated on the ability to conduct two nearly-simultaneous MRCs, poses the same dilemma for today's strategic planners.

There are several other similarities. First, "The forces sent to North Africa made long distance deployments; the Western Task Force which assaulted Morocco deployed directly from Norfolk, Virginia, to the objective."[21] This compares favorably to deployment distances for American units in the recent 1990/1991 Gulf War. American forces deployed from numerous ports within the continental U.S.-Charleston, South Carolina, Beaumont, Texas, Wilmington,

North Carolina, San Diego, California, and many others - to Southwest Asia, mainly Saudi Arabia. Although American forces have conducted numerous long distance deployments since Operation Torch, making maximum use of scarce strategic lift assets continues to challenge military planners.

Second, Torch was a joint operation which required "...close cooperation between the U.S. Army and Navy and British land, sea, and air forces."[22] Throughout World War II, the U.S. Army depended almost exclusively on the U.S. Navy to move troops and equipment to, from, and between the theaters of operation. During Torch, forces arrived from both the U.S. and Britain for the initial assault on North Africa. The vast distances over which forces traveled and the joint and combined nature of this operation further complicated synchronization of the assault. These factors increased the necessity for close coordination between both the U.S. Army and U.S. Navy and between U.S. and British military planners as well. Success hinged on the timely arrival of well over 100,000 allied troops enroute from locations in the U.S. and Britain. "The principle lesson of Torch is how a joint operation was planned and conducted to master the challenges of a complex long distance projection of power."[23]

There are, however, important differences between strategic deployment of forces for Operation Torch and deployment of forces today. First, today's operations are perhaps more complex. During Torch, most land force troops and equipment moved by ship, which reduced the likelihood of logistical disconnects. This required logistics coordination primarily between the Army and the Navy.

Today, transport by air has added an entirely new dimension to our ability to deploy. During the Gulf War, practically all personnel traveled by air as well as 15% of all dry cargo. Sealift moved 85% of all dry cargo going to the Persian Gulf.[24] Certainly, air transport has given U.S. forces enhanced capability and flexibility; it can respond rapidly, often within a matter of hours. Unfortunately, it also adds to the difficulty in synchronizing the arrival of units and their equipment.

The emphasis on joint and combined operations has also raised the level of difficulty for planning operations and placed even greater strain on strategic lift assets. The British also understand this new, more complex brand of warfare. Colin S. Gray, Director, Centre for Security Studies and professor of international politics at the University of Hull, writes of the British military, "It is both politically correct, as well as strategically prudent, to observe that today the prevention and if needs be the conduct of war is invariably joint (multiservice) and typically combined (multinational)."[25] Regarding strategic lift, Torch was an American\British and Army\Navy operation. Today, however, most large-scale U.S. military operations involve all of the services: Army, Navy, Air Force, and Marines. They also involve an ever-increasing number of allies, many of whom rely on the U.S. for inter-theater and intra-theater transportation. Joint and combined operations, in conjunction with declining strategic resources, place even greater demands on strategic lift assets and add to the complexity of planning large-scale deployments.

These are but a few of the many similarities and differences between Operation Torch, and its associated demands on strategic lift, and more recent operations such as the Gulf War. Torch represented a watershed in the evolution of strategic deployment. It also spotlighted the painful need for greater strategic lift assets. We continue to wrestle with this issue today.

The next chapter examines America's current strategic lift assets. It will detail the assets within each area of strategic mobility triad: sealift, airlift, and prepositioned forces. Later, strategic lift requirements for two MRCs will be balanced against current assets to determine if, and in what areas, shortfalls actually exist.

III. Current Strategic Lift Assets

Strategic mobility is the total capability of a nation to move military forces outside its own borders in a timely fashion. As stated in the introduction, strategic airlift, sealift, and prepositioned forces form the strategic mobility triad. The ability to deploy successfully and sustain military forces requires a proper mix of the triad. Each leg has strengths that help to offset the weaknesses of other parts of the triad. A properly balanced triad enables the U.S. to respond rapidly to a conflict, and to sustain operations until the conflict is favorably terminated. This chapter will discuss the strategic lift assets currently available to provide the U.S. with strategic mobility. Each leg of the mobility triad will be examined in a separate section.

Strategic Airlift

Strategic airlift is the movement of troops and equipment, by air, over long distances, normally from the continental U.S. to an overseas location. Regarding the importance of strategic airlift, one source states, "Airlift is the backbone of deterrence. A properly structured and equipped airlift force is critical to the successful execution of the National Military Strategy."[26] Airlift brings speed and flexibility to the mobility triad that the other two members can not match. Because airlift can quickly move people and cargo anywhere in the world, it is the asset that delivers deploying forces in the initial days of a conflict. While sealift ships are still sitting at docks, loading equipment, airlift will be delivering forces to the crisis area. Airlift will bring soldiers to marry-up with prepositioned equipment, and

carry other cargo and supplies to the threatened region. Airlift provides the ability to respond rapidly with minimal warning, and the U.S. possesses an unequaled ability to move forces by air.[27] In addition to speed and flexibility, airlift provides the ability to move directly to deep inland locations, even if ground and sea lines of communication (LOCs) are not available. Although airlift does possess many significant advantages, it also has several disadvantages and limitations.

Strategic airlift assets have a limited capacity to deliver cargo, especially outsize cargo common to mechanized forces. Outsize cargo includes items such as main battle tanks, self propelled howitzers, and bridging equipment. Airlift is also limited in its ability to deliver large amounts of bulk items, such as fuel. Bulk items and outsize cargo are moved more efficiently by sealift or other means. A second disadvantage of airlift is that it is very expensive to operate per unit of cargo. Again, sealift is more economical. Airlift requires the use of secure airfields large enough to handle various sized aircraft. Airlift also requires special material handling equipment which must be brought where ever the aircraft will be loading or offloading. Additionally, airlift operations require secure air LOCs to operate effectively.

The strategic airlift assets of the U.S. fall under the Air Forces' Air Mobility Command (AMC). Air Mobility Command includes organic lift aircraft and selected commercial aircraft with military useful compartments. Air Mobility Command assets may also be augmented by aircraft from the Civil Reserve Air

Fleet (CRAF). Organic AMC assets consist of four aircraft models, the C-141, C-5, KC-10, and the C-17.

The C-141 is a four-engine, long-range, high-speed transport designed to carry personnel, vehicles, and cargo over intercontinental distances. It can carry up to 200 passengers, 123 paratroops, or 13 military pallets, and has an allowable cabin load (ACL) of 50,000 pounds. The ACL is the total amount of cargo and passenger weight that an aircraft can transport over a given distance. The ACLs used in this study are based on a 3,000 nautical mile (NM) leg. The Military Traffic Management Command Transportation Engineering Agency (MTMCTEA) uses a 3,000 NM planning figure because it represents the average leg of all probable deployment scenarios.[28] The C-141 has long been the primary workhorse of U.S. strategic airlift assets. There are currently 175 active and 52 reserve C-141 aircraft for a total of 227 in the AMC inventory.[29] Concerns exist about the ability of the C-141 to continue to function as the principal strategic airlifter. The C-141 fleet is aging and may not be able to continue its' role as prime lifter much longer.[30]

The C-5 is a four-engine, long-range, high-speed transports designed to carry very heavy payloads of vehicles, personnel, and outsize cargo items which are too large for the C-141. The C-5 can carry 73 passengers in a normal contingency and an additional 267 in the cargo compartment. It can carry 36 military pallets and has an ACL of 150,000 pounds. There are currently 74 active and 44 reserve C-5 aircraft for a total of 118 in the AMC inventory.[31] As with the

C-141, the C-5 is an old aircraft and there is concern over how much longer it will be effective. Because of its age, parts shortages, and prolonged maintenance periods, the C-5 experiences about a 66% operational effectiveness rate.

The KC-10 is a military version of the DC-10 commercial passenger transport. The KC-10 is designed primarily for aerial refueling of fighters, bombers, and transports. Some models of the KC-10 have been designed to carry cargo. The KC-10 cargo plane can carry 27 military pallets or 85 tons of cargo up to 3400 nautical miles, unrefueled. It can carry up to 69 passengers. Air Mobility Command currently has 52 KC-10s which are designed to carry cargo.[32]

The C-17 is a four-engine, long-range, high-speed, heavy-lift transport designed to carry personnel, vehicles, and cargo in both intertheater and intratheater missions. The C-17 was designed to be the core airlifter of future airlift forces. The C-17 can carry a maximum of 102 passengers. It can carry 18 military pallets and has an ACL of 130,000 pounds. To date, the C-17 program has experienced numerous cost, schedule and performance problems. The Department of Defense (DOD) originally planned to acquire 210 of the aircraft for a total cost of 41.7 billion dollars. Due to cost increases, DOD now plans to buy only 120 of the aircraft for a total cost of 43 billion dollars. Delivery schedule of the aircraft has slipped, to date 18 C-17s have been delivered. Many of the planes that have been delivered have unfinished work or known deficiencies that must be corrected after the governments acceptance. Additionally, reliability of the C-17 has been significantly less than expected, and it has not met original payload and

range specifications.[33] The C-17 has far to go if it is to replace the C-141, C-5 and C-130 as planned. The program is currently "on probation" until these numerous problems are rectified.[34] Table 1 summarizes cargo capacities of organic AMC aircraft.

Table 1
Cargo Capacities For AMC Aircraft[35]

Cargo Dimensions				
Aircrat Type	**Length (in)**	**Width (in)**	**Height (in)**	**ACL (lb)***
C-141	1,090	111	103	50,000
C-5	1,454	216	156	150,000
C-17	812	204	142	130,000
*Based on 3,000 NM Critical Leg.				

The total airlift capacity generated by these aircraft will be discussed later in the monograph. The Civil Reserve Air Fleet also contributes to strategic airlift capability.

The CRAF program is a vital part of U.S. strategic airlift forces. CRAF was founded to avoid the need to nationalize commercial aircraft during national emergencies. Air Mobility Command does not have enough organic lift assets to meet mobility requirements during very large deployments. When fully mobilized, the CRAF program provides over 50% of total airlift capability, contributing 32% of long-range cargo and 93% of long-range personnel airlift capability.[36] The CRAF program is voluntary, the U.S. Transportation Command (TRANSCOM) provides incentives to airlines to encourage participation. Incentives include peacetime airlift contracts. The CRAF program consists of three stages of activation.

Stage one for CRAF is "Committed Expansion". Stage one consists of long range international aircraft to meet airlift requirements that AMC can not handle. The CINC TRANSCOM has authority to activate stage one. Once notified that stage one has been activated, aircraft must be at onload sites within 24 hours. Currently, there are 37 passenger and 39 cargo aircraft available in the stage one program. The number and type of aircraft in the CRAF program change on a monthly basis due to maintenance, services, and ownership. Stage two of CRAF is "Airlift Emergency." Stage two activates additional aircraft for a major airlift emergency that does not justify full mobilization. The Secretary of Defense is the activation authority for stage two. Like stage one, once notified, aircraft must be at onload sites within 24 hours. Currently, there are 112 passenger and 102 cargo aircraft available in the stage two program.

Stage three of CRAF is a "National Emergency." In stage three all aircraft in the CRAF program are activated. The Secretary of Defense can activate stage three only after the President or Congress have declared a national emergency. Once notified, stage three aircraft must be at onload sites within 48 hours.[37] Currently, there are 188 passenger and 170 cargo aircraft available in the stage three program.[38] Table 2 summarizes capacity planning factors for commercial aircraft.

The CRAF program is certainly a vital part of U.S. strategic airlift assets. During Operation Desert Shield/Desert Storm CRAF Stage I and Stage II were activated.

Table 2
Capacity Planning Factors for commercial Aircraft[39]

Aircraft	Maximum Passenger Load	Maximum Military Pallets	Allowable Cabin Load (STONS)
B-747	364*	32 to 36	89.9 to 99.1
DC-10	242	30	55.2 to 69
DC-8	165 to 219	13 to 18	26 to 47.3
B-707	165	13	29.9
L-1011	238 to 273		

*The passenger limit of the B-747SP is 266.

CRAF aircraft airlifted approximately 64% of troops and 27% of cargo flown during the war.[40] However, the CRAF program does have certain limitations. Aircraft in the program require specialized material handling equipment and have longer loading and unloading times. These longer times on the ground may detract from organic lift effectiveness. Additionally, during Operation Desert Shield/Desert Storm, many CRAF airlines would not fly at night into bases which were threatened by chemical weapons.[41] Finally, the number of aircraft available for the CRAF program has decreased since 1990. The government must continue to find ways to entice airlines to volunteer for participation. Before moving on to discuss current sealift assets, this section will conclude with a brief description of the concept of airlift operations.

Airlift concept of operations begins with intertheater deployment and resupply missions that operate between main operating bases (MOBs). Normally, deployment missions originate from a main base close to the home station of the deploying unit, and end at a port of debarkation overseas. Scheduled resupply missions usually load cargo at fixed aerial port facilities and fly into an overseas

MOB. These intertheater deployment and resupply operations are handled by C-141, C-5, C-17 and CRAF aircraft. Once in theater, passengers and supplies are usually moved intratheater between MOBs or seaports and forward locations by C-130 or C-17 aircraft.[42]

Strategic Sealift

Strategic airlift provides speed and flexibility to strategic mobility. Strategic sealift, on the other hand, is slow and, although somewhat flexible, less flexible than airlift. Sealift's great strength is its ability to move very large and heavy volumes of military cargo over great distances. Sealift assets are particularly well suited for moving outsize unit equipment (UE) such as main battle tanks, self propelled howitzers, and bridging equipment, and bulk cargo such as fuel and ammunition. Sealift is also less expensive to operate than airlift per unit of cargo moved.[43]

The primary disadvantage of sealift is its slow speed. With an average speed of twenty knots, many of the ships currently in service require 17 days to reach Europe, and 34 days to reach Southwest Asia, from the east coast of the U.S.. Those projected times include one week for activation, call-up, and loading. Unit equipment and bulk cargo moved by sealift must be offloaded at ports, generally on a coastline. This often requires the UE or cargo to move farther inland by other means, such as rail, intratheater airlift or cargo truck. In addition to secure ports, sealift also requires secure sea LOCs. While the ability to carry large quantities of UE and bulk cargo is sealift's great advantage, it becomes a

disadvantage if ships are lost. Because of the quantities involved, losing even one ship can be very costly.

The Navy's Military Sealift Command (MSC) manages the ships from various sources that comprise U.S. strategic sealift assets. The MSC manages organic sealift assets that include Fast Sealift Ships (FSS), Ready Reserve Force ships (RRF), and Afloat Prepositioning Force ships (APF). Additional strategic sealift assets include charter ships which fall into two categories; existing U.S. flag cargo ships which are under long term charter to the Navy, and augmenting sealift assets available through U.S. flag and foreign flag commercial sources. The MSC manages all of these assets to move UE and bulk cargo to seaports in areas of conflict.

Fast Sealift Ships, also known as SL-7s or T-AKRs, were originally built as high-speed commercial container ships. The SL-7s, because of enormous fuel consumption, proved too costly to operate. In 1981-1982 the Department of Defense bought eight SL-7s. The SL-7s were converted to provide additional lift capacity, helicopter handling and storage facilities, roll on roll off (RORO) capability, and two twin cranes for self loading and unloading. Each of the FSS has a gross cargo space of 199,824 square feet.[44] The eight FSS can carry an entire Armor or Mechanized Division in one convoy. They are among the worlds fastest cargo ships. With an average speed of 30 knots, the SL-7s can reach Europe in four days from the east coast, three days faster than most 20 knot RRF ships.. They can be offloaded in one day.[45]

The Ready Reserve Force is composed of government-owned ships that were formerly commercial vessels. No longer able to compete in the commercial sector, these ships are categorized "inactive", and maintained in a state of near term readiness. The Department of Transportation manages and maintains the RRF fleet through the Maritime Administration. The DOD requests the ships when needed, then directs and controls their operations once they are activated. Ships in the RRF can be activated in four, five, ten, or 20 days.[46] The RRF was established in order to maintain adequate sealift capability for delivering UE. The RRF constitutes the governments largest source of strategic sealift capability. Currently, there are 22 RRF ROROs, and 48 other RRFs.[47] Ships in the RRF have an average speed of approximately 20 knots.

Afloat Prepositioning Force ships fall into two distinct programs, Afloat Prepositioning Ships (APS), and Maritime Prepositioning Ships (MPS). The APS program consists of ships that generally carry ammunition and other consumable supplies for the Army, Air Force, and Navy. These dry cargo ships include ROROs, barges, and breakbulk ships. Additionally, the Army has recently finished loading one brigade sized set of equipment on eight ships. The ships containing the heavy brigade UE are currently stationed in Guam and Diego Garcia. These ships will serve on an interim basis until newer ships are built. There is currently a total of 16 ships in the APS program.[48] The ships are anchored at dispersed sites in the Pacific, Atlantic, and Indian Oceans. The MPS consists of 13 ROROs that carry the equipment of a 16,500 man Marine Expeditionary Brigade (MEB). The

ships also carry enough supplies to support the MEB for 30 days. Each of the ships in the MPS carries cargo equivalent to 1000 C-141 airlift sorties. The MPS can be stationed at probable contingency locations. The ships in this program have an average speed of up to 20 knots.

In addition to these organic assets, U.S. strategic sealift assets include U.S. flag cargo ships under long term charter to the Navy, and Merchant Marine ships. There are currently 24 commercial U.S. flag cargo ships on long term charter to the Navy. Merchant Marine ships include other available U.S. flag and foreign flag cargo vessels. These ships can be called to military service by Presidential proclamation. Historically the Merchant Marine has provided the majority of strategic sealift assets. However, the U.S. Merchant Marine fleet has been in a long steady state of decay. In the past decade the total number of Merchant Marine dry cargo ships has declined by approximately one-third. Additionally, many of the ships in the fleet today are pure container ships which require special modifications to carry most Army UE.[49] Most containerships are categorized as non-self-sustaining containerships (NSSCS). They carry their entire loads in unitized containers which are generally 20 or 40 feet long. Most NSSCS can carry an average of 1,534 20 foot containers.[50] They are non-self-sustaining because they require shoreside cranes or auxiliary crane ships to load and unload cargo.

Adding to the concerns over the Merchant Marine fleet is a sharp decline in the number of experienced Merchant Mariners. Since 1970 there has been a 60% decrease in the number of U.S. Merchant Mariners. The problem is compounded

by the fact that U.S. shipyards are not building many ships, the shipyards are in disrepair, and may not be able conduct operations required during an extended conflict.[51] Despite these problems, commercial vessels currently provide 68% of available sealift capability. There are currently 158 commercial U.S. flag dry cargo ships that are militarily useful. There are also 123 commercial U.S. flag tanker ships.[52] Table 3 summarizes the average cargo capacity of U.S. strategic sealift assets.

Table 3
Ship Characteristics Used for Sealift Movement[53]

Ship Types*	Average Gross Cargo Space (SQFT)	Average STOW Factors (%)	Average Cargo Space Utilized (SQFT)	Average TEU** Capacity
RORO	162,667	0.75	122,000	367
Breakbulk	64,133	0.75	48,100	-
FSS	199,824	0.75	149,868	188
LMSR	324,000	0.75	243,000	180
NSSCS	-	-	-	1,534

***RORO** (Roll on /roll off); **FSS** (Fast Sealift Ship); **LMSR** (Large Medium-Speed RORO); and **NSSCS** (Non-self-sustaining Container Ship).
****TEU** (20-ft container equivalent units).

The STOW factor represents the percentage of gross cargo space that is generally utililized. The total cargo capacity of strategic sealift assets will be discussed later in the monograph. The LMSR ships will be discussed in the chapter on the future of strategic sealift.

Prepositioning

The final leg of the strategic mobility triad is prepositioning. Prepositioning consists of placing forces, equipment, or supplies in areas of possible conflict prior to an actual crisis or conflict. Prepositioning offers the

advantage of quick response to a crisis. Traditionally the U.S. has used prepositioning to place equipment in storage areas in threatened overseas regions. In a crisis situation troops are flown to marry-up with the equipment. Response time is greatly reduced because UE does not have to be airlifted or sealifted into the theater. Prepositioning decreases response time while reducing the requirement for strategic lift assets. A third advantage of prepositioning is that it offers the strongest deterrent value of the three legs of the mobility triad. Prepositioning equipment in a region signals strong commitment to the area. It is an unambiguous statement that the U.S. has a strategic national interest in the area and will counter any aggression in the region. If there is a strong possibility of conflict in an area that the U.S. has a serious interest in, prepositioning is the most favorable strategic mobility option.

Although prepositioning offers considerable advantages in certain situations, it also has several drawbacks. Prepositioning is the least flexible of the three strategic mobility options. Once equipment is placed in storage in a certain region it can not be moved easily. Moving prepositioned equipment to a different region tends to undermine the confidence of the host country. The fact that prepositioned equipment is such a visible sign of commitment also makes it difficult to remove. The visibility of prepositioned equipment also makes it vulnerable to terrorist attacks, air or missile strikes, or being overrun by enemy ground forces[54] Prepositioning also has the disadvantage of requiring duplicate sets of UE. Duplicate sets of tank and mechanized forces are expensive to

procure. The ability to preposition equipment depends upon a favorable political climate. The U.S. must be in a position to negotiate the right to store equipment in a foreign country. Finally as previously mentioned, prepositioning does require the airlift of personnel to marry-up with equipment.

During the Cold War the U.S. made extensive use of prepositioning in Europe. The U.S. had six divisions worth of Prepositioning of Material Configured in Unit Sets (POMCUS) for use in reinforcing NATO. The end of the Cold War and the drawdown of forces overseas has reduced the amount of equipment the U.S. maintains abroad. Today the Army has a much smaller POMCUS program. Rather than division sized sets of equipment, the Army is moving toward brigade sized sets in areas of potential conflict such as Southwest Asia. The Army has the equipment for one armored brigade prepositioned in Kuwait. The Army is also making greater use of Afloat Prepositioned Forces because of the flexibility offered by equipment loaded on ships. As mentioned in the section on APS, the Army currently has one brigade sized set of equipment loaded on ships.

Summary of Current Assets

The U.S. possesses an impressive fleet of strategic mobility assets. No other nation in the world can match the U.S. capability in airlift, sealift, and prepositioning of equipment. Table 4 summarizes current U.S. strategic mobility assets.

Table 4

Summary : Current Strategic Mobility Assets [55]

Strategic Airlift			
Organic			
	Active	**Reserve**	**Total**
C-17	18	0	18
C-5	74	44	118
C-141	175	52	227
KC-10	52	---	52
CRAF			
	Stage I	**Stage II**	**Stage III**
WB Pax	37	112	188
WB/NB Cargo	39	102	170
Strategic Sealift			
	Organic	**Commercial**	
Fast Sealift	8	0	
Ready Reserve	80	0	
Pre-positioning			
APS	16	0	
MPS	13	0	
Long Term Charter	0	24	
U.S. Flag Dry	0	158	
U.S. Flag Tanker	0	123	

The next chapter presents studies which are immediately relevant to America's strategic lift crisis. Between September and December 1994, U.S. forces deployed to Haiti and Kuwait/Saudi Arabia, and were placed on alert to deploy to the South Korea. These near-simultaneous occurrences represented the worst case scenario for strategic planners, supporting two MRCs and a peace keeping operation. It highlighted the huge gulf between America's Win-Hold-Win strategy and the strategic lift required to implement that strategy. For each of the three case studies, the next chapter will provide a brief background and outline the associated strategic lift requirements.

IV. Case Studies: Strategic Lift Requirements- Kuwait, Korea, and Haiti

This chapter examines strategic lift requirements, in gross terms, required to support two MRCs. It also identifies the size and time table for the deployment of forces outlined in the DOD Strategic Mobility Study. Moreover, this chapter looks into some of the requirements and considerations to sustain forces once they are in the theater of operations. Sustainment of forces may also consume large amounts of lift. Finally, the chapter presents case studies on Haiti, Kuwait, and Korea, which will add realism to the concern over strategic lift requirements. The timing of these three operations is in fact nearly-simultaneous, which tests our capability to fight two MRCs.

Deployment Requirements

Although the military is getting smaller, it must remain capable of meeting varied and global threats to national security. The DOD Strategic Mobility Study details the nation's power projection goals. They include:

- A light brigade anywhere in the world within four days
- A light division anywhere in the world within 12 days
- A heavy brigade (prepositioned afloat) anywhere in the world within 15 days
- Two heavy divisions from CONUS anywhere in the world within 30 days
- A five-division corps with support anywhere in the world within 75 days[56]

America's strategic assets must remain sufficient to meet this basic requirement. Two MRCs would greatly complicate this requirement. Ideally, the nation should posses the strategic lift assets to simultaneously meet both requirements. In reality, most strategic planners would prefer not to be the second MRC.

Sustainment Requirements

Most of the attention concerning strategic lift usually focuses on the deployment of forces; very little attention is given to sustainment. Two factors which deserve closer attention are the Logistics Civilian Augmentation Program (LOGCAP) and Host Nation Support (HNS). Both supplement, and in some cases replace, military capability to conduct operations. Additionally, they minimize the need to deploy U.S. military personnel to perform certain functions.

"HNS is normally based on agreements that commit the HN to provide specific support requirements according to prescribed conditions."[57] The U.S. has used HNS agreements successfully for decades, because it made good logistics sense. "Effectively, HNS offsets manpower, equipment. and supply requirements in a given theater, thus allowing the limited US force structure the flexibility to respond to other contingencies."[58] More meaningfully, HNS reduces the amount of strategic lift required. HNS will assume even greater prominence as the U.S. transitions from a forward deployed military to a CONUS-based power projection force. HNS is no longer "nice to have." It has become vital to the deployment and sustainment of American forces.

There are various types of HNS agreements. "HNS arrangements may include operation, maintenance, and security of seaports and airports; construction and management of routes, railways, and inland waterways; provision of some health service support, petroleum pipelines, and bulk storage or warehouse for other facilities, and operation of existing networks."[59] The level of HNS available

depends largely upon the region in which we conduct operations. For example, HNS agreements for US forces already exist in Europe and other industrialized areas of the world. They may not exist in lesser developed regions of the globe, in which case sustainment of forces will be more difficult.

Using the LOGCAP is one way of bridging the deployment and sustainment support gap. In essence, LOGCAP is another form of contracting. The objective of the program is "To preplan for the use of civilian contractors to perform selected facility and logistics services during contingencies/wartime to augment US forces."[60] This method of providing support taps into the civil sector capability.

Currently, the military has a Worldwide Umbrella Contract with the Brown and Root Corporation, a company with over 40,000 personnel. According to the terms of the contract, the company's mission is to:

- Plan for and, on order within 15 days initiate specified logistical and construction support for 180 days to a force of up to 20,000 troops arriving through air and sea ports of debarkation. Provide support in one rear area and four forward areas.
- Be prepared to extend operations beyond 180 days for up to 50,000 troops.
- Support designated MACOMs in their planning process and in the conduct of exercises.[61]

This type of contract has several strengths. First, the military is able to augment its sustainment capability without adding to the force structure. Second, Brown and Root provides the military with "one stop shopping" for a variety of different services. Finally, and most importantly, the contractor provides its own inter-theater transportation, so it does not compete with the military for strategic

lift. For these reasons, LOGCAP is becoming an integral part of military logistic operations.

Since 1992 every major U.S. military operation has used LOGCAP. In Somalia, the U.S. committed $62.8 million for such services as facility construction, supply of Classes I, II, III(P), and IV, bulk water production and distribution and more. Rwanda received $6.4 million for LOGCAP. Over $100 million was committed to LOGCAP in support of Haiti, and $13.1 million to the recent Saudi Arabia and Kuwait crisis.[62]

Clearly, HNS and LOGCAP provide the military with additional capability and reduce the requirement for strategic lift. Planners should maximize their use for both deployment and sustainment operations. As a note of caution, however, they are not cure-alls designed to solve all of the military's strategic lift problems. They merely "...provide an alternative capability to meet facility/logistics shortfalls."[63]

Case Studies

Recent nearly-simultaneous events in Haiti, Kuwait, and Korea further illuminated America's strategic lift dilemma. Kuwait and Korea held the potential to develop into full-blown MRCs which would have required the use of massive force. It was unlikely, however, that restoring democracy to Haiti would demand as high a price. Nonetheless, Haiti was important because it began before the Kuwaiti and Korean crisis. It is likely that strategic lift assets dedicated to this

peace enforcement operation greatly diminished the nation's ability to respond to the Kuwaiti and Korean MRCs.

The uncanny timing of these three events could have crippled America's ability to respond to two nearly-simultaneous MRCs. Fortunately, the Kuwaiti and Korean situations stabilized, which allowed the U.S. to sidestep the strategic lift question: can we deploy and sustain two nearly-simultaneous MRCs? Despite the happy ending to this story, the future promises equally challenging events, in which our strategic lift capability will be tested. Therefore, it is instructive to examine closely the strategic lift implications of this Kuwait-Korea-Haiti scenario.

The remainder of this chapter will accomplish two tasks. The first task will be to review the deployments to Haitian and Kuwaiti from the perspective of the strategic lift requirements. The deployments were known as Operations Uphold Democracy and Vigilant Warrior, respectively. The second task will be to examine a hypothetical deployment of forces to Korea and study strategic lift requirements of forces that deployed during the 1990/91 Persian Gulf War. The reason for using data from a hypothetical Korean scenario and actual data from the Gulf War is that both cases offer an abundance of research data. Operations Uphold Democracy and Vigilant Warrior are so recent that very little published strategic lift data exists in an unclassified format.

With regard to Haiti and Kuwait, the analysis will consider US forces that actually deployed as well as those that were scheduled to deploy. Regarding Korea, US forces used in the analysis are those used in Prairie Warrior 1995.

Prairie Warrior (PW) is the annual capstone planning exercise for graduating Command and General Staff College (CGSC) students at Fort Leavenworth, Kansas. The section is designed to highlight the magnitude of the strategic lift issue and illustrate the massive amount of lift required to conduct two nearly-simultaneous MRCs.

Background - Haiti, Kuwait, Korea

In early October 1994, U.S. and Allied forces, backed by a United Nations mandate, began Operation Restore Democracy in Haiti. The operation became Uphold Democracy after the initial crisis had passed. "Together with the troops at sea, the total number serving in the Haitian campaign (28,000) eclipses the 26,000 Americans who invaded Panama in 1989 and the 25,800 sent to Somalia."[64] Troops from the 10th Mountain Division were aboard ships off the coast of Haiti prior to the invasion, while 61 C-130 airplanes carried elements of the 82nd Airborne Division. Support for Operation Uphold Democracy consumed a significant amount of strategic lift resources. This operation alone, however, was not likely to tax our airlift or sealift fleets.

In the midst of the Haiti operation, U.S. military forces deployed to the Persian Gulf region in support of Operation Vigilant Warrior. The Iraqis, our Gulf War adversaries, massed 70,000 troops along the Kuwaiti border. "Saddam dispatched 20,000 of his elite Republican Guard south to join 50,000 regular army troops..."[65] It appeared at first that Iraqi troops were merely performing field exercises, but "The Iraqi heavy ammunition loads and the presence of extensive

supplies convinced officials that Saddam was thinking of invading Kuwait."[66] In fact, "...by October 10, 1995 intelligence reports revealed the lead elements of two Iraqi divisions had moved within 15 mile of the Kuwaiti border."[67] Pentagon officials felt an Iraqi invasion was imminent .

Fearing a repeat of the 1990/91 Gulf War, America and her allies responded decisively to prevent a second Iraqi invasion of Kuwait. As in the Gulf War, America's challenge was to swiftly place a sizable enough force on the ground to deter Iraqi aggression. Colonel David H. Hackworth, in a article entitled *We Need a Permanent DMZ* wrote "Battles are like mating rituals: he who gets there first-and flaunts the biggest stuff-usually wins."[68]

Colonel Hackworth offered an excellent analogy, but unfortunately for U.S. forces the Iraq army was already there, and Iraq had the biggest stuff. Thus, initially, the Iraqis possessed a quantitative advantage: the "Iraq's army had to roll only 300 miles to make world-class trouble; U.S. forces would have to travel 6,000 miles or more to stomp it out."[69] In reality, the U.S. had but two options in its continuing "cat and mouse" game with Saddam Hussein. The U.S. could either remain prepared to "...mount a last minute airlift and sealift deployment which might be too late-or garrison a substantial force in the region which no one, Arab or American, wanted to do."[70] For the foreseeable future, it appears the U.S. military will rely upon the last minute strategic deployment option. For certain, it was the option chosen to deal with this second possible Iraqi invasion.

The resulting deployment to Kuwait was costly in terms of time and strategic lift resources. "One week after it was revealed that Saddam had moved troops close to the Kuwaiti border, the U.S. had more than 21,000 troops 'in theater' in the Persian Gulf, with another 42,000 scheduled for deployment there and no less than 156,000 on standby-at a rumored cost of around $500 million to $1 billion ."[71]

As if the Haitian and Kuwaiti crisis were not enough, worldwide concern erupted over North Korea's suspected possession of nuclear weapons. This naturally led to heightened tensions between North and South Korea. U.S. involvement was inevitable for several reasons. One reason involved its long-standing commitment to the defense of South Korea. Another was the U.S.'s interest in squelching worldwide nuclear proliferation. Finally, there were thousands of U.S. citizens living in South Korea, to include over 38,000 US military personnel.

Planners of the 1995 Prairie Warrior exercise developed an equally plausible, but fictitious, Korean Conflict scenario. The scenario portrayed the outbreak of a conventional war between North and South Korea, in which US forces played a vital role. Since actual Operations Plans (OPLANs) on Korea were classified, this paper chose to use data from the PW 1995 *Combined Forces Command (CFC) Campaign Plan for the Defense of Korea* (dated 10 February 1995) to analyze strategic lift requirements.

First, however, we must understand the context in which the scenario unfolds. To paraphrase the campaign plan, the situation is thus:

> Hostilities are expected to break out on the Korean Peninsula in the next 20 days with North Korea launching a surprise attack on South Korean and US forces. The North Korean attack takes place in the wake of two major incidents in recent weeks. The first incident occurred when North Korean border guards in the Chorwon Valley killed over 100 Korean refugees fleeing to the south. The second incident was a nuclear accident near Yongbyon, which the North Koreans claim killed over 1000 residents. The US demands inspections and full accounting to the United Nations Security Council (UNSC), but the North Koreans reject offers of assistance and refuse to allow international inspectors to examine the accident site.[72]

In response to the expected surprise attack by North Korea, the U.S. began to deploy forces onto the Korean Peninsula to fight under the command and control of the CFC. U.S. forces were not expected to reach the peninsula in sufficient time or with enough strength to have deterred the North Korean incursion. By the time US forces arrived, North Korean forces were expected to have penetrated deep into South Korean territory. Therefore, "The CFC strategic intent of the campaign was to restore the territorial integrity of the Republic of Korea."[73]

There were five theater strategic objectives of the campaign: (1) maintain sufficient forward presence to deter North Korean aggression; (2) defend against a short-notice attack, with priority tasks of retaining Seoul and minimizing loss of territory; (3) defeat the North Korean forces; (4) neutralize the North Korean weapons of mass destruction; and (5) separate the North Korean government from its armed forces and people.[74] The breath and scope of the mission required the

U.S. to deploy an extremely large force, in order to assist the South Koreans in the accomplishment of these objectives. Hence, the intent and objectives of the campaign exerted a major influence on the size of the U.S. force required, and ultimately on the amount of strategic lift required to deploy and sustain that force.

The size and capability of the North Korean threat also influenced the size of the U.S. force, and thus the amount of strategic lift required. "The North Korean People's Army (NKPA) was the fifth largest armed force in the world, numbering 1.1 million active duty and 6 million reserves."[75] Intelligence reports suggested the NKPA was a very large a capable military force. "It was organized into 15 Corps (882,000 personnel), three Air Combat Command (82,000 men/1620 aircraft), 14 Naval squadrons (46,000 sailors/740 vessels)."[76]

This scenario undoubtedly represented an MRC. It would cause considerable problems for strategic planners, especially if another MRC, such as a deployment to Kuwait, was in progress. Although the PW scenario assumed Korea was the only MRC in which the U.S. was involved, the remainder of this chapter is predicated on the *assumption that there is another MRC in progress.* The creation of this two MRC dynamic will allow a more truthful analysis of the strategic lift shortfalls. Besides, the timing of events described earlier demonstrated convincingly that nearly-simultaneous Korean and Kuwaiti MRCs were indeed conceivable. Again, the paper will use the PW 1995 scenario and data for Korea MRC and 1990/91 Gulf War data for the Kuwaiti MRC. The data will include the numbers and types of forces deploying, as well as associated strategic

lift information. The utility of the *actual* Korean, Kuwaiti, and Haitian operations that occurred in the fall/winter of 1994, for the purposes of this paper, rests mainly in their nearly-simultaneous occurrences. The timing of these events lends validity to, and clearly supports, the plausibility of a two-MRC scenario.

Indeed, the timing of the Korean confrontation could not have been worse. As one source noted, "Amid post cold war cuts in defense spending, the United States now faces potentially simultaneous confrontations in two widely separated theaters, Korea and the Persian Gulf."[77] Given our commitment to restoring democracy to Haiti, the U.S. would actually be deployed into three different geographical regions of the world. This scenario fell outside of the parameters of U.S. National Military Strategy (NMS); the NMS emphasized response to only two nearly-simultaneous MRCs, not two MRCs and a Peace Enforcement Operation. Thus, in reality a two MRC scenario may underestimate the real challenge to our capability.

The real significance of this potential three-pronged projection of force into separate theaters was the strain it would place on strategic lift assets. The acute geographical separation would limit the amount of mutual support that strategic lift assets could provide the three areas of conflict. This would force strategic planners to dedicate certain assets to a given region, which would make them unavailable to support other contingencies. Regarding Korea and Kuwait, it was believed that U.S. "...fighting forces were adequate to deal with both of them at once, but the Pentagon did not have the airlift capability."[78] The next section of

this chapter will quantify the strategic lift requirements for the deployment of forces to Kuwait and Korea.

Strategic Lift Requirements

The deployment and sustainment of forces for Operation Desert Shield/Storm required a tremendous amount of strategic airlift. An implicit assumption implicit for this section is that involvement in another MRC on the Arabian Peninsula would necessitate a strategic deployment comparable to the 1990/91 Gulf War deployment. Hence, data collected from Desert Shield/Storm provides a good reference point for strategic lift planning, specifically a return of U.S. forces to Kuwait and Saudia Arabia to thwart Iraqi aggression. Tables 5 and 6 depict the number of short tons of equipment and the number of personnel transported by air to the Persian Gulf region between August 1990 and February 1991. The tables also depict the types of aircraft used for personnel and cargo transport.

Table 5
Short Tons Transported[79]

Type	Aug 90	Sep 90	Oct 90	Nov 90	Dec 90	Jan 91	Feb 91	Total
Organic								
C5	23,145	32,385	26,133	26,250	34,314	42,568	33,562	218,356
C-141	18,470	19,261	12,071	12,922	26,161	31,469	28,703	149,058
KC-10	546	3,450	1,848	1,660	3,439	1,344	0	12,286
Organic subtotal	42,161	55,096	40,052	40,832	63,914	75,381	62,265	379,700
CRAF								
Narrow body: Cargo	1,764	2,331	1,256	2,020	3,203	6,445	8,235	25,253
Narrow body: Pax	59	181	96	135	155	448	437	1,511
Wide body: Cargo	1,464	7,031	3,947	5,829	8,042	14,560	19,837	60,710
Wide body: Pax	4,523	5,881	5,423	1,901	14,612	11,783	5,287	49,410
CRAF subtotal	7,810	15,424	10,722	9,885	26,012	33,236	33,796	136,884
Total	49,971	70,519	50,774	50,717	89,926	108,617	96,060	516,582

Table 6
Passengers Carried[80]

Type	Aug 90	Sep 90	Oct 90	Nov 90	Dec 90	Jan 91	Feb 91	Total
Organic								
C5	20,207	13,362	5,943	5,034	12,768	16,320	7,231	80,865
C-141	18,566	8,184	3,342	4,828	19,166	28,683	5,828	88,597
KC-10	102	114	94	135	529	125	0	1,099
Organic subtotal	38,875	21,660	9,379	9,997	32,463	45,128	13,059	170,561
CRAF								
Narrow body: Cargo	6	0	0	18	92	434	208	758
Narrow body: Pax	415	1,143	353	624	728	2,672	2,712	8,647
Wide body: Cargo	27	37	0	0	0	20	28	112
Wide body: Pax	31,293	37,437	40,281	12,047	77,809	67,970	27,675	294,512
CRAF subtotal	31,741	38,617	40,634	12,689	78,629	71,096	30,623	304,029
Total	70,617	60,278	50,012	22,686	111,093	116,223	43,682	474,589

In total, strategic airlift assets flew 18,056 missions, and transported over 500,000 stons of cargo and roughly 500,000 troops during the Gulf War. Sealift assets completed 466 voyages, carrying 3,390,147 stons of cargo, 6,103,003 stons of fuel and 2776 troops. Deployment and sustainment of forces for the Gulf War required a Herculean effort. Future deployments to this area will likely place equally challenging demands on America's strategic lift resources. We narrowly avoided such an occurrence when we redeployed to Kuwait in late 1994. Yet, it represented only one MRC. The next section will consider a hypothetical, nearly-simultaneous Korean MRC. Together, these two scenario will illustrate the enormous amount of strategic lift required to deploy and maintain forces in two MRCs.

The Prairie Warrior 1995 exercise involved both joint U.S. forces, and combined forces such as the Republic of Korea Army, a French Armored Brigade and a British Armored Brigade. The scope of this monograph, however, is limited

to a discussion of U.S. force deployment. South Korean Forces were obviously already on the peninsula, and strategic deployment and sustainment of other allied forces for this exercise were considered a national responsibility. To fulfill the campaign objectives stated earlier, the U.S. forces listed in Table 7 were used for planning.

Table 7
U.S. Forces - Prairie Warrior 1995[81]

JFLCC	ACC	NCC	MCC	Special Opns
9th US Army	7th AF (US)	7th Fleet (US)	US MAR Korea	US SOF Korea
II Corps	12 Ftr Wings	4 Carrier Btl Gps	1 MEU	SOC PAC HQ
1 ACR	6 Aerial Refuel Wings	1 Amphib Rdy Gp	2 MEF	1 NSWTG HQs
1 Mech Div	1 Trans Wing	2 Surf Action Gps	4 Marine Reg	1 SF Gp HQs
1 Inf Div	3 Bmbr Wings	2 MPS	4 MAGs	3 SF Bns
1 Lt Inf Div (-)	3 Airlift Wings	1 APS	1 AASLT Div	1 Rgr Bn
1 Avn Bde	4 RECON Sqdns	4 Amphib Sqdns		8 SOS Sqdns
3 FA Bdes	3 Air Ctrl Sqdns	1 MCM Helo Sqdn		1 SOAR HQs
1 ADA Bde	2 Air Rescue Sqdns	MCM Ships		2 SOAR Sqdns
1 Eng Bde		6 Attack Subs		1 PSYOP GP HQs
1 MI Bde				3 PSYOP Bns
1 Signal Bde				1 CA CMD
1 Chem Bde				3 CA Bns
1 PSYOP Bn				2 SEAL Tms
1 MP Bde				1 SDV Tm
1 COSCOM	JFLCC - Joint Force Land Component Command			
1 MSF (Div)	ACC (JFACC) - Air Component Command			
1 Avn Gp	NCC - Naval Component Command			
1 AR Div	MCC - Marine Component Command			

With regard to strategic lift, JFLCC ground combat forces were of greatest concern. These forces were expected to consume the vast majority of strategic lift assets. Suffice it to say that the non-divisional elements of the JFLCC, the air assault division of the MCC, and the civil affairs battalions assigned to Special Operations also required strategic lift support. However, the bulk of ACC, NCC,

and SOF were considered largely self-deployable. The infantry division under II Corps was already in theater, thus it did not require strategic lift assets. Of particular interest was the allocation of strategic lift assets for deployment of the Mobile Strike Force (MSF), the theater commander's deep maneuver division. Table 8 summarizes the airlift and sealift required to move certain types of forces involved in the PW 95 exercise. The table provides other significant data, such as total personnel, square feet of cargo, total short tons, and numbers of vehicles.

Table 8
Required Lift Assets for Specified Army Units[82]

	ACR (Hvy)	Airborne Div	Armor Div	Mech Div	Air Assault Div	Light Div	COSCOM
Personnel Strength	4,627	13,242	17,756	17,982	15,840	11,036	22,410
SQ FT	442,798	75,197	1,547,552	1,543,981	1,002,525	471,799	2,332,358
STONS	33,126	26,699	110,431	109,116	35,860	17,092	98,717
MTONs	87,558	115,313	304,008	302,883	171,549	74,774	424,318
Required Airlift							
C-141 Sorties	498	1,098	1,906	1,926	1,369	767	3,483
C-5 Sorties	314	46	999	972	110	23	357
Required Sealift							
FSS	2.9	4.3	8 + 1.3 LMSR	8 +1.3 LMSR	6.2	2.9	8 +3.6 LMSR
LMSR	1.8	2.8	6.2	6.2	3.9	1.8	8.5
RORO	3.5	5.1	12.3	12.3	7.7	3.5	16.9
BB	9	15.6	31.3	31.3	19.5	9	42.9

Measurements

1 STON - Short Tons = 2000 lbs
1 MTON - Mile Tons = 40 cubic ft (measures cubic volume of cargo)
PAX - passengers

Ships

BB - Break Bulk
FSS - Fast Sealift Ship
LMSR - Large Medium-Speed RORO
RORO - Roll On/Roll Off

*Note - Consider airlift and sealift assets seperately. Example: Armor Divison requires ***either*** 8 FSSs + 1.3 LMSRs ***or*** 1,906 C-141 sorties and 999 C-5 sorties.

Table 9 consolidates the essential strategic lift data for the major ground combat elements, minus Marine Corps units. It also provides vital strategic lift information for the COSCOM, the major combat service support unit assigned to the 9th (US) Army, JFLCC. Interestingly, the COSCOM required more strategic lift assets than any maneuver division. It demanded more than twice as many square feet of cargo space as an air assault division and over four times as much as a light infantry division.

Table 9
Lift Assets Required for Prairie Warrior 95 Forces

	ACR (Hvy)	Abn Div	Armor Div	Mech Div	*MSF Div	ASSLT Div	*Lt Inf Div (-)	COSCOM	Total
SQ FT	442,798	75,197	154,552	1,543,981	1,543,981	1,002,525	353,849	2,332,358	7,449,241
C-141 Sorties	498	1,098	1,906	1,926	1,926	1,369	575	3,483	12,781
C-5 Sorties	314	46	999	972	972	110	17	357	3,787
RORO Equivalents	3.5	5.1	12.3	12.3	12.3	7.7	2.6	16.9	72.7

*MSF considered same as Mech division for planning purposes.
* Since a Lt Inf Div (-) was employed, the figures represent 75 % of total Lt Inf Div requirements.

Unquestionably, the strategic lift demands for Korea would be enormous. Although this represents very gross planning, clearly the combined strategic lift requirements for nearly-simultaneous Korean and Kuwait/Saudi Arabian MRCs, would overwhelm our current strategic lift capability.

V. Current Requirements

This chapter builds upon the previous one in terms of current assets and capability. It represents another critical piece in analyzing the U.S. military's ability to carry out its power projection strategy of winning two nearly-simultaneous MRCs. The purpose of this chapter is to investigate the U.S. military's current strategic lift requirements in support of this strategy. First, we must establish a base force to which we will apply the requirements. Judgment concerning the sufficiency of the force to be deployed and sustained falls outside the bounds of this monograph. This chapter will address the base force only in relation to its requirements for strategic lift. Second, we must discuss the assumptions that influence the amount of strategic lift required. Finally, the chapter will discuss the actual strategic lift requirements, based upon the parameters established by the assumptions.

Before establishing a base force to handle MRCs, it is essential to identify the size and capability of the threat. The BUR states potential regional aggressors are expected to be capable of fielding military forces in the following range:

- 400,000 - 750,000 total personnel under arms
- 2,000 - 4,000 tanks
- 3,000 - 5,000 armored fighting vehicles
- 500 - 1,000 combat aircraft
- 100 - 200 naval vessels, primarily patrol armed with surface to surface missiles, and up to 50 submarines
- 100 - 1,000 Scud-class ballistic missiles, some possibly with nuclear, chemical, or biological warheads.[83]

For planning purposes, this is the size and capability of the enemy force the U.S. military would face in each of its MRCs. Conspicuously, the forces we would face

in an MRC are very robust. Hence, a great deal of strategic lift assets will be required to deploy enough U.S. military personnel, supplies and equipment to counter these large enemy forces.

According to the BUR, the force structure listed in Table 10 "...will give the United States the capability to meet the most stressing situation we may face--the requirement to fight and win two major regional conflicts nearly simultaneously."[84] The BUR further stated this force structure "...which will be reached by about the end of the decade, can carry out our strategy and meet our national security requirements."[85]

Table 10
U.S. Force Structure - 1999

Army	• 10 divisions (active) • 5+ divisions (reserve)
Navy	• 11 aircraft carriers (active) • 1 aircraft carrier (reserve/training • 45-55 attack submarines • 346 ships
Air Force	• 13 fighter wings (active) • 7 fighter wings (reserve) • Up to 84 bombers
Marine Corps	• 3 Marine Expeditionary Forces • 174,000 personnel (active strength) • 42,000 personnel (reserve strength)
Strategic Nuclear Forces (by 2003)	• 18 ballistic missile submarines • Up to 94 B-52 bombers • 20 B-2 bombers • 500 Minutemen III ICBMs (single warhead)

Finally, the BUR concludes, this "...force structure meets a new criterion for our forces--flexibility to deal with the uncertain nature of the new dangers."[86]

Indeed, the services are already working towards the force levels articulated in the BUR. The Army, for example, recently unveiled its force

restructuring plan to cut two active divisions. The 10 remaining active divisions will be the: 1st Infantry Division (Mechanized), 2d Infantry Division, 3d Infantry Division (Mechanized), 4th Infantry Division (Mechanized), 25th Infantry Division (Light), 1st Cavalry Division, 10 Mountain Division (Light Infantry), 82nd Airborne Division, 101st Airborne Division (Air Assault), and 1st Armored Division. Obviously, the type of divisions remaining in the force structure will determine the amount of strategic lift required.

In concluding that the forces selected could implement a two-MRC scenario, DOD made several key assumptions about the force's delpoyability and capability. DOD assumes that:

- forces involved in other operations, such as peacekeeping, would be redeployed to a regional conflict;
- and certain specialized units or unique assets would be shifted from one conflict to another;
- Army National Guard enhanced combat brigades could be deployed within 90 days of being called to active duty to supplement active combat units;
- sufficient strategic lift assets and support forces would be available;
- a series of enhancements, such as improvements to strategic mobility and U.S. fire power, were critical to implementing the two-conflict strategic and would be available by about 2000.[87]

But, in a January 1995 Report to Congressional Committees entitled "Bottom-Up Review: Analysis of Key DOD Assumptions," the General Accounting Office (GAO) noted that "...DOD did not fully analyze its assumptions regarding key aspects of strategy, such as the ability of forces to redeploy from other operations to regional conflicts or between conflicts and availability of strategic lift and support forces."[88] Indeed, these will have a huge impact on strategic lift requirements.

Assumptions and Criteria

Implementing the *first* and *second* assumptions, regarding *the redeployment of forces* and from peacekeeping operations and *the shifting of unique assets* between theaters, would require a tremendous amount of strategic lift assets. Not only would forces deploy from the U.S., but from multiple OCONUS locations as well. Given our acknowledged shortage of strategic lift resources, this would inevitably bankrupt our strategic deployment capability. The Haiti-Kuwait-Korea crisis presented exactly this possibility. To respond to both Kuwait and Korea, forces would have had to be withdrawn from Haiti and redirected to either the Korean or Kuwaiti MRC. Undoubtedly, forces would simultaneously deploy from Europe, Hawaii, and from several other locations within the continental U.S. The key point is that forces would deploy from various locations worldwide, which would severely strain our limited strategic lift resources. Thus, there is considerable doubt about whether we can realistically shift forces and assets between theaters.

This assumption also discounts the complexity of fighting in geographically dispersed theaters, in conjunction with redeploying forces from peacekeeping operations. This represents the worst case scenario, yet the notion is not farfetched. In fact, the BUR used two such reasons as the basis for its analysis of U.S. military requirements. "For planning and assessment purposes, we have selected two illustrative scenarios that are both plausible and posit demands characteristic of those that could be posed by conflicts with a wide range of

regional powers. While a number of scenarios were examined, the two we focused on most closely in the Bottom-Up Review envisioned aggression by a remilitarized Iraq against Kuwait and Saudi Arabia, and by North Korea against the Republic of Korea." The GAO concluded, however, that "DOD did not begin to analyze its assumptions on redeploying forces from operations other than war (such as the Haiti operation) until after completing the bottom-up review."[89] Operations other than war were not an integral part of the BUR, yet these operations are an irrefutable part of our daily reality.

Further, the Persian Gulf and Korean Peninsula were thousands of miles apart and in completely separate regions of the world. The U.S. would have to split its strategic deployment and sustainment focus and consider the impact of such factors as the climatic differences between the regions. Nonetheless, it is an eventuality that we must be prepared to face. It is important to note that the Korean Peninsula and Persian Gulf regions are only examples. They are not the only potential areas of major conflict, but they do provide a sound basis for planning. Admittedly, recent events in both regions make the BUR appear clairvoyant. We must nevertheless avoid developing tunnel vision by becoming too fixated on these two regions.

The *third* major assumption is that *Reserve and National Guard forces will play a prominent role in any two MRC scenario.* In a speech delivered by General Colin Powell, former Chairman of the Joint Chiefs of Staff, on September 1, 1993, he stated "In any total force concept the reserves are going to be an

integral part. When the whole force begins to flow to deal with a major regional contingency one; we call up additional reserves to hedge your bet in case the second comes."[90] This assumption is significant because much of our warfighting capability resides in the Guard and Reserve. Therefore, we must be careful to consider not only the requirements for active duty units, but Guard and Reserve units as well. They too will consume a large amount of strategic lift resources.

The *fourth and fifth* assumptions concerning *enhancements in strategic mobility* and *availability of strategic lift* respectively are also disconcerting. The fourth assumption acknowledges that critical improvements needed to implement a two MRC strategy will not be available until the year 2000. In effect, this is an admission that the U.S. can not execute the strategy today, and that we face a five to seven year window of vulnerability. This contradicts the fifth DOD assumption which states that sufficient strategic lift assets would be available.

The *sixth* assumption implicit in the BUR is that the U.S. will continue to pursue a Win-Hold-Win Strategy, not a Win-Win Strategy. The Win-Win strategy would tax strategic lift assets even more severely than Win-Hold-Win, because it implies the we would fight two wars simultaneously. The Win-Win strategic would require a larger force and even more strategic lift. We can ill-afford to pursue a strategy as aggressive as Win-Hold-Win in this era of declining military dollars. More importantly, it is doubtful whether the U.S. can conduct two nearly-simultaneous MRC. It is certain we can not conduct them simultaneously.

If the GAO's assessment of BUR assumptions is correct, the conclusions drawn from the BUR are invalid.

Two major *criteria* will be used to evaluate the research question; they are *sufficiency and speed.* In the context of this monograph, sufficiency is a question whether the U.S. has enough strategic lift assets to implement the two MRC strategy today. Speed is defined as the ability of current assets to meet the goals of the DOD Strategic Mobility Study. These include:

- A light brigade anywhere in the world within four days
- A light division anywhere in the world within 12 days
- A heavy brigade (pre-positioned afloat) anywhere in the world within 15 days
- Two heavy divisions from CONUS anywhere in the world within 30 days
- A five-division corps with support anywhere in the world within 75 days

In reality, these deployment requirements relate to one MRC. Hence, the speed criterion is to deploy a force twice this size, nearly-simultaneously. Certainly, not all of these force will deploy at the same time. As stated earlier in the paper, a 42 day gap is assumed to exist between MRCs. Undeniably, however, there will be overlap between deployments for the two MRCs. The nearly-simultaneous deployment of forces to two MRCs must meet both the sufficiency and speed criteria requirements.

Proposed Troop List

Establishing the size of forces to be used in conducting MRCs is critical because the force structure will determine the amount of mobility assets required for deployment and sustainment. Three sources were used to determine the size

force needed to conduct two nearly simultaneous MRCs. Table 11 summarizes the forces listed in the three sources.

Table 11
Proposed Troop Lists

Mobility Requirement Study	Bottom-up Review	The New Calculus
Forces		
Marine Expeditionary Brigades*	4 to 5 Army Divisions	82nd Airborne Division
Army Light Forces*	4 to 5 Marine Brigades	101st Air Assault Division
Army Heavy Brigade*	10 Air Force Fighter Wings	24th Mechanized Division
Navy Carrier Battle Groups*	100 Air Force Bombers	1st Cavalry Division
Air Force Combat Squadrons*	4 to 5 Navy Carrier Battle Groups	7th Light Infantry Division
Special OperationsForces* (SOF)	Special Operations Forces	Combat Support & Combat Service Support (Minimum of 180,000 personnel & equipment)
Combat Support & Combat Service Support*		3 Carrier Battle Groups
Army Heavy Divisions		2 Marine Brigades (1 Brigade of MPS)
Additional SOF		10 Air Force Fighter Wings
Marine Expeditionary Forces		80 Heavy Bombers
Theater Support Forces		
Additonal Navy Carrier Battle Groups		
Additonal Air Force Combat Squadrons		

* Forces arriving in first two weeks
Note: Each MRC requires the forces listed above.

The first source, the Mobility Requirements Study, describes forces needed for two MRCs in very general terms, and provides a list of forces that arrive in each of two phases. The second source, the BUR, presents a more specific list of forces, without time phasing. The final source, a RAND study titled The New Calculus: Analyzing Airpower's Changing Role in Joint Theater Campaigns, provides a very specific list of forces including unit designations.

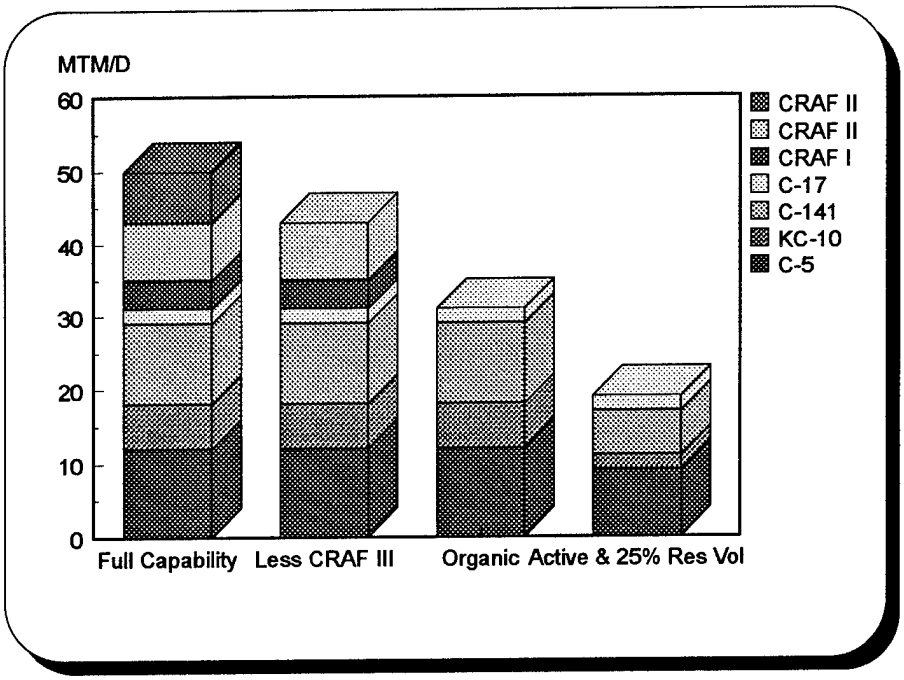
The New Calculus also identifies specific forces which deploy by airlift and arrive in theater prior to forces arriving by sealift from CONUS. Forces designated for early arrival are as follows: the 82nd Airborne Division, aerial port

units to support airlift operations, nine Patriot batteries for both air defense and theater ballistic defense, a combat aviation brigade from the 101st Air Assault Division, a command, control, communications and intelligence (C3I) system, and logistics support, personnel, and preferred munitions for the ten fighter wings.[91] In addition to deploying these forces, airlift assets would also deliver the Marine personnel to marry-up with maritime prepositioning ships (MPS) equipment. The three sources all assumed that the second MRC would require the same amount of forces as were allocated for the first MRC.

In order to have the ability to deploy and sustain these forces, and all the forces required to conduct the two nearly simultaneous MRC strategy, the U.S. has established capability requirements for airlift and sealift assets. The Mobility Requirements Study determined that the U.S. must have the capability to airlift 57 million-ton-miles per day (MTM/D) of cargo. MTM/D is calculated by multiplying the number of tons that an aircraft can haul by the number of miles it can carry that cargo per day. Total MTM/D for U.S. strategic airlift assets is calculated by adding the MTM/Ds for all available aircraft. Figure 1 shows current U.S. airlift capability in MTM/D.

As indicated by the figure, even at full capability, with CRAF stage III, the U.S. does not possess the required 57 MTM/D of strategic airlift capability. Briefing slides from the JCS and USTRANSCOM indicate that the U.S. currently possesses between 48-50 MTM/D of airlift capacity. This shortfall casts doubt on U.S. ability to execute the two MRC strategy.

Figure 1
FY95 Airlift Capability[92]



The requirement for sealift capacity is expressed in square feet of cargo space. Prior to adapting this measure, sealift requirements were calculated in capacity to haul short tons (STONs). As recently as the early 1990s, the goal for sealift capacity was one million STONs. In 1989 the U.S. could lift 797,000 STONs using available sealift assets. [93] Using the old standard of measure, the U.S. was 20% short of the desired sealift capability. Todays sealift goal is 10 million square feet of cargo space. A recent statement by an Air Force General Officer indicated that the U.S. currently has 6.5 million square feet of sealift cargo space.[94] This leaves the U.S. 35% short of the requirement. Information from the Joint Chiefs of Staff indicate that the U.S. currently possesses 5 million square feet of sealift cargo space[95]. If this figure is accurate, the U.S. has only 50% of the sealift required to fight two MRCs. In either case, the U.S. currently has a

significant shortfall, between 35-50%, in sealift cargo capacity. Like the shortfall in airlift capacity, the sealift shortfall casts doubt on the ability of the U.S. to execute the two MRC strategy.

The significant shortfall in sealift capacity severely impacts U.S. ability to move heavy forces. As discussed in chapter three, sealifts great strength is its ability to move massive amounts of large, heavy equipment. The RAND Corp. conducted a study of the feasibility of moving an Army heavy division by air. Moving an armored division would require lifting over 100,000 tons, not including combat service support assets.[96] The RAND study deemed it impracticable to move heavy divisions by air. The fact that 44% of armored division and 41% of mechanized division equipment is outsize further restricts the ability of airlift to move heavy divisions.

The use of different measurement standards makes the analysis of strategic lift assets difficult and confusing. Airlift capability is calculated in MTM/D. Sealift capability is calculated in square feet of cargo space, or short ton capacity. The airlift measure, MTM/D, appears to be a more useful measure in that it relates cargo lift capacity to time. Strategic lift assets must be able to move specific amounts of people and equipment in specified amounts of time, thus the analysis criteria of sufficiency and speed. Developing a measure of sealift capacity that includes speed, based upon the average knots of a ship, would be a useful planning tool.

One of the significant challenges of the win-hold-win strategy is that it requires deployment to the second MRC while simultaneously sustaining the first MRC. Table 12 illustrates the overlap in sustainment and deployment for two MRCs.

Table 12
Win-Hold-Win Strategy[97]

MRC #1	Halt Invading Force	Build-Up Forces; Conduct Air Campaign	Mount Decisive Counter-Offensive	Provide for Post-War Stability
	DEPLOY AND SUSTAIN FORCES			
	MRC #2	Halt the Invading Force	Build-Up Forces; Conduct Air Campaign	Mount Decisive Counter-Offensive
		DEPLOY AND SUSTAIN FORCES		

Sustainment

Sustainment requirements will continue to be a major concern, especially in a two MRC situation. Ships and aircraft involved in sustainment of forces in one theater detract from the nations ability to deploy forces into another theater. The number of strategic lift assets dedicated to sustainment can be enormous. These assets represent a significant percentage of the total airlift and sealift resource used in operations. Table 13 shows the percentage of total airlift cargo dedicated to sustainment during the Gulf War. Notice the very high percentage of sustainment cargo during December, January, and February. This coincides with the period of greatest U.S. troop concentrations. In the initial phases of the conflict, assets were

dedicated to deploying forces into theater. Once the bulk of U.S. forces had arrived in theater, strategic lift assets were of necessity redirected towards sustainment operations.

Table 13
Sustainment Cargo as Percentage of Total for Each Aircraft Type[98]

Type	Aug 90	Sep 90	Oct 90	Nov 90	Dec 90	Jan 91	Feb 91
Organic							
C5	3	20	45	74	49	28	50
C-141	7	6	32	58	39	30	37
KC-10	21	42	97	96	88	81	0
CRAF							
Narrow body: Cargo	0	27	72	84	99	100	100
Narrow body: Pax	0	0	100	80	100	100	100
Wide body: Cargo	8	63	95	96	97	95	100
Wide body: Pax	2	0	0	3	1	2	41

The airlift assets were only a small portion of the total assets decidicated to sustainment. Approximately 95 % of sustainment cargo moved by sea. The 5 % of cargo that travelled by air was primarily high priority items, such as spare parts. One hundred fifteen ships were employed to meet the demand for sustainment. One must also remember that this is only one theater. Assets would also be dedicated to sustainment, as well as deployment, in a second theater. In effect, the assets devoted to sustainment would grow disproportionately faster than the assets devoted to deployment. This is the nature of the sustainment problem for a two MRC scenario. There simply does not appear to be enough assets to accomplish the huge task of deploying and sustaining forces in two theaters.

VI. Analysis of Future Strategic Lift

The factors that are determining the requirements and capabilities of current strategic mobility assets will continue to play an important role in influencing the future strategic mobility force. Current indications suggest that defense budgets will continue to either shrink or remain at present levels. In either case, strategic mobility assets will have to fight against many competing programs for scarce defense dollars. The four factors that have traditionally caused a long standing shortage in strategic mobility assets are also likely to continue to have a negative impact on the acquisition of mobility assets. The U.S. continues to expand defense commitments overseas, the Air Force and Navy will continue to prefer spending money on jet fighters, bombers, and warships, and strategic mobility assets will continue to be costly to acquire. The U.S. is continuing the drawdown of military forces and continues to move forces back to the CONUS. The movement of forces back from overseas locations will continue to place a premium on strategic lift assets.

The Bottom Up Review identified a long term need for more strategic lift assets. The BUR also acknowledged that there was no short term fix to the problem. Because of the long time required to develop and procure new lift assets, the BUR recognized the need to use short term enhancements such as additional prepositioning of equipment in critical regions.[99]

The Mobility Requirements Study conducted an analysis of both logistical and warfighting aspects of a hypothetical regional crisis set in 1999. The scenarios

used were set in several areas including the Middle East, Korea, and Europe. In every scenario the analysis showed that there were three critical factors for U.S. success. The first critical factor was the strategic orientation of the U.S., including alliance arrangements, forward presence, and prepositioning. The second critical factor was speed in reacting to intelligence indications of enemy aggression, including activation of Civil Reserve Air Fleet stages (CRAF stages discussed in chapter 3), and gaining access to U.S. and allied sealift assets. The third critical factor was capability of allied forces and support.[100] Obviously, as the study found, strategic mobility factors, including CRAF activation, prepositioned equipment, and access to sealift, will continue to be vital to future U.S. military success.

Future of Strategic Airlift

The speed and flexibility that has made airlift the backbone of U.S. strategic mobility assets will continue to make it invaluable in the foreseeable future. Strategic airlift will continue to remain the asset of choice to move troops and equipment to crisis areas in the first crucial days of a conflict. However, to maintain a sufficient future capability, airlift assets must be managed to overcome several problems looming in the near future.

The C-141 has been the workhorse of the strategic airlift fleet for many years. By early in the next decade, after so many years of excellent service, a large portion of the C-141 fleet is expected to reach the end of its useful service life. Beyond that timeframe, only about 30% of the fleet is expected to still have useful service life left. Inspectors are finding cracks and corrosion in many of the planes,

which may soon force them to be grounded permanently or significantly restrict their use.[101] The BUR identified a need to either replace the C-141 with the new C-17 or another purchased aircraft. The Air Forces long term plan is to phase out slowly the oldest C-141s and replace them with C-17s. If the C-141s that reach the end of their service life are not replaced, U.S. strategic airlift capability will be reduced by approximately 50%.[102] Based on current capacity, this would leave the U.S. with the ability to move only 25 MTM/D.

As the designated replacement for the C-141, the C-17 is obviously crucial to the future of U.S. strategic airlift capability. As discussed earlier, the program has experienced numerous problems which have continually pushed it further behind schedule. The original plan to buy 210 of the aircraft has been reduced to a projected buy of 120 aircraft. The Air Force has committed to buy 40 C-17s with the intention of using the 40 aircraft as a means of evaluating whether or not to complete the total buy of 120. The purchase of 40 C-17s is scheduled to be completed by September 1998. Even if this buy is completed on schedule, it represents a decrease of 40 aircraft from assumptions made in the BUR. The BUR assumed that the Air Force would have 80 C-17 aircraft by FY99.[103] If the Air Force does eventually buy all 120 of the aircraft, the C-17 would adequately compensate for the expected loss of C-141s. If the aircraft performs up to expected standards, the fleet of C-17s would actually provide slightly more lift capacity, with significantly increased capability to haul outsize cargo.[104]

The CRAF program is a vital part of current and future strategic airlift capability. Unfortunately, CRAF faces a very uncertain future. Two primary factors have caused the larger, more successful airlines to show an increasing reluctance to sign up for the program. The first factor is a fear that a CRAF call-up would significantly disrupt the airlines market share. This fear is exasperated if the airlines competitors are not also subject to call-up. The second factor is that as U.S. forces return to increased basing in the U.S., there is significantly less peacetime government business available to offer as CRAF incentives. Airlines that commit to participation in the CRAF program are offered preferential government contracts. With fewer contracts to offer, the government has lost a significant incentive for participation. Adding to these problems is the fact that future commercial aircraft are projected to be of the smaller variety. Airlines are increasingly using hub and spoke operations, negating the need for larger aircraft. The larger aircraft offer greater passenger capacity and longer flight times, two factors critical to the CRAF program.[105]

Recent calculations by the Joint Chiefs of Staff project that overall U.S. strategic airlift capacity will decrease slightly over the next several years. This decrease will occur as the C-141 fleet is phased out and the C-17 becomes the primary airlift asset.[106] Airlift capacity is projected to return to the current capacity of approximately 50 million-ton-miles per day around the year 2005 or 2006. This seems to contradict a recent statement by the commander of USTRANSCOM to the Senate Armed Services Committee. That testimony indicated that the U.S.

would have acquired the necessary lift to fight two wars by 2006.[107] The testimony indicated that the necessary airlift would come from additional C-17s and possibly from purchasing wide-body commercial aircraft. Whether the figures from the JCS, or the testimony of the USTRANSCOM commander is correct, the U.S. will remain short of strategic airlift until at least the year 2006.

A study conducted by the RAND corporation identified four options available to the U.S. to maintain airlift capacity. The first option is to extend the service life of the C-141 through the Service Life Extension Program (SLEP). The drawback to this option is that the C-141 requires longer airfields for landing than the C-17. Replacing the C-141 with the C-17 increases the ability to land at various remote locations.

The second option is to procure more C-5s. This option has the same drawback as the first option. The third option is to rely on CRAF Stage III. The drawback to this option is that it places increased reliance on an asset that faces an uncertain future. Additionally, CRAF aircraft are largely reliant on commercial airfields. Many nations are reluctant to allow large amounts of hazardous material to land at commercial airfields. Like options one and two, this greatly reduces the number of available airfields. The forth option is to complete the projected buy of 120 C-17s. This option provides the greatest flexibility and as much lift capacity as any of the other options.[108] As stated earlier, the C-17 is vital to the future of U.S. strategic airlift capability. The program needs to be straightened out and put on a reliable procurement schedule.

Future U.S. access to overseas airfields will remain critical. Airfields to use for en route basing will be an important determinant in closure times to crisis areas. USTRANSCOM evaluated the effects of losing en route basing on closure time to Southwest Asia. The evaluation showed that losing en route basing at Lajes, the Azores, Portugal, and Torrejon, Spain, would decrease throughput of million ton miles per day to SWA by 29%. The loss of those two bases and Rhein Main, Germany, would decrease throughput by 46% and increase closure time to SWA by 48%. The U.S. must not only acquire the necessary strategic lift assets, but also the rights to airfields and ports to facilitate their use.

Future of Strategic Sealift

The ability to move massive amounts of large, heavy cargo will continue to make strategic sealift an indispensable part of the mobility triad. New ships that are currently being designed will make sealift faster and more responsive. In the near term, strategic sealift will become more flexible through an increase in the afloat prepositioning force ships (APF) program. Like strategic airlift, strategic sealift faces potential problem areas in the future. The long term availability of commercial sealift assets is troubling. The Mobility Requirements Study outlined a plan to increase sealift capability over the next several years. The remainder of this section will discuss that plan.

An important part of the MRS plan for future sealift assets is the acquisition, through construction or conversion, of 20 Large Medium Speed Roll On Roll Off (LMSR) ships. Nine of these ships will be used in the APS program.

They will replace the interim ships that are currently stationed in the Indian Ocean, loaded with a heavy brigade of unit equipment (UE). The other 11 LMSR ships will be maintained in a high state of readiness on the East and Gulf Coasts to facilitate the rapid deployment of combat UE, support UE, and other supplies of reinforcing heavy divisions from the U.S. to crisis areas. The LMSRs will have 324,000 square feet of gross cargo space, approximately two to three time the capacity of most other sealift assets. The MRS called for the LMSRs to be added to the RRF by FY98. Five container ships have already been purchased and are undergoing conversion to LMSR configuration.[109]

A critical aspect of the LMSR program is that the ships must have the capability to maintain an average speed of 24 knots. As part of the MRS an analysis was conducted to determine the required speed for sealift assets. The study concluded that 24 knots was the minimum speed required to close the necessary reinforcing heavy combat forces in the critical early and middle delivery periods of a crisis. Speeds of less than 24 knots increase the risk to forces that are deployed early.[110]

The MRS also described the need to expand the Ready Reserve Force (RRF) to 142 total ships by FY 99, and to increase the readiness of the entire RRF fleet. The plan calls for 63 of the ships to be maintained in a high readiness state, with 36 ships activated within four days, and 27 activated within five days. Thirty-nine more ships would be activated within 10 days, and the final 40 ships activated within 20 days. Future projections call for the RRF to have the capability

to lift approximately 300,000 to 325,000 STONs of UE.[111] Some of the ships called for by the MRS have already been acquired, and the plan appears to be on schedule.

The APF program is critical to the future ability of the U.S. to execute the two MRC strategy. As mentioned earlier, nine of the new LMSR ships are scheduled to be part of the Army afloat prepositioning ships (APS) program. The nine LMSR will contain a heavy Army brigade composed of two battalions of tanks, two battalions of mechanized infantry, one battalion each of artillery and engineers, and a combat support battalion. The brigade is also reinforced with one battery each of multiple launch rocket systems (MLRS) and air defense artillery (ADA), as well as military intelligence and military police assets.[112] In addition to these assets, current plans call for the ships to carry enough theater level CSS assets for 30 days of sustainment. Once complete, the Army envisions this brigade and its support assets to have the capability to be operational in a crisis area by C+15. This program is projected to be fully operational by FY98. The U.S. is currently negotiating for the right to base the brigade afloat ships in Thailand. Basing in Thailand would place the ships half way between Northeast Asia and Southwest Asia.

The Mobility Requirement Study identified a need for the LMSRs in the APS program to be able to sustain 24 knots for two critical reasons. The first reason is that at speeds less than 24 knots the ships would have increased sailing time that would slow delivery time during the initial critical stages of conflict. The

second reason is that the ships will need to make a second sailing to the U.S. to pick up and subsequently deliver additional heavy forces to the crisis area. This capability will enable the U.S. to prevail in an MRC in eight weeks.[113] The BUR identified two primary regions where the U.S. must be prepared to fight MRCs. The two regions are Southwest Asia, and Northeast Asia. The APS assets are likely to be positioned in these areas.

The future condition of U.S. commercial sealift is of great concern to strategic mobility planners. As previously mentioned, commercial sealift in the U.S. has been in a long state of decline. If current trends continue, by the year 2010 there may be fewer than 100 privately owned U.S. flag dry cargo ships. Of those 100 or so ships, two-thirds are projected to be employed in commercial operations, the remainder will be under long term government charter. The majority of the ships are likely to be container ships which are not as useful for carrying UE as earlier model ship designs. Most military UE will not fit in standard ship containers, and the ships are not designed to carry vehicles. In order to be militarily useful, these container ships will require some type of modification.[114]

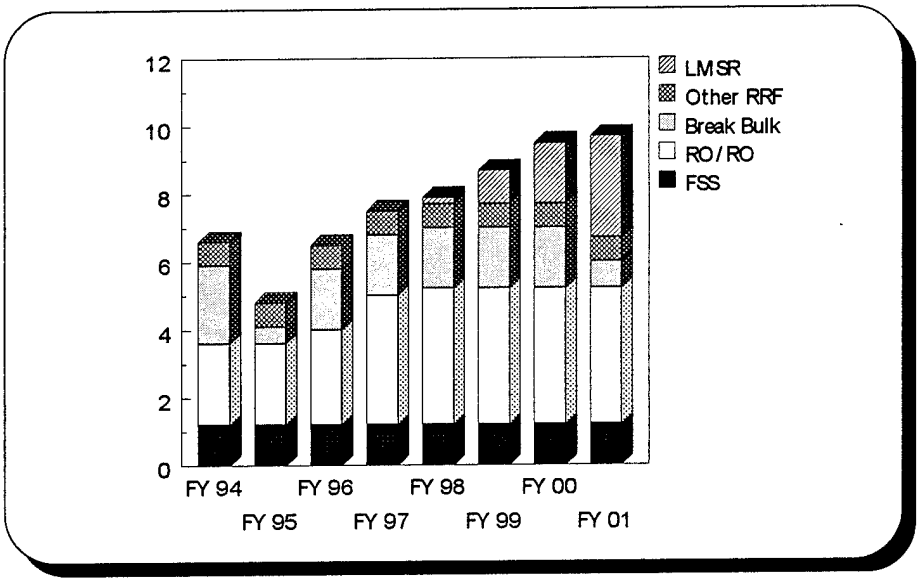
DOD is currently considering options to compensate for the limitations of future commercial sealift fleets. One option is the Flatrack and Seashed program. This program would provide modules that could be inserted into the container ship cells so that the ships could carry UE. Although this program would make the ships militarily useful, it also has drawbacks. The primary problem is the time that

it takes to modify the ships. These container ships are only available when requisitioned for a major conflict. Once the ships are requisitioned it will take time for them to return to the U.S. from where ever they are operating in the world. Once they return to the U.S., the ships will then have to be modified with the inserts. This whole process will be time consuming and degrade the ability of these ships to deliver military UE in a timely manner. The second option is the Auxiliary Crane Ship program. This program would outfit ships with cranes to provide the ability to load and unload ships when shore-side cranes are not available.[115]

Between the existing Fast Sealift Ships, Maritime Prepositioning Ships, and planned enhancement in the Ready Reserve Fleet and Afloat Prepositioning Ship program, future organic military sealift assets will be able to lift about 475,000 STONs of UE. This organic capability, coupled with U.S. flag merchant ships, are projected to have a total lift capacity of approximately 785,000 STONs in the year 2010.[116] The decline in U.S. commercial sealift vessels makes the acquisition of the LMSRs even more critical. The acquisition of the 20 LMSRs and other roll on roll off ships is projected to increase U.S. strategic sealift from a current capacity of 6.8 million square feet to 10 million square feet. The military will depend on these ships to provide timely lift for heavy division UE. The new LMSR, coupled with the eight existing FSS, will form the backbone of sealift assets. Losing the ability to acquire the LMSRs would result in assuming greater risk in future MRCs. The ships are especially critical to U.S. ability to execute the two MRC strategy.[117]

Overall, current consensus seems to indicate that the U.S. will have adequate strategic sealift capacity by the year 2001. General Robert Rutherford, commander of USTRANSCOM, testified that the U.S. will achieve the required 10 million square feet of sealift cargo space by that time.[118] Figure 2 illustrates the sealift assets that will be added through FY 2001 to reach the required 10 million square feet of cargo capacity.

Figure 2
Surge Sealift[119]



As stated earlier, meeting the requirement depends upon completing the acquisition of designated sealift assets.

Future Prepositioning

The U.S. is continuing to reshape its prepositioned forces around the world. Emphasis in the future will probably continue to be on smaller sets of equipment located in critical areas. Prepositioning of equipment in critical areas will continue to ease the requirements for strategic lift assets.

The U.S. is currently negotiating with the United Arab Emirates (UAE) for basing rights to preposition an armor brigade size set of UE in the country. Facilities are under construction in Qatar that will also contain a brigade set of UE. The facilities in Qatar are scheduled for completion in 1999. New permanent facilities are also under construction in Kuwait for the brigade set that is already prepositioned there.[120] If the U.S. succeeds in winning basing rights in the UAE it will eventually have three brigades worth of UE spread among Kuwait, Qatar, and UAE. Long range plans call for the U.S. to have eventually eight sets of brigade size UE located around the world in Korea, Italy, Germany, Kuwait, Qatar, and UAE. The locations of this equipment matches the areas identified in the BUR as critical regions where the U.S. must be able to fight.

VII. Conclusions

The U.S. currently lacks the necessary strategic lift assets to conduct two nearly simultaneous MRCs. This conclusion is based on the fact that the U.S. is short of critical requirements in airlift and sealift. The U.S. requires 57 million-ton-miles per day of strategic airlift capability. Current capability is between 48 to 50 MTM/D. The U.S. requires 10 million square feet of strategic sealift cargo space. Current capability is between 5 to 6.5 million square feet. The shortfall in sealift is especially critical because of the need to move large amounts of heavy equipment. The shortfalls in sufficiency of airlift and sealift result in inadequate speed of deployment.

An article in Forbes states that the U.S. is short of fast transport ships and air transport. The same article cites a warning from the Congressional Budget Office that "....Most of the U.S. military capability would not arrive at a regional conflict until at least three months after it began--i.e., quite possibly too late."[121] Regarding the nearly-simultaneous two MRC strategy, another recent article states, "Senior officials are concerned that under scrutiny, it will be readily apparent that the force posture outlined by the '93 BUR does not support an ability to successfully carry out the strategy, perhaps not even in 1999, as the BUR said."[122] The same article states that ".... The military is still years away from getting the airlift and precision guided munitions it needs to support the two MRC strategy."[123] These articles concur with statements from senior military officials that strategic lift is "broken."

Several classified, joint-service wargames (known as "Nimble-Dancer") resulted in a revised "Hold-Hold-Win-Win" strategy. Wargame analysis led some military planners to conclude that, considering current capabilities, this revised strategy is more realistic than the "Win-Hold-Win" strategy.[124] Despite these gloomy assessments, there is hope for the future.

The U.S. is acquiring additional sealift assets that will increase total capacity to 10 million square feet of cargo space by 2001. Some of the needed ships have already been purchased, with more scheduled through 2001. The acquisition of the LMSRs will be especially critical to the rapid movement of heavy units. Airlift will take longer to fix. Current projections show airlift assets reaching the required 57 MTM/D around 2006. The near-term impact is reduced ability to project rapidly forces into a crisis area. Until the U.S. obtains adequate strategic lift assets it will remain in a window of vulnerability. The next section will discuss the risks associated with this window of vulnerability.

Risk

To a large extent, determining the amount of strategic lift assets required to conduct two nearly simultaneous MRCs depends upon understanding the risk of having inadequate forces during different phases of a contingency. A risk analysis of an MRC deployment is based on the amount of force that is available in each phase of the operation. The Mobility Requirement Study identified three risk phases: early, late, and support.

The early risk phase involves the first two weeks of a crisis period. During this phase the major risk is that the aggressor attacks early enough with sufficient strength to overrun key objectives before adequate U.S. and/or allied forces arrive in theater. It is particularly difficult to deploy heavy forces into theater within this two week period. In order to achieve low risk in this phase, the U.S. would need the ability to airlift significant heavy forces into theater. Even APS assets, the first sealift assets to arrive, are not expected to be operational until C+15.

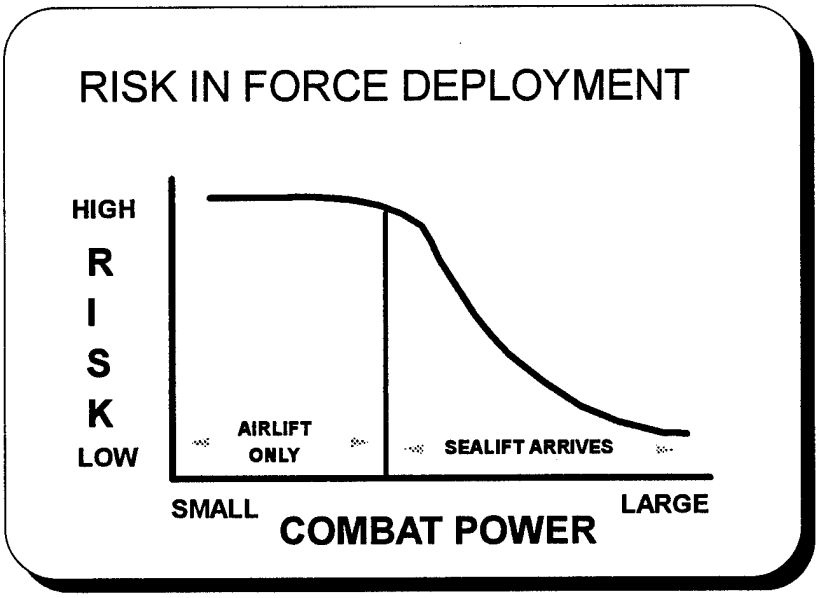
The late risk phase runs until about the eighth week of a crisis. The risk in this phase is that the enemy takes some decisive action prior to the U.S. and its coalition partners deploy sufficient forces to mount a counterattack. Such enemy action could be either causing unacceptable losses to U.S. forces, splitting the political coalition, or devastating the occupied territory. The key here is the amount of time necessary to build up sufficient forces to assume the offensive. In Operation Desert Shield/Desert Storm this build up period took six months. The longer the build up period takes, the greater the risk that occupied territory will be ravaged, or that fractures may develop among coalition partners.

The final phase is support risk. This period runs from the beginning until the end of the other phases. Support risk refers to the level of support equipment that is provided to deployed forces throughout the crisis. Deploying the necessary support equipment requires additional lift assets. Although Host Nation Support (HNS) can help lessen the requirement to deploy support equipment, HNS will often not be available. Minimum planning figures for support assets indicate that

for every ton of combat equipment deployed, one and a half tons of support equipment will be deployed.[125] Planning for adequate lift assets to deploy support equipment is equally important as planning for adequate combat forces.

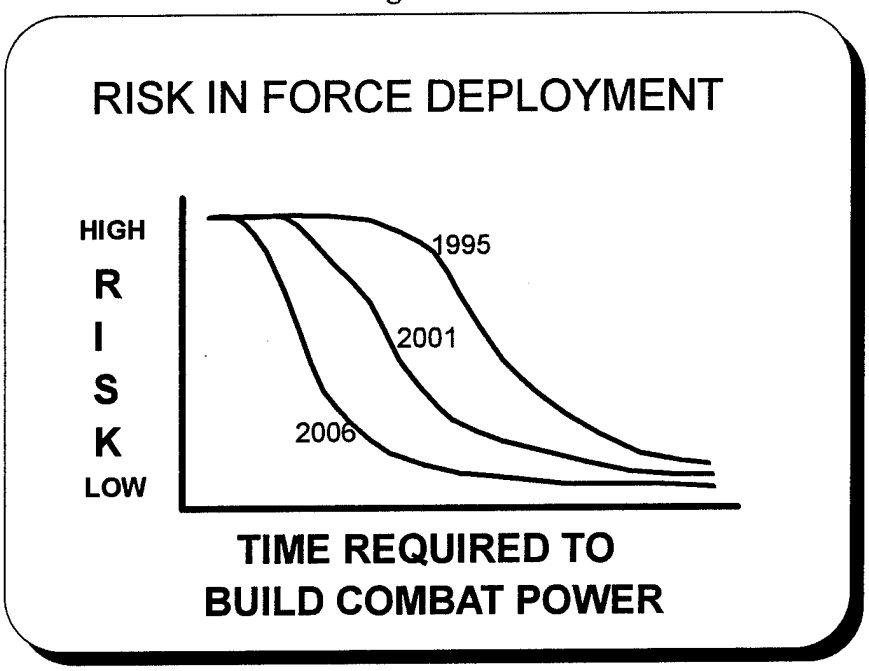
Risk is an important aspect of determining requirements for strategic mobility assets. The fewer mobility assets the U.S. has, the greater the risk accepted during each phase of the crisis. Trying to minimize risk must be weighed against the realities of limited budgets and other constraining factors. Currently, the U.S. can not execute the two nearly simultaneous MRC strategy without accepting high risk. The U.S. simply does not have the assets to deploy and sustain forces at a low or even moderate risk level. Figure 3 illustrates the relationship between risk and combat power. The initial period, prior to the arrival of sealift, represents the highest risk phase, because of an absence of heavy for

Figure 3



In order to minimize risk, the U.S. must have the necessary strategic lift assets to decrease the time required to build-up heavy forces in the crisis area. This can be accomplished mainly through sealift and prepositioning. Considering the fact that the U.S. will not have adequate sealift until at least 2001, and adequate airlift until at least 2006, another way of illustrating risk to deploying forces is represented in figure 4.

Figure 4



As illustrated in figure 4, U.S. forces will spend progressively less time at high and moderate risk levels as adequate strategic lift assets are acquired. If projected airlift and sealift assets are not acquired as planned, risk levels will remain higher. The length of time spent in the high risk are is dependent upon the speed and sufficiency of the available strategic lift assets.

Deterrence

As stated in the introduction, the purpose of the nearly simultaneous two MRC strategy is deterrence. The U.S. wants to deter other nations from using U.S. involvement in one conflict as an opportunity to carry out aggressive acts in another region. A prime example is a nation such as North Korea attacking South Korea if the U.S. is previously involved in Southwest Asia. However, the deterrence value of the two MRC strategy may have already been lost. In order for deterrence to be effective, the target audience must believe that there is a creditable threat. In other words, for the two MRC strategy to be effective, potential adversaries must believe that the U.S. can execute two nearly simultaneous MRCs. Once other countries do not believe the U.S. can execute the two MRC strategy, it no longer has a deterrent value. Even if the U.S. actually can successfully execute two MRCs, if potential adversaries do not believe that the U.S. possesses the capability, the deterrent has failed. The deterrent value of the two MRC strategy may already be ineffective because so much literature is available which indicates that the U.S. can not execute the strategy.

Impact on Operational Art

The availablity of strategic lift has an enormous impact on the ability to apply operational art. According to Dr. James J. Schneider, theory professor at the U.S. Army School of Advanced Military Studies (SAMS) and author of Vulcan's Anvil: The American Civil War and the Emergence of Operational Art, "operational art is the creative use of distributed operations for the purposes of

strategy." He believes that operational art is manifested through eight key attributes: distributed operations, distrubuted campaigns, continuous logistics, instantaneous command and control, operationally durable formations, operational vision, distributed enemy, and distributed depolyment. Strategic lift directly effects at least one of these attributes, namely *continous logistics*.

Dr. Schneider defined continuous logisitics as the ability to support successive operations. Without successive operations and the logistical endurance necessary to support them, there could be no true campaign. At best, one could plan a series of disjointed military operations, characterized by frequent pauses and loss of momentum due to logistical shortfalls.

Thus, in modern warfare, logistical endurance at the operational level is inextricably linked to the national industrial bases of the warring factions. The resources that bridge the gap between the industrial bases and the military are the nation's strategic lift assets. These assets deliver the suppiles, equipment, and materiel required to sustain military operations. In a two MRC scenario, the availibilty of strategic lift assets, and hence the capability to rapidly move cargo from CONUS to the areas of conflict, could dramatically affect the development and execution of campaign plans. "Without the condition of successive or nearly continuous logistics, operational formations do not possess sufficient endurance to conduct distributed operations."[126]

In essence, strategic lift links the CONUS industrial base to the campaign theater(s). It provides the strategic logistics support so vital to the sustainment of

continuous and successive large-scale military operations. Schneider believes, "Every artist is ultimately constrained by the quality and quantity of his materiel. In military art, this increasingly becomes the realm of logisitics." The success of the two MRC power projection strategy hinges on the U.S.'s strategic lift capability. Unfortunately, the nation's strategic lift capability is out of step with its military strategy. We do not possess the means to conduct two nearly simultaneous MRCs.

VIII. Recommendations

The magnitude of the U.S.'s strategic lift problem, complicated by the military's current budgetary constraints, makes finding solutions extremely difficult. However, there are several considerations that could minimize the nation's vulnerability. *First*, DOD should reassess the results of the BUR. Almost every major study of the nation's strategic lift capability concludes that the U.S. cannot conduct two nearly simultaneous MRCs. Inherent in this reassessment is the idea that DOD must be willing to change the National Military Strategy, if necessary, to reflect our current capabilities. As mentioned earlier in the monograph, consideration is already being given to a Hold-Hold-Win-Win strategy to replace our current Win-Hold-Win strategy.

Second, DOD should reprioritize its purchase of strategic lift assets. Currently, only a portion of the scheduled strategic sealift and airlift purchases are actually funded. In all likelihood, future fiscal demands will reduce the number of C-17s and LMSRs the military can afford to buy. Another potential outcome is an increase in the length of time over which the buys will occur. Instead of the sealift problem being fixed by 2001 and the airlift problem by 2006, DOD may be forced to push the timelines back another five years or more. DOD may also become fiscally constrained to fixing only legs of the triad at a time. Each of these possibilities requires DOD to reexamine and possibly reprioritize its scheduled purchase of strategic lift assets.

Third, DOD should consider increasing the amount of APS and MPS. APS and MPS will afford the U.S. greater power projection flexibility and enhance our ability to respond to crisis situations. As the military continues to downsize and as the timeline for sealift and airlift purchases lengthens, APS and MPS become increasingly valuable. As opposed to land based propositioned stocks such as POMCUS, APS and MPS can move to any potential area of conflict. Increasing APS and MPS would provide greater flexibility and speed in response to MRCs, and reduce the size of our window of vulnerability.

Finally, the U.S. should expand its use of LOGCAP and HNS. These methods greatly reduce the amount of strategic lift required, especially at the onset of hostilities. LOGCAP, in particular, will become invaluable for response to Operations Other Than War (OOTW). It is conceivable that LOGCAP will provide the bulk of the logistics support in certain types of OOTW situations or reduce the amount of time U.S. forces will remain in an area of operations. In Disaster Relief, for example, perhaps U.S. combat forces may deploy and receive the bulk of their logistics support from LOGCAP, minimizing the requirement to deploy organic combat service support (CSS) elements. Once the disaster relief situation is stabilized and the remaining requirement is primarily logistics in nature-providing water, food, and medical services- U.S. forces could redeploy. U.S.-sponsored LOGCAP could remain to continue the mission that deployed CSS units would ordinarily perform. This would reduce the amount of strategic lift for deployment and redeployment forces. It would also reduce the length of the

deployment and number of forces committed. Given the number of OOTW missions the U.S. continues to perform, the military must make even greater use of HNS and LOGCAP. Each of these considerations is critical to maintaining the nation's capability to project global power.

GLOSSARY

ACL	Allowable cabin load
AMC	Air Mobility Command
APS	Afloat prepositioning ships
BUR	Bottom-Up Review
CENTCOM	Central Command
CFC	Combined forces command
CINC	Commander-in-chief
CONUS	Continental United States
CRAF	Civil reserve air fleet
DOD	Department of Defense
FSS	Fast sealift ship
FY	Fiscal Year
GAO	General Accounting Office
HNS	Host nation support
LMSR	Large medium speed roll on roll off
LOC	Line of communication
LOGCAP	Logistics civilian augmentation program
MACOM	Major Army command
MEB	Marine Expeditionary Brigade
MOB	Main operating base
MPS	Maritime prepositioning ships
MRC	Major regional conflict
MRS	Mobility Requirements Study
MSC	Military Sealift Command
MTMCTEA	Military Traffic Management Transportation Engineering Agency
MTM/D	Million-ton-miles per day
NSSCS	Non-self-sustaining containerships
ODS	Operation Desert Shield/Storm
PAX	Passengers
POMCUS	Prepositioned equipment in Europe
PW	Prairie Warrior
RRF	Ready reserve force
RORO	Roll on roll off
STON	Short ton
TRANSCOM	Transportation Command
UE	Unit equipment

ENDNOTES

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