

CRS Report for Congress

Military Airlift: C-17 Aircraft Program

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Summary

The C-17 Globemaster III is a long-range cargo/transport aircraft operated by the U.S. Air Force since 1993. Congress approved development of the aircraft in the late 1970s, when it was recognized that the Air Force did not have enough airlift capability. In 1981, the McDonnell Douglas C-17 emerged as winner of a competition with Boeing and Lockheed to develop a next-generation aircraft to replace C-130s and C-141s.

Full-scale development of the C-17 got underway in 1986, but technical problems and funding shortfalls delayed the program, leading to slipped schedules and increased costs. Despite those difficulties, the C-17 has retained broad congressional support and enjoys strong Air Force and Army backing. Defense officials view the C-17 as essential in the post-Cold War environment, because of its ability to fly long distances with large payloads yet still use smaller bases in remote areas.

The C-17 first flew in 1991, about a year later than originally scheduled. Deliveries began in 1993, and in January 1995, the Air Force declared the aircraft fully operational. C-17s have been successfully used in Bosnia, Kosovo, Afghanistan and other operations. The current inventory of C-17s is 100 aircraft.

Production problems in the late 1980s raised questions about the possibility of more cost-effective alternatives. In April 1990, Defense Secretary Cheney reduced the projected buy from 210 to 120 planes. In late 1993, the Department of Defense (DOD) gave the contractor two years to solve production problems or face termination of the contract, with airlift shortfalls to be filled by modified commercial transport planes or existing military airlifters.

By the mid-1990s, the program's earlier difficulties had been largely resolved, although some questioned the number of C-17s to be procured. In 1996 DOD approved plans to order 80 more C-17s for a total of 120 aircraft — increased in late 1998 to 134. In June 2001, DOD announced its decision to acquire 137 C-17s, which would bring the Air Force's million-ton-miles-per-day capability to 45.3. Through FY2004, some \$46 billion was provided for the C-17 program, which would cost about \$60.1 billion for development and procurement of 180 aircraft, as estimated in December 2003. The current plan is to buy 180 aircraft, though Air Force officials would like 222.

In its proposed budget for FY2003, DOD requested \$3.8 billion in overall C-17 procurement funding, and \$157.2 million for RDT&E. Congressional oversight committees generally supported this request, but were at odds with the Air Force over the number of C-17s requested and the funding profile. The Administration's FY2004 budget requested \$3.6 billion in total C-17 funding, \$3.5 billion to procure 11 aircraft, and \$184.1 million in R&D funds. Appropriators matched this request. The Administration's FY2005 request for C-17 funding totaled \$4.1 billion.

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Introduction

Background

The Air Force's C-17 Globemaster III is a long-range cargo/transport aircraft manufactured by Boeing (since its acquisition of McDonnell Douglas in 1997). Powered by four turbofan engines made by Pratt & Whitney, the C-17 is expected to meet U.S. strategic (long-range) airlift requirements, complementing the tactical (shorter-range) airlift capabilities of the C-130 cargo/transport planes built by Lockheed-Martin. The C-17 can carry some 169,000 lbs of outsize or oversized cargo (e.g., Abrams tanks and Apache helicopters) and can operate from small runways in remote areas where the larger C-5 heavy-lift cargo plane cannot be used.

The program had a difficult time winning the support of Congress in the late 1970s, but funding was finally approved to begin development in FY1981. The main hurdle in winning approval from Congress at the outset of the program was that the Air Force had not clearly demonstrated a need for additional strategic airlift capacity.

The Air Force submitted a request to build the McDonnell Douglas C-17 as the winner of a competition with several other firms, and Congress agreed to fund development of the plane. Just when the program was getting under way, however, DOD decided in early 1982 that the airlift shortfall was too urgent to await development of a new plane and that it would also be better to buy some planes already in production. Congress approved funds in the FY1983 budget to purchase 50 additional C-5 cargo planes (made by Lockheed) and 44 new KC-10 tanker aircraft (then made by McDonnell Douglas) to make up part of the airlift shortfall in the shortest time possible. Since the Air Force wanted to develop the C-17 as well as to buy additional C-5s, Congress directed the service to develop a comprehensive description of its future acquisition plans. The result was the Airlift Master Plan of September 1983, which compared several alternatives for modernizing the airlift fleet and concluded that the C-17 was the most cost-effective.

Performance Considerations

The Air Force maintains that the performance characteristics of the C-17 are significantly better than those of other cargo/transport aircraft. The C-17 can land on shorter runways and is more maneuverable on the ground than the larger C-5 or commercial transport planes, such as the Boeing 747, which would require much longer and wider runways. That factor limits the number of available bases and thus would complicate deployment planning for remote areas. In explaining the November 1995 decision to buy another 80 C-17s, DOD officials cited as a critical feature their

calculations that eight C-17s could land and offload 3,852 tons per day in a space where only three modified 747s could operate, delivering 1,754 tons per day.

The C-17 is also expected to be more cost-effective than its competitors based on projected life-cycle costs. The C-17's performance in the "reliability, maintainability, and availability evaluation" exercises of July-August 1995 confirmed its supporters' expectations about operational capabilities with favorable cost implications, in part because fewer people are needed to operate and maintain the aircraft.

As part of the 1993 omnibus agreement between the Air Force and McDonnell Douglas, DOD agreed to change certain contract specifications that were causing design and cost problems. The most noteworthy of these changes included: cruise speed reduced from Mach 0.77 to Mach 0.74; maximum payload from 172,200 lb to 169,000 lb; and ferry range from 4,600 nm to 4,300 nm. Air Force General Ronald Fogleman, then head of the U.S. Mobility Command, said these changes did not affect critical operational requirements, explaining that a 3,200-mile mission with a 110,000-lb payload had been established as a goal and that the C-17 would meet or exceed this requirement.

Production and Schedule

The FY1985 budget included \$129 million to begin full-scale development of the C-17 — then to be produced in a 210-aircraft program. The Airlift Master Plan had projected a requirement for 210 C-17s, with 180 in the active fleet and 30 additional aircraft for backup and spares and for testing and evaluation. The Air Force would also retain 114 C-5s but would turn many of these over to the Air Force Reserve and Air National Guard. By the mid-1980s the program appeared to be on track, if somewhat behind schedule. Production difficulties later delayed the program further, with slipped schedules and rising development costs. In April 1990, Defense Secretary Dick Cheney reduced the program from 210 to 120 production C-17s, reflecting revised estimates of airlift requirements in view of the collapse of the Soviet Union as well as budgetary restraints.

The Air Force agreed in December 1993 to buy another 12 C-17s during FY1994- FY1995, but Defense Secretary Les Aspin stated that the contract would end with the 40 aircraft then on order if McDonnell Douglas failed to resolve production and cost problems during that two-year period. In that event, DOD would buy a mix of C-17s and modified commercial transport planes or C-5 military transports to replace the aging C-141. By accepting the 1993 agreement, McDonnell Douglas incurred a loss of nearly \$1.5 billion on the development phase of the program. In addition, the company agreed to spend \$456 million in process improvements and testing. DOD agreed to provide an additional \$438 million for the program — \$237 million to settle claims with McDonnell Douglas and \$201 million for flight testing.

In November 1995, the Defense Department decided to continue procurement of the C-17 for a total program of 120 aircraft instead of meeting airlift requirements with a mix of C-17s, modified Lockheed C-5s, and Boeing C-33s. The military services maintained that additional airlift capacity was critical and argued that if

C-17s were not procured, other less capable cargo/transport aircraft would be needed to make up the shortfall. Most Members of Congress recognized the need for additional airlift, although some questioned the need to buy as many as 80 more C-17s.

In January 1996, the Defense Acquisition Board (DAB) approved plans to buy 80 C-17s (for a total of 120 aircraft) over a seven-year period (FY1997-FY2003) in a multiyear contract that would be less expensive than either single-year buys or multiyear procurement over a longer period (with savings estimated at 5% of a projected program cost of \$18 billion). The Air Force argued that buying the C-17 in six or seven years would provide the planes sooner and more cost-effectively and would avoid funding competition with other Air Force programs after 2003. Critics argued that such a long-term contract could entail financial penalties for reducing annual buys, if budgetary constraints in future years were to force the Air Force to choose between buying C-17s or other aircraft, such as F-22 fighter/attack planes. On May 31, 1996, the Air Force and McDonnell Douglas (now owned by Boeing) signed a \$16.2-billion multi year procurement contract for 80 aircraft to be produced over seven years.

The first of these 80 aircraft was delivered on August 10, 1998, bringing total deliveries to 41 aircraft. In late 1998, 14 more aircraft were added to planned buy, bringing the planned total to 134 C-17s. By late 2002, the Air Force had taken delivery of 100 C-17s. Active duty C-17s are currently based at Charleston AFB, SC (437th Airlift Wing) and McChord AFB, WA. A training unit of eight aircraft is based at Altus, OK (97th Air Mobility Wing). The Air Force plans to base C-17s at seven additional bases: McGuire AFB, NJ, Dover AFB, DE, Travis AFB, CA, March Air Reserve Base, CA, Elmendorf AFB, AK, Hickam AFB, HI, and an Air National Guard wing at Jackson International Airport, MS.¹ This basing plan has proven controversial for some Members of Congress.²

In early 2002, Air Force officials said that even more C-17s are needed. Chief of the U.S. Transportation Command, Gen. John Handy said that he wants 222 C-17s to meet the nation's airlift needs.³ This is an increase of at least 42 aircraft from the desires of his predecessor. Former head of the U.S. Transportation Command, Gen. Charles "Tony" Robertson testified in April 2001 that DOD needed 170 to 180 of the aircraft to meet MRS-05 requirements.⁴ In August 2002, Boeing was awarded a \$9.7 billion contract to produce an additional 60 C-17s, which would bring DOD's total inventory to 180. This contract is expected to keep the Long Beach, CA production

¹ Jonathan Block and Laura Colarusso, "Briefing Reveals Air Force's Future C-17 Basing Plans to Congress," *Inside The Air Force*, Apr. 19, 2002, p.1.

² Laura Colarusso, "Ohio Congressman Criticizes C-17 Beddown Plans, Seeks Other Options," *Inside the Air Force*, May 3, 2002.

³ Harry Levins, "Transportation Command's Chief Emphasizes the Need for More C-17 Cargo Planes," *St. Louis Post-Dispatch*, Feb. 2, 2002, p9.

⁴ Marc Selinger, "DoD Needs More C-17s to Eliminate Airlift Shortfall, AMC Commander Says," *Aerospace Daily*, Apr. 27, 2001.

line open until 2008.⁵ The 60 airframes purchased under this contract will cost approximately \$161 million each. Engines and other equipment cost approximately \$25 million per aircraft, bringing the approximate aircraft cost to \$191 million each.⁶

C-17 in Recent Operations

The C-17 has been used in a number of military operations, including Joint Endeavor (Bosnia) Allied Force (Kosovo), Northern/Southern Watch (Iraq), Atlas Response (Mozambique and South Africa), Enduring Freedom (Afghanistan) Iraqi Freedom (Iraq). Also, the C-17 has been used to support peacekeeping operations, such as delivering cargo to peacekeepers in Darwin, Australia who were preparing to quell the ethnic fighting in East Timor, Indonesia. (1999). C-17s have also been used to support humanitarian and relief efforts. In 1999, for example, C-17s from the 437th Airlift Wing delivered cargo to victims of Hurricane Mitch in Honduras and Nicaragua and, in 2001, they carried federal relief workers and 30,000 lbs of supplies to flood-soaked Houston, Texas.⁷

The C-17 was first systematically employed in a major contingency beginning in December 1995, when U.S. and allied nations deployed peacekeeping forces to Bosnia in support of Operation Joint Endeavor. In the first three months of operations, Air Force mobility forces flew 3,827 missions, carried over 18,539 troops and delivered more than 45,000 short tons of cargo. The C-17 — used to satisfy the Army's need for high-capacity, short distance air transport to move peacekeepers, equipment and outsize cargo from Central Europe to the Bosnia area of operations — flew slightly more than 26 percent of the missions but delivered over 44 percent of the cargo.⁸ Globemaster crews reportedly offloaded cargos of some 165,000 lb in less than 15 minutes.⁹ GAO assessment of the C-17's performance during Joint Endeavor (GAO/NSIAD-97-50) found good news to report. The C-17's mission capable rate was reported to be 86.2 percent, 5 percent higher than the required 81.2 percent. On the other hand, the GAO wrote that the C-17 was not required to perform many tasks which it had previous trouble doing, or could not do during operational testing. These tasks included landing at small austere airfields on short, wet runways, performing strategic airdrops of both troops and equipment, and providing aeromedical evacuation capability.

The C-17's ability to operate from austere airfields in Albania and Macedonia was further demonstrated during the Operation Allied Force in March-June 1999, when C-17s achieved a 96-percent mission-capable rate. In their joint testimony

⁵ Peter Pae, "Boeing Lands \$9.7 Billion C-17 Contract," *Los Angeles Times*, Aug. 16, 2002.

⁶ Conversation between Boeing program managers and CRS, Nov. 5, 2003.

⁷ Harold Kennedy, "Charleston's C-17s Flying Wherever There's a Runway," *National Defense*, Dec. 2000; "C-17 Hauls Supplied to Houston," *Charleston (SC) Post and Courier*, June 13, 2001.

⁸ U.S. Army Office of Public Affairs, *Task Force Eagle SFOR X Stabilization Force*, [<http://www.tfeagle.army.mil/>].

⁹ U.S. General Accounting Office, *C-17 Globemaster — Support of Operation Joint Endeavor*, GAO/NSIAD-97-50, Feb. 1997.

before the Senate Armed Services Committee, Secretary of Defense William Cohen and Chairman of the Joint Chiefs of Staff General Henry Shelton extolled the C-17's contributions to the Kosovo conflict. They said that "...the C-17 was the workhouse of the airlift force, providing for the rapid deployment of critical warfighting and humanitarian materiel." Furthermore, they testified that

Throughout Operation Allied Force, U.S. forces had to overcome many limitations in transportation infrastructure. Poor airport surface conditions in Tirana, Albania, for example, slowed aircraft turnaround times, limited throughput, and slowed the onward movement of forces and humanitarian supplies. Our transportation and other logistic assets proved to be flexible, effective, and efficient in responding to these limitations. In particular, the C-17 made the concept of direct delivery — the strategic air movement of cargo from an aerial port of embarkation to an airfield as close as practicable to the final destination, a reality."¹⁰

Air Force officials said that the C-17s high payload capacity, ability to land on short, austere airfields, and its ground maneuverability were the keys to success during this operation.

Almost all of the Air Force's inventory of 50 C-17s were involved in the Balkan operation and the Globemaster flew half of the strategic airlift missions required by the operation."¹¹ The U.S. Air Force reports that C-17s from Charleston AFB, S.C. had flown 1,092 missions into the theater as of June 29, 1999, with a departure reliability rate of 96 percent. C-17 was also used extensively for intra-theater operations. Twelve C-17s flew 430 intra-theater airlift missions.¹²

The Air Force has consistently praised the C-17's performance in support of Operation Enduring Freedom, the war against terrorism in Afghanistan. Nearly 170 C-5 and C-17 cargo planes have been dispatched to create an "air bridge" to this distant, landlocked theater of operations.¹³ C-5 aircraft bring cargo and troops from the United States to staging bases in Europe and the C-17s fly directly to forward operating bases in Afghanistan. C-17s fly from Ramstein Air Base in Germany to Afghanistan, approximately 26 hours each way and 10,000 miles round trip.¹⁴ C-17s

¹⁰ Joint Statement of Secretary of Defense William S. Cohen and Chairman of the Joint Chiefs of Staff General Henry H. Shelton, in U.S. Congress, Senate Committee on Armed Services, *Kosovo After-Action Review*, hearing, 106th Cong., 1st sess., Oct. 14, 1999, pp. 11-12, (Washington:GPO, 1999).

¹¹ U.S. Department of Defense, Report to Congress, *Kosovo/Operation Allied Force After-Action Report*, Jan. 31, 2000, p. 40.

¹² Anthony Cordesman, "The Lessons and Non-Lessons of the Air and Missile Campaign in Kosovo," Center for Strategic and International Studies, Mar. 5, 2000.

¹³ Eric Schmitt, "Busy Skies Over Asia Controlled from U.S.," *New York Times*. Oct. 14, 2001.

¹⁴ David Castellon, "C-17s Get Roar of Approval For Role In Afghanistan," *Air Force Times*, May 27, 2002, p. 34.

have also flown missions from U.S. bases directly to forward operating locations in Afghanistan.¹⁵

While distance is clearly a challenge, overflight, and infrastructure challenges appear to be even more burdensome. Most of the Afghan airfields from which C-17s operate are short (~3,500 feet), and strewn with debris and potholes. Some airfields are nothing more than packed dirt. C-5s cannot operate from these primitive airfields.¹⁶ For security reasons, C-17s offload cargo as quickly as possible (usually with engines running), make unscheduled landings, and fly seemingly erratic routes.¹⁷

In addition to moving personnel and war material, C-17s conducted numerous food drops early in the campaign. Beginning on October 7, 2001, the first day of the war, the Air Force began flying two to four food-drop flights per day. From an altitude of 25,000 feet, each C-17 unloaded about 17,000 humanitarian daily rations over Afghanistan.¹⁸

Air mobility operations, as expected, played a significant role in the Iraq war. Reports suggest that airlift operations were largely satisfactory, and that the C-17 airlift aircraft performed well. Air mobility missions accounted for 16,740, or 40%, of the 41,404 sorties (excluding sorties by special operations forces and Army helicopters, and “coalition sovereignty flights”) in the war.¹⁹ The U.S. Transportation Command reported that by April 10, 2003, it had flown 16,213 air mobility missions for the war, exceeding the total number of such missions flown in the 1991 Persian Gulf war.²⁰

The requirement for U.S. strike aircraft to fly around rather than through Turkish airspace increased aerial refueling requirements because those aircraft now had to fly longer missions. Turkey’s decision not to allow the U.S. Army’s 4th Infantry Division to attack northern Iraq from bases in Turkey increased airlift requirements because establishing a U.S. ground presence in northern Iraq then had to be done primarily by air. Fifteen C-17 aircraft executed one of the largest air assaults in recent memory, airdropping 1,100 paratroopers from the Army’s 173rd Airborne Brigade. To buttress this force, U.S. airlift aircraft transported an additional million pounds of equipment, several M-1 Abrams tanks, and another 1,000 soldiers.

¹⁵ Tony Capaccio, “Boeing \$9.6 Bln Deal for More C-17s To U.S. Said Due Next Month,” *Bloomberg.com.*, Apr. 26, 2002.

¹⁶ Seena Simon, “Air Force Makes Play for More C-17s,” *Air Force Times*, Mar. 18, 2002, p. 26.

¹⁷ Lt. Col. Douglas Lefforge, “C-17 Is Vital to War on Terror,” *Air Force News Archive*, Feb. 5, 2002.

¹⁸ Richard Newman, “Tankers and Lifters for a Distant War,” *Air Force Magazine*, Jan. 2002.

¹⁹ Lt. Gen. T. Michael Moseley, USAF Commander, *Operation IRAQI FREEDOM —By the Numbers*, USCENAF, Assessment and Analysis Division, Unclassified, Apr. 30, 2003, pp. 7-8.

²⁰ Chuck Roberts, “C-130 Crews Keep The Supplies Coming,” *Air Force News*, Apr. 16, 2003.

Issues

The C-17 program is at the center of a number of airlift issues that confront policymakers. These issues include, but may not be limited to airlift needs and requirements, cost and budget, and industrial base issues. Also, alternatives to the C-17 program, must also be weighed.

Needs and Requirements

The number of C-17s that should be procured is directly related to the overall airlift requirement, which is typically measured in millions of ton-miles per day (MTMD). In March 2001, the Air Force announced the findings of its Mobility Requirements Study 05 (MRS-05). MRS-05's principal finding is that the goal set by the last mobility study for an airlift fleet capable of moving 49.7 MTMD of personnel and cargo is inadequate to meet the current national military strategy. MRS-05 recommends an airlift fleet capable of 54.5 MTMD. DOD's current strategic airlift capability is approximately 44.7 MTMD which is nearly 10 MTMD short of the MRS-05 goal.²¹ In June 2001, DOD announced its decision to acquire 137 C-17s, which would bring the Air Force's million-ton-miles-per-day capability to 45.3.²² This will reduce the gap between current and desired airlift capabilities to 9.2 MTMD.

Will the global war on terrorism and other global commitments make this shortfall worse? Many factors suggest a growing need for airlift, and the Air Force plans to begin in June 2004 the first "post 9/11" review of transportation requirements. DOD recently reported that the airlift requirement was projected to be closer to 60 MTMD than it was to the 2000 estimate of 54.5 MTMD.²³

How significant is the current shortfall? Does it jeopardize current and future force projection capabilities? The commander of the U.S. Transportation Command testified that he could not provide the airlift capabilities on the schedule desired by Operation Iraqi Freedom's planners.²⁴ However, others point out that despite these perceived shortfalls, the war was executed successfully. Further, the significance of the current and projected shortfall may be mitigated by a historical review which indicates that DOD has always "required" more airlift than it was able to provide.

The Soviet invasion of Afghanistan in December 1979, prompted President Carter to declare that the United States would defend its interests in the Persian Gulf by force if necessary. Concern that U.S. military forces might be ill-prepared to carry out such a mission led Congress to ask DOD to conduct a study of the entire long-

²¹ For more information on MRS-05, see CRS Report RS20915.

²² Jonathan M. Block, "Officials: Air Force to Procure Three Additional Boeing C-17s," *Inside the Air Force*, June 29, 2001.

²³ Marc Selinger, "DoD Launching New Review of Transportation Needs," *Aerospace Daily*, Mar. 11, 2004.

²⁴ Sharon Weinberger, "Handy: Airlift Shortage Forcing Military Tradeoffs," *Defense Daily*, Mar. 23, 2004, p.3.

range strategic mobility situation, showing how much airlift and sealift would be needed to deploy forces to remote areas.

Known as the Congressionally Mandated Mobility Study (CMMS), a classified report was sent to Congress in April 1981. The CMMS considered all modes of strategic mobility and what it would take to satisfy the simultaneous demands of a major war in Central Europe and any one of three lesser contingencies, including a deployment to the Persian Gulf. The study established several long-range strategic airlift goals that were considered attainable within the limits of realistic budget assumptions. One of the conclusions was that 66 MTMD of airlift capacity would be needed by the year 2000. At the time of the study in 1981, the Air Force's long-range cargo capability was only 29 MTMD.

In 1991-1992, an updated Mobility Requirements Study (MRS) concluded that 57 MTMD would be required during the 1990s in a new set of scenarios based on changing international circumstances and reductions in the size and deployment of U.S. military forces. At the time, DOD's airlift capabilities were approximately 48 MTMD: a nine MTMD shortfall. The study also concluded that even with 120 C-17 aircraft and commercial cargo and transport planes in the Civil Reserve Air Fleet (CRAF), the total U.S. cargo airlift capability would remain at 48 MTMD because of the phaseout of aircraft reaching the end of their service life.

The April 1995 Mobility Requirements Study Bottom-Up Review Update (MRSBURU) revised downward airlift requirements to 49.7 MTMD. Between 1997 and 2001, DOD's airlift capabilities fluctuated between 41 and 43 MTMD, consistently below the stated requirement. The MRSBURU also concluded that 120 to 140 C-17s, or some comparable aircraft, would be needed in the 1990s.

Budget and Cost Factors

A major issue in the C-17 program has been the fact that while it appears to offer great capabilities, the aircraft is more expensive than other potential alternatives. The acquisition of several proposed "non-developmental airlift aircraft" (NDAA) alternatives, as projected by their manufacturers and the Congressional Budget Office, were less expensive than an airlifter, such as the C-17, designed and manufactured to military specifications. (See "alternatives" section below). As of December 31, 2003, DOD estimated a 180-aircraft C-17 program to cost \$60.1 billion. Unit costs have been reduced by multiyear procurement. Under the multiyear production contract of May 31, 1996, 80 aircraft were produced during the 1996-2003 period for some \$16.2 billion, at a program unit cost of \$202.5 million.²⁵ The current \$9.7 billion multiyear procurement contract equates to a price of \$161.6 million per aircraft. The contract calls for the delivery of 15 aircraft per year.

Another issue that has dogged the C-17 program has been a controversy over recent budget profiles. Congressional appropriators in FY2003 and FY2004 (see congressional action section below) have expressed concern that the Air Force has

²⁵ Brian Bender, "Pentagon Signs \$16 Billion Deal for C-17 Transport Planes," *Defense Daily*, June 3, 1996, p. 366-367.

not requested funding consistent with “full funding” principles which guide prudent procurement practice and could be creating future liability for DOD and Congress. If the C-17 were being “incrementally funded” some fear that it would violate the *Antideficiency Act*, which defends against procuring items for which funds have not been allocated.²⁶

In March 2004, it was reported that a study by the House Appropriations Surveys and Investigation staff raised concerns that the Air Force had in fact overstepped its authority in the current C-17 MYP by committing DOD to producing the aircraft in advance of congressional appropriations.²⁷ The contract’s liability clause (which pays a negotiated penalty to the manufacturer if the government decides to breach the terms of the contract) was also deemed suspect as inconsistent with general practice. Air Force officials disagree with these depictions of the C-17 MYP contract, and emphasize the cost savings realized by such contracts.

Industry and Exports

Under current plans, the C-17 production line is scheduled to shut down. DOD would need to begin funding advanced procurement of additional aircraft in 2006 to postpone this event. Procuring additional C-17s domestically, or exporting them are seen as two potentially complimentary methods of both keeping the production line open, and reducing the per-aircraft production costs. Some lawmakers are reportedly encouraging DOD to procure more C-17s than are currently planned, noting that airlift needs are increasing.²⁸

In December 2000, the Air Force and Boeing agreed to pursue a proposal they hoped would reduce costs and, at the same time, increase outsize/oversize airlift capability. Industry studies suggest that a commercial market for up to 10 commercial C-17s (dubbed BC-17X) may exist for use in heavy industry, mining, or similar endeavors. Under the proposed Commercial Application of Military Airlift Aircraft (CAMAA), private companies would purchase BC-17Xs and make them available to the military, much like CRAF. The Air Force has proposed several options to sweeten the deal such as helping companies find customers who need outsized cargo delivery and monthly military business paid for at commercial rates. In addition to having access to these aircraft, the Air Force and industry would benefit because building BC-17Xs for industry would use up excess production capacity and help lower the per-unit cost of those aircraft bought by DOD.²⁹

²⁶ For more information on defense procurement and full funding policy, see CRS Report RL31404.

²⁷ Amy Butler, “Lawmakers Question C-17 Multiyear Deal With Boeing After House Investigation,” *Defense Daily*, Mar. 23, 2004, p. 1.

²⁸ Gail Kaufman, “USAF C-17s May Come Earlier Than Requested,” *Defense News*, Mar. 29, 2004.

²⁹ Amy Butler, “Commercial C-17 Buys Would Stabilize Cost, Enhance Reserve Air Fleet,” *Inside the Air Force*, Dec. 22, 2000; Christian Lowe, “Air Force Issues Draft Solicitation for Civilian C-17s,” *Defense Week*, July 9, 2001.

It is unclear how attractive industry will find this proposal in a “post-9/11” environment typified by a declining aviation market. Also, increased demands for long-range airlift in a post 9/11 world may make increased C-17 buys more feasible for the Air Force and thus make a commercial variant less necessary. In October 2002, it was reported that DOD’s Business Initiatives Council had approved the CAMAA program as an “efficiency measure.” DOD wants a program in place by FY2007. Therefore, C-17 commercialization may be part of the FY2005 budget deliberations.³⁰

Close U.S. allies also have strategic airlift requirements that may be satisfied by the C-17. Having long recognized a deficit in their long range airlift capabilities, several NATO countries (Germany, France, Spain, Britain, Turkey, Belgium and Portugal) plan on purchasing the jointly developed A400M turboprop airlifter. This program has experienced numerous perturbations in schedule and budget. In December 2002, for example, Germany announced that it would reduce its planned acquisition of the A400M from 73 to 60 aircraft. Portugal, it is rumored, is considering cancelling its order entirely.³¹ Some analysts suggest that NATO countries should pool its resources and lease the C-17 or Russian AN-124 aircraft rather than trying to build their own airlifter.³² NATO Secretary General Lord Robertson, for one, supports leasing C-17 and C-130J aircraft as a stopgap measure to improve NATO’s airlift capabilities until the A400M enters service in 2008.³³

British defense officials view the C-17 as an asset that can be used in rapid-reaction operations. The United Kingdom’s Strategic Defense Review of July 1998 indicated that the Ministry of Defense might lease or buy several C-17s to meet air mobility requirements of Britain’s Rapid Reaction forces. In May 2000 it was reported that the U.K.’s Royal Air Force had committed to a \$750 million deal to lease four C-17s from Boeing for seven years. Deliveries began in the summer of 2001. Britain has “conditionally committed” to purchase 25 Airbus A400M transports following the C-17 lease. However, in October 2002 senior British defense officials said that they were considering holding on to its four C-17s once the lease had expired.³⁴

Canada is another country that has given purchase of the C-17 some consideration. In May 2001 it was reported that the Canadian Department of National Defense had allocated almost \$1 billion (U.S.) to meet strategic lift requirements. In addition to the C-17, Canada is considering the Airbus A400M and the Antonov An-7X. Lt. Gen. David Kinsman, chief of Canada’s Air Staff and commander of their Air

³⁰ “DoD Business Initiatives Council Supports C-17 ‘Commercialization,’” *Defense Daily*, Oct. 16, 2002, p. 8.

³¹ “Germany Trims A400M, Meteor, IRIS-T Acquisitions,” *Defense Daily*, Dec. 6, 2002.

³² Philip Shishkin, “Europe Says It Will Lease Military Transport Aircraft,” *Wall Street Journal*, Nov. 18, 2002.

³³ Vago Muradian, “Robertson: NATO Should Consider C-17, C=130J Fleet As Stopgap Until A400M,” *Defense Daily*, Apr. 11, 2002.

³⁴ Douglas Barrie, “Britain Ponders Retaining C-17s,” *Aviation Week & Space Technology*, Oct. 14, 2002.

Command said that Canadian forces have “a well established and recognized requirement for an outsized, C-17-like strategic airlifter.”³⁵

Some Alternatives

Opponents of the C-17 have proposed alternatives ranging from extending the service life of cargo planes now in service to relying more on sea lift or developing large airships (blimps). Timeliness is the strongest argument for delivering military cargo by air, and some analysts believe that where time is not so critical it would be possible to use sea lift instead of buying additional airlift assets. The Department of Defense has steadfastly defended the C-17, arguing that it will be needed even more, as more U.S. troops return from overseas stations. The Air Force continues to assert that the C-17 holds high priority in relation to other Air Force programs, pointing out that the current U.S. airlift capability is only about 48 million ton miles per day compared to the 54.5 MTMD stipulated in the 2001 mobility requirements study.

Extend the Life of the C-141. Some have suggested that the C-141 be kept in service longer by means of a Service Life Extension Program (SLEP). Under this concept, parts of the plane that are worn out or dangerous would be replaced in order to keep the C-141s in service until an affordable replacement is found. Earlier modifications increased the life of the planes from about 25,000 hours to 45,000 hours, but even if their service lives were extended, C-141s could not carry outsized cargo such as tanks, helicopters, and large vehicles and artillery. These items are more easily and economically transported by ship, but in an emergency when time is critical, only the C-5 or the C-17 can carry military equipment that large and bulky.

Air Force officials state that the C-141B is already beyond its original service life and is limited in the kinds of missions it can perform. Earlier modifications increased the life of the planes from about 25,000 hours to 45,000 hours, but even if their service lives were extended again, C-141Bs would offer less and less capability over time. Also, they say that the C-141B can't carry outsize cargo, which, along with oversize cargo, represents the majority of the airlift demands during the critical “halt phase” of a war (early in the conflict). Investing additional funds in the C-141B program would produce diminishing returns, they argue.

In 1992, however, the Department of Defense's Inspector General studied the feasibility of extending the C-141B's life through a service life extension program (SLEP). In their view “...the C-141s may fully or partially meet the need and would be significantly cheaper than any other plan.” The IG obtained a quote from Warner-Robbins Air Logistics Center of \$2.4 billion, or \$9 million per aircraft in FY1991 dollars to rewing the C-141B fleet and extend their service life from the current 45,000 hours to 60,000.³⁶

³⁵ William Scott, “Bolder Budgets Restore Canada's Air Force,” *Aviation Week and Space Technology*, June 26, 2000.

³⁶ “Pentagon IG: C-141B SLEP Cheaper than C-17,” *Aerospace Daily*, May 19, 1992, p. 277.

Buy Fewer C-17s and More Commercial Aircraft. Another proposed alternative was to buy fewer C-17s and to make up the shortfall with additional commercial transport/cargo aircraft — referred to as “non-developmental airlift aircraft” (NDAAs). The leading candidate in the NDAA option was a military version of the Boeing 747 jumbo jet, designated as the C-33. These Boeing C-33s would not be replacements for the C-17 but would fill the need for routine cargo flights between large airports. The C-17 can be operated on unimproved surfaces and can unload under austere conditions. Proponents of the NDAA argued that its acquisition cost would be less than that of the C-17, whose special performance features would not be needed in many airlift operations.

Air Force officials conceded that in some situations a mix of C-17s and NDAAs might be the most cost-effective way to carry military cargo. However, DOD’s decision in November 1995 reflected a choice of an all-C-17 force of 120 aircraft (including the 40 then under contract) in lieu of a C-17/NDAA mix.

An October 1995 report by the Congressional Budget Office (CBO) stated: “If there was adequate room at airfields in regions of potential conflict, buying 32 more C-17s plus 30 C-33s [militarized version of Boeing 747s] would provide the same delivery capability as 80 additional C-17s. That option would also be nearly \$8 billion cheaper.... If, however, U.S. forces were limited to a few airfields that had a small amount of ramp space, that option might not deliver cargo as quickly as would 80 more C-17s. And such a combination would not provide as much flexibility to handle specific military missions such as strategic brigade airdrops.... The appropriate mixture of planes depends on how much DOD and the Congress are willing to pay for the flexibility provided by 80 additional C-17s.”³⁷ A report by the Congressional Budget Office in early 1997 considered the costs and capabilities of five alternatives to current Administration plans for modernizing strategic airlift and sea lift, including buying fewer C-17s with estimated savings of \$8.4 to \$18.9 billion in 1998-2020.³⁸

Modernize the C-5 Fleet. The Air Force owns 110 C-5s; 64 C-5As, 44C-5Bs, and two C-5Cs modified for the space program. On average, the A models are 8 years older than the B models. The C-5, made by Lockheed Martin, is typified by its payload and range. One of the largest aircraft in the world, the C-5 can carry 160,000 lbs of cargo up to 3,730 nautical miles, and has a maximum payload of 291,000 lbs. The C-5 can carry large and irregularly shaped cargo, such as the Army’s 74-ton mobile scissors bridge, that no other U.S. aircraft can hold. Both the nose and aft ends of the C-5 open, facilitating rapid loading and off-loading. The C-5 has been plagued by reliability problems; its mission capable rate for 2000, for example, was 58 percent.

³⁷ U.S. Congressional Budget Office, *Moving U.S. Forces: Options For Strategic Mobility*, Rachel Schmidt, Feb. 1997; U.S. General Accounting Office, *Military Airlift — Options Exist for Meeting Requirements While Acquiring Fewer C-17s*, GAO/NSIAD-97-38, Feb. 1997.

³⁸ U.S. Congressional Budget Office, *Moving U.S. Forces: Options For Strategic Mobility*, Rachel Schmidt, Feb. 1997; U.S. General Accounting Office, *Military Airlift — Options Exist for Meeting Requirements While Acquiring Fewer C-17s*, GAO/NSIAD-97-38, Feb. 1997.

The debate regarding the C-5 fleet is how many aircraft should be modernized and kept operational, and how many should be retired. Rising maintenance costs have led some to argue that more C-5s should be retired sooner, and the savings be applied to increased purchases of the new and modern C-17. Opponents to that proposal say that the C-5 offers unique capabilities that the C-17 can't match, and in a period of increasing mobility requirements, it makes little sense to prematurely retire aircraft in today's inventory. C-5 proponents note that over the past three years, DOD has leased Russian AN-124 aircraft to carry outsize and oversize cargo because C-5 aircraft were unavailable. In 2003 it was estimated that the 79 AN-124 missions conducted in that year cost DOD \$28.9 million.³⁹ While the C-5 may not be as modern as the C-17, or able to operate from as many runways, the fact that DOD has to outsource missions to Russia indicates that the C-5 still offers important capabilities that the C-17 can't.

Currently, it appears that the Air Force plan is to upgrade and maintain both the C-5A and C-5B models.⁴⁰ The Air Force's Fleet Viability Board, however, is reviewing the C-5 as well as other aging aircraft and will make a recommendation on the aircraft's retirement timeline. In Sec. 133 of their report on H.R. 1588 (H.Rept. (108-106) p. 97, House authorizers expressed concern over potentially premature retirement of the C-5A fleet, and

recommend a provision that would limit the Secretary of the Air Force from proceeding with a decision to retire C-5A aircraft from the active inventory if the active inventory of such aircraft would fall below 112, until a RERP (re-engine and reliability program)- configured C-5A aircraft completes a dedicated initial operational test and evaluation, and the Department of Defense's Director of the Operational Test and Evaluation has provided his assessment of the RERP-configured C-5A's performance to both the Secretary of Defense and the congressional defense committees.

Invest in Lighter-than-Air Concepts. The Army, the Navy and the Joint Staff have or are studying the pros and cons of augmenting fixed-wing airlift aircraft with "lighter-than-air" aircraft. Also known as airships, blimps, dirigibles, or zeppelins, these potentially large, helium-filled balloons offer many potential advantages over fixed wing aircraft. One potential advantage is cargo capacity. Some airships being considered can carry up to 1,000 tons (2.2 million lbs) of cargo. Thus, the cargo capacity of just one airship is roughly equivalent to the payload of 13 C-17s. Because it can hover, and land vertically on both land and water, airships can potentially deliver their cargos from the United States directly to the theater of operations, eliminating inter-theater transport, and reducing U.S. dependence on forward basing.

Opponents to lighter-than-air concepts argue that airships fly slower than fixed-wing aircraft, and are probably more vulnerable to enemy missiles. Proponents

³⁹ Master Sgt. Scott Elliot, "Jumper: Strategic Airlift Capability "Front Burner Issue,"" *Air Force Print News*, Feb. 11, 2003; Gene Rector, "Russian Aircraft Getting U.S. C-5 Work," *Macon Telegraph*, Dec. 21, 2003.

⁴⁰ Stephen Trimble, "USAF Proceeding With C-5 Upgrade Plan Despite Pending Review of Fleet," *Aerospace Daily*, May 30, 2003.

counter that while the airship top speed of 100 knots is slower than an airlifters speed (typically 450 knots) the very large payload makes up for the slower speed, and that some cargo can be delivered at slower rates and still meet operational needs. Also, airships may be more survivable than they appear, proponents argue, because despite their large sizes, airships have smaller radar and infrared signatures than airlift aircraft.⁴¹

Congressional Action

The Bush Administration's budget for **FY2005** requested \$4.1 billion in overall C-17 funding, and is broken down in the table below.

C-17 FY2005 Funding Request (\$ Millions)						
	Procurement				R&D	Total
	MYP (14 aircraft)	APCY	ICS	Mods		
C-17A	2,512.5	381.8	945.6	89.1	199.6	4,1

The Bush Administration's budget for **FY2004** requested \$3.6 billion in overall C-17 funding. In their report (H.Rept. 108-106/H.R. 1588) House authorizers matched the Air Forces' request for C-17 R&D funding and increased the procurement request by \$182 million. Noting the current shortfall in DOD's total airlift capabilities relative to the Mobility Requirements Study 05 (MRS-05) goals, the Committee directed the Air Force to procure an additional C-17 in FY2004 and to "increase its C-17 production rate in order to deliver 16 aircraft per year for the remaining years of the current multiyear procurement contract." (P.97)

Senate authorizers (S.Rept. 108-46, S. 1050) also matched the Air Force's C-17 R&D request. The committee satisfied an Air Force request to transfer procurement funds between program elements to allow full execution of fiscal year 2004 funding. In doing so, the committee reduced the procurement request by \$3.7 billion. (p.100). Authorization conferees (108-354, H.R. 1588), followed the Senate's recommendation on C-17 procurement.

House appropriators (H.Rept. 108-187, H.R. 2658) added \$2.7 million to the C-17 RDT&E request (\$186.7 million total). The Committee cut the C-17 procurement request by \$58.7 million: cutting \$5 million from advanced procurement (current

⁴¹ For more information on cargo airships, see: Chuck Myers. "HULA — A Helium Magic Carpet?" *Naval Institute Proceedings*, June 2003, p. 74-75; Michael Sirak, "U.S. Navy Floats Lighter-Than-air Transport Concept," *Jane's Defense Weekly*, May 7, 2003; Ann Roosevelt, "U.S. Military Considers Huge Airships for Lift Needs," *Defense Week*, Aug. 13, 2001, p. 6.; Airship and Blimp Resources, [<http://www.myairship.com>].

year) and \$50 million from interim contractor support (ICS), and adding \$6.3 million to the C-17's "modification of Inservice Aircraft" line. Following authorization, House appropriators also satisfied the Air Force's request to transfer funds from APCY to the FY2004 MYP request.

Senate appropriators (S.Rept. 108-87, S. 1382) supported the Administration's request for \$184.1 RDT&E funds. The Committee added \$50 million to the procurement request (ICS) and transferred funds between APCY and FY2004 MYP as requested. Senate appropriators also expressed their support (p.112) for the Commercial Application of Military Airlift Aircraft (CAMAA) initiative. CAMAA is an Air Force/industry attempt to sell commercial variants of the C-17 (called the BC-17) to private companies, and then tap into this commercial capability when needed for military operations through the Civil Reserve Air Fleet (CRAF).

Appropriations conferees (H.Rept. 108-283, H.R. 2658) agreed to increase the C-17 RDT&E request by \$14 million (\$13 million less than the House recommendation). The conference committee reduced the overall C-17 procurement request by \$3.7 million: providing \$2.1 billion for FY2004 MYP, \$406.1 million for APCY, \$927.6 million for ICS, and \$49.1 million for modification to inservice aircraft.

In its proposed budget for **FY2003**, DOD requested \$3.8 billion in overall C-17 procurement funding, and \$157.2 million for RDT&E. The procurement funding request was broken down into four separate line items: \$2.69 billion for procurement of 12 C-17s in FY2003, \$391.89 million for the advanced procurement (current year) of 10 C-17s in FY2004, \$612.4 million for interim contractor support, and \$128.1 million for modifications to in-service aircraft. All four congressional appropriating and authorizing committees matched the administration's FY2003 request for C-17 R&D funding.

In their report (H.Rept. 107-436, H.R. 4546), House authorizers matched the Air Force's C-17 procurement request. Senate authorizers (S.Rept. 107-151, S. 2514) agreed to procure 12 C-17 aircraft in FY2003, but added \$9.2 million to the multi-year procurement request for an aircraft engine trainer and \$2.1 million for software enhancements for existing trainers. Senate authorizers also cut \$59.7 million from \$612 million interim contractor support request, due to unjustified growth. Authorization conferees (H.Rept. 107-772, H.R. 4546) followed the Senate recommendation to increase C-17 multi-year procurement by \$11.3 million for training improvement, but rejected decrements to the interim contractor support and matched the Air Force's request.

House and Senate appropriators both objected to the Air Force's FY2003 C-17 procurement request. Both appropriations committees said that the Air Force had not fully funded its request for 15 aircraft per year, but requested only the amount of funds it plans to obligate each year to begin production of 15 aircraft, and then finance the remaining costs in subsequent years. The Senate wrote that "this financing scheme runs counter to the 'full funding' principles which guide Federal Government procurement practice, and thus creates a future liability for the Air Force and the Congress." (H.Rept. 107-213, H.R. 5010, p. 147). The House agreed, reporting that

“Instead of following the traditional method of requesting funding equal to the cost of the planes being built, the Air Force has matched its funding request to when payments are due to the contractor. The Air Force calls this change ‘transformation.’ The proper term is incremental funding and it is inconsistent with DOD fiscal policy.”(107-532, H.R. 5010, p.168)

The two committees corrected the Air Force’s incremental funding request in different ways. The House matched the multi-year procurement request for 12 aircraft, but included bill language directing the Air Force and Under Secretary of Defense (Comptroller) to restructure the C-17’s FY2004 and outyear funding make it consistent with guidance provided by DOD’s Financial Management Regulations. The Senate increased the C-17 multi-year procurement request by \$585 million to procure 3 additional aircraft in FY2003. Like Senate authorizers, Senate appropriators cut C-17 Interim Contractor Support by \$59 million due to excessive growth. House appropriators added \$9.5 million to the program.

Appropriates conferees followed the Senate’s approach and increased C-17 multi-year procurement by \$585 million to purchase 3 additional aircraft (15 total) in FY2003. Conferees also cut interim contractor support by \$59 million, and followed authorization by adding \$11 million for maintenance training.

In its proposed C-17 budget for **FY2002**, DOD requested a total of \$110 million in RDT&E, and \$3.6 billion in procurement funding. The procurement request included \$2.8 billion to procure 15 C-17 Globemasters, \$228 million in advanced procurement (current year) funds for 12 aircraft in FY 2003, \$441 million for C-17 Integrated Contractor Support (ICS), and \$139 million for modification of in-service aircraft (procure the C-17A Training Evaluation Performance Aircraft Training Set).

In their report on H.R. 2586 (H.Rept. 107-194) House authorizers approved the C-17 RDT&E request (\$110 million) and agreed to procure 15 aircraft at the overall funding level. However, authorizers expressed concern that the Air Force’s Mobility Requirements Study found a shortfall in national airlift capacity⁴², and that the C-17’s seven-year multi year procurement contract is scheduled to end in FY2003. Therefore, the committee recommended a transfer of \$36 million from FY2002 procurement to advance procurement (current year). This would allow a more efficient production rate in FY2003 of 15 aircraft, rather than the currently planned 12. Also, House authorizers included a provision allowing the Secretary of Defense to proceed with a follow-on C-17 multi year contract prior to the enactment of the FY2002 National Defense Authorization Act.

Senate authorizers (S. 1416, S.Rept. 107-62) approved the C-17 request for RDT&E funding. They also approved the procurement of 15 aircraft in FY2002 and provided \$21.1 million in additional procurement funds. Like House authorizers, the Senate expressed concern regarding the shortfall in airlift capacity, and recommended a provision that would authorize DOD to enter into a multi year C-17 contract. The Senate authorized that up to 60 C-17s could be procured.

⁴² See CRS Report RS20915.

Authorization conferees (S. 1438, S.Rept. 107-333) matched the Administration's request for FY2002 RDT&E funding (\$110 million), and supported the procurement of 15 aircraft with a small increase (\$9.8 million) in funding. Conferees did not adopt (Sec. 131) the House proposal to accelerate advanced procurement of FY2003 aircraft. Conferees did adopt the proposal to authorize DOD to enter into an additional multi year procurement contract for up to 60 aircraft. The provision requires that the Secretary of Defense certifies that the procurement is in the interest of DOD, and compliant with section 2306b of title 10 U.S. code, except that the contract could cover a period of up to six program years.

In their report on H.R. 3338 (H.Rept. 107-298) House appropriators matched the C-17 RDT&E request. They also supported the request for 15 aircraft and recommended an increase in procurement of \$136.2 million. House appropriators also expressed their concern for Air Force Reserve airlift force management (p.81), noting the increased reliance the Air Force is placing on reserve units and joint reserve-active duty units to accomplish many airlift missions. The committee voiced its concern that the Secretary of the Air Force has not yet designated an Air Reserve Station or Stations for the C-17, and encouraged the Air Force to consider the March Air Reserve Base and Wright-Patterson Air Force Base for the C-17 mission.

Senate appropriators (H.R. 3338, H.Rept. 107-109) also supported the Administration's RDT&E request and the procurement of 15 aircraft. The appropriations committee recommended increasing overall C-17 procurement funding by \$107 million, noting that "there is a requirement for increased airlift and an opportunity to achieve savings with a follow-on multi-year procurement." (p.94.)

In their report on H.R. 3338 (H.Rept. 107-350), appropriations conferees supported the request to procure 15 C-17s, and increased the request for FY2002, and advanced procurement (current year), and ICS funding by \$89 million. Conferees made adjustments within the procurement accounts, reducing current year procurement by \$67 million, and modification of in-service aircraft by \$27 million, but increasing advanced procurement by \$143 million, and C-17 ICS by \$40 million. Appropriations conferees matched the Administration's request for C-17 research and development (\$110 million). They also supported the creation of an Air Reserve station for the Globemaster, and provided \$1 million for planning and site assessment.

In its request for **FY2001 supplemental appropriations**, dated June 2001, DOD requested and Conferees appropriated⁴³, \$49 million to cover C-17 overhead costs. On page 20 of the request, DOD justified the need for \$49 million:

Funds are required to pay for the negotiated settlement of a request for equitable adjustment from Boeing resulting from an H-022 economic re-opener clause on the C-17 contract. The negotiated settlement includes an Air Force payment of \$150 million to be paid across fiscal years 198-2000 and a \$49 million negotiated buyout of any remaining H-022 type clauses for Lots 13-15.

⁴³ U.S. Congress, House of Representatives, *Making Supplemental Appropriations for the Fiscal Year Ending September 30, 2001, and For Other Purposes*, report to accompany H.R. 2216, 107th Cong., 1st Sess., H.Rept. 107-148 (Washington: GPO, 2001), p. 45.

The Administration's FY2001 defense budget, submitted on February 7, 2000, requested \$3,067.3 million for the C-17 program: \$2,890.9 million for procurement of 12 aircraft and \$176.4 million in research-development (R&D) funds. DOD officials stated that buying 12 aircraft in FY2001 instead of 15 as originally planned would not break the multi year contract for 80 C-17s to be procured over seven years (FY1997-FY2003). DOD expressed confidence that the United Kingdom would strongly consider buying two or three C-17s, which would help keep the Globemaster production line warm. Also, Canada was viewed as a potential customer to help make up the three aircraft gap.⁴⁴

Initial FY2001 authorization and appropriation activity in Congress has been supportive of the C-17 Program. All of the defense oversight committees recommended the 12 aircraft purchase.

In H.Rept. 106-616, H.R. 4205, the House Armed Services Committee recommended authorization of \$25.9 million in excess of the Administration's procurement request for an additional weapon system trainer and a maintenance training system. In their report S.Rept. 106-292, S. 2549, the Senate Armed Services Committee increased the Administration's \$97.1 request for C-17 modifications by \$26.4 million to procure an additional C-17 cockpit system simulator and to complete procurement of the C-17 maintenance systems trainer. Both House and Senate authorizers matched the Administration's request for C-17 R&D funds.

In H.Rept. 106-644, H.R. 4576, the House Appropriations Committee supported the Administration's plan to procure 12 C-17s. However, based on the Air Force's own analysis, the committee determined a reduced need for procurement and recommended appropriations \$26.1 million less than requested. The committee supported the Administration's request for C-17 R&D funds.

Senate appropriators took a different approach than the other oversight committees on C-17 funding. In S.Rept. 106-298, S. 2593, the Senate Appropriations Committee wrote that "The Committee has fully funded the budget request amount for C-17 aircraft procurement, C-17 advanced procurement, and C-17 interim contractor support. However, the Committee recommendation transfers the C-17 program to the 'National Defense Airlift Fund' account and appropriates all requested funds within this account."⁴⁵ Defense Subcommittee Chairman Sen. Ted Stevens told reporters in May 2000 that the airlift fund is modeled after the National Defense Sealift fund that was created several years ago. "We think airlift is a number one priority for the country," Stevens was quoted as saying.⁴⁶ The intent of the new fund is to recognize that the C-17 is an asset that benefits all the services and to protect this money from competition within the Air Force for its service-specific

⁴⁴ Canadian officials have downplayed the likelihood that Canada would buy the C-17, Sharon Hobson, "Canada Cools on Move to Share C-17 Ownership," *Jane's Defense Weekly*, Nov., 15, 2000.

⁴⁵ U.S. Congress, *Department of Defense Appropriation Bill, 2001*, report to accompany S. 2593, 106th Cong., S.Rept. 106-298, (Washington: GPO, 2000).

⁴⁶ Thomas Duffy, "Senate Appropriators Create Airlift Fund to Protect C-17 Money," *Inside the Pentagon*, May 18, 2000.

resources. The committee supported the Administration's request for C-17 R&D funds.

The appropriations conference (H.Rept. 106-754, H.R. 4567) adopted the National Defense Airlift Fund concept. Appropriators recommended \$2,428,723,000 for the procurement of 12 C-17 aircraft and advance procurement for the FY 2002 purchase of 15 DC-17 aircraft. \$412,200,000 was included for the interim contractor support of the existing C-17 fleet. The conferees directed that the C-17 procurement and fleet support programs continue without any interruption during FY2001. Appropriators also supported the Administration's request for C-17 R&D funds.

Authorization conferees supported the Administration's request to purchase 12 C-17s, with modifications to FY2001 and advance year procurement. Conferees reduced FY2001 funding by \$41 million, and decreased advance procurement by \$9 million "due to a revision of advance procurement funding requirements." (H.R. 4204, p. 617).

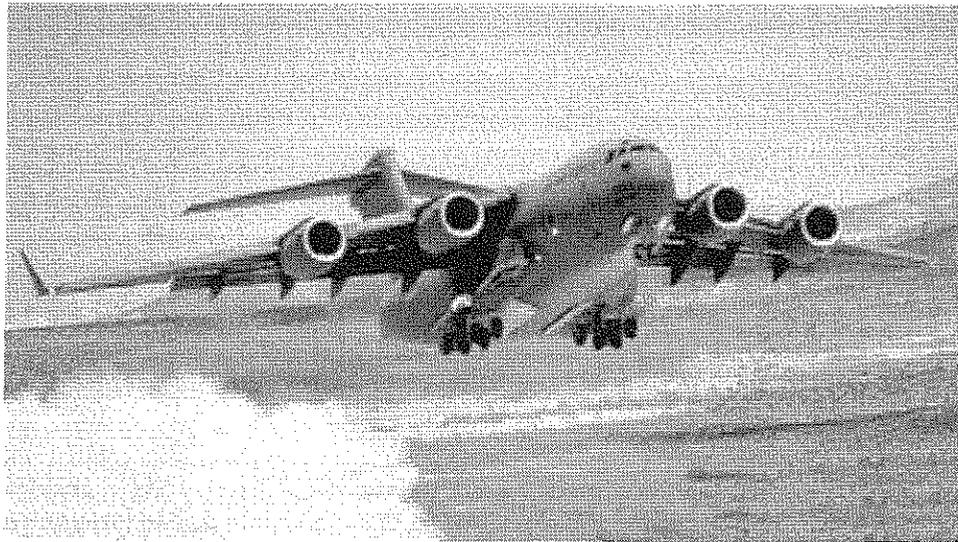
The **FY2000** defense budget requested \$3,555.7 million for the C-17 program: \$3,385 million in procurement funds for 15 aircraft and \$170.7 million in R&D funds. The Senate version of the FY2000 defense authorization bill (S. 1059), passed on May 27, 1999, authorized funding for the program as requested; the House version (H.R. 1401), passed on June 10, 1999, also authorized the funding requested as well as an additional \$3.5 million in procurement funds for the C-17. House and Senate conferees (H.Rept. 106-301/P.L. 106-65) agreed to authorize C-17 funding as requested.

The Senate version of the FY2000 defense appropriations bill (S. 1122) funded the program as requested and authorized by the Senate. The Senate Appropriations Committee also recommended "new multiyear procurement authority to allow the Air Force to enter into negotiations on the procurement of sixty additional C-17s" (S.Rept. 106-53); this second multiyear procurement would begin in 2003 at the end of the current 7-year contract. The House version (H.R. 2561), provided \$412.3 million less than the \$3,385 million requested and authorized for procurement. The conference report on FY2000 defense appropriations (H.Rept. 106-371/P.L. 106-79) provided \$3,135.2 million for the C-17 program (\$2,974.3 million in procurement and advance procurement funds; \$160.9 million in R&D funds). Sections 8008 and 8145 of the conference report granted authority for a follow-on multi year contract for 60 more C-17s if the Secretary of the Air Force certifies that the average unit flyaway price of these aircraft will be "at least twenty-five percent below the average unit flyaway price" of the 80 aircraft currently in multi year procurement "with both prices calculated in fiscal year 1999 dollars."

Appendix I: System Description⁴⁷

Power Plant:	Four Pratt & Whitney F117-PW-100 turbofan engines
Wingspan:	169 feet 10 inches (to winglet tips) (51.76 meters)
Length:	174 feet (53 meters)
Height:	55 feet 1 inch (16.79 meters)
Cargo Compartment:	length, 88 feet (26.82 meters); width, 18 feet (5.48 meters); height, 12 feet 4 inches (3.76 meters)
Speed:	450 knots at 28,000 feet (8,534 meters) (Mach .74)
Service Ceiling:	45,000 feet at cruising speed (13,716 meters)
Range:	Global with in-flight refueling ⁴⁸
Crew:	Three (two pilots and one load master)
Maximum T/O Weight:	585,000 pounds (265,352 kilograms)
Load:	102 troops/paratroops; 48 litter and 54 ambulatory patients and attendants; 170,900 pounds (77,519 kilograms) of cargo (18 pallet positions)

C-17 Globemaster III Taking off From Unfinished Runway



USAF photo by 1st Lt. Laurel Scherer

⁴⁷ Information derived from C-17 Globemaster III Fact Sheet, [http://www.af.mil/news/factsheets/C_17_Globemaster_III.html] and Air Force Magazine, 2000 USAF Almanac, May 2000.

⁴⁸ The first 70 C-17s have an unrefueled range of 4,370 miles with a 90,000 lb load. An extra fuel tank will be installed in the 71st and subsequent aircraft which will extend the unrefueled range to 5,060 miles with a 90,000 lb load, Seena Simon, "Extra Fuel Tank Allows C-17s to Fly Farther," *Air Force Times*, Apr. 2, 2001.