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RAND

Guard and Reserve Participation in the Air Mobility System

Roles and Constraints

P. Killingsworth, R. Berg, C. Moore, D. Randle, C. Replogle, M. Shanley, D. Todd

Project AIR FORCE

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United States Air Force

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PREFACE

This documented briefing conveys the results of a short-term research effort to examine the historical role of the Air Force Reserve and Air National Guard within the mobility system. The study was done within the context of the high rates of peacetime mobility activity that Air Mobility Command (AMC) has been experiencing—activity in response to a succession of crises and contingencies ranging from U.S. foreign policy initiatives, to hurricanes, famines, and military deployments. As a result of these demands, AMC has begun to consider its options for lessening the cumulative stresses on the air mobility system, including the possibility of obtaining greater peacetime augmentation from the Guard and Reserve. An examination of the past role of the reserve components, and the conditions that allowed that role to be such a successful one, is a necessary first step in asking how or whether that role should change.

AMC could look in a number of directions in coping with its high peacetime workload—reserve augmentation being just one of the possibilities. Other possibilities include making greater use of tanker forces in the airlift role, having better control of user requirements, and procuring commercial augmentation of various types. Although this study primarily addresses the past and current roles of the Guard and Reserve within the air mobility system, we present a number of these possible directions both as examples and as candidates for possible future analysis.

This study, begun in November 1992 and concluded in March 1993, was a direct assistance effort for the Directorate of Plans and Programs, Headquarters, Air Mobility Command. It was conducted within the Force Structure and Modernization Program of Project AIR FORCE, a federally funded research and development center. The briefing has been designed to be most useful to defense professionals in the field of air mobility, as well as to those concerned with issues relating to the mix of active and reserve forces and the role of the reserves in providing peacetime support to active forces.

SUMMARY

The objective of this study was to understand the past roles of the Air Force Reserve and Air National Guard within the mobility system. These two forces comprise what is referred to as the Air Reserve Component (ARC). In addition, the study clarifies the source of the problems being faced by Air Mobility Command (AMC) in the post-Cold War operating environment and highlights the constraints on both AMC and the reserve forces in achieving greater levels of support from the ARC for the peacetime mobility mission.

Mobility forces are being called on as never before to support U.S. foreign policy objectives. The signs of this increased activity, however, are found not so much in an increase in the gross numbers of missions, sorties, or flying hours, as in a shift to a greater proportion of shorter-notice, high-priority missions. In the past, these types of missions have been flown mainly by the active duty force, providing the air mobility system its quick-reaction capability. As the proportion of short-notice missions has increased, however, the capabilities of active duty aircrews and aircraft have been stretched to the limit in fulfilling peacetime requirements. In the future, as more of the force structure moves into the ARC, this role can be expected to grow increasingly burdensome, if past concepts of the roles of the active and reserve components remain unchanged.

According to current laws and regulations, the primary peacetime role of the reserve forces is to train to be ready for wartime mobilization. Peacetime military missions can be performed, but only to the extent that these missions are compatible with, and do not interfere with, the training mission. For the air mobility system, the ARC provides airlift as a "by-product" of training. Since the ARC mobility forces need the same global training and experience as the active forces, the reserves can provide considerable peacetime augmentation to AMC, amounting to about 20 to 25 percent of the global missions. Most of these missions, however, have the long scheduling lead-times, limited duration, and firm return dates that are compatible with the part-time nature of reservists' participation. In fact, the ARC is not structured to provide the substantial numbers of short-notice, responsive missions that currently stress the air mobility system.

In seeking greater peacetime augmentation from ARC forces, it is important to understand the limitations on reservists' availability. The average reservist in a Selected Reserve airlift unit already flies missions

two to three times per month to maintain proficiency and mission qualifications. The necessity to arrange time away from full-time employment makes it important that training schedules be kept firm: Canceling training to support short-notice global missions means the training is lost, usually until the following month. Regularly sacrificing training to current demand in this way would mean a rapid loss of readiness in the reserves, particularly in the airdrop and air refueling missions.

Our analysis of the costs of active and reserve forces showed that the relative advantages of the force components depended on what was being measured. The ARC is clearly the lowest-cost mode in which to store military capability for wartime mobilization. In terms of providing peacetime capability, however, the active forces compare rather well: On the basis of cost per flying hour, the actives are similar to the ARC. In addition, because they offer better responsiveness to user requirements, the actives can fly more missions that are reimbursed by users, substantially offsetting their operating costs.

Whether solutions to today's stresses on the air mobility system are found in the actives, reserves, or from other sources, they must provide either greater access to additional quick-reaction resources or greater flexibility in the use of existing resources. In looking to the ARC for augmentation, it should be remembered that it has been structured for wartime mobilization, not to fly large numbers of peacetime missions with short lead-times. Given the changes in the force structure and operating environment, it may be time to reconsider the concept that training is the ARC's only peacetime mission. Any such change in the ARC mission would need to be accompanied by the funding and force structure programming needed to provide the necessary levels of availability.

We found that many alternatives are already being considered for the alleviation of problems caused by the short-notice nature of today's mobility requirements. We have categorized them into three areas:

1. Better mobility management and motivation of users to submit their airlift requests early, by modifications to the priority system and tariff rates. These actions would provide more of the long-lead missions that are compatible with both reserve and commercial augmentation.
2. Changes in force structure to provide greater force availability. These changes could involve increases in active duty or reserve crew ratios, or an expansion of the Reserve Associate concept.
3. A change in the peacetime role of the ARC. Here the ARC would be assigned an on-going, short lead-time AMC augmentation mission.

Undoubtedly, the solution to maintaining the flexibility and responsiveness of the mobility system will consist of a combination of actions in all three categories.

GLOSSARY

AFR	Air Force Regulation
AFRES	Air Force Reserve
AMC	Air Mobility Command
ANG	Air National Guard
ARC	Air Reserve Component
ART	Air Reserve Technician
ASIF	Airlift Services Industrial Fund (currently DBOF-T)
CMMS	Congressionally Mandated Mobility Study
CRAF	Civil Reserve Air Fleet
DBOF-T	Defense Business Operations Fund-Transportation
DOC	Designed Operational Capability
DoD	Department of Defense
FH	Flying Hour
JCS	Joint Chiefs of Staff
MAC	Military Airlift Command
MAFFS	Modular Airborne Fire Fighting System
MAIRS	Military Air Integrated Reporting System
MATS	Military Air Transport Service
MPA	Manpower Authorization
NGB	National Guard Bureau
O&M	Operations and Maintenance
PL	Public Law
SAAM	Special Assignment Airlift Mission
TACC	Tanker/Airlift Control Center
UE	Unit Equipped (with aircraft)

Purpose of the Study

"Understand and describe the roles of the Air Reserve Component within the mobility system, as well as the reasons for current force postures, and the constraints upon greater peacetime employment of reserve forces."

- **A Direct Assistance Study for AMC/XP**
- **Begun 11/92, completed 3/93**

This research was performed to better understand the relationship between the Air Mobility Command (AMC) and the Air Reserve Component (ARC) and to take a preliminary step toward asking how this relationship might be better optimized for the post-Cold War operating environment. We placed emphasis on understanding the rationale underlying current policies, practices, and force postures. We also sought to understand the constraints on greater use of reserve mobility forces during peacetime, as well as the implications for peacetime mission accomplishment of a greater proportion of mobility forces being moved into the reserves.[1] Because of limitations of time and data availability, the study focused on the strategic airlift force structure (i.e., C-141s and C-5s), leaving an examination of the implications for tactical airlift and tanker forces to future work. For the same reasons, we accepted as a "given" the problem statement as articulated by senior mobility managers—that the current high rates of peacetime airlift activity are resulting in unsustainable stresses on the air mobility system.[2] We did attempt,

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[1]In this briefing, the term "mobility forces" refers to active duty and ARC airlift and tanker aircraft along with the crews that fly them.

[2]The term "air mobility system" refers to the integrated organization of equipment, people, and infrastructure, directed by Air Mobility Command, that performs transportation and air refueling missions for U.S. forces worldwide. This system includes Active, Guard, Reserve, and Civil Reserve Air Fleet resources, as well as the command

however, to shed some light on the probable sources of the reported problems. We regard the study as a useful "first look" at AMC's new operating environment and at the peacetime role of the reserve forces within it.

Active duty audiences of the briefing may gain a better understanding of the limitations under which the ARC is operating in seeking to provide greater peacetime augmentation to AMC. At the same time, reserve audiences should be aware of the changes in the mobility operating environment and that higher levels of availability and scheduling flexibility are needed to meet current mission challenges.

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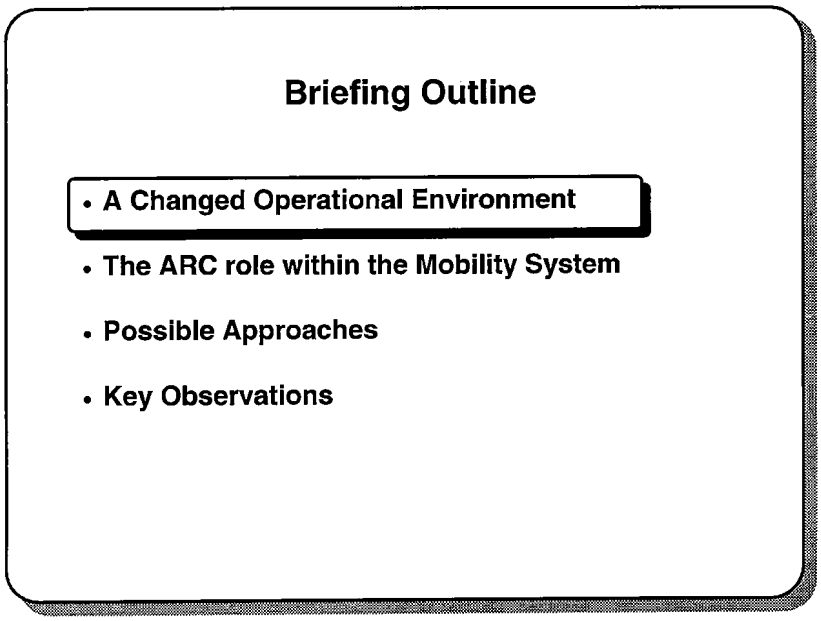
and control, home and enroute base structures, maintenance, and transportation assets that support mobility operations. "Mobility system" and "air mobility system" are used interchangeably in this report.



We first examine AMC's operating environment in the post-Cold War era, in an effort to clarify the source of the problems being encountered by the command. Although we anticipated that this effort would be a straightforward, descriptive exercise, the results had some unexpected implications for the types of solutions that AMC should be seeking.

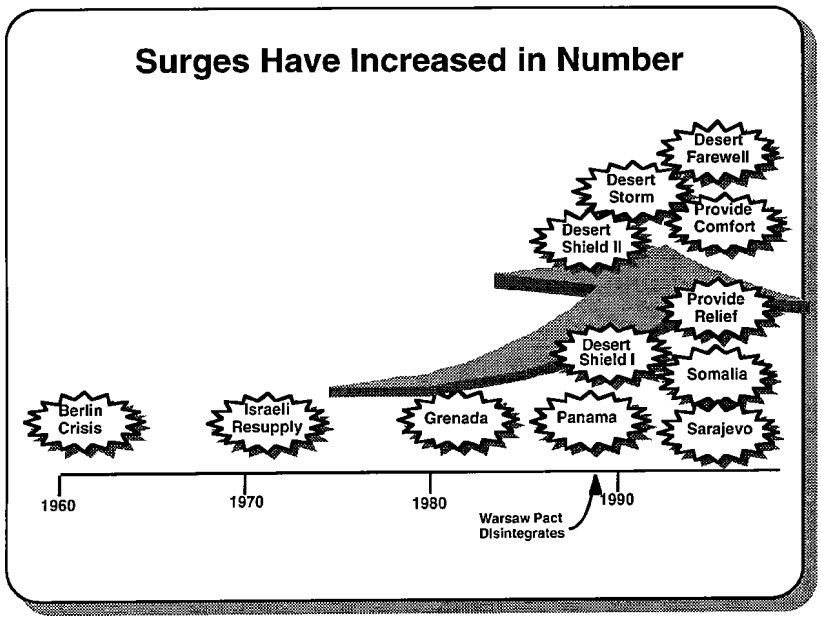
After examining the problem, we address the role of the reserve components in the mobility system, followed by a description of some of the management, force structure, and mission options that could help preserve AMC's flexibility and responsiveness. We conclude with a summary of our key observations.

For all its terrors and challenges, the Cold War imposed a certain order on the international environment. Our own foreign policy aims were defined in the context of an enduring East-West struggle: Both the Soviets and the West had their spheres of activity, and within these spheres the perception of a threat from the other side was usually enough to enforce a measure of stability. Outside these spheres, in the developing world, instability was often perceived by one side as an opportunity for the other to gain a strategic advantage. Consequently, instability was contained by any number of means, including leverage bought with foreign aid. Regional problems and centuries-old rivalries were masked while the superpowers played out their rivalry on the larger global stage.

With the end of the Cold War, long-repressed tensions have begun to resurface, and many groups are taking the opportunity to assert themselves—whether to establish long dreamed-of homelands, reassert ethnic or tribal control over "ancestral" lands, or reincorporate by force neighboring states separated by colonial rule. Both the United States and the rest of the world community have been compelled repeatedly to take action, sometimes on moral grounds, to protect the rights of minorities (as in Bosnia) and at other times to protect our own economic and political interests (as in the Gulf War). In some cases, the consequences of disorder caused by economic dislocation or famine are enough to motivate the world community and the United States into large relief efforts, mounted on short notice, such as the Provide Hope and Restore Hope operations to

the former Soviet Union and Somalia. Finally, in addition to these international demands, we have had our own contingency requirements, in the form of a succession of hurricanes and typhoons.

Today it is remarkable the extent to which we are dependent on our mobility forces to give us the flexibility our policymakers need. Whether it involves the deployment of the military forces of the United States or United Nations, or humanitarian relief for floods, famines, earthquakes, hurricanes, and volcanic eruptions, our mobility forces are frequently *the* enabling capability that allows us to tailor our participation as our interests and obligations demand. In the chaotic post-Cold War environment, our mobility forces, perhaps even more than our strategic nuclear forces, define our status as a superpower. Given the importance of these forces, it is critical that we anticipate the effects of changes in the mobility force structure. In addition, we need to know the implications of the new operating environment for the role of the ARC within the mobility system.

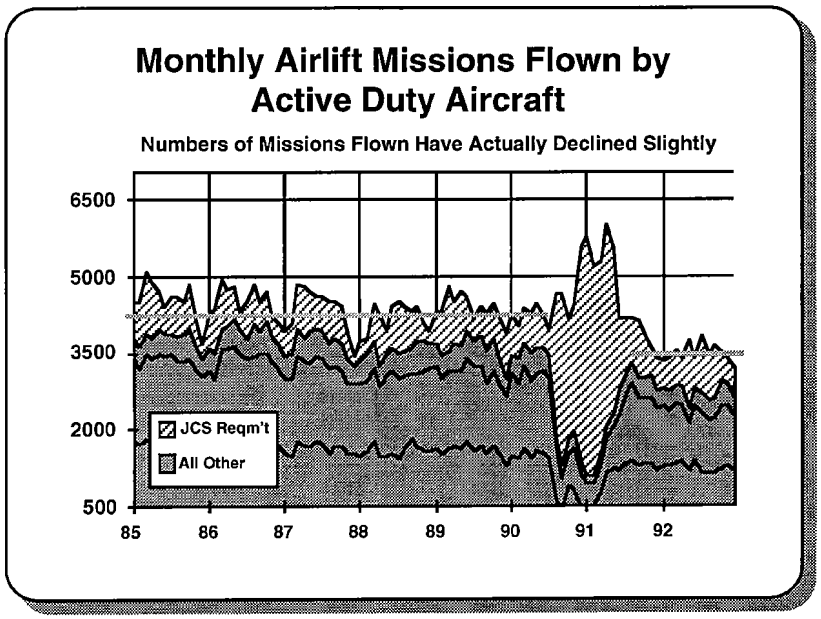


The changes in the international environment have resulted in an increased number of "surge" operations being conducted by AMC in recent years. For AMC, surge operations are similar to going to war, whether the operation is to deploy U.S. forces for combat or to deliver humanitarian relief in the aftermath of a natural disaster. The command can surge its aircraft, crews, and maintenance force to maximum rates of operation for about 60 days before it must slow down to revitalize the mobility system. In recent years, however, these surges have followed on the heels of one another. AMC is being called on regularly to "go to war," even though the rest of the U.S. armed forces are at peace and well before any thought is given to mobilizing reserve forces.

One conclusion that can be drawn from these observations is that the force structure AMC needs to conduct its mission during peacetime and wartime has been *converging* since the end of the Cold War. The old wartime scenarios encompassing the rapid deployment of many Army divisions to Europe to repel a Soviet invasion are no longer relevant, while the peacetime demand for contingency airlift seems to have expanded substantially. This trend may have implications for the future role of the ARC within the mobility system. Planning always has assumed the availability of reserve forces to augment the actives in *wartime.* If the mobility mission is a special case, in which wartime rates of operation occur relatively often during *peacetime*, then it may be time to reconsider

the traditional concept of the reserves as a force available in the main only after mobilization.

We expected that an effort to identify and quantify the changes in the mobility environment dramatized on this vugraph would be straightforward. By simply showing increases in the numbers of missions and flying hours being flown in recent years, we thought we could demonstrate clearly that increased peacetime stress was being imposed on the mobility system. However, it turned out that we had to look deeper for the sources of the problems being reported.



Data sometimes can show unexpected, even counterintuitive results, but the explanation of what seems to be an anomaly can yield important insights. This was the case in our effort to identify and quantify the levels of peacetime demand on the mobility system. Initially we examined the numbers of strategic airlift missions being flown over time, as well as other measures such as sorties flown and flying hours. This vugraph depicts C-141, C-5, and KC-10 airlift missions flown per month. The two straight lines show the average monthly missions before and since Operations Desert Shield and Storm. Joint Chiefs of Staff (JCS) Requirements includes exercises and contingencies. "Other" includes channel missions, special assignment airlift missions (SAAMs), and unit training.[3] Our expectation was that such data would demonstrate the high rates of activity that AMC has reported. What they actually show is a somewhat lower activity level in recent years, when measured by this particular yardstick. Another unexpected finding was that aside from the obvious increase for Desert Shield and Desert Storm, there is no individual

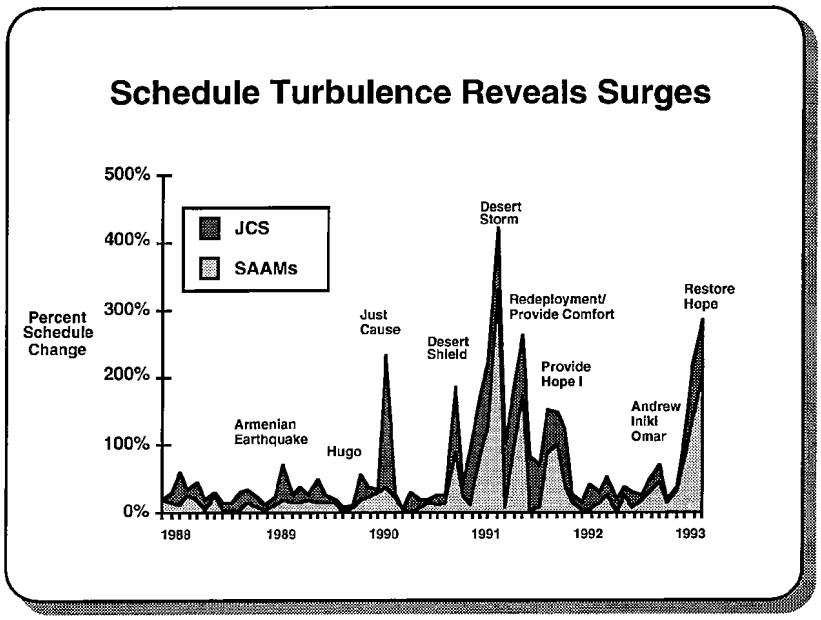
[3]JCS-directed missions are a category of airlift mission in support of joint exercises and operations plans. Most missions flown during Operation DESERT SHIELD were of this type. Channel missions are regularly scheduled airlift missions that make up the AMC route structure. SAAMs are a category of mission outside of the channel structure that are "chartered" by a particular unit or organization for a special purpose. Unit training describes those missions flown by AMC in support of its own aircrew training requirements.

indication of the repeated surge operations conducted by AMC since 1989. Where is Just Cause? Hurricane Andrew?

Although varying from month to month, AMC flies a fairly constant program of missions and flying hours. The size of this program is driven not so much by external demand as by the sizable aircrew training requirements. In addition to local, home station training, these requirements include the need to season the force in the international flying environment, while at the same time carrying peacetime military cargo and passengers. The size of this flying program, actually being shown above, is thus driven by both the number of aircraft available and by the number of crews that require continuing training. We, therefore, can make an educated guess that the recent decrease in missions being flown is the result of both the large numbers of AMC aircraft requiring lengthy depot maintenance in recent years and a decrease in crew ratios, which has decreased training requirements.

An important observation can be made at this point: When AMC gets the call, it apparently fills most requirements by shifting missions from training to surge operations, allowing the overall level of flying to remain fairly constant over time. However, although airlift training and operational missions are often very similar in character, there is a critical difference between them. Training missions are scheduled well *in advance* and provide stability to the system, while contingencies are, by their nature, *short-notice*. As we shall see later, the ARC is able to provide substantial augmentation in the first case, when requirements are stable. However, when contingencies occur with little warning, the active force traditionally fills the need.

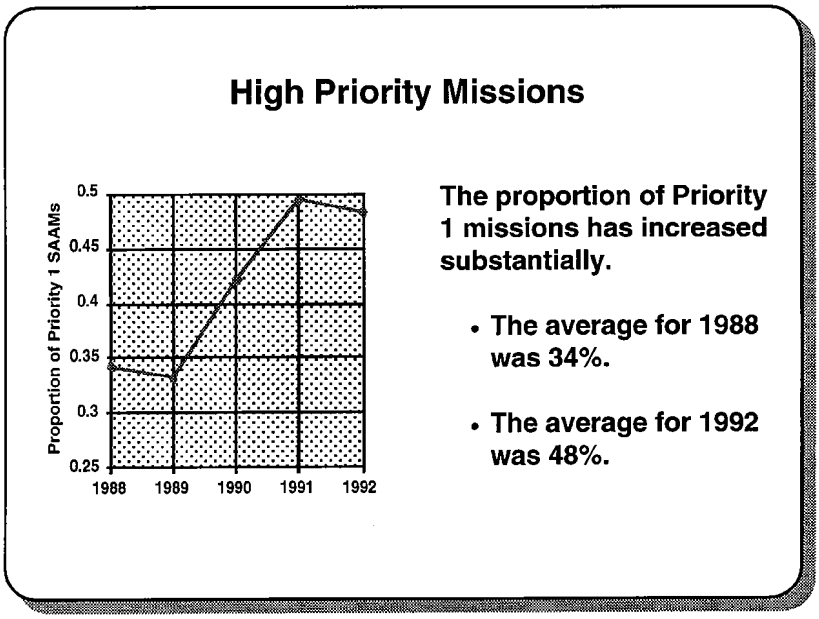
We, therefore, decided to investigate the turbulence in requirements as a possible source of stress on the mobility system.



We looked at mission schedule reliability by comparing the flying hours scheduled 30 days in advance with the actual flying hours flown, for JCS-directed missions and SAAMs. These are the main categories of missions that AMC uses for its short-notice, responsive requirements. The left-hand scale shows the absolute percentage change from the scheduled to actual flying hours. This yielded a good indicator of all the surge operations that AMC has mounted in recent years. It should be noted that reservists augmented the active force substantially during many of the surges shown on this chart, both as volunteers and as mobilized units. However, if schedule turbulence reveals the stresses on the mobility system during surges, then perhaps it also provides an indicator of the stresses during the more "normal" peacetime operations. The general source of stress could be in the increased *chaotic nature* of airlift requirements, rather than in gross numbers of missions or flying hours.

When there is increased short-notice demand for airlift during day-to-day operations, usually the active duty force is tasked to fly the additional missions. The ARC normally is constrained to the longer-lead missions, for which reservists can arrange to be absent from their full-time jobs. For the short-notice, high-priority demand that might occur in everyday operations, the active duty force bears the heaviest weight of the burden. We, therefore, decided to investigate whether the number of these

missions that require responsiveness has increased in recent years. If so, an ever-greater burden is being placed on the active duty force at a time when the size of that force is becoming smaller.



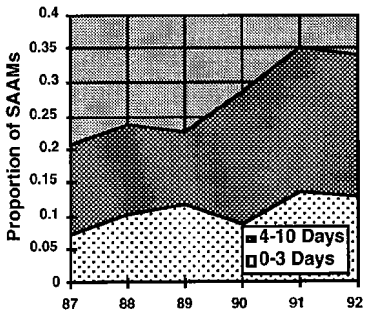
This chart shows JCS Priority 1 SAAMs since 1988, as a proportion of the total number of SAAMs.[4] In the period from 1988 to 1992, the Priority 1 demand increased from about one third of the total to almost half. Although this chart shows only SAAMs, which comprise approximately 20 percent of AMC requirements, we believe that it is likely to be indicative of demand for JCS-directed missions as well, since both of these categories of missions respond to unforeseen, high priority requirements. Together, these two categories account for about 40 percent of airlift missions flown.

[4]The JCS Airlift Priority System is a DoD-wide system that allows a transportation priority to be associated with a validated airlift requirement. Priority 1 missions are generally in support of current requirements, including combat operations and contingency deployments.

Requirements Turbulence

The proportion of short notice missions has increased.

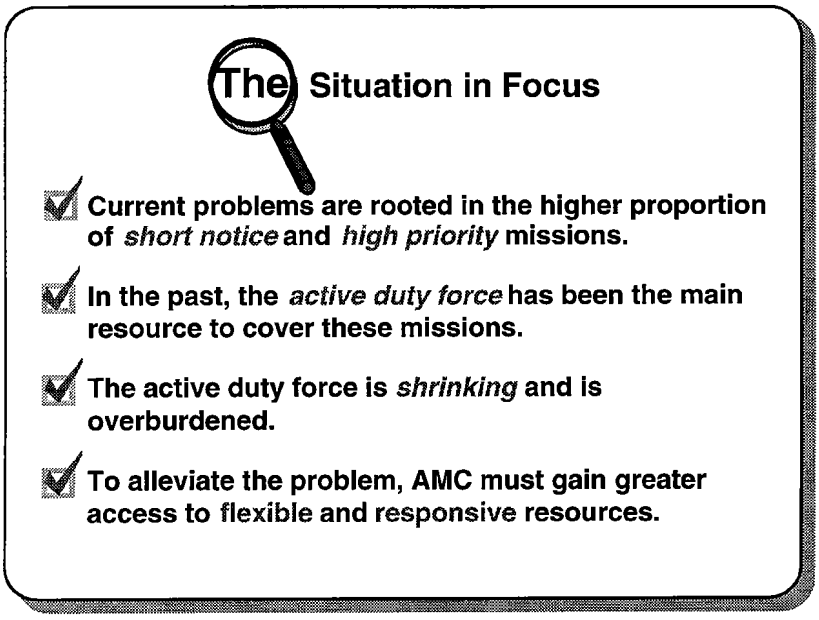
- **20% of missions had less than 10 days' lead time in 1987**
- **In 1992, 33%**



In addition, AMC seems to be getting shorter lead times for its missions. Between 1987 and 1992, the proportion of SAAMs with less than ten days' notice has increased from one fifth to one third of the total. It should be noted that missions with less than 30 days' lead-time are often not supportable by the ARC, and missions that have less than ten days' notice place substantial stress on the mobility system.

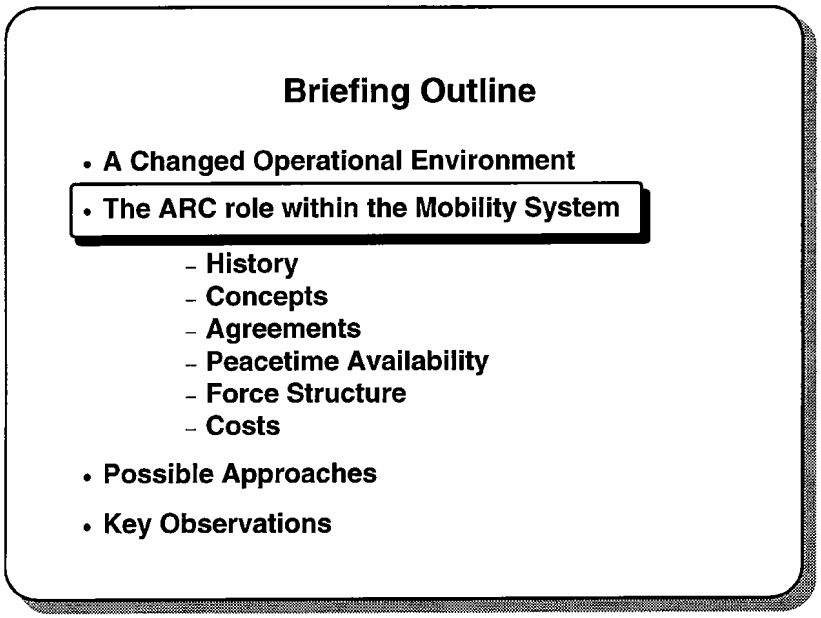
Sources at the wing-level have confirmed the observation that schedule turbulence has increased in recent years. One wing reported that schedule reliability slipped this fiscal year to 47 percent of the actual flying hours flown, compared with a 78-percent schedule reliability in 1989. Thus, of the total hours the wing has flown this year, only 47 percent were scheduled 30 days in advance. As another indicator, the percentage of flying hours flown in 22d Air Force supporting the SAAMs and JCS-directed missions has increased to 43 percent today from around 32 percent in 1989, meaning that the proportion of short notice missions being flown has increased.

The message conveyed by these vugraphs and statistics is that AMC is correct in its perception that its operating environment has changed. However, the change has come not so much in the gross measures of output—such as numbers of missions, sorties, and flying hours—but in the shift to a more turbulent environment, with a greater proportion of high-priority, short-notice missions.

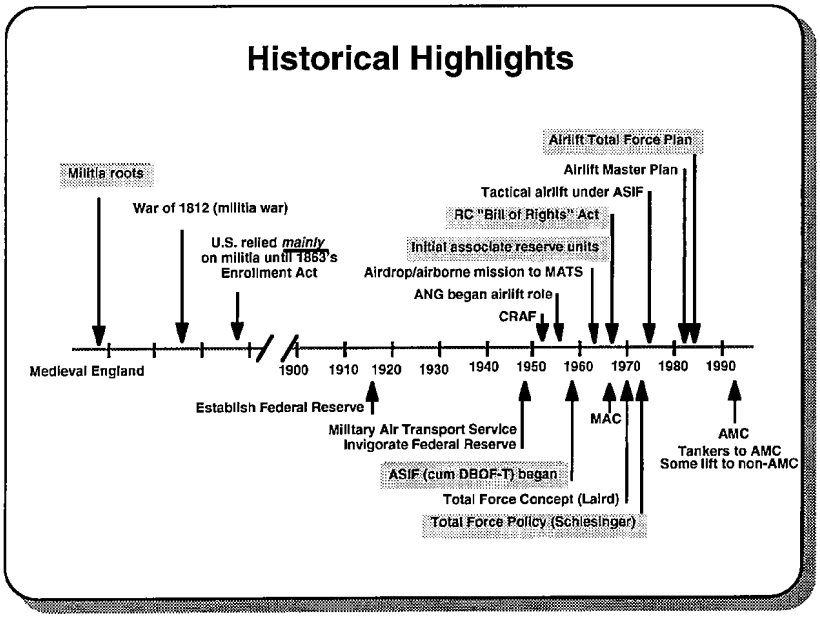


AMC has reported that the current operating environment is regularly overtasking its people and systems. We believe that the source of these stresses is mainly in the more turbulent nature of the demand for airlift, a demand driven by the unstable characteristics of the post-Cold War international system. Under the current paradigm, these short-notice missions by necessity fall mainly to the shrinking active duty force. This observation has been validated by an informal survey of AMC wings; the results indicated that the large numbers of short-notice, "add on" missions have been causing problems for the active duty units. As a result, an ever-smaller force is being tasked with an apparently growing burden of providing the flexibility that is considered such a valuable characteristic of the mobility system.

To address this problem AMC should be seeking access not just to more crews and aircraft but to crews and aircraft that are available to respond with less scheduling lead time.



The Total Force Policy, mandating that the reserve components be fully integrated into the military force structure, has reached its greatest actualization within the mobility system. No other portion of the force structure depends more heavily on the reserves for augmentation—not just in the event of wartime mobilization but also for on-going peacetime operations. In the next part of the briefing we will describe the current role of the Air Reserve Component within the mobility system, by addressing the subtopics shown above.



HISTORY

The militia concept traces its origins to medieval England and is deeply embedded in the United States thinking about their military. In its most basic form, the concept of the militia consisted, and actually continues to consist, of all able-bodied male citizens eligible for military service and ready to defend their homes and communities. The U.S. relied on this concept in its essential aspects until World War II, maintaining small standing forces during peacetime. The standing forces included cadres of professional officers who provided the core around which the militia would mobilize in time of war. As the nature of warfare began to change in this century, however, the militia concept began to present limitations, while the idea of having military reserves gained strength. Before World War I, it became apparent that our standing military forces were inadequate to deploy and engage an overseas enemy in a reasonable amount of time and simultaneously fulfill the role of training new recruits during a lengthy national mobilization. The answer was the creation of the Federal Reserve in 1916. The reserves would mobilize with a minimum of required training to augment the deployed active forces, allowing some of the active forces to remain behind to support the general mobilization of the militia. This doctrine concerning the role of reserves endured essentially intact until the 1960s.

In the decade of the 1960s, the reserve concept began to change. The realities of possible war in Europe against the Soviets dictated that no time would be available to mobilize, train, and equip new units. The U.S. needed forces-in-being, ready to fight a "come as you are" war. Although the fiscal realities of maintaining so much force structure in peacetime implied a greater reliance on reserves, these reserves would need to be more ready and more equivalent to the active forces than the traditional concept had required. Toward this end Congress passed the Reserve Forces Bill of Rights and Vitalization Act of 1967 (to be discussed later). The movement toward a more effective and ready reserve component continued to gain momentum and culminated by 1970 in the Total Force Concept, which became the Total Force Policy in 1973. The Total Force Policy mandates that the reserves

1. Receive modern combat equipment compatible with the active force
2. Be the initial and primary source of augmentation of the active forces during emergencies
3. Receive additional functions and units whenever possible, to save money
4. Be taken fully into account in sizing and structuring U.S. forces.[5]

Simultaneously with this evolution in thinking about the reserves, the Military Airlift Command (MAC) was concerned about the high levels of peacetime requirements it was experiencing.[6] The Command cited the actions in the Dominican Republic and Congo as examples of near-wartime requirements without considering the mobilization of the reserves. In addition, analyses of airlift requirements for the wartime deployment of forces to Europe indicated that high aircraft utilization rates would be needed, rates that were unsustainable without additional crews. After study, MAC's response was to request an expansion in the active airlift force structure. Congress, however, mandated that any increases in crew ratios must occur within the reserves. Shortly thereafter, in 1968, the Reserve Associate concept was implemented for C-141 units. This concept colocates units of reserve fliers and support personnel with active duty units, to train using the active duty aircraft, and achieves cost benefits by taking advantage of the active duty support structure. The Associate concept is oriented specifically toward achieving greater

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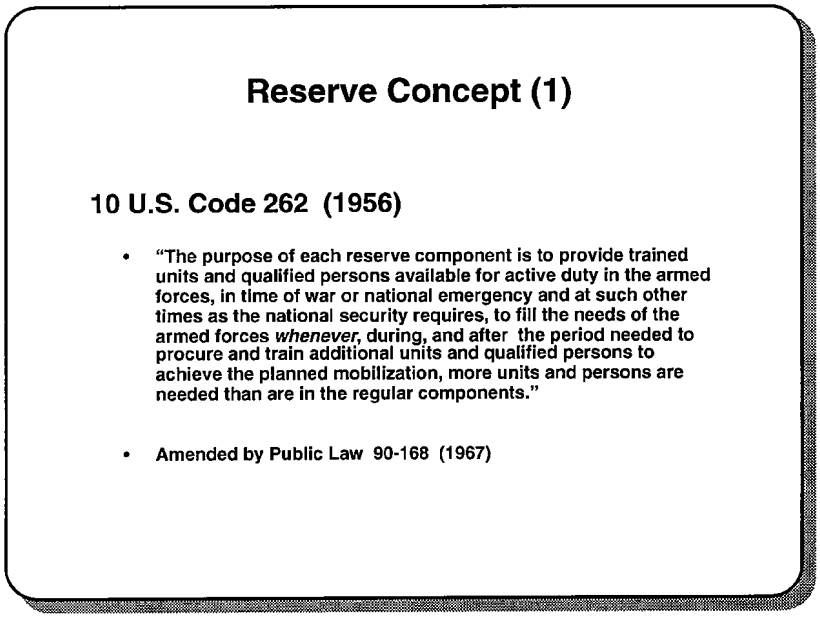
[5]Rostker, Bernard D., et al., *Assessing the Structure and Mix of Future Active and Reserve Forces: Final Report to the Secretary of Defense*, RAND, MR-140-1-OSD, 1992, p. 33.

[6]Before 1 June 1992, the airlift forces of Air Mobility Command were under the now-deactivated Military Airlift Command.

peacetime availability of reserve forces, as well as to support the more traditional reserve role of training for wartime mobilization.

Before 1976, however, no ARC units could be called to active duty involuntarily without a declaration of war or national emergency by Congress or the President. The massive airlift effort to aid Israel during the 1973 Mideast War indicated that for peacetime contingency purposes, some authority to call up reserves was necessary short of such declarations. The result was Section 673b of Title 10, which allowed the President to call up 50,000 reservists for 90 days to "augment operational missions." This authority later was expanded to 200,000, and the period increased to 180 days. Section 673b authority became an important enabling element of the Total Force Policy, allowing planners to integrate the ARC into the earliest parts of their contingency plans. Throughout the remainder of the 1970s, the ARC role in the mobility system grew to a full partnership with MAC in meeting peacetime and contingency airlift demands.

In 1981, the Congressionally Mandated Mobility Study (CMMS) was submitted by the Department of Defense to Congress as an analysis of the magnitude of the wartime airlift requirement and a certification that a new airlifter, the C-17, was necessary to meet that requirement. The Airlift Master Plan, published in 1983, contained an equipment road map toward achieving the goals of the CMMS. This plan showed how the C-17 would be incorporated into the force structure, retiring some C-130s, and transferring the C-141B fleet to the reserve forces by 1998. However, it did not address in detail the respective roles of active and ARC forces within the airlift force structure. In 1984 the Airlift Total Force Plan described the mix over time of active duty and reserve forces to support the force structure outlined by the Master Plan. Although all three of these plans have been overtaken by the tumultuous events since 1989, they formed the basis for airlift and Total Force planning throughout the 1980s and cemented the integral role of the ARC within the mobility system.

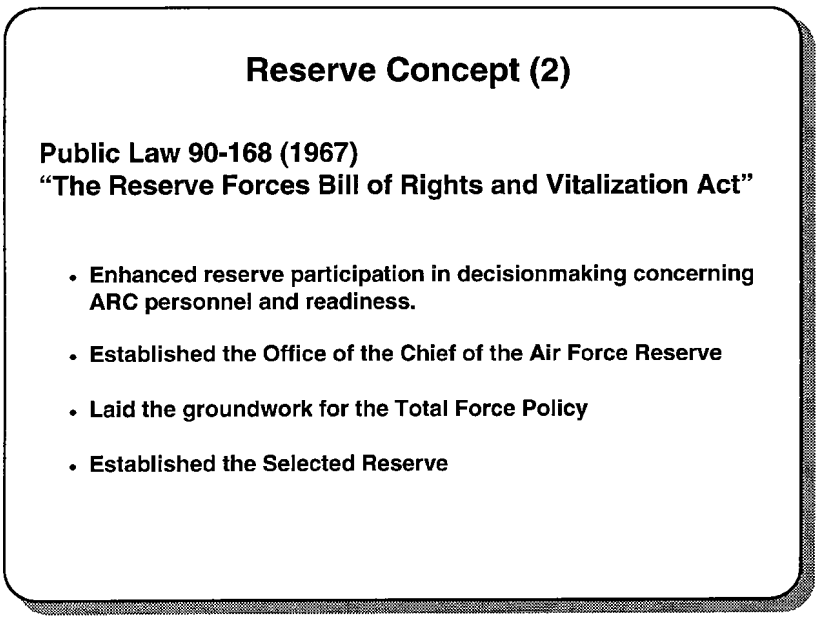


CONCEPTS

The legal basis for the reserves, including the ARC, is provided in Title 10 of the U.S. Code. This Title specifies the overall size and composition of the reserves, as well as the obligations of members of the reserve and the call up authority of the President.[7] Section 262, cited in this vugraph, lays down the purpose of the reserve forces. This is the traditional purpose described earlier—to augment the active duty force while the country mobilizes and trains additional units. However, a key point is that Congress specified that the reserves would augment the active force *whenever* more units are needed than are available in the active force—not just strictly during wartime. Congress also specified that the reserves would provide forces *at such other times as the national security requires.* The intent here is clearly that the reserves are not constrained from providing augmentation to the active forces during peacetime but can do so whenever additional forces are needed.

As mentioned earlier, the reserve concept changed substantially during the 1960s, in large measure because of Public Law (PL) 90-168, known as the "Reserve Forces Bill of Rights and Vitalization Act," which amended many reserve-related statutes.

[7]The strength of the Selected Reserve is authorized annually by Congress, however.



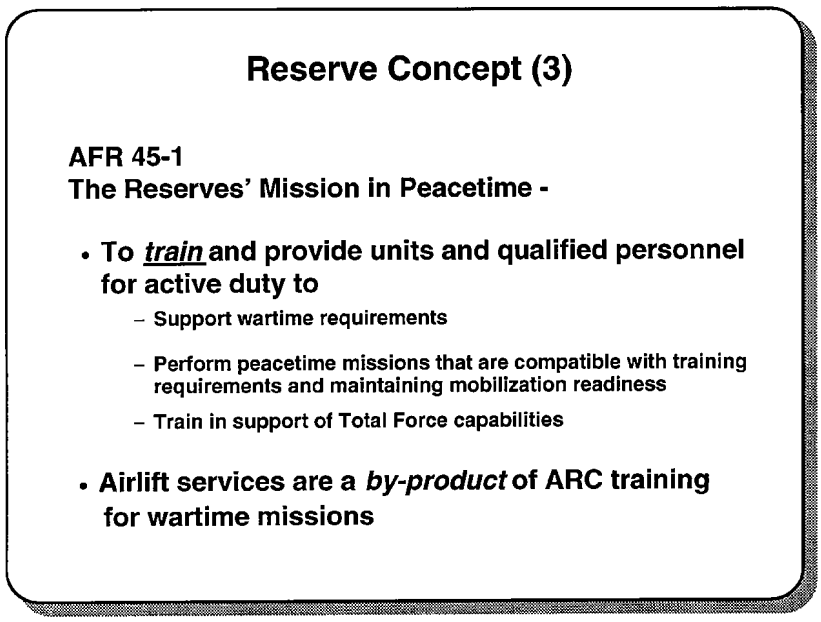
This law had a major impact on the role of the reserves. The basic purpose of the bill, as described in the Legislative History, is as follows:

> . . . to provide for certain statutory changes in the organizational and administrative structure of the Reserve components of the Armed Forces in order to enable all of the Reserve components to more effectively meet their mobilization role in terms of our contingency and war plans.

There was a credible sense at the time that the demands of our wartime planning had outstripped the ability of the reserves to support those plans. As an underlying philosophy, the legislation mandated that in order to achieve the levels of readiness and effectiveness required, reservists would need to be given substantial control over their own resources and training. The law established a Deputy Assistant Secretary of Defense for Reserve Affairs, as well as Assistant Secretaries for Manpower and Reserve Affairs within each military department. It also required that reservists review and participate in major policy decisions concerning the ARC. Finally, it established the Office of the Air Force Reserve, coequal with the Air National Guard. Of key importance was a provision making the Service Secretaries responsible to provide, as a matter of law, the personnel and equipment needed by the reserve components to meet the readiness requirements established by the Secretary of Defense and Joint Chiefs, and to report to Congress annually on the status of their progress. Finally, an additional provision established

the Selected Reserve, composed of units (as opposed to individuals), to receive priority in personnel, training, and equipment. These units would be the most ready for deployment—integral parts of the contingency planning for war with the Soviet Union.

While this law went a long way toward establishing the reserves as an integral part of the military force structure, it left the Services considerable leeway in the degree to which management of reserve affairs would be vested in reservists. The Air Force, however, embraced the Total Force Policy with gusto, granting the ARC broad authority to oversee its own program.

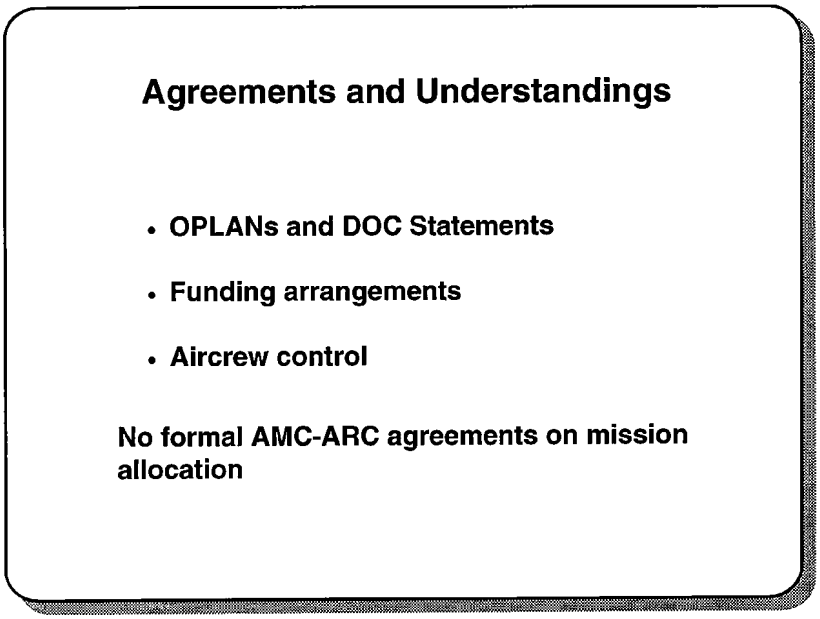


Air Force Regulation (AFR) 45-1, "Purpose, Policy, and Responsibilities for Air National Guard and Air Force Reserve," dated 2 January 1987, outlines the Air Force's implementation of the Total Force Policy. It is a remarkable regulation in that it makes formidable demands on the Air National Guard and Air Force Reserve in terms of combat readiness, while vesting management responsibility for the program almost completely in the hands of the reservists themselves.

To achieve the needed levels of combat readiness, the Air Force clearly states that the mission of the ARC in peacetime is to train for wartime mobilization. Peacetime missions can be performed but only to the extent that they are compatible with, and do not interfere with, the training mission. The regulation states, "These forces also perform peacetime missions as an adjunct to, or corollary of, training." In the case of the mobility system, this means that airlift is provided as a *by-product* of training—and since reserve mobility forces need the same global training and experience as do the active forces, this amounts to a considerable peacetime augmentation of the AMC mission.

This regulation has some important implications for the ARC role within the mobility system. During peacetime, Air National Guard units in each state report to their governors and state Air National Guard (ANG) Headquarters, and the Air Force Reserve reports to the Air Force Chief of Staff. Neither reserve component reports directly to the gaining

commands that would be employing their units during wartime. In addition, the ARC itself determines what is and is not compatible with the training mission. While these arrangements have given the ARC the latitude to become the effective combat force it is, they have also given it considerable independence from AMC. AMC does not directly task an ARC unit with a mission. As will be seen later, AMC "offers" missions, and although the "can do" attitude of the ARC is evident, there is a right of refusal if the mission interferes with training.



AGREEMENTS

Perhaps the most remarkable aspect of these agreements between AMC, Air National Guard, and Air Force Reserve is how few of them there are. Those that do exist are grouped into the three categories shown on this vugraph.

The wartime commitments of the units, in terms of readiness and combat capability, are described in operations plans and statements of designed operational capability (DOC) statements that apply to the unit. These are the wartime taskings that the ARC trains to accomplish as its primary peacetime mission and against which the compatibility of other peacetime missions is judged. However, these taskings are made as part of the overall deliberate planning process at the Joint Staff and regional command level, with only marginal input from AMC. For planning purposes, the ARC has committed to providing 25 percent of its mobility crews and equipment to AMC during a surge effort, before a formal call up. This number applies only to emergency, surge operations in which a later call up of reserves by the President is possible.

The most detailed and complete agreements between AMC and the ARC address funding arrangements for ARC unit-equipped squadrons flying missions for AMC. The Defense Business Operations Fund-Transportation (DBOF-T) is a revolving industrial fund that pays AMC for the airlift services it provides to users, while the users reimburse the fund

by paying tariff rates that are comparable to commercial rates.[8] All missions flown by active duty and Reserve Associate units are financed by the DBOF-T, and like any other users, these squadrons must reimburse the fund from their own operations and maintenance (O&M) funds if the mission is flown solely for their own training.

The ARC unit-equipped squadrons are another matter.[9] In keeping with the idea that training is the primary mission, in the past, the flying-hour program of these squadrons has been financed by O&M appropriations. More recently, the unit-equipped squadrons have agreed to fly half the planned overseas missions for AMC under DBOF-T funding, for which their costs are fully reimbursed. Thus, to get the needed overseas training, they must fly "paying customers." The reserves can also agree to fly additional missions over and above their planned flying-hour programs, called "overfly," which also are reimbursed by the DBOF-T. However, in the past the DBOF-T has not charged DoD users for the crew members' military pay expenses or reimbursed units for these expenses. Consequently, when unit-equipped squadrons "overfly," they incur "man-day" expenses that generally are not budgeted for in advance and are not reimbursed by the DBOF-T. ARC representatives have said that they could fly more overseas missions for AMC in the "overfly" category if AMC would reimburse the ARC "man-day" expenses. New funding agreements for unit-equipped squadrons are being negotiated between AMC and the ARC.

Additionally, memoranda of agreement include provisions concerning the status and requirements of ARC crews while they are flying missions under AMC control. These agreements recognize the reserve crews' need for firm scheduled return times so that they can return to their full-time employment and allow for commercial travel back to home station, if necessary.

If there *is* a formal arrangement between AMC and the ARC concerning mission allocation, it is one in which AMC offers a mission to the ARC, the ARC evaluates the mission in light of its compatibility with training, and either accepts or passes on it. To our knowledge, however, there are no headquarters-level, formal agreements between AMC and the ARC in which the ARC has committed to specific levels of peacetime augmentation in terms of numbers of missions or other measures, over specified periods of time.

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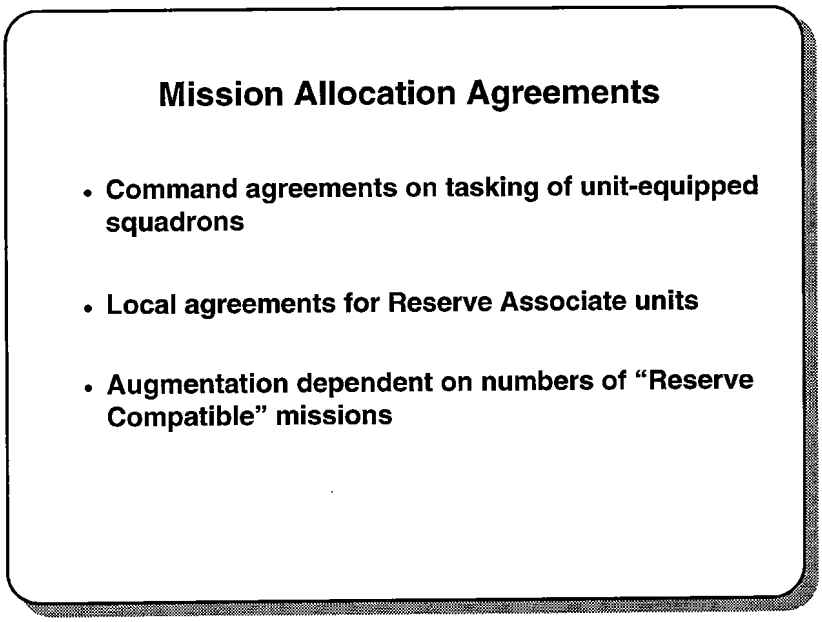
[8]The tariff rates do not reimburse the DBOF-T for all the expenses of operating a mission. The shortfall is covered by an annual appropriation from Congress.

[9]Currently, there are four C-141 and two C-5A unit-equipped squadrons in the Air Force Reserve (AFRES) and two C-141 and one C-5A unit-equipped squadrons in ANG.



Mission allocation for AFRES unit-equipped squadrons is outlined in an agreement that begins, "As an adjunct of training, Air Force Reserve units will participate in a representative cross section of MAC mission profiles." For participation in AMC's workload of channel and joint airdrop training with the Army, reserve representatives attend the relevant planning conferences and negotiate for missions they deem are compatible and necessary for unit training. For SAAM and JCS exercises, which comprise most of AMC's short notice, responsive requirements, AMC *offers* missions to Headquarters AFRES, and AFRES tasks its own units according to the units' stated periods of availability.

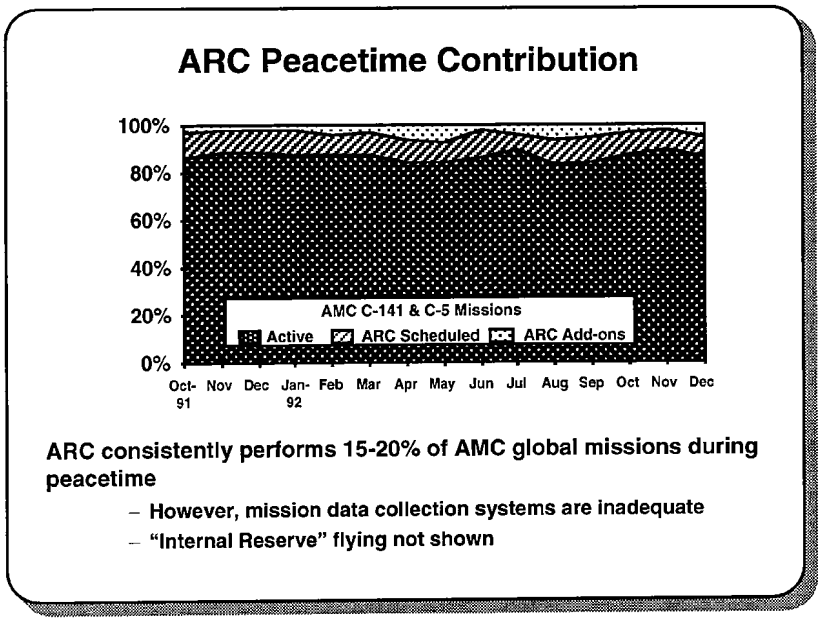
Since all ANG squadrons are unit-equipped, the process for these units has some notable differences. During peacetime, since ANG units fall under their respective state governors and adjutants general for command and control, AMC goes directly to ANG airlift units to inquire about their availability and to offer missions.

For Reserve Associate wings,[10] the allocation of missions is highly dependent on the local relationship with their associated active duty wings. In all cases we encountered, these working relationships were excellent. Some Reserve Associate units have explicitly agreed to fly

[10]Reserve Associate wings are units of reservists collocated with active duty wings, which fly active duty aircraft.

substantial proportions of the locally tasked AMC missions—in one case, 40 percent. In general, mission taskings are passed down directly from AMC to the active duty current operations office for scheduling. At this point, whether a mission is flown by an active duty crew, a reserve crew, or a mixed crew depends on local agreements and understandings. Representatives of some Reserve Associate units have stated that they would fly more AMC missions if they were offered by the active duty current operations personnel. On the active side, however, the general perception is that the reserves already get the bulk of missions that are "reserve compatible," some of which the actives need for their own training.

As we shall see, Guard and Reserve units operate under availability constraints. Longer lead-times are needed to schedule the reservists' absence from their full-time employment. Taking this into account, "reserve compatible" missions are defined at some wings as missions with at least 72 hours scheduling lead time, less than ten days' duration, and a firm return date. As for the proportion of AMC global missions that are compatible with these reserve requirements, a survey of both active and reserve wings yielded estimates ranging from 60 to 70 percent. Managers at these wings usually estimated that the associate reservists fly around half of these "reserve compatible" missions.



PEACETIME AVAILABILITY

On this vugraph, we have attempted to show the proportion of the ARC contribution over time. The data, derived from a combination of AFRES monthly wing productivity reports, the AMC Military Air Integrated Reported System (MAIRS) database, and estimates of the ANG contribution, indicate that the ARC flies approximately 15 to 20 percent of the AMC mission. We regard this estimate as a lower bound on the actual ARC contribution.

Tracking the ARC contribution to the AMC mission was not the straightforward analytic task we had expected. Three factors indicate that the actual ARC contribution should be higher than the estimates indicated here:

1. The ARC's largest participation in the AMC mission is by the Reserve Associate squadrons. Because these reservists fly the aircraft of their active duty colleagues and because the mission data collection systems historically have tracked missions according to the ownership of the aircraft, the substantial contribution of the Reserve Associate units is not visible in AMC historical databases.

2. The associate reservists interfly regularly with the active duty, forming "mixed" active/reserve crews, making the portion of the total taskings flown by reservists even harder to track.

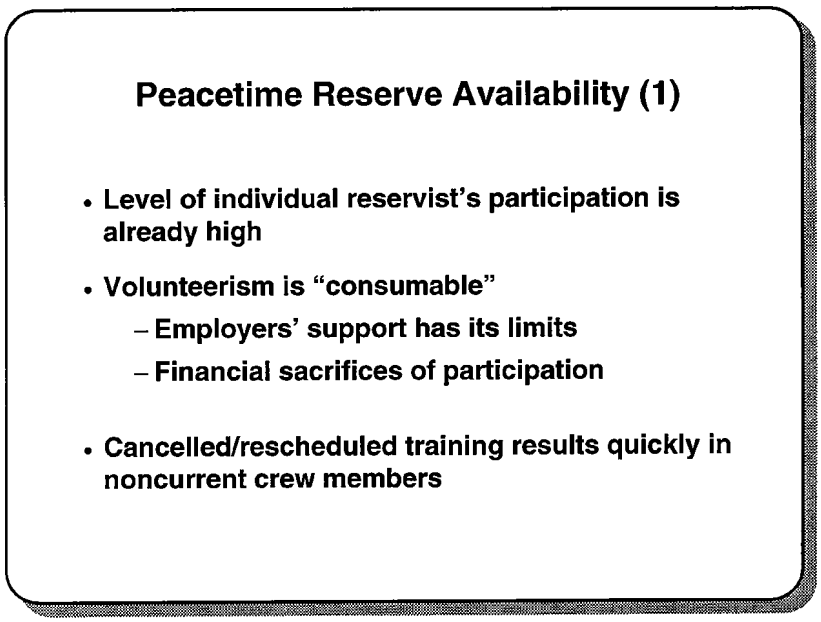
3. Both the Reserve Associate and unit-equipped units fly large numbers of "internal reserve missions" under their own funding and control. The AMC never receives a request or tasking for these missions, but they are in support of National Guard, Army Reserve, and ARC unit moves, and AMC would probably have to support them if the ARC did not.

Another reason for questioning the level of the ARC contribution to the AMC mission shown in this vugraph is the results of the survey of the mobility wings we cited earlier. The managers in most cases stated firmly that the reserve contribution to the AMC taskings usually averaged around 25 percent and frequently ranged up to 30 percent of missions flown. However, as short-notice or surge mission taskings increase, the reserves can offer less support. One senior manager provided the following insight about surge operations:

> As the advance warning time decreases to 24 hours, it is almost impossible for the reserves to fill mission taskings. Conversely, as advance notification of an airlift surge increases to more than 72 hours, reserve participation increases. Similarly, we have greater success on filling missions of four to seven days duration versus those in excess of ten days or that are of unknown duration. These unknown duration taskings occur most frequently during the initial stages of a contingency to establish stage bases with a predetermined number of crews. In Operation RESTORE HOPE, these requirements were filled overwhelmingly by active duty crews—As the airlift flow stabilizes, the reserves eventually contribute to the contingency at or slightly above the 25 percentile level.

Later, he went on to state, "In essence, more reserve crews *could* provide less flexibility for airlift: less capability to form maximum numbers of crews with little notice or with missions of unknown duration."

Our research suggests that the reserve force contribution to peacetime mobility operations ranges between 20 to 25 percent. However, as the number of "reserve compatible" missions decreases in surge operations, the reserves, at least initially, have a harder time maintaining that contribution.



Further pursuing the concept of reserve availability, it is important to keep in mind the limitations on this availability. As a minimum, the average reservist in a Selected Reserve unit is already flying missions two to three times per month just to maintain proficiency and mission qualification. Some estimates of this participation range as high as 120 days of required participation per year. Asking for more participation under these circumstances can be problematic.

Most reservist's are "part-timers." They have full-time civilian jobs, and their employer expects certain levels of productivity. One characteristic of availability that results is that a reservist's volunteer participation can be a "consumable" commodity. AMC can ask for a great deal of participation during crises or surge operations, but when a reservist eventually returns to work, he or she will be expected to make up for lost time. In addition, most employers limit the number of days they will allow paid absences for reserve duty; beyond this point the individual reservist may have to take a leave of absence, sometimes at a considerable financial sacrifice. As a result, a fall-off in participation by reservists is usually seen after a period of high-tempo operations.

Finally, it is for good reason that *training* is the only peacetime mission of the reserves. To accomplish this mission they must be able to firmly schedule flights well in advance. For example, many pilot reservists are airline pilots and must submit work schedules to their company at least 30

days in advance. If an individual has made him- or herself available for a training mission on a given day and that mission is canceled or changed to a special assignment airlift mission (SAAM), then he or she probably cannot substitute another training mission the next day, as can be done in an active duty wing. The training opportunity probably is lost for that individual, who must schedule another such mission the following month. It is easy to see that without a firm training schedule, it would be hard to maintain reservists' currency in monthly training events. For this reason ARC managers will often cite an inherent conflict between providing AMC peacetime availability and conducting training. This conflict has been articulated in the following way in the *Air National Guard Long Range Plan*:

> . . . as more force structure has moved from the Air Force to the ANG, the ANG has been pressured to mirror the Air Force in peace time availability as well as war time performance. . .With increased tasking, these two . . . have become, more and more, mutually exclusive.[11]

There is an associated cost to AMC if peacetime ARC participation is increased. Among the costs that could be decreased is ARC's readiness to perform wartime missions. In the case of airlift aircraft, the impact would probably be felt most in readiness for the airdrop and air refueling missions, since these qualifications require the most monthly and semiannual training events.

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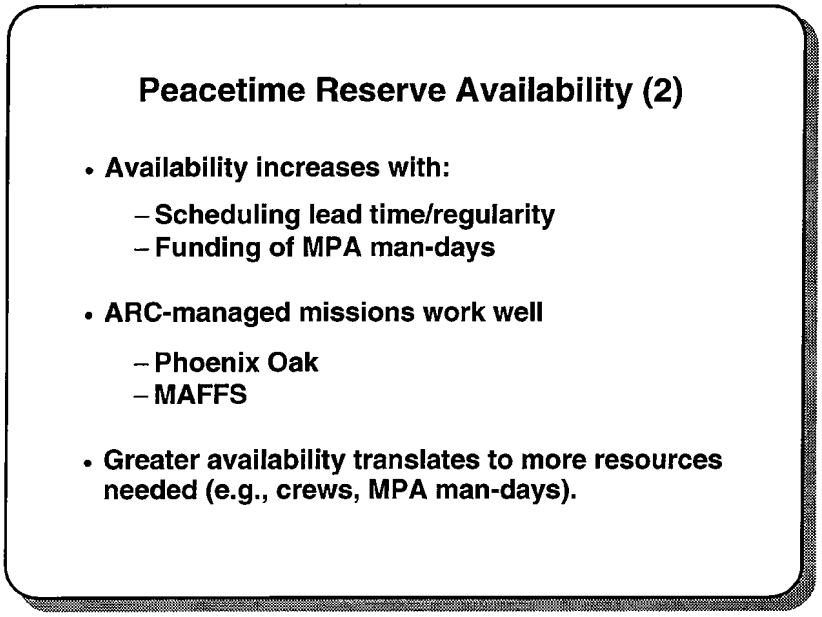
[11]Volume 2, March 1992, p. 98.



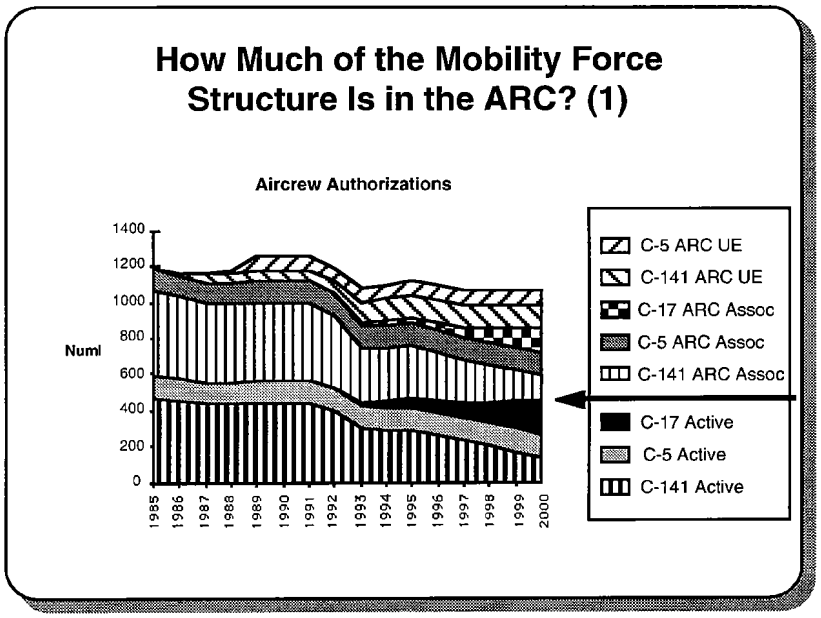
Some straightforward ways exist to acquire greater ARC availability. If AMC can get better control of user mobility requirements, then longer planning lead-times can be achieved, and the proportion of the "reserve compatible" missions can be increased. These missions are in demand by both the active and reserve units, because they provide good training and a stable flying schedule. They not only allow greater ARC augmentation, but they are desirable training missions for the active duty fliers. They are also executable by commercial contract carriers, encouraging their participation in the Civil Reserve Air Fleet (CRAF).[12] It would be hard to overstate the benefits of a more stable flying schedule for AMC. Later in this briefing, some ways are mentioned that are being discussed to achieve greater stability.

AMC can motivate greater ARC availability by paying for it, i.e., by making more man-days available to fund reservist participation. ARC managers often cite funding limitations when seeking to provide more augmentation to AMC. These limitations could be removed not only by paying Manpower Authorization (MPA) man-days but also by advocating an expanded flying hour program for the ARC.

[12]CRAF agreements make commercial capacity available to AMC during emergencies, in exchange for a share of peacetime DoD airlift business.

In the past, AMC has received excellent augmentation by handing over entire mission types to management by the ARC. Examples of this approach have been the Phoenix Oak deployment to USSOUTHCOM, the PHOENIX DEW missions to resupply radar sites in the Arctic, the "storm tracker" mission, and the modular airborne fire fighting system (MAFFS) mission that the ARC flies for the U.S. Forest Service. This approach allows the ARC to rotate and schedule crews according to the availability constraints of reservists.

However, additional augmentation for AMC from the Guard and Reserve will probably have an associated price tag.

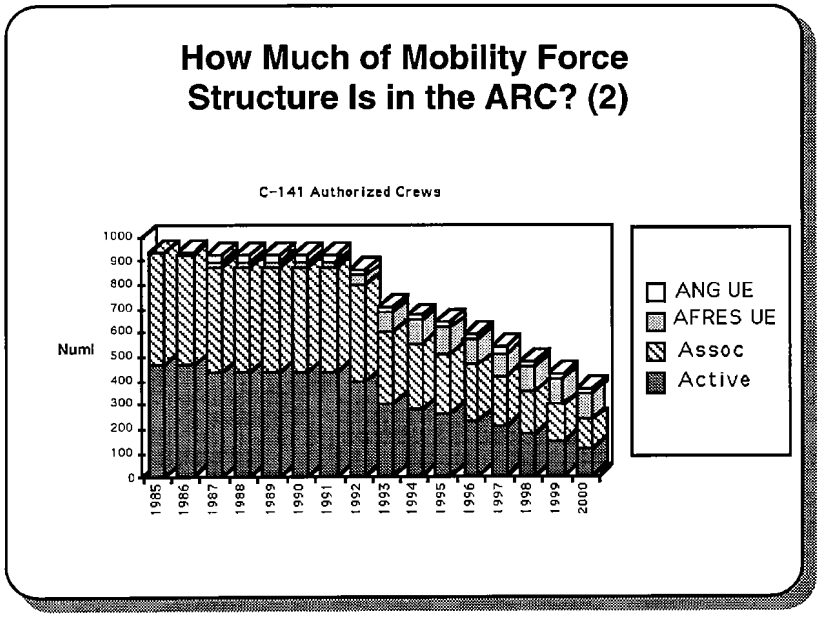


FORCE STRUCTURE

Here we show the aircrew force structure in terms of numbers of crews authorized.[13] The arrow indicates the upper limit of the active duty force structure. Today the ARC supplies 58 percent of the AMC-gained C-141 crews and 62 percent of the C-5 crews. Whether these proportions remain constant into the future depends on the budgetary environment. The force structure projections shown here are obviously highly contingent on the timely acquisition of 120 C-17s. Without that wedge of capability entering the force over the next ten years, substantial airlift capacity will be lost. Already, the stretch-outs in the program are affecting capability, because the C-141 continues to leave the active inventory—on schedule.

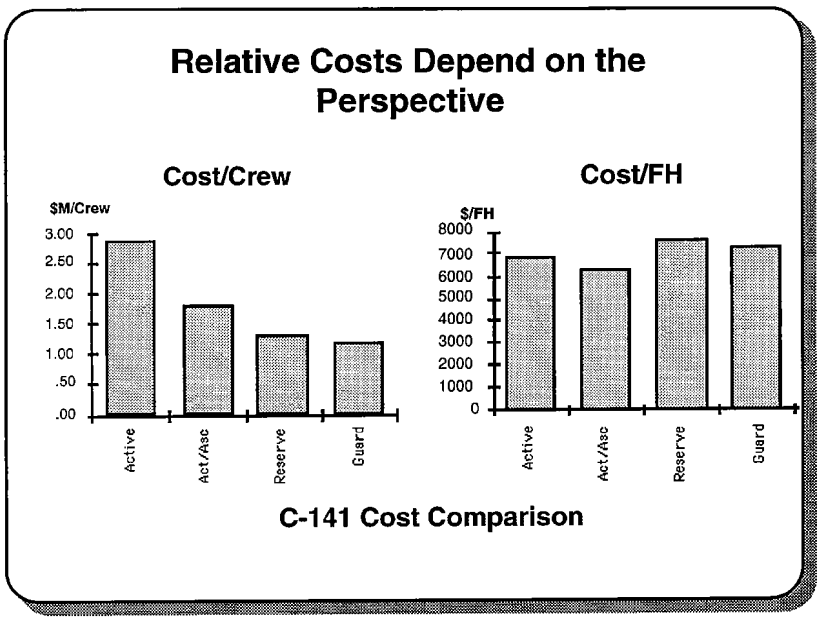
Note the substantial drop in numbers of crews, beginning in 1991. The total number of crews available has declined 10 percent, the number of *active duty* crews has declined 20 percent, and the number of active duty C-141 crews has declined 25 percent. It is, in fact, the reduction in both active and reserve C-141 crews that is driving the precipitous drop shown on the vugraph.

[13]The aircrew trends shown here mirror similar trends in aircraft force structure.



Focusing on the C-141 fleet, we show here the current schedule for its phase-out. This aircraft, the workhorse of the airlift fleet, is declining both in numbers and in capability. Currently, well over half of the fleet is under some kind of operational or cargo restriction, due to fatigue cracks in wings and around cockpit windshields. Since the aircraft is nearing the end of its service life, its departure is inevitable unless a service life extension program is undertaken. Such a program, however, could not be funded and completed quickly enough to prevent a substantial near-term decline in capability, unless the C-17 is acquired on schedule. At this point, the C-141 phase-out is being driven more by aircraft age, base closures, and force reductions than by the planned phase-in of the C-17.

The decrease in active duty C-141 crews by more than 100 over the past two years, without the compensating acquisition of any additional capability, is probably another primary source of stress on the mobility system, as the system has sought to continue to react quickly to unstable world events. The good news is that if all goes according to plan, the active force should have already seen the worst of its drawdown, as shown on the previous vugraph. Nevertheless, as the active duty C-141 force continues to shrink in the years ahead, the ability to react rapidly will also shrink, unless AMC either acquires, or gains access to, aircraft and crews that can be tasked on a responsive basis.



COSTS

Relative costs are an important aspect in determining appropriate active/ARC mixes. We found that this issue is complex and that conclusions can vary, depending on the costs deemed relevant to the analysis, as well as the cost metrics used.[14] For example, the vugraph shows two perspectives on the relative cost of active and ARC forces for the C-141. (C-5 figures are similar.) If one were interested in storing capability for use in wartime, i.e., mobilized contingencies, one might look at minimizing the cost per crew. In this case, we see what we expected—that for storing capability, the ARC makes economic sense because the ARC unit-equipped forces have much lower costs than the active force on a "per crew" basis. However, the "active" bar shown here is somewhat misleading. It represents the cost of a stand-alone active duty C-141 unit, but all such units today have associated reserve units. This would make the "Act/Asc" bar the more relevant, and we can see that it is quite

[14]In this analysis, we used "total" cost, including both fixed and variable elements. Included in the "fixed" category were the costs of depot maintenance, sustaining investment, acquisition of aircraft and training of crews, base operating support, and other personnel costs such as medical and retirement benefits. Included in the "variable" category were military pay, fuel, lubricants, replenishment spares, and per diem.

competitive with the unit-equipped alternatives for maintaining aircrew force structure for *wartime* use.[15]

On the other hand, if one were interested in looking for additional peacetime capability, one might think about trying to minimize the average cost per flying hour (FH). In this case, we see that the costs are comparable for all four types of force structure basing, with the Associate concept somewhat less expensive.[16]

In summary, the vugraphs convey two messages: (1) the active duty force may not be as expensive as many assume for accomplishing the peacetime mobility mission, and (2) the reserve unit-equipped concept is still the best choice for storing wartime capability.

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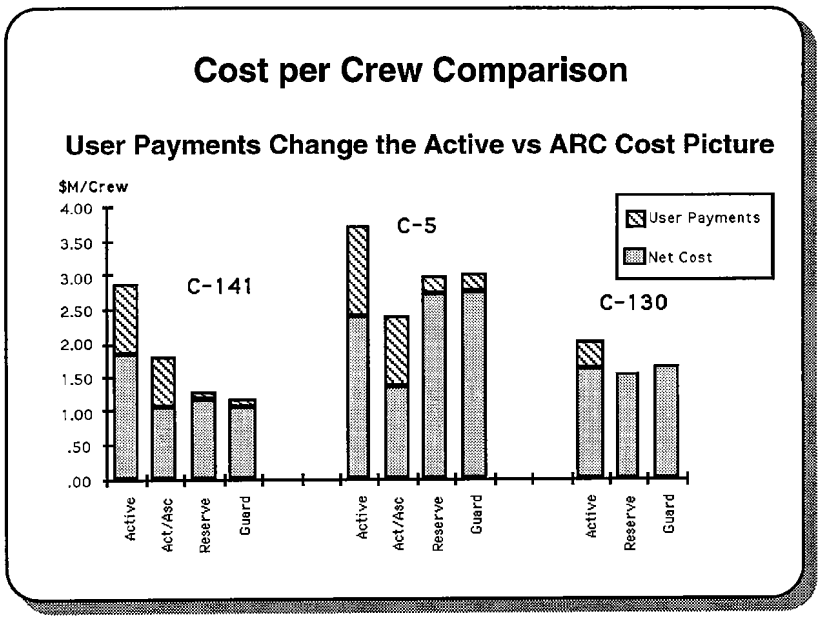
[15]If one also looked at the costs per crew with peacetime needs in mind, one might consider the cost per *available* crew. In this case, the cost of the associate unit would be higher than shown here, since the Reserve Associate crews are less available for scheduling than their active duty partners, making the cost per available crew rise. On this same basis, the cost per available crew for unit equipped squadrons would probably go up even more.

[16]One should be aware, however, that the unit-equipped Guard and Reserves' flying hour programs are considerably smaller, relative to their fixed costs, than the flying hour programs of the active duty force. This makes a cost per flying hour measure indicate higher than it would if these units were flying at rates more comparable to the active force.



Looking at total costs is fine, but for mobility assets, it is important to factor in the effect of industrial funding under the DBOF-T. The bar chart on the left is identical with the C-141 "cost per crew" on the previous chart but also shows the portion of the costs offset by customer reimbursements.[17] Since associate reservists fly more of their mission under funding by the DBOF-T, they compare well with the unit-equipped squadrons.

For all three types of aircraft shown above, training that can be conducted while doing productive missions for DoD customers under the DBOF-T represents real savings to both the AMC and DoD budgets. In considering how to maintain peacetime mobility capability, we should consider which forces have the capability to conduct the most training under DBOF-T funding.

[17]Although we addressed only the strategic airlift force structure in this study, we include data on the C-130 here because they were available, and they are interesting for purposes of comparison.

Comparing the Components

	ACTIVE	ARC UE	RESERVE ASSOCIATE
AVAILABILITY DURING PEACETIME	Highest, carries bulk of short notice missions	Lowest, more lead time required	Intermediate
RELATIVE COST	Highest cost per crew, comparable cost per flying hour	Lowest cost per crew, comparable costs per flying hour	Intermediate cost per crew, comparable cost per flying hour

Here we summarize some of our observations about the active, reserve unit-equipped (UE), and reserve associate elements of the force.

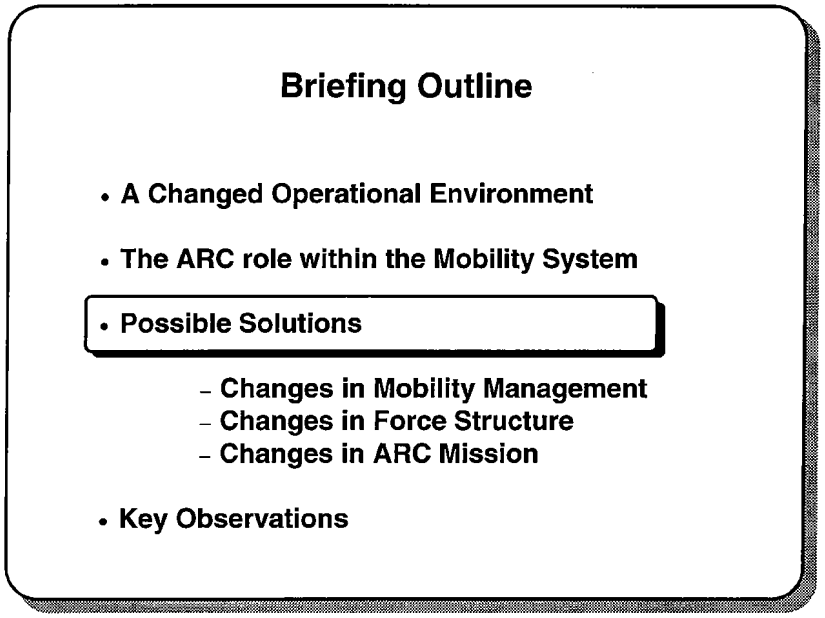
The active duty units obviously provide the highest availability but carry the highest cost per crew. Because the active force flies more user-reimbursable missions, however, these costs are not as high as many might think.

The unit-equipped concept has the lowest peacetime availability for three reasons:

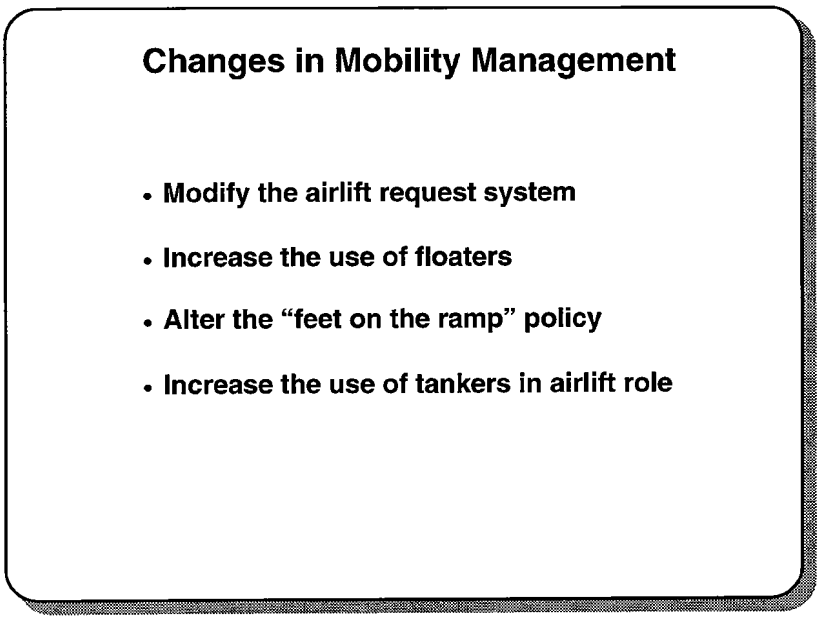
1. Since the units are small, there is a small number of crew members on which to draw in order to form a crew to fly a short-notice mission.
2. The unit-equipped squadron must generate an aircraft as well as a crew. For large numbers of short-notice missions a heavy burden is placed on the maintenance force, which has a relatively small number of full-time reserve technicians.
3. The unit-equipped squadron cannot help with short-notice taskings by contributing individual crew members to mixed active/ARC crews, as done in Associate units.

The costs per crew are lower, but probably not when cost per *peacetime available* crew is considered, as well as the proportion of the training mission that can be accomplished under the DBOF-T.

The Reserve Associate concept seems to offer relatively good availability to augment the short-notice peacetime mission, while providing very attractive cost advantages derived from taking advantage of the active duty overhead structure and flying more user reimbursed missions under the DBOF-T.



The next section highlights possible approaches to increasing AMC's mobility capability. During our interviews at Headquarters AMC, National Guard Bureau (NGB), and AFRES, and from other research, we identified 11 possible approaches that appear to have merit in improving the flexibility and responsiveness of mobility forces. We grouped these into the three categories shown above.



The first broad category includes management or procedural actions that could be taken to enhance AMC operations within current policies and force structure.

Modify the Airlift Request System

Airlift is a user-driven process. Unfortunately, in recent years, the number and priority of short-notice missions taskings have increased to the point where long-range airlift planning is almost impossible. This inhibits the use of ARC and commercial augmentation that require long lead-times. If the airlift request system could be managed to give users incentives to make their requests earlier, the opportunity to use ARC and commercial augmentation would increase, taking a great deal of pressure off the active force.

One way to encourage earlier airlift requests would be to provide a substantial price break on the tariff rate for users who get their requests to AMC 30 days or more in advance of their need. Such financial incentives were tried in the past, with apparently limited success, but the price break was small. Perhaps with austere budgets looming, a substantial discount would have a greater effect. An alternative would be to charge a premium for a short-notice airlift request. This action would explicitly acknowledge an important fact: Short-notice airlift requests impose substantial costs on the mobility system that users currently are not being asked to pay.

For this incentive to be effective, users should be assured that their requests will not be preempted at the last moment by a higher priority mission. Restructuring the JCS Airlift Priority system to give higher priority to early airlift requests would further encourage users to make requests early. If more missions could be flown by the ARC and commercial carriers, the active duty force could act more as a "shock absorber" for the spikes in airlift taskings.

Increase Use of Floaters

"Floaters," a set of ARC aircrews and aircraft available to the AMC Tanker/Airlift Control Center (TACC) for a certain length of time, are available for tasking as required. This arrangement would ensure the availability of ARC assets as short-notice requirements occur. It may make sense to use reservists' 14-day annual tour to support this program as an ARC-managed mission requirement, allowing the reservist to schedule his or her time well in advance, and providing the TACC a constant number of aircraft and crews over time. For this concept to work, however, the TACC would have to establish mission tasking and control procedures to allow maximum productivity from the reserve crews while they are available.

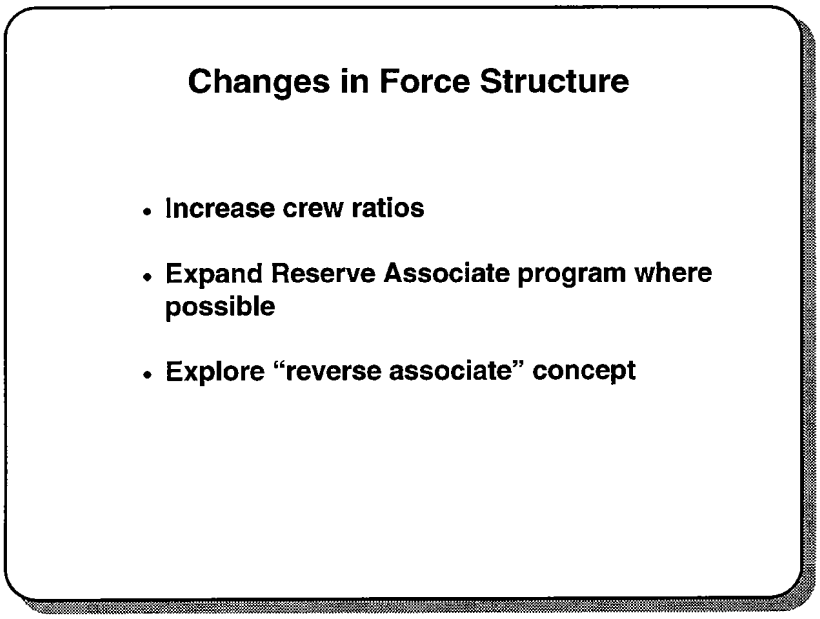
Alter "Feet on the Ramp" Policy

Implemented in 1992, this policy grounds pilots who have been deferred from promotion, who tender their separation notice, or who have field grade rank but are not in leadership positions in their wing. The effect has been to ground aircraft commanders and instructor pilots, creating an unfortunate multiplier effect on the difficulty of forming crews. To date, indications are that in the C-5 and C-141 active crew force, the capability to form aircrews may be degraded by as much as 15 percent as a result of this program. Thus, the remaining pilots are being tasked to fly more short-notice missions, creating an adverse effect on morale, quality of life, and later retention. The policy may make management sense for solely O&M funded aircraft, where inexperienced pilots are waiting to get into the cockpit, but makes little operational sense in the mobility world.

Increase Use of Tankers in the Airlift Role

The ARC has regularly used tankers in the airlift role for years, particularly for unit moves and swap-outs.[18] Currently active duty tanker forces are not being tasked at the same high rates as their airlift colleagues, indicating that some opportunity may exist to spread the burden. Nevertheless, tankers are somewhat limited in the types of augmentation they can provide, being restricted mainly to passengers and bulk cargo. To date, the role of the tanker in the industrial fund is not well defined. This role needs to be clarified and endorsed before substantial augmentation can be drawn from this direction.

[18]A swap-out occurs when a deployed unit is relieved by another unit, and redeployed back to its home station.



Another set of initiatives calls for changes in force structure:

Increase Crew Ratios

An increase in active duty crew ratios would be an obvious way to augment the availability of crews to perform the responsive mission. This course of action, however, is perceived as relatively costly and contrary to the current budgetary trends. The other alternative would be an increase in the number of part-time reservists. This side has some drawbacks too. Although the lower cost per crew is frequently cited, perhaps the better metric would be the cost per *available* crew. How many reserve crews does it take to provide the same peacetime responsiveness as an active duty crew, and how much will they cost? The answers are currently unknown. An increase in the number of Air Reserve Technicians (ARTs) may be still another option. These full-time personnel are the cadre that manage training within reserve units and comprise approximately 25 percent of the total reserve force. The current purpose of the ART personnel is to train the part-time reservists, not to fly for AMC.

Expand Reserve Associate Program

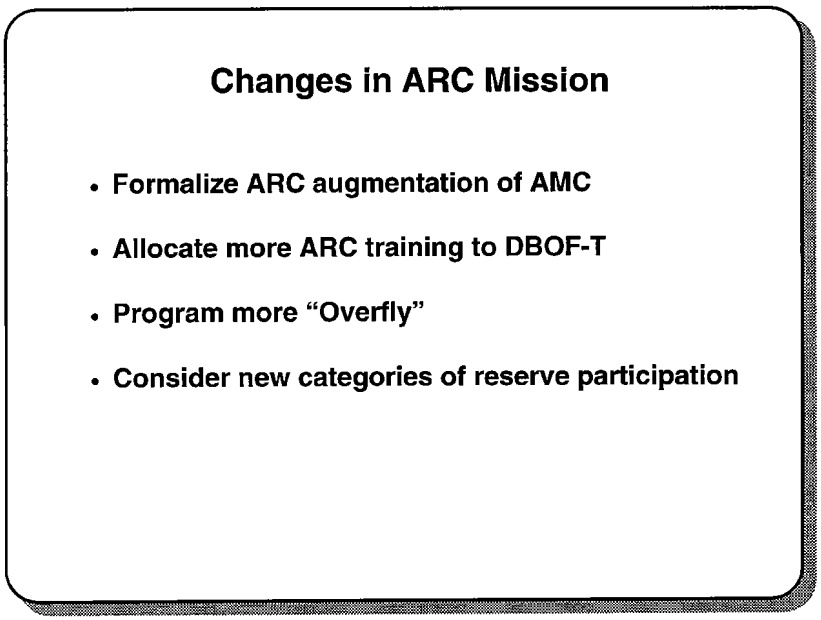
The Reserve Associate concept has demonstrated many advantages. Associate units are larger than unit-equipped units, providing a larger

pool of crew members on which to draw. They also allow the easy building of composite active/reserve aircrews, allowing some reservists to participate even if a full crew of reservists is unavailable. In addition, aircraft generation tasks are performed by the larger active duty maintenance force (augmented by available reservists), providing greater availability of aircraft with shorter lead times.

Although the C-130s have been moved to the Air Combat Command (ACC), it may be worthwhile to explore the usefulness of the Reserve Associate concept for these units as well. When overseas commands request continuing augmentation from the downsized Air Combat Command C-130 force, as has been the case recently, aircraft with active duty crews could accomplish the initial deployment, with the Reserve Associates later providing swap-outs on a scheduled rotational basis.

Explore the "Reverse Associate" Concept

As base closures and force drawdowns drive more aircraft into unit-equipped wings, a method to increase their short-notice capability might be to assign to them an active duty squadron. The active duty squadron would fly the reserve aircraft and pay the DBOF-T for costs as the Reserve Associate units do today. The DBOF-T, in turn, would reimburse the ARC for the use of its aircraft. The aircraft would belong to the ARC, but when AMC augmentation was required, the active crews would be available. The AMC and the ARC would have to agree on aircraft availability. Good candidates for reverse associate units probably would be active duty bases with ARC tenants. These include Andrews Air Force Base for C-141s and Kelly Air Force Base for C-5s.



As mentioned earlier, the mission of the ARC is to train for wartime mobilization, a concept based on the Cold War environment. Since the requirements of peacetime and contingency operations have converged in recent years, it may be time for the ARC to take on, in a limited and defined way, the mission of peacetime augmentation of active forces.

Formalize ARC Augmentation of AMC

A change in the ARC mission, mandating the peacetime augmentation of active forces, may not be as radical as some may think. From the ARC's point of view, it may be considerably more advantageous to have this augmentation acknowledged, programmed, and budgeted, rather than to cling to an old paradigm, and then constantly be called on for augmentation at the expense of the training program. Even without a formal change in the ARC mission, it is time for AMC and the ARC to discuss and agree on specific ARC-managed levels of short-notice availability to the TACC.

Allocate More ARC Training to the DBOF-T

One way to draw the reserves into more flying for AMC would be to reduce their funding in the ARC O&M flying accounts, and have them make up the reduction out of the DBOF-T. The ARC would have to fly for

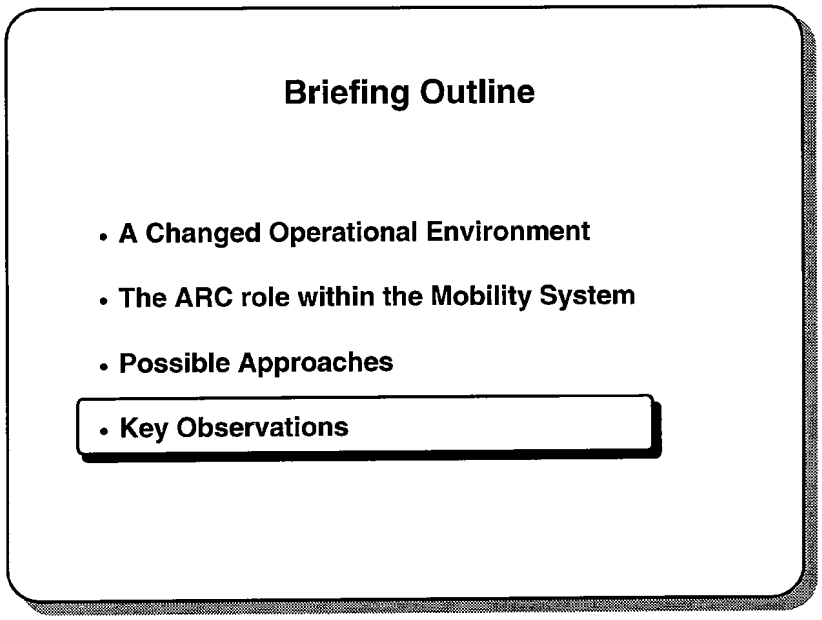
AMC to accomplish the training and get reimbursed for the amounts represented by the reductions. One disadvantage of this approach is that it would make the ARC more dependent on the uncertain AMC user demand to accomplish training. The part-time availability of reservists requires that training be on a firm schedule, not on the schedule of AMC or the joint users. Nevertheless, it is possible that a greater portion of the ARC flying program could be DBOF-T funded.

Program More "Overfly"

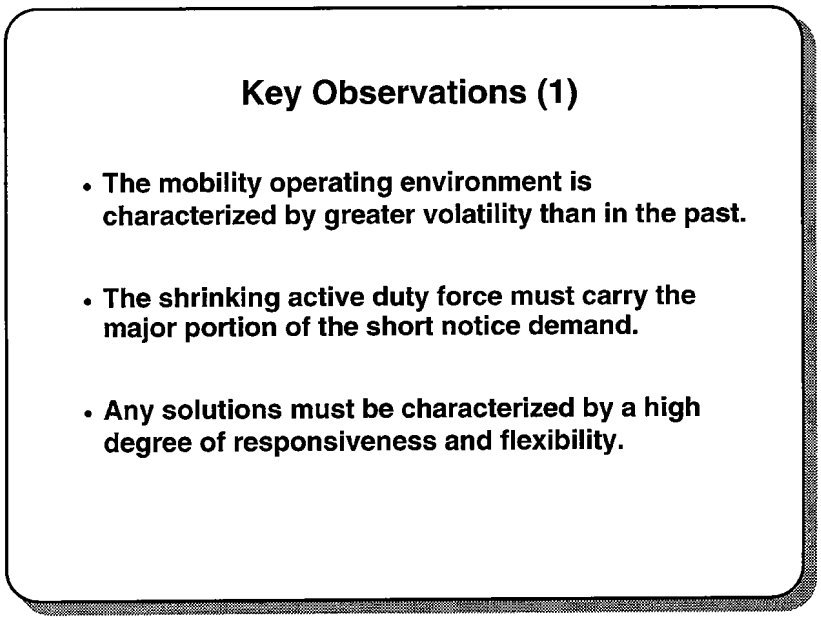
In our discussions with ANG and AFRES representatives, they sometimes stated that ARC units have additional airlift capability, if appropriate funding were available. If DBOF-T funds were set aside in a "contingency category" to provide full funding of additional ARC flying hours for AMC over and above the established ARC training program, the process of obtaining augmentation from the ARC would be substantially streamlined. Presently, AMC often does not fully reimburse the ARC for personnel (man-day) costs or for per diem when it asks for these "overfly" missions. This policy often makes providing AMC additional augmentation problematic for the ARC.

New Categories of Reserve Participation

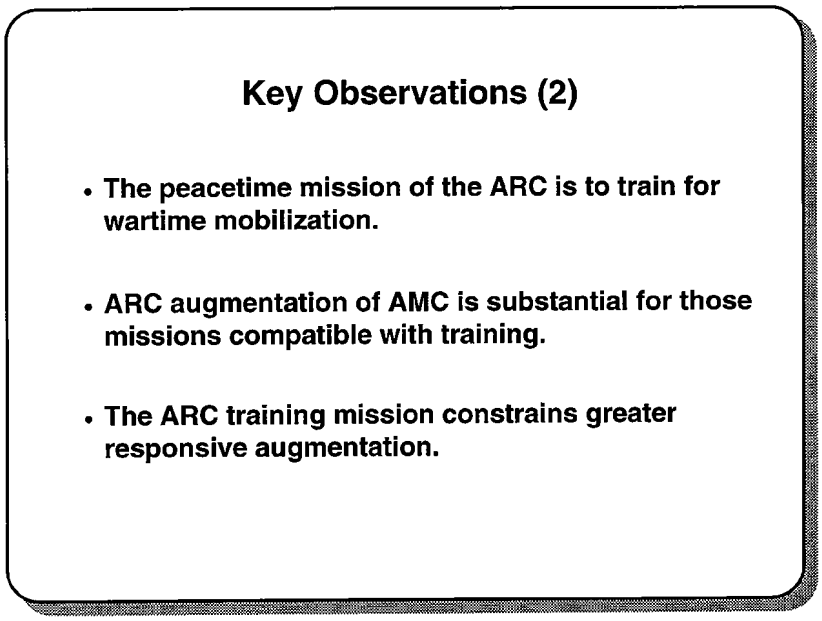
Another alternative is to consider innovative ways to obtain more reservists available to fly short-notice missions for AMC. This could include providing individuals who have long periods of availability with contracts for a specified period of time and matching these individuals across the ARC with other reservists to form crews available to the TACC. Alternatively, a category of ART could be hired specifically to provide AMC augmentation.



In this last section of the briefing, we summarize our key observations.



The stress on the mobility system today has its source not so much in greater numbers of missions and flying hours but more in the volatility of the operating environment in the post-Cold War period. As the mobility system is currently designed, the active duty force provides the flexibility to the system that allows it to respond to the volatile demand. The root of the problem is that this type of demand has been expanding while the active force has been contracting. Useful solutions must provide the mobility system with greater responsiveness and flexibility.



The concept that the peacetime mission of the ARC is to train for wartime mobilization has been extremely successful. It has resulted in reserve forces that are highly qualified in wartime missions and ready for mobilization. The flying of peacetime missions by the ARC is allowed but only to the degree that it does not interfere with accomplishing training for the wartime mission. Even with this constraint, the peacetime ARC augmentation of AMC is substantial in those missions that are "ARC compatible," i.e., missions that have the lead times and known return dates that allow reservists to arrange an absence from their full-time employment. Nevertheless, the current AMC need is for responsive augmentation, on short planning lead times, and this requirement is incompatible with the primary ARC training mission.

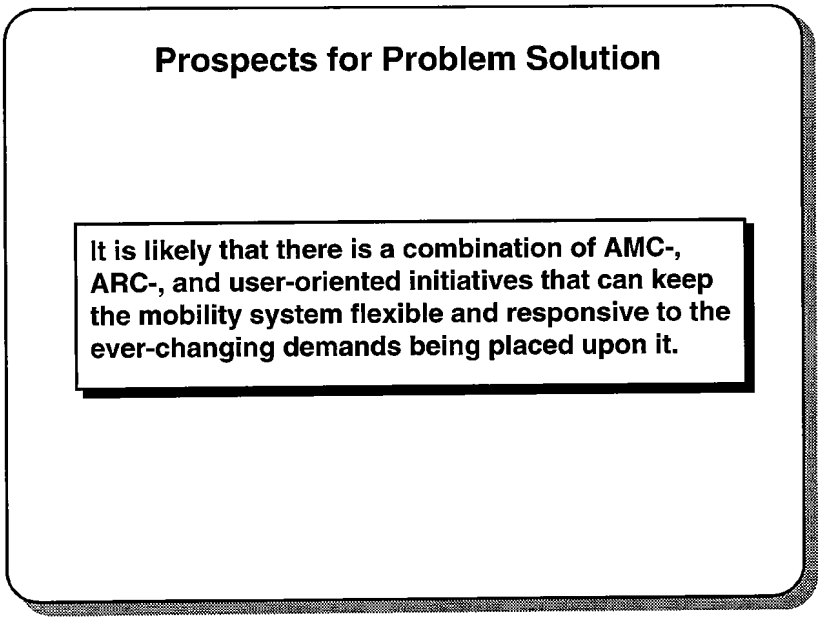
Key Observations (3)

- **ARC augmentation can increase with greater requirements predictability and greater funding**
- **The Reserve Associate concept provides the best reserve peacetime availability**
- **Wartime and peacetime mobility requirements are converging**
- **Consideration should be given to definition of a peacetime augmentation mission for the ARC**

To the extent that AMC can create more "ARC compatible" missions by stabilizing its demand, the ARC probably will be able to lend more help. Likewise, there are often problems with funding greater ARC augmentation. If some of these problems were solved, the process of requesting and receiving ARC support would be more streamlined and efficient.

The Reserve Associate program is very cost effective. It also offers the greatest scheduling flexibility, in large part because of its close proximity to an active duty flying organization. To the extent possible, expansion of force structure into the reserves should go in this direction, rather than toward more unit-equipped squadrons.

While wartime mobility requirements have eased considerably, peacetime contingency requirements have increased dramatically. As a result, it may be time to consider an addition to the ARC mission, providing for specified levels of responsive peacetime augmentation of the active duty force.



Although we have highlighted a number of the possible alternatives, undoubtedly additional ones are being talked about throughout the mobility system. In this study, we had little opportunity to perform analyses on the alternatives, but we believe that AMC, the ARC, and the users have a number of viable options to keep the mobility system flexible and responsive to the many diverse demands being placed on it.