

USAWC STRATEGY RESEARCH PROJECT

**THE CONTINUED EVOLUTION OF THE AIR MOBILITY COMMAND**

by

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## **ABSTRACT**

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The Air Force has invested heavily in rapid global mobility to support execution of America's strategic operational plans. This paper will examine today's force structure and its ability to meet the ever growing challenges. This paper will also synopsise Air Mobility Command's (AMC) past missions and the search to determine the true requirements for the airlift fleet. The results of my research will provide a flightpath for the future AMC as it continues to transform to meet our nation's power projection challenges.



## THE CONTINUED EVOLUTION OF THE AIR MOBILITY COMMAND

The secret of success is to get there first with the most.<sup>1</sup>

- General Nathan Forrest, 1862

It is a chain of events, made up by the variety of capabilities that our nation possesses with airlift, that is unmatched by any other country in the world. "We do it routinely and make it look easy, but in fact it's quite a tribute to the airmen who make it all work."<sup>2</sup>

- Major General David Deptula, April 2005

As the global war on terror continues, our forces are in distant countries fighting organized terrorists who seek to destroy our nation and destabilize the world. Military operations in these austere places are challenged by the need to deploy and supply troops over great distances. Airlift is a precious lifeline that keeps them fed and equipped, brings the wounded home, and eventually, brings our forces home.<sup>3</sup>

- Senator Jim Saxton, 4 April 2005

### The Challenge

Today's military supports humanitarian relief efforts in Africa, international tsunami relief in the Pacific, deters an invasion by North Korea, and conducts simultaneous combat operations in Afghanistan and Iraq, among other international and interagency efforts in the global war on terror. Our National Defense Strategy has established four strategic objectives: secure the United States from direct attack; secure strategic access and maintain global freedom of action; establish security conditions conducive to a favorable international order; and strengthen alliances and partnerships to contend with common challenges.<sup>4</sup> The foundation of our military's success is the ability to project United States of America's global power. No other nation in our history can match the United States' global reach.

Whether it is projecting global power, such as in Operation ENDURING FREEDOM, Operation IRAQI FREEDOM, or our commitment to humanitarian efforts, for 50 years we have responded to cries of suffering and have helped alleviate suffering by bringing aid, clothes, food, medicine, or rebuilding supplies. We had an airlift designed to move large contingents of troops and weapons for battle, but could also transport people and supplies for peace.

### History of Humanitarian Airlift

The first major challenge for the U.S. Air Force after its' birth as an independent service in 1947 was delivering supplies to Berlin. The massive airlift was the largest humanitarian operation ever undertaken by the Air Force. The more than 2.3 million tons of supplies flown into the city, over approximately 10 months, dwarf all future operations. Even the airlift to war-torn Sarajevo between 1992 and 1997 brought in only 179,910 tons—less than the amount flown into Berlin in one month alone.

	Flights	Cargo (short tons)				Passengers	
		Total	Food	Coal	Other	In	Out
<b>USA</b>	189,963	1,783,573	296,319	1,421,119	66,135	25,263	37,486
<b>UK</b>	87,841	541,937	240,386	164,911	136,640	34,815	130,091
<b>France</b>	424	896	unk	unk	unk	10,000	
<b>Total</b>	278,228	2,326,406					

TABLE 1: BERLIN AIRLIFT STATISTICS.<sup>5</sup>

British Foreign Minister Ernest Brevin proposed a massive airlift that would use military planes to fly supplies into the city. Berlin needed at least 2,000 tons of supplies per day for the most basic subsistence. The U.S. Air Force in Europe, however, had only 100 Douglas C-47 "Gooney Bird" planes available, barely enough to fly in supplies for Berlin-based U.S. personnel. The project, called Operation Little Vittles, delivered 23 tons of treats to children all over West Berlin. On May 12, 1949, after more than 2.3 million tons of cargo, and 277,685 flights, the Soviets relented and reopened the ground routes. In an effort to end western presence in their territory, they had succeeded only in embarrassing themselves. The airlift officially ended on September 30, 1949. During the entire operation 17 American and 7 British planes were lost due to crashes. Aircraft specifically designed for air cargo operations were designed based on the lessons of Operation Vittles: the Lockheed C-130 Hercules, C-141 Starlifter, C-5 Galaxy, and the Boeing C-17 Globemaster III, which can carry more than 17 times the amount of cargo as a Skymaster.<sup>6</sup>

PAYLOAD COMPARISON, BERLIN AIRLIFT AND CURRENT USAF AIRCRAFT	
Aircraft	Payload (pounds)
C-47	6,000
C-54	19,000
C-5	261,000
C-130	41,790
C-141	68,725
C-17	170,400

TABLE 2: AIRCRAFT PAYLOAD COMPARISON.<sup>7</sup>

The historical significance of this lift is evident today. The proven need for larger transports with their ability to haul enormous loads led to the development of the C-141, C-5, and C-17; the need to unify airlift under one major Air Force command gave birth to Military Airlift Command and later AMC; the need for joint logistics led directly to the establishment of United States Transportation Command; and the critical importance of airlift in national security strategy lifted its status to the level of bomber and fighter forces, although many “non mobility” folks today are still in denial.

We usually think of air power in terms of the ability to attack and destroy military targets in wartime, but the concept is really much broader than that. There is no better proof than what the United States Air Forces has done since 1945. In addition to combat and peacekeeping operations, the United States Air Force has conducted over 160 humanitarian relief operations, ranging from the Berlin Airlift and relief in the Balkans to responding to natural disasters. At the same time it supported peace and stability operations as the cornerstone of the NATO alliance and saved lives throughout the world. In fact, it conducted its first humanitarian operation before the guns in the Second World War had fallen silent, when it joined the Royal Air Force in a combined operation to drop food to the starving people of Nazi-occupied Holland in April and May of 1945. There is no doubt that no nation has been as active as the United States in providing disaster assistance and similar supportive activities and undoubtedly continued to make unique contributions in the years ahead.

In 1982, Military Airlift Command airlifted 87 tons of supplies -- tents, blankets, medical supplies, and generators -- to earthquake victims in the Yemen Arab Republic. In 1985, eight C-141s carried more than 212 tons of food, tents, water tanks, and medical supplies from Italy to Kassala, Sudan. This relief effort was in response to the needs of 100,000 Ethiopian refugees fleeing from famine in Niger and Mali. In 1989, two C-130s transported 31 tons of medical supplies to Bucharest, Romania, for treatment of civilians wounded in a violent anticommunist revolution.<sup>8</sup>

When the Iraqi Army suppressed a Kurdish rebellion in March 1991 more than 500,000 Kurds fled to the Turkish border. To bring relief to the refugees and encourage them to return home, the United States initiated Operation Provide Comfort in April 1991. Provide Comfort sustained hundreds of thousands of Kurdish refugees. Also in 1991 when the Soviet Union dissolved into 15 separate republics, 70 years of socialism led to dire poverty and hunger. To deliver emergency aid and encourage movement toward democracy, the United States initiated Operation Provide Hope in February 1992 flying sixty-five C-5 and C-141 missions delivering 2,363 tons of food and medical supplies to 24 Commonwealth of Independent States.<sup>9</sup>

As seen in Somalia, humanitarian assistance does have its dangers. By 1992 another relief operation started -- Operation PROVIDE PROMISE. An ethnic war had erupted in Bosnia, and by July 1992, the U.S. had launched the effort to airlift food and medical supplies to the people of Sarajevo. Provide Promise became one of the largest Air Force humanitarian airlifts in history. In October 1993, it surpassed in duration the Berlin Airlift. The humanitarian airlift and the enforcement of the no-fly zone helped reduce the death rate among Bosnians and retarded the spread of the conflict. In need of a peacekeeping force to help end the bloodshed, efforts in Bosnia later expanded to Operation Joint Endeavor.

Later, in August 1992, Operation PROVIDE RELIEF kicked off in Somalia, where an estimated 2,000 people were starving to death daily.<sup>10</sup> At the end of the year, President Bush replaced Provide Relief with Operation Restore Hope, sending ground forces to Somalia to restrain gangs who threatened a fair distribution of the airlifted food. In addition, natural disasters also have required enormous relief efforts: cyclones in Bangladesh; Mount Pinatubo volcano eruption in the Philippines; an earthquake in Pakistan; hurricanes in Florida and the Virgin Islands; typhoons in Hawaii and Guam; floods in the United States midwest; and forest fires from Colorado to California, to name a few. From Berlin to Katrina, humanitarian airlift is a core task as old as the Air Force. It will continue to remain as such as long as natural disasters and political crises provoke human suffering.

#### What Is the Requirement for Intertheater Airlift

The ability to project military power over great distances is a central tenet of the U.S. national military strategy and the massive military buildup before Operation Desert Storm highlighted the value of strategic airlift. American aircraft moved over 500,000 troops and 543,000 tons of cargo.<sup>11</sup> Intertheater airlift has also played a key role in recent conflicts. On April 10, 2003, the U.S. Transportation Command (USTRANSCOM) reported that it had exceeded its Operation DESERT STORM airlift operations by flying 16,213 missions for the most recent war in Iraq, Operation IRAQI FREEDOM (OIF). Air mobility sorties made up the majority of the 28,500 total sorties that have been flown during OIF and C-17s executed a much publicized airdrop of the 173rd Airborne Brigade into northern Iraq.<sup>12</sup> There are other transportation modes, such as sealift, that can deploy troops and equipment, but the strongest argument for using airlift instead of other modes is speed. Despite its importance, today's United States strategic airlift system is under stress. Over the past 10 years, the United States has reduced its Cold War infrastructure closing nearly 60% of its forward bases. Therefore, to maintain the same level of global engagement, United States forces must deploy more



frequently and over greater distances. Even prior to the September 11, 2001 terrorist attacks and resulting demands, the Air Force estimated that it deployed four times more frequently than it did prior to the Cold War. The main question to answer is how to measure what the required size of the airlift fleets. Before the fleet size is determined, the lift requirements must be analyzed.

One factor that highlights the difficulty of setting numerical requirements for strategic mobility is the difference in approaches between officials who plan for combat and those who plan for mobility. A recent Department of Defense (DoD) task force characterized the approach of warfighters as "just-in-case" planning, whereas DoD's mobility planners have tended to use "best-case" assessments of how much U.S. lift forces could deliver.<sup>13</sup> Today's airlift needs are substantially lower than those during the Cold War. In 1981, a DoD analysis known as the Congressionally Mandated Mobility Study (CMMS) calculated airlift needs for a contingency between NATO and the Warsaw Pact, along with other less demanding scenarios in the Persian Gulf and Iran. During the early 1980s, DoD set a goal of purchasing 66 million ton-miles per day of airlift capacity--more than twice the level that existed at the time. Congress invested a considerable amount of money to achieve that goal, including funds to buy C-5Bs and KC-10s and to develop the C-17 (originally with a planned purchase of 210 aircraft). But that substantial investment left DoD far short of its goal with around 50 MTM/D of airlift capacity. Even the 66 MTM/D goal was not nearly large enough to address what senior defense officials thought they would need for a conflict with the Soviet Union; that level was lowered because of fiscal realities.<sup>14</sup> Money is always the driving factor. Yet even with significant investments in airlift capacity during the 1980s, DoD never reached the lower level.

Operation DESERT SHIELD witnessed the most massive airlift in the history of air power. It was the first large strategic deployment of combat forces by air. By its sixth week, Operation DESERT SHIELD had surpassed the Berlin Airlift (1948-1949) in total ton-miles flown.<sup>15</sup> During the operation, the U.S. military had an existing shortfall in strategic transport aircraft. This shortfall was aggravated by the continuing low readiness of the C-5 airlifter, which had an average peacetime mission capable rate over the past five years of approximately 60 percent.<sup>16</sup> This led the USAF to conclude that tired "iron" is tired "iron". The C-141 was in no better condition as it neared retirement. The bottom line was Operation DESERT STORM literally flew the wings off both airlift workhorses. The C-17 was the next generation airlift platform but still in the development and procurement phases. The real question following Operation DESERT STORM was how to determine and defend the true amount of airlifters needed. In other words, what is the requirement?

Following Operation DESERT STORM, Congress directed an updated review of strategic mobility shortfalls associated with the conflict. The 1993 Mobility Requirements Study (MRS) established mobility requirements for the post-Cold War era. It defined baseline requirements for intertheater mobility and proposed a long-range investment plan to meet them. Specifically, the study validated the need for 120 C-17 aircraft and called for the acquisition of additional medium-speed sealift vessels and afloat prepositioning ships.<sup>17</sup> The Bottom-Up Review (BUR) reaffirmed the value of such enhancements and identified a need for additional prepositioning in Southwest Asia and Korea, to improve capabilities for very short-warning or nearly simultaneous conflicts. A follow-on study, conducted in 1995, updated the original MRS findings to reflect changes in force structure and warfighting strategy resulting from the 1993 BUR. The 1995 analysis, known formally as the Mobility Requirements Study Bottom-Up Review Update (MRS BURU), reaffirmed the need for increases in key mobility capabilities. In particular, it validated the original MRS recommendation for the procurement of additional ships for afloat prepositioning and for surge deployments of forces based in the continental United States (CONUS). MRS BURU also examined intertheater airlift requirements in detail. Based on the study's findings, DoD established an intertheater airlift objective of between 49 and 52 million ton-miles per day of cargo capacity.<sup>18</sup> The precise amount of airlift needed depends on the level of prepositioning that could be achieved overseas. The Department continued to evaluate prepositioning options, as well as other potential warfighting enhancements, that could result in changes to the airlift objective.

The 2005 Mobility Requirements Study further defined the lift requirements. In March 2001, AMC released an unclassified summary of its Mobility Requirements Study 05 (MRS-05), the first comprehensive mobility study in five years, and designed to identify U.S. airlift needs up to the year 2005. MRS-05's principal finding was that the goal set by the last mobility study, for an airlift fleet capable of moving 49.7 million ton miles per day (MTM/D) of personnel and cargo, was inadequate to meet the current national military strategy. MRS-05 recommended an airlift fleet capable of 54.5 MTM/D.<sup>19</sup> MRS-05 articulated that DoD needed 51.1 MTM/D of lift capacity to fight and win two nearly simultaneous major theater wars (MTWs). Three additional missions (conducting special operations, deploying theater missile defenses, and supporting non-combat theaters) were of the highest priority, and required an additional 3.4 MTM/D of lift capability: DoD's current strategic airlift capability was approximately 44.7 MTM/D, which was 5.0 MTM/D short of the 1995 goal, and nearly 10 MTM/D short of the MRS-05 goal.<sup>20</sup> AMC identified a number of missions and scenarios that would require up to 67 MTM/D of airlift capability. However, it recommended, and the Chairman of the Joint Chiefs of Staff and the

Service Chiefs agreed, that 54.5 MTM/D was the minimum-moderate risk capability. One Major Theater War scenario plus Intra-theater Outsized, Special Ops, Allied Support, JCS Priority support for other Combatant Commanders further supported the 54.5 MTM/D requirements. In terms of airlift force structure to support the 54.5 MTM/D requirement, 222 C-17s and 86 modified C-5s (Reliability Enhancement and Re-Engining Program (RERP) and Avionics Modernization Program enhancements (AMP)) was the most operationally effective way to get there. The Avionics Modernization Program will give the C-5 a new “glass cockpit” and the Reliability Enhancement and Re-Engining Program provides a new engine, the GE CF-6-80. Besides the Propulsion System replacement, improvements in structural integrity and an improved product support structure constitute a large step towards increasing fleet availability. Other hardware, operational, maintenance, and logistics management improvements will be considered to enhance reliability. These efforts are scheduled to be completed around 2018 and are expected to cost about \$10 billion.

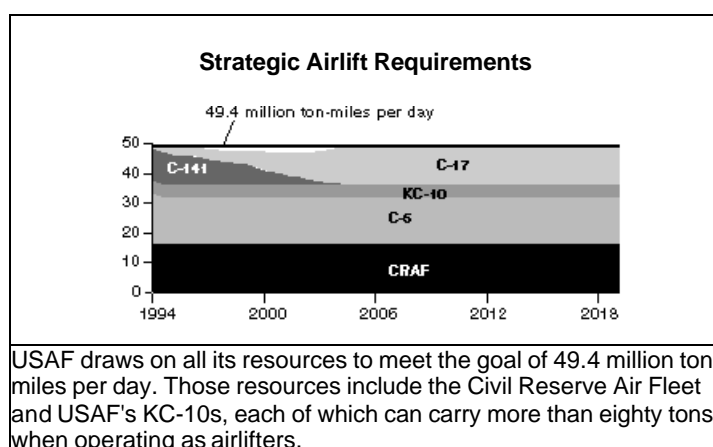


FIGURE 1: STRATEGIC AIRLIFT REQUIREMENT<sup>21</sup>

#### Current Force Structure

The 2001 Quadrennial Defense Review (QDR) states that our new approach to deterrence requires our forces to rapidly deploy and sustain forces that can decisively defeat any adversary.<sup>22</sup> As our military continues to transform from a legacy based system to a capabilities based system, the QDR states the United States will be tailored increasingly to maintain favorable regional balances in concert with our allies and friends with the aim of swiftly defeating attacks with only modest reinforcements. As seen during Operation DESERT STORM, this is a very optimistic assumption.<sup>23</sup>

The Air Force's current strategic airlift force consists mainly of 126 C-5A/B Galaxy and 138 C-17A Globemaster III jet transports. The C-5A was developed in the 1960s and is one of the world's largest operational aircraft, with a length of 248 feet and a wingspan stretching 223 feet capable of carrying 160,000 lbs of cargo up to 3,730 nautical miles with a maximum payload of 291,000 lbs. The C-5 can carry large and irregularly shaped cargo, such as the Army's 74-ton mobile scissors bridge, which no other U.S. aircraft can hold. Both the nose and aft ends of the C-5 open, facilitating rapid loading and off-loading. The last C-5A was delivered in 1973, and 50 C-5B models, which incorporated some improvements in reliability were purchased during the 1980s. The C-5 has been plagued by reliability problems; its mission capable rate for 2000 was 58 percent. The RERP and the Avionics Modernization Programs will help address these problems with the aging and reliability of the C-5 fleet.

Like the C-5, the C-17 can carry outsize and oversize cargo like helicopters and missile launchers. C-17A aircraft were produced starting in the mid-1990s, and a total of 180 are planned for delivery through 2010. Its maximum payload is 160,000 lbs which it can carry up to 2,400 nautical miles. Although the commander of the AMC has expressed a need for at least 42 more C-17As, no current plans exist to continue production beyond 180 aircraft.<sup>24</sup> The C-17 is replacing the C-141 on nearly a one-for-two basis, meaning that, although the tonnage that can be moved with the larger airplane is roughly the same, there are fewer individual aircraft to spread around the globe. General Robertson, previous AMC/CC, addressing the House Armed Services readiness subcommittee in October of last year, said "Even though tonnage capabilities remain close to the same, we lose tremendous flexibility with so many fewer tails." The 135 C-17s can only be in half as many places as 270 C-141s."<sup>25</sup>

Currently, in times of national emergency, the United States does not differentiate between the military airlift capabilities or the civilian capabilities. The ability to use both at the same time allows for the greatest flexibility, while maximizing mission accomplishment. The US Defense Production Act of 1950 provides the legal basis for the President to allocate industrial production and services to the Department of Defense during a national emergency.<sup>26</sup> One of the main reasons for Civilian Reserve Air Fleet (CRAF) development was the limitations of military airlift during the Korean War. However, CRAF was first used in Desert Shield and Desert Storm as a supplement to USAF intertheater airlift capabilities. The CRAF program represents a longstanding partnership between the Department of Defense and the U.S. aviation industry. CRAF airlines have provided essential support to the U.S. military since the Korean War. The CRAF airlift capability can be activated in three stages. Stage I may be activated by the Commander of USTRANSCOM to perform airlift services when AMC airlift force

cannot meet simultaneously both deployment and other traffic requirements. Stage II is an additional airlift expansion identified for an airlift emergency which does not warrant national mobilization but may be activated by authority of the SECDEF. Stage III makes available the total CRAF airlift capability when required for DoD operations during major military emergencies involving U.S. Forces. The SECDEF issues the order to activate CRAF stage III only after a national emergency has been declared by the President or Congress.<sup>27</sup> When CRAF was activated for the Persian Gulf War, two-thirds of the troops and one-quarter of the air cargo went by commercial air. Today, the CRAF airlines are supporting Operation IRAQI FREEDOM and are committing nearly double the amount of commercial aircraft required by DoD for its most demanding war plans. When CRAF is activated, AMC assumes mission control, but the carriers continue to operate and support the aircraft (support includes fuel, spare parts, and maintenance).

Stage I was activated for the first and only time on August 17, 1990, during Operation DESERT SHIELD. Stage II was activated on January 17, 1991, for Operation DESERT STORM. The total number of aircraft committed to CRAF (see table 1) accounts for about 15 percent of all U.S.-owned commercial aircraft forecasted for 2003.<sup>28</sup> Below is the total number of aircraft each has committed through stage III as of October 2002.

	Cargo	Passenger	Aeromedical	Total
Stage 1	31	47	0	78
Stage 2	95	171	25	291
Stage 3	271	610	46	927

TABLE 3: AMC DATA

What does CRAF bring to the fight? According to General John Handy, previous AMC/CC, CRAF is vital to the overall success of mobility operations. Gen Handy stated "Even before we activated CRAF, our commercial carriers volunteered their tremendous capability to airlift troops and cargo for DoD. We are thankful to these airlines that have played a major role in supporting U.S. military forces in Operation Iraqi Freedom. We simply could not have met the massive, fast-paced demands of our troop deployment without the dedication and determination of the men and women of CRAF." From February 8, 2003, to June 17, 2003, 11 CRAF commercial carriers flying 47 passenger aircraft completed over 1,625 missions and airlifted over 254,000 troops to destinations around the world. The majority of these missions were to the Middle East. During this same period, voluntary participation by 14 commercial carriers moved over 11,000 short tons of cargo in support of Operation IRAQI FREEDOM. As U.S. troops deploy to and return from Southwest Asia in the coming months, commercial

augmentation will provide the majority of passenger service and an increasing percentage of the cargo service as our organic airlift is designated for delivery into high-risk locations.”<sup>29</sup>

When analyzing CRAF capability and MRS requirements, more aircraft are committed to the CRAF program than are needed to fulfill the wartime requirements established by MRS-05. MRS-05 did not consider CRAF’s full capacity, and it set a ceiling of 20.0 million ton miles on daily CRAF airlift requirements. This 20.0 MTM/D is the delta between the MRS-05 54.5 MTM/D requirement and the capability of 180 C-17s (28.3 MTM/D) and intratheater and special mission capability (6.2 MTM/D).<sup>30</sup> But, the bulk of the intratheater and special mission requirement is based upon the C-130 capacity. On February 14, 2005, the Air Force announced that they were grounding nearly 100 C-130E models because of severe fatigue in their wings, including a dozen that had been flying missions in and out of Iraq and Afghanistan. Some of these planes were used in Vietnam, and were literally flying their wings off in the Middle East. The C-130 System Program Office at Robins Air Force Base in Georgia recommended the grounding after inspections of the center wing box structure, where the wings fit to the fuselage. Cracks appeared in the piece of the wing that supports the weight of the plane. Aircraft remain grounded until the center wing box is repaired or replaced or the aircraft are retired. The Air Force is considering redistributing some of the planes at other bases or with the Air National Guard. Instead of having 33 aircraft at a location, they might have 24 flyable ones and spread the wealth among the other bases. The cost of replacing the center wing box structure on an aircraft is \$9 million.<sup>31</sup>

According to DoD officials, the study restricted CRAF cargo capacity to 20.0 million ton miles per day because DoD’s airfields ability to accommodate only a specific number of aircraft at the same time. Also, they stated that using additional CRAF aircraft would reduce efficiency because of the type of cargo CRAF is modeled to carry. They said that commercial aircraft take longer to unload than military aircraft and require special material handling equipment to be available at an off-loading base. Military aircraft, on the other hand, do not need specialized loading equipment because they are high-winged and fuselage is lower to the ground.<sup>32</sup>

The first ever use of resources the CRAF was a resounding success and only minor changes have been recommended to further improve the program. However, since the events of 9/11 the program may require a slight tune-up. After the terrorist attacks of September 11, 2001, many air carriers experienced financial difficulties. This sparked concern about the fleet’s ability to respond, if activated, and prompted the subcommittee to ask GAO to determine whether the fleet could respond to an activation with the required number of aircraft and crews and in the required time frame. The subcommittee also wanted to know whether the incentives

used to attract and retain participants are effective.<sup>33</sup> It is hopeful that our economy will continue to support a healthy airline industry to ensure this vital capability continues to exist.

Looking beyond the MRS-05 timeframe, necessitates DoD to update these calculations to reflect the new factors that will drive changes in demands. Currently, DoD is programmed to buy 180 C-17s to be delivered by 2008. On balance these additions will significantly increase DoD's organic airlift capacity. General Handy, previous Commander of USTRANSCOM, had proposed that the acquisition of C-17s be continued beyond FY2008, in order to expand the inventory to at least 222 aircraft. During a recent visit to the Army War College, the current Commander of USTRANSCOM, stated the total inventory of C-17s should expand to approximately 200.

The new National Defense Strategy (NDS) and new Defense Planning Guidance (DPG) significantly impact mobility requirements. The NDS directs a force sized to defend the homeland, deter forward in and from four regions, and conduct two, overlapping "swift defeat" campaigns.<sup>34</sup> Even when tasked with a limited number of lesser contingencies, the military must be able to "win decisively" in one of the two campaigns. This "1-4-2-1" force-sizing construct places a premium on increasingly innovative and efficient methods to achieve objectives.<sup>35</sup> AMC is challenged to conduct and sustain operations among, between, and within this larger DPG scenario set (must support the links – en route system; and the nodes – support locations). Based upon this updated requirement, a new mobility requirements study is underway. This new study is referred to as the Mobility Capabilities Study (MCS). Though the study is scheduled to release during the first quarter of 2006, analysts at AMC have released the following assumptions made by MCS.

- MCS evaluated risks associated with programmed force structure versus assessment of COCOM requirements.
- MCS is a capability study versus a requirements study (MRS).
- MCS is fiscally constrained and programmed into the 2006 POM.
- MCS assumes that all weapon systems, all modernization/transformation initiatives, all manpower, all spares, and all readiness objectives are 100% funded between now and 2012.<sup>36</sup> With the new QDR, this may not be reality.
- Results of MCS are based on assessment of campaign warfighting models versus mobility delivery profiles and presumes the current 1-4-2-1 construct remains the philosophy.
- A fully resourced reserve component and CRAF Stage II will be fully utilized.

- MCS assumes the C-5 fleet modernization is complete and the mission capability rate in at least 75%.<sup>37</sup>

#### Future Demands

The QDR in 1997 represented a negotiated settlement providing adjustments to fix modernization funding problems through reductions in force structure and civilian manpower. It included consensus decisionmaking between the SECDEF and the Joint Chiefs of Staff (JCS), but many of the planned reductions never occurred (particularly those that affected the reserve components). QDR 1997 was important in the emergence of the impact of peacetime contingencies on resources for modernization. These operations had been identified in the BUR but were treated as lesser and included missions that could be dealt with within planned resources for major contingencies. During the review, the services and the Joint Staff made clear that the increasing scope of peacekeeping and other “smaller-scale contingencies”(SSCs) were causing serious problems. As a result, major force reductions to pay for modernization and transformation were essentially taken off the table. However, the requirement to be able to fight two nearly simultaneous major theater wars (MTWs) was not changed.

In terms of Major Regional Conflicts (MCR), mobility forces are vital to the deployment and sustainment of U.S. forces in any MRC. Should a conflict erupt with little warning, the United States would want to respond promptly and with sufficient strength to help indigenous forces halt the aggression and restore the peace. Airlift, augmented by prepositioning, would carry out the initial deployments. These first flights would deliver primarily aviation and light ground forces, plus some heavier ground elements. The remaining heavy combat forces would deploy by sea. However, the mix of equipment the DoD would airlift to a major regional contingency today differs from what it planned to send for a war against the Soviet Union. According to a 1981 study of mobility requirements, 27% (by weight) of the equipment that the DoD planned to send to a NATO/Warsaw Pact conflict within the first two weeks was outsized. By comparison, more recent simulations of deployments to Korea and the Persian Gulf region suggest the 15% to 18% of airlift deliveries over a similar period would be outsized. During the first month of Operation DESERT SHIELD, approximately 10% (by weight) of the cargo loads were outsize and half were bulk.<sup>38</sup> Though the majority of forces move by intertheater platforms, intratheater platforms, such as the C-130, play a critical role as well. Intratheater mobility forces were structured to move arriving forces to initial operating locations and support them over the course of the conflict, redeploying them as necessary to meet operational demands. In addition, intratheater forces contribute to other special missions, such as airdrops



and medical evacuations. Military operations other than war place additional demands on the airlift fleet.

Military interventions and peace operations, though smaller in scale than major conflicts, still place heavy demands on mobility forces. As in larger contingencies, mobility forces contribute both to the deployment and sustainment of forces. Depending on the location, significant amounts of material must sometimes be moved, particularly if troops are sent to a region where the infrastructure is limited and host nation support is either lacking or not immediately available.

To cite two recent examples: mobility forces supported the deployment of the U.S.-led multinational force to Haiti, and subsequently supported the United Nations mission there. Between September 1994 and November 1995, U.S. transport aircraft flew more than 1,750 missions to Haiti, delivering approximately 24,000 short tons of cargo and 55,000 passengers. Mobility forces also are playing a crucial role in deploying and sustaining U.S. forces participating in Operation JOINT ENDEAVOR in the former Republic of Yugoslavia. In the first six weeks of this operation, U.S. transport aircraft flew more than 1,600 missions into Bosnia and Herzegovina, Hungary, and other staging locations throughout Europe.<sup>39</sup>

For peacekeeping missions, the U.S. would deploy forces to maintain an existing truce, such as in the past United Nations operations in the Sinai. Defense officials believe that airlift fleets with as few as 40 C-17s could conduct deployments to a representative peacekeeping operation with little risk to achieve DoD's military objectives.<sup>40</sup> DoD's MCS analysis did not evaluate how many C-17s the U.S. would need if it became involved in several cases simultaneously. Though the relatively small number of C-17s would suffice for peacekeeping, peace enforcement is more demanding. In peace enforcement operations, the U.S. would deploy forces to aid regional combatants to fighting each other. DoD officials concluded that airlift fleets with 72 to 86 C-17s could complete deliveries to such an operation in a short enough time that U.S. forces would face moderate risk to achieve the desired end state. If U.S. airlift forces included 100 or more C-17s, defense officials believe they could complete deliveries quickly enough to keep the risk low.<sup>41</sup> Policymakers might find that higher level of risk acceptable if, for example, they believe that the timelines laid out by military planners are too ambitious. Consequently, as in the 1996 deployments to Bosnia, factors such as bad weather might keep the United States from completing more than a few airlift missions per day, thus keeping commanders from meeting their tight schedules.

Mobility forces are often the first on the scene with humanitarian assistance, bringing relief workers and supplies. The ability to respond rapidly to catastrophic events throughout the world

is a key requirement of this mission, as is the ability to operate in austere environments. In Bosnia and Herzegovina following the reopening of the Sarajevo airport in September 1995, the United States conducted 87 airlift missions, delivering almost 1,000 short tons of food and supplies. Mobility forces also are employed in response to domestic emergencies. US President George W. Bush, at a military briefing on Hurricane Rita, suggested that the armed forces should take over all government response efforts to some major natural disasters.<sup>42</sup> Since the Berlin airlift, the Air Force has been involved in humanitarian mission. In 1982, Military Airlift Command, now the Air Mobility Command, airlifted 87 tons of supplies -- tents, blankets, medical supplies, and generators -- to earthquake victims in the Yemen Arab Republic. In 1985, eight C-141s carried more than 212 tons of food, tents, water tanks, and medical supplies from Italy to Kassala, Sudan. This relief effort was in response to the needs of 100,000 Ethiopian refugees fleeing from famine in Niger and Mali. In 1989, two C-130s transported 31 tons of medical supplies to Bucharest, Romania, for treatment of civilians wounded in a violent anticommunist revolution. When the Iraqi Army suppressed a Kurdish rebellion in March 1991 more than 500,000 Kurds fled to the Turkish border. To bring relief to the refugees and encourage them to return home, the United States initiated Operation PROVIDE COMFORT in April 1991. Operation PROVIDE COMFORT sustained hundreds of thousands of Kurdish refugees. Also in 1991 when the Soviet Union dissolved into 15 separate republics, 70 years of socialism led to dire poverty and hunger. To deliver emergency aid and encourage movement toward democracy, the United States initiated Operation Provide Hope in February 1992. In 1992 another relief operation started -- Operation PROVIDE PROMISE. An ethnic war had erupted in Bosnia, and by July 1992, the U.S. had launched the effort to airlift food and medical supplies to the people of Sarajevo. PROVIDE PROMISE became one of the largest Air Force humanitarian airlift missions in history. In October 1993, it surpassed in duration the Berlin Airlift. Other humanitarian airlift operations saw Air Force members in Haiti, Rwanda, Panama, and Liberia. Domestically, in the aftermath of the April 1995 Oklahoma City bombing, U.S. military and commercial aircraft flew approximately 400 short tons of food and supplies to the city, along with more than 1,300 relief workers.<sup>43</sup>

Several natural disasters also have produced gargantuan relief efforts: cyclones in Bangladesh; Mount Pinatubo volcano eruption in the Philippines; an earthquake in India; hurricanes in Florida and the Virgin Islands; Typhoons in Hawaii and Guam; floods in the U.S. Midwest; and forest fires from Colorado to California, to name a few. Most recent was the tsunami disaster in the Pacific. The powerful earthquake and massive tsunami waves that devastated a huge area of Southeast Asia and killed more than 250,000 persons on Dec 26,

2005 triggered one of the most intensive and challenging humanitarian air operations since the Berlin Airlift, more than half a century earlier. During Operation UNIFIED ASSISTANCE, the U.S. airlift effort also eclipsed recent humanitarian relief missions in the amount of materiel it moved daily, averaging 522,000 pounds of food, water, and other critical supplies per day over the 47 days of intense operations. According to Maj Gen David A. Deptula, director of air and space operations for Pacific Air Forces, Air Force aircraft involved in the relief effort included 35 C-17s, 24 C-5s, 21 C-130s, six HH-60s, two KC-135s, and one C-21.<sup>44</sup> By the time the operation was declared closed, aircraft operating in the AMC system had flown a total of 106 missions to airlift 2,768 passengers and 3,370 short tons of cargo. The cargo was delivered primarily to Bandaranaike International Airport in Colombo, Sri Lanka, and U-Tapao Air Base, Thailand.<sup>45</sup> From Berlin to Bosnia, humanitarian airlift is a tradition as old as the Air Force. It will continue as long as natural disasters and political crises provoke human suffering.

Since 9/11, protecting the homeland has been the main focus. AMC played a significant role in supporting Operation NOBLE EAGLE and homeland security. Mobility assets are critical to Homeland Emergency Response Cells (HERCs) where AMC has flown more than 400 C-130 sorties since 9/11 involving 33 C-130 units; 3 active duty, 10 Air Force Reserve Command, and 20 Air National Guard units.

#### Recommendations

As stated in the National Security Strategy, the United States is fighting a war against terrorists of global reach<sup>46</sup>. In order to fight terrorism with global reach, our military forces must be global as well in order to protect the lives and safety of American citizens, maintain the sovereignty of the U.S. with its values, institutions and territory intact and promote the prosperity and well-being of the nation and its people.<sup>47</sup> The current Bush administration, while focusing on national security, does not provide a sound policy for humanitarian assistance operations. Vague policies fail to provide clear objectives (ends) for current and future engagements. Our policy for humanitarian intervention is rooted in multiple sources. As seen with the “non-action” taken during the genocide in Rwanda and the natural disasters abroad, the opportunities to be involved are great. The idea or concept of “selective engagement” should determine which crisis we involve our military forces. This strategy may reduce the demand on overall lift requirement (sea and air) however; when crisis do erupt the need for quick response will rely heavily on airlift. The “selective engagement” strategy and our transformation from a Cold War force, will alter our posture as we gear ourselves for the long battle against terrorism.

In retrospect, previous mobility requirement studies have determined a myriad of results. Obviously, our national military strategy drives our global engagement concepts which in turn drive force requirements. Since the acquisition lead time for high value items such as the C-17 is so long, it would behoove us to place a moratorium on changing our engagement strategy. With the end of the Cold War and the events of 9/11, the future role of mobility operations remain a concern. With the retirement of the C-141, the mobility fleet is faced with reduced mobility platforms (270 C-141Bs vs. 180 C-17s (programmed)).

What should happen now? We should continue to focus on modernizing our organic intertheater airlift fleet. This modernization effort centers around modifications (AMP and RERP) to the C-5 fleet and continued procurement of the C-17. The AMP and RERP modifications are expected to raise the C-5's reliability rate to nearly 75% vice the current rate that hovers in the 55-65% range. We should not plan to have a single platform (aircraft) for intertheater airlift because of the potential of a single problem that can ground the entire fleet. As seen in the 1990s, the entire C-141 fleet was grounded because of cracks in the wing box area. If the C-141 was our only intertheater platform, then our ability to project rapid mobility would not be possible. Luckily, AMC had the C-5 to help fill the airlift void left by the C-141 groundings. The C-17 production should continue to the MRS-05 stated requirement of 180 aircraft. Though, MRS-05 stated AMC could handle the 54.5 MTM/D requirements with a varied mix of C-5s and C-17s, the fact remains that the C-17 provides greater flexibility but the C-5 provides greater capacity.

It is argued that the MTM/D requirement can be lowered because strategic airlift capacity is not the limiting deployment factor. Instead, the ability to move forces may be limited by too few airfields and inadequate airfield infrastructure. Therefore, acquiring more strategic airlifters might not only fail to satisfy airlift shortcomings but employing them could actually exacerbate deployment problems. Base opening support and control teams, which are AMC assets, are critical to our ability to project rapid global mobility. Especially as we drawdown our OCONUS infrastructure, we will increase reliance of the ability to project power from the continental US. This is also essential as we rely on our CRAF partners. During Operations DESERT SHIELD and DESERT STORM, tactical ballistic missile attacks and the threatened use of weapons of mass destruction altered how CRAF was employed. The threat of global terrorism also will alter how we use CRAF in the future. In order to reduce risks and preserve the viability of the CRAF program, DoD needs to begin to plan and prepare for using CRAF in such hostile scenarios. One solution would be for DoD to fly some or all CRAF aircraft to relatively secure intermediate support bases and to trans-load cargo and passengers to military aircraft for movement to

forward sites. This is how operations have been conducted for Operation Enduring Freedom, where the military has relied on major CRAF augmentation, but without U.S. airlines operating directly into that country. These trans-load operations again will increase the reliance on base opening support and control teams.

The next mobility requirements study (mobility capabilities study) is slated to release in early 2006. Hopefully, that study will examine the needed requirement to simultaneously execute a MRC, SSC and a major relief effort in the CONUS and abroad. Past studies have looked at the myriad of demands such as MRC, SSC, or humanitarian operations in a vacuum. Up to this point, no study has linked together all the requirements placed upon the fleet. The next airlift requirements study needs to look at all the requirements as a single entity. Whatever the determined requirement is, it should drive our programming and planning for our future force structure. For example, if the true mobility requirement is 54.5 MTM/D then we should ensure our organic as well as civil assets are capable to meet the requirement. Bottom line is the current or planned structure should not drive the requirement.

The events of 9/11 provided the impetus to redirect our strategic direction. Transforming to meet the challenges and opportunities of the 21<sup>st</sup> century will ensure our ability to execute our national grand strategy. This transformation should continue to focus on a capabilities-based mindset. Also, we must be able to calculate and manage risk. Because of fiscal realities, we can never completely minimize risk. As AMC transforms into a post Cold War force, we should resist the temptation to reduce our force structure. With the increase potential of disasters around the globe, reduced overseas presence, and the global war of terror, AMC will play a greater role in projecting and sustaining our military forces. The call to "1 800 U Call We Haul" will continue to be the cry for help for a long time to come!

#### Endnotes

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