In this chapter, we summarize the potential problems (identified in Chapters Two to Six) that could negatively affect AMC’s ability to meet peacetime airlift demand and maintain wartime readiness, together with some incentives for CRAF participation.

**FLYING-HOUR SHORTAGES IN FY 2000 AND FY 2001 AND THEIR LIKELY RECURRENCE**

Before the beginning of a fiscal year, AMC submits a Flying-Hour Program to Congress for appropriation. These programmed flying hours reflect the number of hours needed during the coming fiscal year to meet AMC pilots’ aging and proficiency requirements. During FY 1999 and FY 2000, all airlifters (the C-5, C-141, C-17, and C-130) flew fewer hours than programmed, while the tankers (the KC-135 and KC-10) still managed to fly more hours than programmed.\(^1\) However, the CPs of all airlifters and tankers failed to meet their aging requirement during FY 2000 and FY 2001.\(^2\) ACs also flew considerably less during this period. ACs, however, were able to meet their proficiency requirements because they have fewer required flying hours than do CPs.

In the future, the flying-hour shortage during peacetime may worsen from time to time for two reasons. First, in the post–Cold War era, one cannot predict the frequency or level of peacetime military intervention or how long such intervention will last. Overall peacetime demand can be low for a long stretch of time. Second, while peacetime demand can fluctuate widely from year to year, wartime mobility requirements have been on an upward trend.

---

\(^1\)See Figure 5.1 and Figures A.31 to A.35 in the appendix.

\(^2\)See Figure 2.7, Table 2.3, and Figures A.11 to A.15 in the appendix.
The latest official planning document calls for higher wartime mobility requirements of 54.5 MTM/D.³ In the aftermath of September 11, however, General John Handy, Commander in Chief of the U.S. Transportation Command (USTRANSCOM), said that the new airlift requirement will undoubtedly be higher than 54.5 MTM/D in light of increased lift needs for a “world war on terrorism.” General Handy added that the requirement would have to factor in increased demands for homeland defense as well.⁴ It is unclear at this time how much of the new airlift demand will be needed in peacetime as opposed to wartime. If the increased wartime burden continues to be shared by military and commercial air carriers in their current proportions, more military pilots will be needed, and more flying hours will be necessary to keep those trained and proficient in flying during peacetime. The Air Force has already agreed to buy 60 more C-17s for a total of 180 and will probably seek another 42 or more.⁵ Moreover, since September 11, commercial air carriers have been reducing their capacity in efforts to cope with a sharp drop in air travel that may well last indefinitely. This reduction can lead to a corresponding cut in carriers’ wartime commitment to CRAF. To compensate, AMC may have to further increase the number of its aircraft and pilots. This increased number of pilots would require still more flying hours for training.

The need to meet flying-hour requirements should be considered in all proposed Air Force programs, and compensatory adjustments should be made either within these new programs or in other programs. For example, the Air Force has proposed a highly unusual offer to entice private air cargo firms to buy the BC-17, a commercial-variant of the C-17.⁶ The Air Force proposed that BC-17 buyers be guaranteed some 20 percent of the peacetime annual airlift business that AMC contracts to commercial air carriers. This guarantee could further decrease peacetime flying hours for military pilots because a portion of peacetime business might be taken away from existing CRAF participants, for whom such business is a major incentive to join CRAF.

³The latest revision of requirement MRS-05 calls for a minimum of 51.1 MTM/D. This is only slightly higher than the 49.7 MTM/D determined during the 1995 MRS-BURI. The missions and variations in assumptions examined in MRS-05, however, generated a range of airlift demands extending up to 67 MTM/D. The chairman of the Joint Chiefs of Staff, the service chiefs, and the commanders in chief (CINCs) “support the establishment of a requirement of 54.5 MTM/D of airlift capability as the minimum moderate risk capability to support the national military strategy.” See the footnote on the CRAF program and MRS-05 in Chapter Two.


On the other hand, small-scale contingencies similar to those in Bosnia and Kosovo as well as new counterterrorism contingencies during peacetime might place a high demand on AMC organic assets from time to time. AMC should thus develop the flexibility to meet fluctuating demand, both high and low.

THE ACTUAL NUMBER OF COPILOTS AND AIRCRAFT COMMANDERS EXCEEDED THAT AUTHORIZED

Since 1986, the actual total number of full-time CPs and ACs at AMC has exceeded the number authorized in a trend that has continued upward. During FY 2001, however, this number decreased from about 10 percent over authorization during FY 1998–2000 to only 4 percent over the authorized number.7

Over the past two decades, the actual numbers of CPs and ACs increased. During FY 2001, however, these numbers were only 3 percent to 5 percent above what Congress had authorized.

THE ACTUAL COPILOT-TO-AIRCRAFT COMMANDER RATIO DEVIATED FROM THAT AUTHORIZED

During FY 2001, the actual CP/AC ratios for airlifters (the C-5, C-141, C-17, and C-130) exceeded those authorized by Congress. Conversely, tankers (the KC-10 and KC-135) have had too many ACs relative to CPs in recent years if the mix is based on what Congress authorized.8

LESS PILOTING DURING TRAINING

The current AMC rule for meeting aging and proficiency requirements credits aircraft flying hours to every member of the aircrew regardless of whether an individual is piloting an aircraft from a pilot seat or is merely observing from somewhere else in that aircraft. Thus, an increase in the average number of pilots per flight indicates that pilots are getting less piloting opportunity and experience.

The airlifters (the C-5, C-141, C-17, and C-130) all exhibited a trend characterized by an increasing number of pilots per flight.9 The average number of pilots per C-5 flight, for example, increased at a rate of 2 percent per year. Although C-141s will be retired in a few years, its uptrend of 3.2 percent per year will still

7See Figure 3.1.
8See Figures A.29 and A.30 in the appendix.
9See Figures 4.1 to 4.4. On the other hand, we had no corresponding data for the tankers.
be a concern if reduced piloting affects the quality of training. The C-17 showed a large uptrend of 9.6 percent per year, but the trend for this newly deployed aircraft can still flatten so as to become more favorable as its operations mature. The C-130 trend is not a major concern because its uptrend was only 0.6 percent per year.

**INCREASING DEVIATION FROM FLYING PLAN**

The actual flying hours of the C-5, C-141, and C-130 showed increasing deviation\(^1\) from planned hours even though the flying plan is adjusted every few months throughout the fiscal year.\(^1\) By the late 1990s, this deviation was roughly that of the early 1980s. Scrambling to meet surprise demand makes the scheduling of flights and maintenance more difficult and costly while also reducing pilots’ quality of life.

In any given year, actual flying hours in some months exceed what was planned only a few months before. The month in which the excess is greatest is that with the peak GTP flying. The C-5, C-141, and C-130 showed increasing levels of peak GTP flying.\(^12\) If this trend continues, AMC will have to assemble a larger number of aircraft and personnel in a hurry to meet the largest monthly deviation in flying hours. Again, the doubling or more of peak GTP flying from the early 1980s to the late 1990s could negatively affect scheduling and quality of life.

In contrast, the duration of uninterrupted monthly GTP flying for the four airlifters—the C-5, C-141, C-17, and C-130—showed little change over the past two decades.\(^13\) Thus, when actual flying in a given month exceeded the amount in a frequently updated plan, the excess lasted for roughly the same number of months in the 1990s as it did in the 1980s. As a result, one cannot say that GTP flying persists longer now than before.

---

\(^1\)The deviation is the sum of absolute monthly deviations in a given fiscal year.

\(^1\)See Figure 5.4 and Figures A.36 and A.38 in the appendix. On the other hand, we did not have tanker data for deviations discussed in this section.

\(^12\)See Figures A.39, A.40, and A.42 in the appendix. The recently deployed C-17s also showed increasing peak GTP flying. However, there are not enough data to indicate the trend for matured C-17s.

\(^13\)See Figures A.43 to A.46 in the appendix.
ENGAGEMENT MISSIONS ACCOUNTED FOR A GROWING SHARE OF MISSIONS

For all four airlifters (the C-5, C-141, C-17, and C-130), engagement missions accounted for a growing share of flying hours in the 1990s. Many of these missions are for short-notice peacetime contingencies, which are more difficult and costly to schedule and more disruptive to the lives of personnel. For the C-5, these missions accounted for only 11 percent of all missions flown in 1981 but represented 68 percent of those missions by 1999. For the C-141, the share increased from 26 percent in 1981 to 38 percent in 1999. The share for the recently deployed C-17 increased from 9 percent in 1995 to 46 percent by 1999 but could stabilize quickly. The share for the C-130 increased from 21 percent in 1981 to 40 percent in 1999.

Both AMC and its pilots favor channel missions because such missions cover many training elements and can be planned well in advance. For the C-5, C-141, and C-130, however, the share of these missions declined as a percentage of total missions flown. For the C-5, the share declined sharply from 68 percent in 1981 to 15 percent by 1999; for the C-141, from 54 percent to 29 percent; and for the C-130, from 19 percent to 7 percent.

FEWER OF AMC’S FLYING EXPENSES WERE BEING REIMBURSED BY CUSTOMERS

The TWCF share of AMC’s operating budget declined during the period studied from 70 percent in 1984 to 51 percent by 1999. AMC was less able to recoup its training and operating expenses from the reimbursable account. This is not desirable because the government has to subsidize more for AMC operations. Worse, commercial air carriers took an increasing proportion of the TWCF fund, leaving even less money with which to reimburse AMC’s flying expenses. The commercial share increased from 23 percent in 1981 to 32 percent in 1999. Commercial penetration has been particularly prominent in channel cargo, which is AMC’s favorite mission category for pilot training, and in mail, which together rose at a rate of 5 percent per year from 24 percent in 1981 to 46 percent in revenue dollar terms. In ton-mile terms, this increase was even higher at 7.1 percent per year, rising from 16 percent in 1981 to 41

---

14 See also Figure 2.12, and Figures A.23 to A.25 in the appendix. On the other hand, we had no similar data on tankers.
15 See Figure 6.1.
16 See Figure 6.2.
17 See Figure A.48 in the appendix.
percent in 1999. In addition, commercial providers have continued to domi-
nate channel passenger miles since 1981, capturing 90 percent of this busi-
ness. AMC has been losing market share in channel cargo and has not been
able to compete in passenger transport. Allowing commercial providers to as-
sume a greater portion of the airlifting burden is acceptable only if AMC has the
flexibility to increase and decrease its commercial buy in any particular year to
accommodate its flying capability and requirement.

We also found that the percentages of channel passengers riding free on both
organic and AMC-chartered commercial flights were significant, standing at 65
percent and 29 percent, respectively, in FY 1999. This too represented a loss of
revenue to AMC.

---

18See Figure A.50 in the appendix.
19See Figure A.49 in the appendix.
20See Figure 6.4.