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Key Points

The current U.S. airlift system lacks the capacity and capability to deliver and sustain air and surface combat forces in a future conflict against a peer competitor. These airlift shortfalls are a product of decades of neglect, delayed modernization and recapitalization, inadequate budgets, and hard use in combat and global contingency operations.

The U.S. Air Force is responsible for the majority of inter-theater airlift. Other service airlift fleets are mainly outfitted for their service-specific missions and are inadequate to meet the military's global airlift demands.

Airlift shortfalls are exacerbated by ballooning airlift demand from new service operational concepts and challenging environments, as well as low mission-capability rates.

A solution requires a long-term plan to restore the U.S. airlift enterprise to health, much less fulfill the growing demands of a potential peer conflict.

The U.S. Air Force and Air Mobility Command (AMC) require a significant commitment of funds and other resources to modernize legacy aircraft, procure new aircraft, and increase mission-capable rates.

The DOW should exploit the potential benefits of expanding the Civil Reserve Air Fleet (CRAF), while also exploring the positive potential inherent with public-private partnerships. This could help airlift capacity surge in the event of a major war.

It's Time to Invest: Enhancing Current and Future U.S. Air Force Airlift

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Abstract

The current U.S. airlift system lacks the capacity and does not have the right mix of mobility aircraft to deliver and sustain air and surface combat forces in a future conflict against a peer competitor in a highly contested environment. At the same time, emerging service operational concepts and the sheer expanse of the Indo-Pacific theater place greater stress on this strained mission. The decline of the nation's military airlift enterprise severely compromises the nation's ability to conduct operations across the globe and places the entire American military at risk of failure.

The Department of War (DOW) and the Air Force must take immediate action to expand and sustain the capacities of the airlift system. However, restoring the nation's military airlift fleet to adequacy will still require years of committed investment and improvement to overcome decades of underfunding and patchwork investments, resulting in airlift shortfalls.

The Air Force must develop and commit to a plan that will restore the nation's mobility backbone, its air mobility fleet. This should include:

1. An increase to the Air Force's budget to modernize legacy AMC airlift fleets with the datalinks and battlespace situational awareness equipment they need to be more survivable and more effective.
2. An increase in Air Mobility Command (AMC) sustainment funding to increase mission availability.
3. An increase in the civil contribution to the national airlift system, through an expansion of the Civil Air Reserve Fleet (CRAF) and public-private partnerships.
4. Additional U.S. Air Force funding to develop, procure, and field a fleet of new air transport aircraft that will be capable of moving more equipment and personnel faster, into a wider range of places, and in high-threat environments.

“The balanced air force will always, therefore, possess a large fleet of cargo and transport planes.”

-Lt General Henry H. Arnold and Maj General Ira C. Eaker, Winged Warfare, 1941

Introduction: Shortfalls in Airlift Capacity Pose Risk for All U.S. Forces

American military airlift forces no longer have the gross lift capacity and force composition to adequately support combat operations in a major conflict. For three decades of low-intensity conflicts and peacetime contingencies, the Department of War (DOW) could make do with the aging and shrinking airlift fleet at hand. Now, far more sophisticated near-peer adversaries are the primary strategic concern, and the possibility of conflict with such adversaries demands the air transport of personnel and materiel in vast quantities to areas that exceed the capabilities of current airlift forces. In the reasonable likelihood that future conflicts with regional peer states, non-state powers, and other major disaster responses occur simultaneously, the shortfalls in American airlift capacity become acute. Regardless of whether future conflicts occur singly or simultaneously, new service component operational concepts, such as the U.S. Air Force's agile combat employment (ACE), the Marine Corps' forward arming and refueling point (FARP), and other Army and Marine concepts for forward deploying multi-domain task forces and littoral regiments, will increase the demands for inter- and intra-theater airlift support. In contrast to previous low-intensity conflicts, the likelihood of combat attrition and loss in a future conflict further complicates airlift operations and force structure planning. If not addressed now, confronting these issues amid spiraling airlift demand signals during concurrent crises will force American leaders to make painful strategic choices about which crisis to support and which to abandon. Severe military budget constraints and the present absence of a comprehensive and public national airlift modernization plan

further increase the likelihood that the national military airlift system (NMAS) will fall short of the logistical needs of American combat forces in future major conflicts.¹ Simply put, no form of combat power or operational concept is viable without sustainable logistics, and the ability of airlift to respond to urgent needs is an essential element of that sustainability.

The DOW must now identify and act appropriately on the opportunities available to modernize, recapitalize, and grow the nation's airlift capacity to support large-scale combat operations in distant regions, including the Indo-Pacific, Eastern Europe, the Middle East, and Africa. Perhaps the most immediate, flexible, and cost-effective opportunity before the Air Force now is to harness and refine the contributions of private industry for routine and contingency requirements. During and since WWII, private industry has supported military airlift preparations and operations through the Civil Air Reserve Fleet (CRAF), contract airlift programs, bailments of military-owned aircraft to civilian operators, public-private partnerships, and enhanced airline-owned aircraft with military-required features. All of these and similar programs merit review and improvement. However, there are opportunities within the military fleet as well. The U.S. Air Force (USAF) requires additive funding to modernize communications, battlespace awareness systems, and C2 datalinks, and fully fund Air Mobility Command's (AMC) sustainment accounts to increase mission availability of its aged fleet. The acquisition of new aircraft is an important part of this initiative. A mix of these and other modernization options is needed to return the airlift fleet to adequacy at a bearable cost. Failure to act alternatively risks defeat by a regional peer competitor or even several adversaries.

Recognizing that the shortage of airlift capacity has reached a crisis, airlift leaders and practitioners have done their best within current budget limits to get more from what they have in tomorrow's challenges. To that end, AMC has incrementally upgraded C-17 and C-130 cockpits with modernized avionics and navigation systems, anti-jam line-of-sight and satellite communications radios, and Link-16 communications systems able to share protected data with other systems that provide real-time information in the cockpit (RTIC) on threats and tactical situations. However, severe budget constraints have slowed the pace of these modification programs. If a large-scale war breaks out today, most airlift crews will "fly blind" into combat zones with little awareness of unfolding threats or their options for completing missions and surviving at the same time. AMC exercises have matched these technical improvements with doctrinal and training experiments to facilitate rapid and informed decision-making and data sharing by airlift crews operating in combat.² These improvements have yielded benefits, but they represent only the start of delivering functionality under constrained resources.

Given the stringencies of current defense budgets, the complexities of still unexplored technology issues, and the unrealized outcomes of current airlift improvement efforts, any modernization and recapitalization plan faces risks. However, AMC, the USAF, and DOW must start reconstituting the mobility airlift fleet now. The United States may otherwise find itself in the not-so-distant future fighting a major war or simultaneous wars with an airlift fleet so inadequate in capacity and composition that it severely or even fatally limits the operations of all American combatant forces.

The American Airlift Fleet is Organized for Joint Global Warfare

Most U.S. airlift forces are assigned to the U.S. Transportation Command (USTC) and, on a smaller scale, to overseas combatant commands, such as the U.S. European Command (EUCOM) and U.S. Indo-Pacific Command (INDOPACOM). The Commander of USTC exercises coordinating authority over these forces, which are elements of the Joint Deployment and Distribution Enterprise (JDDE). Each of the U.S. military services assigns air, land, and maritime transportation capabilities to the JDDE and overseas commands as appropriate to their individual service missions and force structures. Nonetheless, defense policies designate the Air Force as the provider of long-range airlift support to all of the military services, other government users, and even allies. This means that the Air Force provides the bulk of the forces assigned to other combatant commands, which are usually operated by their Air Force components. The supporting elements of the airlift system comprise the Joint Transportation Enterprise, a vast and interconnected array of command, planning, operations, education, and logistics organizations. Commanding and coordinating these myriad elements is the defining challenge for the JDDE and transportation elements of the combatant commands.

Airlift forces perform two distinct but closely coupled missions. DOW regulations assign responsibility for all inter-theater air deployments of forces to USTC, which it supervises through AMC's 18th Air Force. Inter-theater missions can transfer assets from the American homeland to overseas combatant theaters or between theaters such as the Indo-Pacific and Africa. Generally, overseas combatant commands are responsible for intra-theater airlift movements between points within their areas of responsibility (AOR). Operationally, the inter- and intra-theater missions interlink



Figure 1: Direct delivery exemplified—Inter-theater C-17s at an unpaved forward airstrip during an exercise.

Source: [U.S. Air Force](#)

at theater air bases, where payloads and passengers are either shifted between larger and smaller aircraft for onward distribution to forward locations or movement back to the homeland or elsewhere. Inefficiencies in one component or in the execution of transfer operations can jam the airlift flow, putting supported combat units at risk and trapping mobility aircraft and personnel at bases under attack from enemy weapons. Inter-theater aircraft can augment theater airlift flows through “direct delivery” operations in which they carry their loads directly to theater destinations closer to their points of need and employment (PONE). Theater airlift forces can also augment inter-theater flows to allow the USTC to concentrate its resources and long-range aircraft on deployment operations. In some cases, unanticipated crises or conflicts will oblige the Secretary of War to transfer JDDE-assigned units, most commonly C-130 squadrons and support assets, to the direct control of theater commanders and their air components. Such reinforcements can be vital to success, since theaters have few or, in many cases, no airlift capabilities permanently assigned to them and are already strained to meet the requirements of routine peacetime logistics and small exercises. Consequently, USTC is an indispensable source of reinforcement to handle increased operational demands.

Scale of the Airlift Force

The Air Force trains, organizes, and equips a fleet of military transport aircraft that dwarfs that of any other nation. The largest single component of this fleet in gross capacity is the Civil Reserve Air Fleet. At present, the CRAF includes approximately 450 airliners from roughly 25 airlines committed to mobilization during national defense or other emergencies. This represents about 7 percent of the commercial industry’s 7,000 aircraft. In addition, AMC, the Air National Guard, and the Air Force Reserve contribute approximately 550 military-type airlifters to the JDDE. The Air Force’s fleet of approximately 400 KC-135 and KC-46 aerial refueling aircraft can augment airlift flows if it is not fully committed to its primary mission. Combined, these Air Force airlifters and tankers are the primary air mobility assets available to combatant commands for use.

Importantly, the Marines, Navy, and Army field substantial theater and battlefield airlift forces sized and equipped to support their specialized tactical and logistical missions. These primarily focus on organic inter-service requirements. The United States Marine Corps operates around 90 KC-130 tanker/transport. The Marines also own a combination of over 400 MV-22 and CH-53 transport helicopters that, like the KC-130s, provide intra-theater support for Marine operations. Likewise, the U.S. Navy Reserve fields about 17 C-40s and 27 KC-130Ts to provide intra-theater

cargo, air refueling support, and passenger transportation for naval forces. In terms of airframe numbers, Army Aviation comprises the largest of these service-specific airlift components. Overwhelmingly a helicopter force, Army Aviation includes fifteen active and reserve combat aviation brigades and other elements equipped with around 500 CH-47s and hundreds more UH-60s. Both types can provide useful lift over a combat radius of up to 150 NM. Their short range precludes them from serving as theater airlifters, but they provide invaluable tactical mobility and linkage for forward theater airlift airfields and the PONEs of tactical air and ground assets. Finally, all the services possess fleets of small operational support aircraft ranging from corporate-style jets to significantly larger planes. Generally, USTC's Joint Operational Support Airlift Center provides centralized scheduling and mission management for these aircraft, numbering about 260, but others exist in penny packets in the services, combatant commands, and specialized units.

But the Airlift Fleet is Aging and Increasingly Inadequate to Major War Requirements —

While these U.S. airlift fleet numbers may sound impressive, both the airframes and their mission equipment are becoming fragile and, in some cases, obsolete with age. At the end of the Cold War in 1989, the Air Force's mobility fleet consisted of 79 C-5 large, 263 C-141 medium, and 697 C-130 light transport aircraft. Importantly, it was a relatively young fleet, with the average C-5 only nine years old, C-141s 22 years old, and active-duty C-130s 21 years old. Even though most of these aircraft were well within their planned service lives, plans were already underway to replace them with new C-17s and an upgraded generation of C-130s. Today's inventory of 52 C-5Ms has an average age of 37 years and an associated low mission-capable rate. The Air Force replaced its C-141s with 222 C-17s,

but the C-17 fleet's average age is already 21 years—over half of their originally planned service lives. A fleet of only 277 C-130s remains in service, which also averages about 21 years in age. All of these aircraft have been worked hard across three decades of non-stop combat operations around the globe. Air Mobility Command recently released a plan to modernize its strategic airlift fleet, but more detail is required, and, critically, increased funding will be essential.

Even as the inter-theater airlift fleet has aged and shrunk, the scale and urgency of its mission responsibilities have increased. Through the latter Cold War, the DOW sized the airlift fleet to accomplish two essential and urgent missions—support strategic nuclear operations and reinforce NATO in the event of a Soviet attack. The strategic mission required relatively modest support, while the NATO mission was essentially limitless in its demands for the rapid air movements of combat forces and critical logistics across the Atlantic. All other missions, such as defending Korea and containing China, were secondary and conducted only when they did not conflict with the two more urgent missions. Today, a militarily resurgent and aggressive Russia presents immediate airlift planning challenges. But China, nuclear-armed or nuclear-ambitious rogue states like North Korea and Iran, and transnational criminal and terrorist organizations now present additional similar-to-equal demands on a shrunken airlift fleet as a single European conflict. Homeland defense requirements are also significant.

The Shortfalls of the Airlift Fleet Present Dangerous Strategic Dilemmas _____

The United States relies heavily on its mobility aircraft to transport people, materiel, and combat units that are urgently needed or destined for remote and otherwise inaccessible locations. Operational demands in such cases often preclude turning to slower and less agile

surface modes of conveyance. Sealift or land transport can move more capacity at less cost, but in many cases, they simply do not meet operational needs or timelines.

Urgent transoceanic movements of gate-opener combat forces and materiel in the opening phases of conflicts or airborne operations carried out in contested airfields and other emergencies are often the most visible and newsworthy airlift events for a reason. They are massive, rapid, and require flexible coordination at speed and under stress. However, in addition to these mammoth maneuvers, air mobility forces perform an array of additional missions more complex than generally understood. These include long-range deliveries of materiel and reinforcements to forces already stationed or recently deployed overseas, as well as moving and supporting air and surface forces between dispersed operational areas, battlefields, air bases, and FARP within theaters of operation. Secondary air mobility missions routinely encompass aeromedical evacuation flights,

retrograde movements of people and important cargoes, support for allied military operations, and a never-ending series of humanitarian relief operations and evacuations of distressed persons. Some of these missions involve just a few plane loads delivered over a short period of time, while others run for months and consume thousands of aircraft sorties. VIP transportation of civil government officials, especially presidential travels, can tie down dozens of transport and air refueling aircraft for days and weeks.

Together, these operations comprise important and often simultaneous demands for airlift support coming from all theaters

and key government users—and leave little or no leeway for expanded operations in the airlift system. In early 2025, for example, American airlift forces were engaged in routine logistical and training operations across the globe in every theater of operations, while simultaneously conducting two large military resupply and humanitarian assistance operations into Ukraine and Israel and supporting the extradition of tens of thousands of unauthorized foreign citizens back to their home countries.

This concurrent combination of demands keeps the entire military portion of the airlift fleet fully committed practically every day. Consequently, any new and higher-priority contingency, such as rising tensions in the Western Pacific, would require immediate reduction in or even outright abandonment of these ongoing operations. Succumbing to airlift shortfalls in this way inflicts obvious damage to other national strategic interests. If other adversaries launched opportunistic attacks on vital American interests in other regions, strategic civil and military leaders would have to make agonizing strategic choices—which set of partners, allies, or locally assigned American troops would they have to cut off from airlift support, given the limitations of the air mobility fleet? American military leaders almost certainly will have to make such choices in future conflicts should they fail now to fund the urgent requirement to modernize and recapitalize the airlift system.

New Operational Concepts Increase the Demand for Airlift Support

Each of the services has turned to warfighting concepts that depend on robust and reliable airlift support to overcome the more advanced and complex threats posed by peer competitors. Yet, the current airlift fleet may not be able to meet its logistical and maneuver demands. These concepts include the Army's doctrine for maneuver

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Figure 2: Maneuver Support Vessel.

Source: [U.S. Army](#)

in multi-domain operations, the Air Force's commitment to agile combat employment, and the Marine Corps' doctrine of maneuver warfare. Each of these operational concepts emphasizes rapid and unpredictable movement by echelons of forces dispersed throughout a combat theater. Consequently, they all assume the availability of long-range airlift forces that can transport them into those theaters rapidly and intra-theater airlift elements to move them among their PONEs. Of necessity, such PONEs will often be located away from developed airfields. Therefore, these maneuver concepts call for aircraft able to cover theater-significant distances while carrying essential combat equipment and materiel into terminal points ranging from first-class airports and air bases to unpaved airstrips of minimal surface strength.³

The U.S. Air Force, in particular, may not have enough airlift to support its ACE concept. The USAF has not acquired significant numbers of aircraft capable of operating at the lower end of this requirement—delivering combat equipment and supplies into short and weakly surfaced forward airfields—and has no publicly-released plans to do so.⁴ The budgets simply are not sized for this mission growth.

The U.S. Air Force, in particular, may not have enough airlift to support its ACE concept.

ACE postulates fighter units and support echelons rotating frequently and unpredictably among networks of protected main operating bases (MOB), semi-permanent forward operating sites (FOS), and FARP. MOB and FOSs will draw most of their logistic support from prepositioned stocks, host nations, and surface and maritime transportation modes. Dispersed FARP operations by small teams of fighter aircraft, in contrast, will depend almost entirely on theater-assigned mobility aircraft—C-17s in most exercises thus far—to bring in the munitions, fuels, and personnel needed to reconstitute aircraft between sorties. If executed on a large scale, FARP operations will consume a large proportion of available transport capacity. Reconstituting a flight of four F-35Cs for a single mission, for example, could tie down a C-17 for a day of operations: bringing the necessary personnel, equipment, and initial stocks of munitions and fuel for just one strike. Depending on a FARP's distance from its MOB, follow-on combat sorties will require deliveries of fuel and munitions by additional transport aircraft.

The Army's new Multi-Domain Task Force (MDTF) regiments will similarly increase the demand for theater airlift. Designed to conduct surveillance and limited strike operations in contested areas, MDTFs will be composed of 3,000–4,000 soldiers who disaggregate into smaller teams to perform their

missions. Unpredictable and stealthy maneuvers will be essential to the effectiveness and survival of these teams, which will often operate well beyond the range of rescue or extraction by major combat units. Officially, the Army plans to rely on helicopters, a small fleet of maneuver support vessels (MSV), and other sealift assets to give the MDTF teams their critical mobility. However, given the likely transit distances in theaters such as the Indo-Pacific, the limited payloads and ranges of helicopters, the 22-knot transit speeds, and the 360-mile ranges of the MSVs, it seems almost certain that urgent and distant MDTF movements will quickly appear on theater airlift schedules once combat operations begin.

In parallel to the MDTFs, the U.S. Marine Corps created Marine Littoral Regiments (MLR) to conduct “stand-in” low-detectability surveillance and strike operations in contested areas to help the fleet conduct reconnaissance and counter-reconnaissance operations as well as conduct sea denial operations when necessary.⁵ In contrast to the larger MDTFs, MLRs will include only 1,800–2,000 Marines, but, like the MDTFs, MLRs will break up into smaller

units to disperse to austere but temporary locations in littoral areas to conduct sea denial, support, sea control, and fleet sustainment operations.⁶ These temporary locations could range from caves to rooms in an apartment building. The Navy

plans to acquire 18–35 medium landing ships (LSM) for direct assignment to the MLRs. These ships will have a larger cargo capacity and greater range than the Army’s maneuver support vessels, around 650 tons versus about 80 tons, but they will still cruise at approximately 20 knots like the MSVs.⁷ Thus, LSMs may be unable to move units as quickly and with the security required by combat conditions. Consequently, some transport of littoral regiments will probably rely on theater airlift.

The Marines also intend to conduct FARP operations at austere forward locations deep within enemy weapons engagement zones. In contrast to the Air Force’s airlift-dependent, hit-and-run concept for FARP operations, the Marines plan to disperse squadron-size exploitations of frequently shifting FARPs that will draw their logistical support from trucks and rotary-wing aircraft, connecting them to shore-based mobile distribution sites (MDS). Recognizing that lines of trucks moving many miles along possibly undeveloped road networks represent significant challenges for security and force protection, one study explored the use of organic Marine KC-130s or Air Force transports to bring in the hundreds of tons of fuel, rations, and munitions that a squadron-size FARP would need for each day of operations. In general, the study concluded that larger Air Force transports could accomplish the task more efficiently and would likely obviate the MDSs and the presence of so many Marines ashore. This alternate concept of operations (CONOPS) also reduced the likelihood of exposing FARPs to discovery and attack.⁸ Since the publication of that study, the Marines and Air Force have conducted joint FARP refueling exercises on a small scale, but likely not yet at the squadron level.⁹

Several Operational Considerations Shape the Increased Airlift Demand

The operational requirements placed on the airlift fleet—what it will carry, how far, how fast, and into and out of what airfields—are massive and diverse. In a peer conflict, the airlift fleet may not be sufficient to meet the movement, supply, and other logistical demands of the services. For example, in the initial days of a conflict, Air Force mobility aircraft will be the logistical linchpin of air and surface units maneuvering out to and beginning operations from widely dispersed locations. Loads may include personnel, munitions, rations, water, shelters, logistical and combat vehicles of all

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Figure 3: This Patriot battery (the two launch vehicles are off picture) would require at least seven C-17 loads to deliver.

Source: [U.S. Army video still](#)

types, field hospitals, air defense batteries, power generators, engineering and base support equipment, aircraft ground support echelons, space communications terminals, replacement parts for ship casualties, submarine rescue vehicles, sand, and other myriad battlefield assets.

These requirements could represent thousands of tons of movement each day in a Pacific fight, a demand that would not decrease until sea lanes open and prepositioned stocks become available. Each increment of these moves will consume many aircraft days. Moving the support echelon of a squadron of fighters, for example, could require anything from a handful to several dozen CRAF or military transport loads, depending on the equipment and supplies prepositioned at or near their destination bases. In comparison to air units, however, ground units consume even greater amounts of airlift. Deploying the two launch vehicles and minimal support of a single Patriot missile battery would require at least seven C-17 loads, while moving an entire Patriot battalion (six batteries) could take from 73 to 128 sorties—possibly even more—depending on the support infrastructure available at the destination. Bringing in a bare-bones Stryker battalion task force without the support echelons

needed for sustained operations would still take 50–60 C-17 loads and many hundreds more to move in a complete brigade with support.¹⁰

Distance exerts a tremendous impact on the throughputs and practicality of deployment operations. Each C-17 load delivered across the Pacific, for instance, would tie down a C-17 for 3–5 days. In comparison, a round-trip flight from the East Coast to Germany would consume a C-17 for just 1-2 days.¹¹ Considering the attention required by so many different units and logistical movements in the early days of a conflict, the existing capacity of the national airlift fleet falls well short of needs as soon as deployment and theater distribution operations begin.

Terminal destinations will also influence the velocity and viability of airlift operations. As a result, they also affect fleet capacity requirements to make specific moves in tactically necessary time windows and arrival times. First-class commercial airports and air bases with long runways and extensive parking areas can receive dozens of transport aircraft per day, assuming the presence of adequate cargo handling facilities and the absence of enemy actions that interfere with operations. Of course, in many parts of the world, such airfields are

scarce, scattered, and increasingly vulnerable to enemy attacks. Therefore, many intra- and inter-theater airlift movements will terminate at airfields that lack extensive support and paved parking spaces. Airfield constraints on aircraft throughputs will, in turn, restrict the operations of supported forces.¹² These throughput limitations will also lengthen the arrival time windows of air and surface combat forces and increase their vulnerabilities to discovery and piecemeal attacks by enemy forces.

Key Equipment Items Determine the Suitability of Specific Aircraft for Movement Planning

When determining an operational airlift plan, AMC planners must match the most demanding cargo sizes and volumes with aircraft cargo compartments. For example, Army planners must consider the types of mobile protected firepower vehicles that light infantry and medium mechanized units

employ. These include 25-ton Stryker combat vehicles, 30-ton M-3 Bradley fighting vehicles and M-109 howitzers, 40-ton M-10 Booker light tanks, and even 70-ton M-1 Abrams tanks. Air Force units will require the support of some vehicles of similar weight and dimensions, such as firetrucks, construction vehicles, and aircraft recovery cranes. Depending on how deployment operations evolve in a specific crisis, the Army's assigned movement might place

the highest priority on air defense units and light infantry forces to protect air bases and logistical centers. In such cases, the personnel and most of the vehicles and other heavy equipment items of surface units will fit into C-130s or even CRAF aircraft. Even so, some key elements, such as Patriot missile launchers, Booker platoons, and engineering vehicles, will require C-17 support. Fortunately, these heavier

vehicles comprise a small percentage of the total vehicle counts for ground and air combat forces, usually around 10 percent for ground units and less for air squadrons.

The Airlift Fleet Lacks the Numbers and Mix of Aircraft and Equipage to Adequately Support Major War Combat Operations

The current airlift system lacks the capacity and does not have the right mix of mobility aircraft to deliver and sustain air and surface combat forces in future conflict and contingency circumstances, given emerging service operational concepts, dense threat environments, and the sheer expanse of the Indo-Pacific. This means that the nation does not possess enough aircraft in terms of either numbers or lift capacity to move what it will have to move in high-intensity conflicts. These shortfalls in airlift capability and capacity could obstruct or even prevent U.S. victory in combat against near-peer adversaries.

Exacerbated by its inventory shortfalls, the airlift fleet faces other challenges. For instance, AMC's airlift fleet can be mismatched to the cargo needs of their forces or inappropriate for the destination airfield or threat environment. The fleet may also not "link" well for smooth transloading and continuation of the cargo to its PONE. Airlift aircraft must be appropriately matched to both their assigned cargo loads and airfields. For example, C-130s can land at austere airstrips but are not large enough to carry combat-ready mobile protected firepower vehicles, nor can a fully loaded C-130 fly long distances. By contrast, C-5s, C-17s, and CRAF airliners can carry almost any air or surface combat unit equipment item and fly further, but they cannot perform repeated landing and takeoff operations at paved airfields of only moderate strength, let alone into unpaved airfields with low ground strength and stability.¹³ In the case of CRAF airlines, their contracts and presumptions preclude operations into obviously dangerous circumstances.

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Figure 4: As the photo shows, a C-130 trainign fuselage can be loaded onto a C-5 for transport. Varying sizes of mobility aircraft afford different challenges and opportunities depending on mission requirements.

Source: [U.S. Air Force/Air National Guard](#)

The physical size and capacity of loads that CRAF and strategic aircraft can carry introduce another challenge: Loads often do not integrate seamlessly with other aircraft in the airlift system. For example, large aircraft often dwarf the C-130s receiving their loads at forward airfields. A C-5 cargo load can fill five or more C-130s, while a C-17 can fill four or more—presuming that the items delivered even fit into a C-130. Consequently, the number of C-17s an airfield can handle will be constrained by the number of C-130 “movements” it can simultaneously handle to move cargo forward.

The inadequacy of the airlift system’s gross lift capacity for transoceanic force deployments is even more difficult to measure and quantify. First, the use of airlift creates the demand for more airlift. Deploying an expeditionary fighter wing to the western Pacific, for example, requires either the creation of a base support infrastructure to host it or a significant reinforcement of an existing base. Prepositioned supply stocks in local warehouses or maritime prepositioning ships can mitigate the deployment burden, but their locations are known to potential enemies, vulnerable to many methods of attack, and, in many cases, not in the right places at the right times.

The final major challenge of the existing airlift system is its lack of connectivity, communications, and battlespace awareness, which mobility aircrews need to penetrate, survive, and deliver in a contested environment. The milestone Mobility Guardian exercise in July 2023 highlighted the indispensable requirement for this battlespace awareness to allow crews to make independent, timely, and relevant decisions in such circumstances. Accordingly, the previous Commander of AMC, General Michael A. Minihan, advised Congress in 2024 that he had directed his staff “to start incrementally implementing secure and resilient line-of-sight and beyond line-of-sight airborne connectivity ... distilled into coherent interfaces for MAF [mobility air forces] airmen to receive real-time C2, logistics, and threat information.”¹⁴

In recent years, AMC leaders have reemphasized their airmen’s warfighter culture in preparation for the conflicts the nation may face in the future. To counteract what decades of permissive and routine operations have atrophied, commanders are focusing on cultivating the mindset, grit, and judgment their airmen will need to deliver the mission in a dense threat environment that many of their aircrews have never experienced. This has meant

strengthening professional values, developing risk tolerance within a safety culture, and honing warfighting skills in their engagements with mobility personnel. Moreover, AMC leadership has transformed key exercises, such as Mobility Guardian, to make them unpredictable tests of individual decision-making, physical endurance, and resilience. In keeping with that transformation, AMC has overlaid a “let’s go” mantra on all the functions of the air mobility community.¹⁵ Success in these areas should lead to the improved retention of valuable personnel and a more agile and effective force operating under the stresses, uncertainties, and degraded communications environments of modern war. Knowledgeable

and confident personnel with high morale will, of themselves, produce capacity. But culture can only go so far. Without needed investments, the airlift community will not be able to meet the demand of a peer conflict.

Decades of underfunding and patchwork investments have resulted in shortfalls, and recovery will take dedication, resources, and time.

The Atrophied State of the Air Mobility Program Compromises National Security and Must be Corrected

Returning the American airlift fleet to even near adequacy in relation to emerging requirements will not be a simple or singular event, but a lengthy process. Decades of underfunding and patchwork investments have resulted in shortfalls, and recovery will take dedication, resources, and time. Senior USAF leaders with inadequate budgets were required to make impossible choices across their entire force to meet operational necessities amid the ever-growing demands of combatant commanders in an unstable world. In other words, without the resources to address its priority mission areas, the Air Force was unable to make smart decisions and instead forced to take the “least bad” option. Now, the whole of what the aging airlift fleet needs is daunting, given the threats already

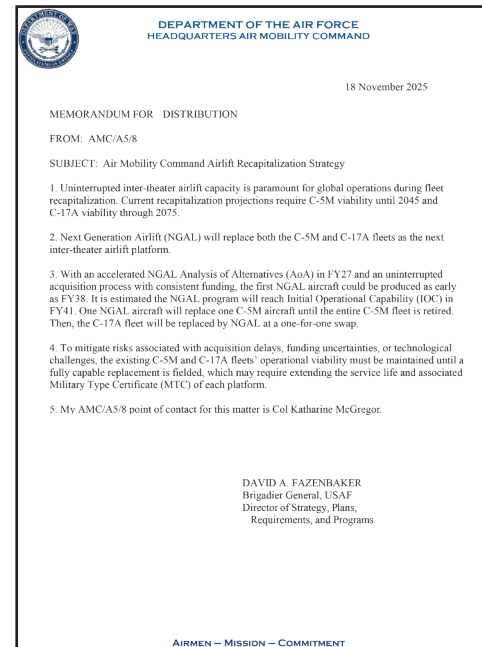


Figure 6: The Air Force and Air Mobility Command recognize the need to reset the airlift inventory in alignment with growing demands driven by peer competition. The DOW and Congress must empower them by providing the necessary resources.

Source: [SAM.GOV](https://sam.gov)

facing America’s national security and budget constraints. Yet, the consequences of not having rapid global airlift when the nation needs it will be far worse. The DOW must increase the U.S. Air Force’s total budget to provide the resourcing needed to modernize, recapitalize, and grow the nation’s military airlift fleet.

The Air Force must develop and commit to a plan that will restore the nation’s mobility backbone, its air mobility fleet. The USAF must take steps to progress from the current precarious state of U.S. airlift to a more sustainable and sufficient capability. To that end, the Mitchell Institute recommends:

1. The DOW must increase the Air Force’s budget to modernize legacy AMC airlift fleets with the datalinks and battlespace situational awareness equipment they need to be more survivable and more effective. Acquiring the surveillance and communication equipment needed to securely link every airlift aircraft into the

general battle management system reduces the coordination and communication errors inherent to complex airlift operations. While it will be expensive, the effort will more than pay for itself by far through saving lives, aircraft, wasted effort, and misapplied resources.

2. Air Force leadership must increase AMC sustainment funding to increase mission availability. Another line of effort should center on mitigating the parts shortfalls, general maintenance costs, and aircraft utilization delays currently plaguing the airlift system. Using the C-5 fleet as an example, less than 50 percent of C-5s are routinely available for operations at any one time, mainly due to maintenance issues. To illustrate the leverage provided by improved maintenance, a 5 percent increase in the availability of the C-17 fleet would have the equivalent operational effect of acquiring a fleet of 10 new aircraft, costing somewhere between \$3–4 billion.
3. AMC should increase the civil contribution to the national airlift system through the expansion of the CRAF program and public-private partnership opportunities. As currently constituted, the CRAF represents less than 7 percent of the airline fleet, which is only about 450 aircraft from an airline total of over 7,000. In contrast, at the height of the Cold War in the 1960s, the CRAF included about 340 aircraft from a total of 2,300 in the airline industry—but this was almost 15 percent.¹⁶ Applying the same ratio today would more than double the size of the CRAF. These numbers illustrate the usefulness of reviewing the size, structure, availability, and funding of the CRAF, particularly in the event of major conflicts in distant theaters. Public-private partnership opportunities would leverage commercial off-the-shelf opportunities

to provide effective, efficient offsets and augmentation to the current airlift inventory capacity. Certain available types, like the Embraer C-390 and the Airbus A400, can operate from unpaved airstrips and carry a wide variety of payloads.

4. DOW must provide the U.S. Air Force additional funding to develop, procure, and field a fleet of new air transport aircraft that will be capable of moving more equipment and personnel faster, into a wider range of places, and in high-threat environments. History and aerodynamics suggest that two types of aircraft will comprise the core of a future airlift fleet: a strategic airlifter optimized for long-range and high-capacity transport into developed airfields and another airlifter with the range, payload, airfield agility, and survivability needed for effective airlift operations into any type of theater that can augment inter-theater airlift flows when necessary. Any effort to develop an airlift modernization plan must consider the most demanding cargo requirements that will set minimum sizes and volumes for aircraft cargo compartments and, therefore, the ultimate dimensions of the aircraft utilized or developed. Such studies will likely assign priority to developing a new theater airlifter, since it would bring capabilities missing from the current airlift fleet. The existing military fleet and the CRAF can mitigate inter-theater shortfalls in the short term. The Air Force must start these preliminary studies now, or the military may face a future conflict with a fleet of airlifters that are too old and too small to execute as demands require.

The DOW and the Air Force must take immediate action to expand and sustain the capacities of the airlift system. The atrophied capacity of the U.S. airlift system severely compromises the nation's ability to conduct

The atrophied capacity of the U.S. airlift system severely compromises the nation's ability to conduct national defense,

national defense, particularly in major conflicts. The decline of the nation's military airlift enterprise has placed the entire American military at risk of failure. Someday, the Air Force will face a very strong enemy in the arena of an overseas theater. When it does, it must have enough strength and reach to support its own fight, that of the other services, and that of its allies and partners. If, at that time, the

United States still does not have the airlift power to match its combat capabilities, the shortfall will risk dire consequences to our forces. Restoring the nation's military airlift fleet to adequacy will require years of committed investment and improvement to overcome the decades of neglect. This effort is already late-to-need—the nation cannot afford to wait any longer. ★

Endnotes

- 1 Daniel Cordes, [“Mobility Guardian Lessons Learned and the Way Forward,”](#) Airlift/Tanker Association convention briefing, November 10, 2023, slide 1. Cordes is a special advisor to the commander of the Air Mobility Command.
- 2 Frank Wolfe, [“U.S. Air Force Upgrading C-17. C-130H Avionics as Legacy Supplier Base Falls,”](#) *Aviation Today*, February 4, 2020.
- 3 For succinct insights into these service concepts, see, U.S. Army, [“Army Futures Command Concept for Maneuver in Multi-Domain Operations,”](#) July 7, 2020; U.S. Marine Corps, [“A Concept for Stand-in Forces,”](#) December 1, 2021; and U.S. Air Force, [“Agile Combat Employment,”](#) Air Force Doctrine Note 1-21, August 23, 2022.
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- 7 Ronald O'Rourke, [“Navy Medium Land Ship \(LSM\) Program: Background and Issues for Congress”](#) (Washington, DC: CRS, April 21, 2025).
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- 9 Valerie Halbert, [“19AW, MAG-24 conduct FARP operations during JPMRC 24-01,”](#) 19th Airlift Wing Public Affairs news release, November 13, 2023.
- 10 The “73” number comes from United States Senate, Committee on Armed Services, [“Hearing to Receive Testimony on the Posture of United States Indo-Pacific Command and United States Forces Korea in Review of the Defense Authorization Request for Fiscal Year 2026 and the Future Years Defense Program,”](#) April 10, 2025. The higher number and the number of sorties for a Stryker battalion come from John Gordon et al., [“Enhanced Army Airborne Forces: A New Joint Operational Capability”](#) (Santa Monica, CA: RAND Corporation, January 23, 2015), p. 53; and Jonathan B. Brockman, [“The Deployability of the IBCT in 96 Hours: Fact or Myth?”](#) (Ft Leavenworth, KS: Command and General Staff College, 2002). Notably, these aircraft counts do not include the movement of necessary artillery, transportation, combat engineering, and service units, which often will exceed those of the core combat echelon.
- 11 These estimates of aircraft days required are based on the data in “Air Mobility Planning Factors,” in “Air Force Pamphlet 10-1403,” October 24, 2018, pp. 15–16. The estimates are also based on a presumption of an average point-to-point block speed of 400 knots for C-17s, 14-hours-per-day utilization (UTE) rates of C-17s, a 13,000-mile round trip distance between the U.S. West Coast and key destinations in the Western Pacific, and about a 7,000-mile roundtrip from the East Coast to Central Europe. The numbers in any case are ideals, since they do not reflect the effects of weather, diversions to avoid threats, shortages of servicing personnel and equipment at enroute stops, limited cargo handling assets at destination, delays in mobilizing reserve augmentation crews, and other fogs and frictions of war.
- 12 For discussions of transport aircraft effects on soft fields, see Air Force Civil Engineer Support Agency, “Engineering Technical Letter 97-9: Criteria and Guidance for C-17 Contingency and Training Operations on Semi-Prepared Airfields,” November 25, 1997, p. 10; and Lockheed Martin Aeronautics Company, [“C-130J Super Hercules: Whatever the Situation, We’ll Be There,”](#) 2015, p. 21.
- 13 The California bearing ratio (CBR) measures the resistance of unpaved surfaces to compression and rutting. A CBR of 10 equates to wet tilled loam, while one of 100 equates to hard packed limestone, with a strength equivalent to pavement. See Air Force Civil Engineer Support Agency, “Engineering Technical Letter 97-9,” p. 10; and Lockheed Martin, [“C-130J Super Hercules,”](#) p. 18.
- 14 John A. Tirpak, [“Minihan: New Mobility Systems Needed to Go with New Fighters and Bombers,”](#) *Air & Space Forces Magazine*, March 29, 2024; and General Michael A. Minihan, Commander, Air Mobility Command, [Presentation to the Seapower and Projection Forces and Readiness Subcommittee, House Armed Services Committee on “Connectivity of United States Air Force Mobility Aircraft,”](#) July 23, 2024.
- 15 Air Mobility Command, [“The Mobility Manifesto,”](#) October 2022. No concise document better encapsulates the urgency and complexity of modernizing American air mobility capabilities and energizing and directing its practitioners.
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