KC-10 Extender, assigned to 908th Expeditionary Air Refueling Squadron, refuels Air Force F-16 Fighting Falcon, assigned to 179th Expeditionary Fighter Squadron, over U.S. Central Command area of responsibility, June 11, 2022 (U.S. Air Force/Christian Sullivan)

Strategic Mobility in the Context of U.S. National Defense Strategies

By Bruce Busler

Over the past 30 years, the United States has seen a gradual shift in defense strategies driven by the end of the Cold War; the aftermath of Operations *Desert Shield*, *Desert Storm*, *Iraqi Freedom*, and *Enduring Freedom*; and the final withdrawal of U.S. forces from Afghanistan in the summer of 2021. The past 5 years have been punctuated by the disquieting rise of Great Power competition and the compelling need to deter and, if necessary, prevail in conflict against Russia and the People's Republic of China, the 2022 National Defense Strategy (NDS)'s pacing threat.

For decades, U.S. military planners have assumed that our ability to project military forces globally would be relatively unhampered, benefiting from the unequaled advantage of our ability to deploy and sustain the joint force anywhere

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in the world at the time and place of our choosing to attain national objectives. The ability to provide swift aid to our allies and partners, as exhibited in the recent flow of lethal aid to Ukraine and the airlift of equipment and munitions to Israel in Operation *Nickel Grass* in 1973, has long been a U.S. tool for international humanitarian relief operations or rapid support of allies and partners. The Berlin Airlift in 1948–1949 perhaps most famously demonstrated Western resolve through air transport to confront Soviet intent to dominate Eastern Europe. While useful in this role, the U.S. mobility enterprise is ultimately shaped and sized for the rapid wartime projection of decisive military power to confront our adversaries with an assured response that should leave no question that the United States will prevail.

Today, the NDS continues to rely on our asymmetric mobility capabilities for global campaigning in combination with our allies and partners to bolster the strategy's cornerstone of integrated deterrence. U.S. Transportation Command (USTRANSCOM)'s contribution to daily campaigning and wartime power projection, inherent in integrated deterrence, stems from the three elements in the command's mobility warfighting framework:

- global mobility posture through a robust network surface infrastructure and nearly 90 key enroute international airfields and seaports in 44 host nations for resilient access, basing, and overflight
- global mobility capabilities leveraging both organic and commercial assets for strategic airlift, sealift, air refueling, theater airlift, aeromedical evacuation, and enablers for end-to-end connectivity
- global command and control and integration of all elements necessary to rapidly align scarce mobility resources to meet the Department of Defense (DOD)'s highest priorities.

All three elements of this framework are under increasing risk by Great Power adversaries, who have studied U.S. power projection advantage for the past several decades, with both China and Russia developing cyber and antiaccess/area-denial capabilities coupled with malign geopolitical influence to degrade, disrupt, and deny our ability to deploy and sustain U.S. forces.

Every National Security Strategy (NSS) and NDS in the past 30 years has recognized the warfighting elements cited above, to varying degrees over time. Linked to these strategies, associated mobility studies analyzed necessary capabilities to achieve strategic endstates. These studies continue to garner congressional interest and drive debate within DOD on mobility sufficiency to satisfy the strategy's endstate. While there have been periods of investment for new mobility capabilities (historically modernized as once-every-generation programs in the aftermath of hard-learned lessons), the trend over time has been to take risk in mobility capacity when 85 percent of combat power is now stationed in the United States, yet the ability to deploy and sustain those forces on a global scale is on a glide path toward historic lows. Mobility and logistics are recognized as foundational to evolving warfighting concepts confounded by the long-distance, overwater geography in the Indo-Pacific, prompting us to remember that "amateurs study tactics; professionals study logistics," as General Omar Bradley is said to have stated.

In the historical review that follows, the value in assessing these inflection points is identifying and solidifying answers to this fundamental question: What key capabilities must the Joint Deployment and Distribution Enterprise provide, and how much is enough? The point then in this accounting is to grapple with the proverb "For Want of a Nail," to reveal current and future deficiencies in the Joint Deployment and Distribution Enterprise that could create strategic impediments if not fully appreciated.

Mobility Capabilities and Capacity: A Historical Perspective

The shift away from forward-deployed to continental United States–postured forces at the end of the Cold War drove an investment in strategic lift. With the collapse of the Soviet Union and the advent of a more uncertain security environment, the August 1991 NSS noted that "the ability to project our power will underpin our strategy more than ever," given that "forward presence is declining, and the number of potential flashpoints is increasing."[1] In response, Congress directed in the fiscal year (FY) 1991 National Defense Authorization Act (NDAA) the 1992 Mobility Requirements Study (MRS), the first mobility study in the post–Cold War era.[2] The *Desert Storm* experience influenced the George H.W. Bush administration's 1991 NSS to observe that the war to liberate Kuwait was "stunning," with the ability to defeat Iraqi ground forces in only 100 hours. At the same time, the strategy lamented that the deployment of decisive U.S. forces required 6 months under relatively uncontested conditions.

The 1991 NSS further emphasized that future security needs would elevate the importance of mobility capabilities, stating that "as overall force levels draw down and our forward-deployed forces shrink, we must sustain and expand our investment in airlift, sealift, and—where possible—prepositioning."[3] The Bush administration carried forward that imperative in the 1993 NSS, stating that "we must capitalize on our traditional strengths, learn from our experience in *Desert Storm*" and "improve our ability to . . . project power by expanding our air and sealift capabilities as well as by enhancing the inter-theater strategic agility of our forces."[4] The MRS, based on two major regional contingencies (MRCs), drove procurement of 20 large, medium-speed roll-on/roll-off vessels and supported the full C-17 program buy of 120 aircraft with analysis indicating shortfalls would exist in the Southwest Asia early delivery period, suggesting more C-l 7s would be required.

The reduction in defense spending in the 1990s further underscored the need for strategic mobility. The 1993 Bottom-Up Review led by Secretary of Defense Les Aspin during the Bill Clinton administration set off a debate on the merits of force sufficiency in the post–Cold War era, with the ultimate impact

being steep defense cuts.[5] Secretary Aspin stated, "The underlying premise of the Bottom-Up Review was that we needed to reassess all our defense concepts, plans, and programs from the ground up."[6] In the immediate aftermath, consternation surrounded the two-MRC "win-hold-win" approach and reduction in forces to match budget goals. In hindsight, the Bottom-Up Review gained favor as a "high-water mark for strategy."[7]

The Clinton administration codified this theme of mobility as an asymmetric advantage, stating in the 1994 NSS, "The United States is the only nation capable of conducting large-scale and effective military operations far beyond its borders" and "must be capable of responding quickly and operating effectively," demanding "strategic mobility" and "sufficient support and sustainment capabilities."[8] Following the Bottom-Up Review, the Mobility Requirements Study Bottom-Up Review Update sought to address significant changes in mobility assumptions and programs since the MRS.[9] The study sustained recommendations for the additional roll-on/roll-offs (RO/ROs) and created a mandate for a more formalized means to access commercial sealift, which became the Voluntary Intermodal Sealift Agreement (VISA). The study also included a strategic airlift force-mix analysis, which again supported the full program buy of 120 C-17 aircraft.

At the end of the Clinton administration, the 1999 NSS identified the central role of the Nation's unique mobility capabilities, stating:

Strategic mobility is a key element of our strategy. It is critical for allowing the United States to be first on the scene with assistance in many domestic or international crises. . . . Deployment and sustainment of the U.S. and multinational forces requires maintaining and ensuring access to sufficient fleets of aircraft, ships, vehicles, and trains, as well as bases, ports, pre-positioned equipment, and other infrastructure.[10]

The accompanying Mobility Requirements Study 2005 (MRS-05), completed in 2000, offered few major changes from its predecessors.[11] Its two major theater war framework remained comparable to previous two war constructs. For sealift, the RO/RO requirement remained as in previous studies with fuel requirements satisfied by U.S. and Effective U.S. Controlled (EUSC) fleets of 110 tankers. For inter-theater airlift requirements, the deployment needs for two theaters exceeded the FY05 total aircraft inventory of 120 C-17s, 126

Air Force C-5M Super Galaxy from 436th Airlift Wing flies behind KC-135R Stratotanker from New Jersey Air National Guard's 141st Air Refueling Squadron for refueling over Nova Scotia, Canada, April 15, 2021 (U.S. Air National Guard/Matt Hecht)

Formation of MC-130J Commando IIs deployed with 1st Special Operations Squadron conduct "flight of the flock" off coast of Okinawa, Japan, January 7, 2022 (U.S. Air Force/Stephen Pulter)

C-5A/Bs, and 54 KC-l0s in a dual-use cargo role, which was deemed insufficient. As a result, MRS-05 recommended additional C-17 procurement to increase the fleet from 126 to 176.

For nearly two decades beginning in the early 2000s, DOD was deeply involved in the "war against violent extremism," with significant forces deployed to Afghanistan and Iraq. Amid that effort, evolving global defense posture, new force sizing constructs, revised campaign scenarios, and transformation efforts led to the Mobility Capabilities Study (MCS) in 2004.[12] MCS assessed mobility requirements of the dual major combat operations (MCOs) likely in 2012, presuming that they would be similar in size and scope to those of previous scenarios. The National Military Strategy and Defense Planning Guidance at the time called for a force-sizing construct to defend the United States, deter in critical regions, swiftly defeat aggression in overlapping major conflicts, and win decisively in one major conflict.[13] This "1-4-2-1" force-sizing construct was accompanied by joint swiftness goals to seize the initiative. The pacing demand came from the more stressing combination of dual MCOs, as well as a baseline security posture that reflected a combination of lesser contingency scenarios and historical workload. For sealift, the MCS determined that the programmed organic sealift fleet along with commercial VISA augmentation was sufficient to support the strategy. For fuel distribution, the MRS noted the projected 2012 U.S. and EUSC tanker fleet of 62 vessels was unable to satisfy the inter-theater delivery of fuel. For strategic airlift, the study concluded the programmed fleet of 292 C-17 and C-5 aircraft met the lower bound of the requirement, and the C-130 fleet of not less than 451 was deemed sufficient for the dual MCO scenario. Air refueling for the MCS included the first comprehensive joint air refueling analysis for not only the dual MCO deploy and employ missions but also homeland defense and baseline security posture global demands. The overall "stacked" demand exceeded the programmed fleet of 497 KC-135 and KC-10 aircraft.

The Mobility Capabilities and Requirements Study 2016 (MCRS-16) was completed in 2010, at the transition of the George W. Bush and Barack Obama administrations.[14] The 2006 NSS and 2008 NDS set a blueprint for the incoming administration and clearly articulated challenges in sustaining efforts against violent extremist organizations while simultaneously preparing for full-spectrum warfare. The study focused on the 2016 time frame and retained the ability to wage two nearly simultaneous conventional campaigns as the "cornerstone of U.S. defense." MCRS-16 used defense planning scenarios to address

mobility operations for dual MCOs, another scenario based on a single MCO, and a scenario involving a long-term irregular warfare campaign, compounded by homeland defense events and Steady-State Security Posture activities placing demands on mobility forces.

For sealift, the two-MCO scenario (dominated by the major land campaign) required all organic RO/ROs plus VISA and resulted in delayed force closure for the second land war. With respect to inter-theater fuel distribution, the U.S. and EUSC fleet was assessed as sufficient, counting on over 1,980 militarily useful foreign-flagged tankers available worldwide. For strategic airlift, the dual-campaign scenario the programmed strategic airlift fleet of 223 C-17s and 111 C-5s exceeded the requirement, leading to the retirement of some C-5A inventory. The Civil Reserve Air Fleet (CRAF) at stage III levels met requirements. The study also highlighted the impact of adversary threats on CRAF operations, with CRAF aircraft forced to locations outside of threat ranges leading to transload operations. Requirements for intra-theater airlift for the dual-campaign scenario were readily satisfied by the programmed 401 C-130 total aircraft inventory. Finally, air refueling had intensified, with fleet demand for the single-MCO exceeding the programmed fleet of 474 KC-10s and KC-135s and captured as elevated risk.

The 2012 NDS served as a major departure from prior defense strategies, with the demise of the long-held dual-war construct. The NDS, signed by President Obama, revised defense objectives, stating, "Even when U.S. forces are committed to a large-scale operation in one region, *they will be capable of denying the objectives of—or imposing unacceptable costs on—an opportunistic aggressor in a second region*." This "defeat/deny" force-sizing construct shifted the nature of the pacing demands. Responding to this new challenge required that "ground forces will be responsive and capitalize on balanced lift, presence, and prepositioning to maintain the agility needed to remain prepared for the several areas in which such conflicts could occur."[15] The strategy also called for planning changes from regional to a "globally networked approach to deterrence and warfare," which expanded the nature of global responses from the mobility enterprise. Accompanying DOD planning guidance specified two separate force-sizing scenarios, one involving dual MCOs and the second a major MCO with a small-scale counterinsurgency (historical Operation *Enduring Freedom* support), with both maintaining a heightened defense posture in the United States.

The FY13 NDAA drove the Mobility Capabilities Assessment, which was completed in 2013 during the Budget Control Act of 2011 constraints.[16] The study found the planned strategic sealift fleet was sufficient, noting that military RO/ROs would start aging out by FY23, calling for a sealift recapitalization program. The strategic airlift fleet of 275 C-17s and C-5Ms was assessed as acceptable risk, and the CRAF program, for both cargo and passenger airlift, was sufficient at stage III levels, with transload operations still necessary due to threats. For theater airlift, the fleet of 358 C-130s was more than adequate to satisfy the defeat/deny scenario. An air refueling "capacity bathtub" of 455 operationally usable aircraft fell short of the programmed fleet of 479 KC-10, KC-135, and KC-46 aircraft, which was at elevated risk for the defeat/homeland defense "stacked" demand.

Strategy shifted as the United States recognized new global challenges. The 2017 NSS reflected global competition and specified the need for a ready military with the ability to "get to a theater in time to shape events quickly. This will require a resilient forward posture and agile global mobility forces."[17] The associated 2018 NDS brought a heightened sense of urgency with its emphasis on the impact of the post–World War II international order, indicating the "United States now faces a more competitive and dangerous international security environment than we have seen in generations."[18] The reemergence of Great Power competition brought about the "2+3" threat approach rebalancing the DOD focus on China and Russia, followed by regional threats as well as the continued threat of violent extremist organizations. The NDS emphasized both daily competition and wartime missions as integral to the strategy and recognized "resilient and agile logistics" as a key capability.

To accomplish that end, the NDS prioritized "prepositioned forward stocks and munitions, strategic mobility assets, partner and allied support, as well as non-commercially dependent distributed logistics and maintenance."[19] Congress subsequently directed the Mobility Capabilities and Requirements Study 2018 (MCRS-18) to identify mobility requirements necessary to meet the newly published strategy.[20] The resulting MCRS-18 response to Congress stated that the FY23 mobility program of record capacity for each fleet could meet combatant commanders' requirements consistent with the strategy, but with elevated risk in several areas. However, the MCRS-18 Great Power demands for both China and Russia drove a requirement for new operation plans and planning scenarios that were not sufficiently mature for inclusion in the study.

The need for requirements analysis to reflect the changing geopolitical landscape and treats led to the FY20 NDAA direction for another mobility study (MCRS-20) along with a fuel tanker study for maritime fuel transport. Results from both studies were delivered to Congress in June 2021, reflecting the 2018 NDS wartime requirements analyzed using approved operational demands as directed by the Deputy Secretary of Defense. MCRS20 found the programmed fleets to be sufficient in most areas, with a few key areas challenged to meet wartime demands with elevated risk or active mitigations to address deficiencies.

Reflecting Great Power intent to interrupt U.S. force flow, the study included in-depth adversary threat actions for both indirect effects (access/cyber) and direct effects (kinetic attacks against assets/nodes), as well as an assessment of future warfighting concepts focused on the Indo-Pacific region. The fuel tanker study identified a major shift in

Senior Airman Jolan Besse, 535th Airlift Squadron loadmaster, directs K loader while loading cargo onto C-17 Globemaster III in support of airdrop exercise at Joint Base Pearl Harbor–Hickam, Hawaii, August 24, 2022 (U.S. Air Force/Makensie Cooper)

the last decade, undermining long-held views that EUSC or large inventories of foreign-flagged vessels were adequate to meet U.S. wartime needs. Unfriendly foreign financing with the potential for Chinese controlling interests in fuel shipping led to congressional support for a tanker security program to bring at least 10 U.S.-flagged vessels into a tanker security fleet capable of meeting U.S. wartime demand. The need for many friendly "blue" foreign-flagged intra-theater fuel vessels in the Indo-Pacific was identified as an area of elevated risk and a prime opportunity for allied/partner contributions. Understandably, the most recent defense strategies and mobility studies remain classified, with specific scenarios, risk elements, and mitigations approaches closely held for good reason. However, the outward manifestation in terms of mobility force outcomes reflect recent trends in strategic thought downplaying the role of strategic mobility.

The State of the Mobility Enterprise: Looking Forward

As Mark Twain is said to have observed, "History doesn't repeat itself, but it often rhymes." Fresh lessons from *Desert Storm* drove elevated awareness on the importance of strategic mobility; the last two decades of unfailing but relatively routine delivery of forces and sustainment to Southwest Asia set conditions to deemphasize wartime mobility output. Alarmingly, the mobility enterprise has been on an insidious downward trend since the end of the Cold War. Today's mobility forces are the legacy of hard-fought investments in RO/ROs and C-17s along with ongoing KC-46 procurement as the bedrock to keep each of these fleets viable. In 2022, mobility and transportation daily activity is less than half the peak of 2010 associated with the Operation *Iraqi Freedom* surge, and mobility forces are on a similar trajectory.

Strategic airlift is a unique U.S. capability, reflecting strategic power projection imperatives. Today's organic strategic airlift capacity remains

Sailors from Task Group 75.2 onload Army vehicles onto roll-on/roll-off cargo ship MV *Cape Hudson*, at Naval Base Guam, October 4, 2020 (U.S. Navy/Nick Bauer)

significant, with 275 C-17 and C-5M aircraft, producing roughly 10 percent less output than the 1990 fully mobilized fleets, despite a 30 percent decrement in aircraft from a high of 392. The C-5 fleet, delivered in the 1970s and 1980s (with the last updated C-5M delivered in 2018), is expensive to maintain and operate but provides significant long-haul cargo capability. The C-17 workhorse has been used hard for many years yet is expected to retain service life into the 2050s. The combined output of both C-5M and C-17 fleets is necessary and consequential with no C-X replacement on the horizon. U.S. reliance on our commercial partners is also critical for airlift, and both cargo and passenger carriers continue to fully subscribe to the CRAF program despite surges in e-commerce and COVID-19 impacts.

The air refueling fleet in its size and ability to rapidly deploy and employ a wide range of combat aircraft is also uniquely American. In 1990, the air refueling fleet held 670 aircraft, with a projected inventory of just 455 tankers by 2029. Those tankers will be predominantly 67-year-old KC-135s, along with a fleet of 179 new KC-46s being delivered now. A follow-on KC-Y bridge tanker is vital to replace aging KC-135s in sufficient numbers to meet future requirements.

Commensurate with the demise of a two-theater-war strategy, the C-130 fleet was reduced more than any other mobility capability area, from a high of 549 aircraft in 1990 to 271 today, with C-130Js gradually replacing C130Hs. Indo-Pacific dynamic basing and maneuver concepts have elevated the need for intra-theater lift, and the C-130, along with smaller sealift vessels suitable for austere operations, is meeting requirements for distributed operations.

Strategic sealift organic surge capacity has proved to create an enduring requirement of approximately 10 million square feet (50 RO/ROs of various sizes) to deploy 90 percent of the cargo for a decisive force anywhere in the world. A majority of the fleet retires by the early 2030s, and a modest recapitalization rate for the RO/RO fleet will eventually drop capacity to approximately 8 million square feet by 2030. In addition, U.S. national security depends on the vitality of commercial U.S.-flagged vessels in oceangoing trade, especially for U.S. mariners that operate every vessel in the organic sealift fleet. U.S.-flagged shipping continues to struggle to the point where only about 180 of approximately 50,000 large, oceangoing commercial vessels worldwide sail under the U.S. flag. According to the Maritime Administration, the decline of the commercial U.S.-flagged fleet has been a perennial and intensifying challenge, and any further decline of the actively trading U.S.-flagged fleet reduces our nation's ability to unilaterally project and sustain our forces during war.[21]

By all accounts, U.S. mobility capabilities appear formidable but are dwindling and aging. These airlift, air refueling, and sealift capabilities separate the United States as a superpower from both our closest allies and our Great Power adversaries. That said, the mobility enterprise cannot be taken for granted and must not be further discounted. Whereas yesterday's large-scale deployment for *Desert Storm* allowed time to stumble and recover, the speed and expanse of an Indo-Pacific conflict would require velocity at scale. The central role of mobility and logistics in underwriting joint force lethality cannot be overstated. Credible mobility capabilities—requisite capacity and necessary readiness for their employment—will continue to remain necessary and relevant to current and future defense strategies. Sustaining and recapitalizing these forces must be a DOD focus to ensure the mobility enterprise remains a national comparative advantage.

While the character of Great Power warfare is changing and challenging power projection, the need to deploy and sustain U.S. military power globally remains fundamental. We would be well served to reflect on the criticality of strategic mobility over the past 40 years, echoed by an observation from the seminal 1981 Congressionally Mandated Mobility Study that remains unwavering over the years: "Our influence worldwide has become increasingly dependent upon our ability to project forces in support of our national interests and commitments. Mobility is central to our force projection strategy."[22] **JFQ**

Notes

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[21] Statement of Mark Buzby, *State of the Mobility Enterprise*, Before the House Armed Forces Committee, Subcommittee on Seaport and Projection Forces and Subcommittee on Readiness, 116th Cong., 1st sess., March 7, 2019.

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