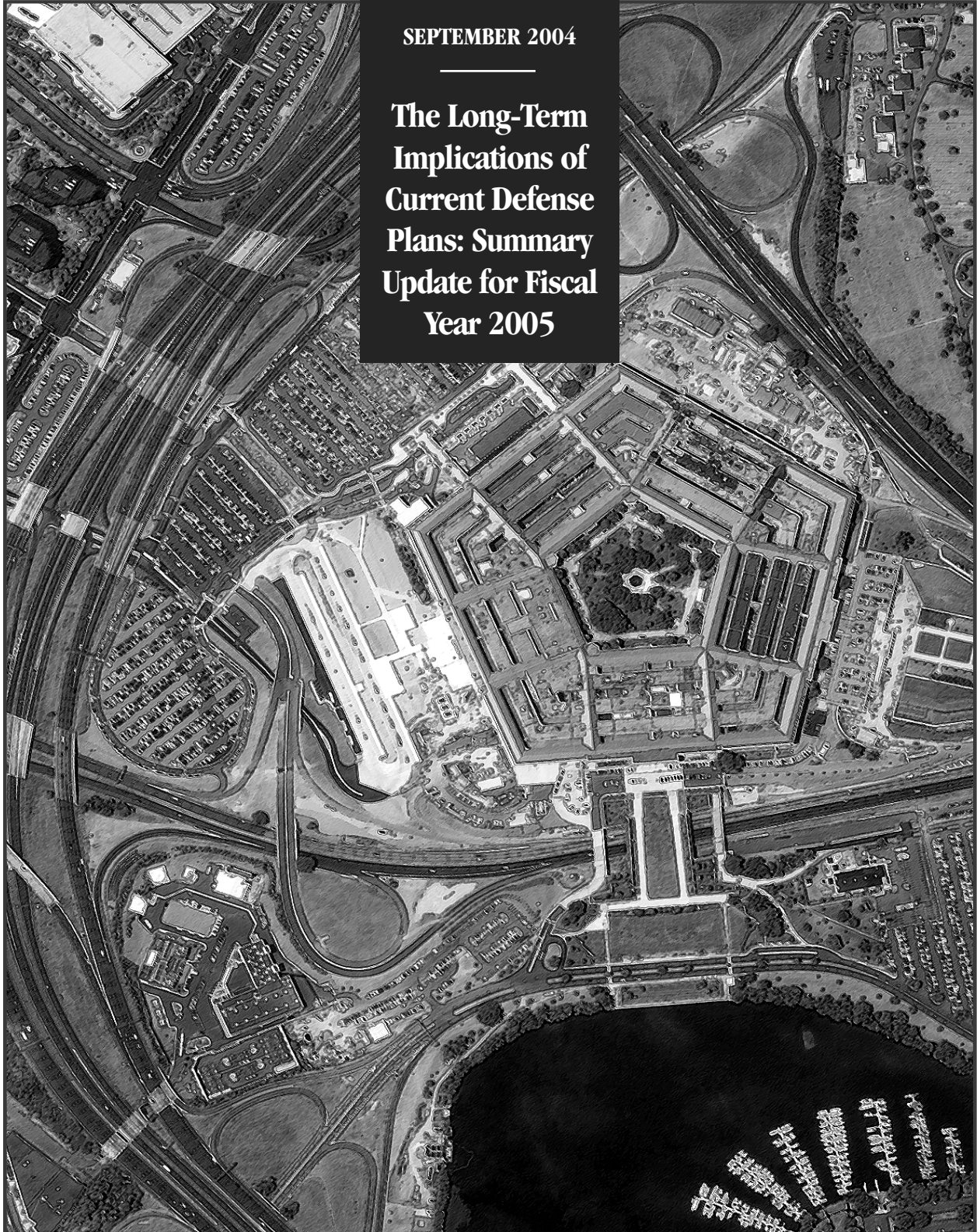


CONGRESS OF THE UNITED STATES
CONGRESSIONAL BUDGET OFFICE

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CBO
PAPER

SEPTEMBER 2004

**The Long-Term
Implications of
Current Defense
Plans: Summary
Update for Fiscal
Year 2005**



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**The Long-Term Implications
of Current Defense Plans:
Summary Update for Fiscal Year 2005**

September 2004

Notes

Unless otherwise indicated, all years referred to in this paper are fiscal years, and all dollar amounts are expressed in 2005 dollars of total obligational authority.

The methodology used for this update is based on the one that the Congressional Budget Office used for its January 2003 study *The Long-Term Implications of Current Defense Plans*. Readers may refer to that study for a more detailed description of the analysis.

The projections in this paper deal with resources for the Department of Defense (subfunction 051 of the federal budget) rather than for all national defense activities (function 050).

The cover shows a 1-meter-resolution satellite image of the Pentagon taken on Aug. 5, 2002, by Space Imaging's IKONOS satellite. (Photo courtesy of Space Imaging.)



Preface

What level of resources might be needed in the long term to execute the Bush Administration's current plans for defense? This Congressional Budget Office (CBO) paper—prepared at the request of the Chairman of the Senate Budget Committee—addresses that question. It updates the resource projections contained in CBO's July 2003 paper *The Long-Term Implications of Current Defense Plans: Summary Update for Fiscal Year 2004* to reflect the changes that the Administration made to its defense plans in preparing the President's budget request for fiscal year 2005. As a supplement to this paper, CBO has also published an updated briefing on its Web site (www.cbo.gov) that provides more details about specific programs. In keeping with CBO's mandate to provide impartial analysis, this paper and the supplemental briefing make no recommendations.

Adam Talaber of CBO's National Security Division coordinated the preparation of this paper, under the supervision of J. Michael Gilmore. David Arthur, Daniel Frisk, Eric J. Labs, Frances Lussier, Allison Percy, Adrienne Ramsay, Paul Rehmus, Hannah Robinson, and Robie Samanta Roy of the National Security Division contributed to the analysis. Kent Christensen, Raymond Hall, David Newman, Sam Papenfuss, and Michelle Patterson of CBO's Defense, International Affairs, and Veterans' Affairs Cost Estimates Unit also contributed to the analysis, under the supervision of Jo Ann Vines.

Christian Spoor edited the paper, and John Skeen proofread it. Cindy Cleveland produced drafts of the manuscript, and Maureen Costantino designed the cover and prepared the paper for publication. Lenny Skutnik printed the initial copies, and Annette Kalicki prepared the electronic versions for CBO's Web site.

Douglas Holtz-Eakin
Director

September 2004



CONTENTS

Summary and Introduction 1

**Projections of Spending for Operation and Support,
Military Construction, and Family Housing 4**

Projections for Operation and Support 4

Projections for Military Construction
and Family Housing 7

Cost Risks for O&S, Military Construction,
and Family Housing 8

Projections of Spending for Investment 9

Army Investment 9

Navy and Marine Corps Investment 12

Air Force Investment 15

Investment for Defense Agencies,
Including Missile Defenses 16

Steady-State Procurement Levels 19

Figures

1.	Past and Projected Resources for Defense	2
2.	Defense Resources as a Share of the Federal Budget and Gross Domestic Product	3
3.	Past and Projected Resources for Operation and Support, by Functional Category	5
4.	Past and Projected Resources for the Military Medical System	6
5.	Past and Projected Resources for Operating Forces, by Military Department	7
6.	Past and Projected Resources for Investment, by Military Department	10
7.	Past and Projected Army Resources for Investment	11
8.	Past and Projected Navy and Marine Corps Resources for Investment	13
9.	Past and Projected Air Force Resources for Investment	15
10.	Past and Projected Defense Agency Resources for Investment	17
11.	Past and Projected Resources for Missile Defense Investment	18
12.	Past and Projected Resources for Procurement Compared with Steady-State Funding Levels	19



The Long-Term Implications of Current Defense Plans: Summary Update for Fiscal Year 2005

Summary and Introduction

Decisions about national defense that are made today—whether they involve weapon systems, military compensation, or numbers of personnel—can have long-lasting effects on the composition of the U.S. armed forces and on the budgetary resources needed to support them. In the past two years, the Congressional Budget Office (CBO) has published a series of reports projecting the resources that might be needed each year over the long term to carry out the plans contained in the Administration's fiscal year 2003 and then 2004 Future Years Defense Program (FYDP).¹ The Department of Defense (DoD) has since prepared a new FYDP reflecting changes that have been made to the department's programs and priorities over the past year.² This paper updates CBO's projections to be consistent with the plans contained in the 2005 FYDP, which covers fiscal years 2005 through 2009. The total resources that the new FYDP anticipates for defense over the 2005-2009 period do not differ substantially from those in the 2004 FYDP.

1. Those reports are *The Long-Term Implications of Current Defense Plans* (January 2003), *The Long-Term Implications of Current Defense Plans: Summary Update for Fiscal Year 2004* (July 2003), and *The Long-Term Implications of Current Defense Plans: Detailed Update for Fiscal Year 2004* (February 2004). The latter report, a detailed briefing, is available only on CBO's Web site (www.cbo.gov). To accompany the current paper, CBO has released an updated detailed briefing on its Web site.
2. DoD produces the Future Years Defense Program each year and submits it to the Congress as part of the President's budget request. The FYDP is a database containing a historical record of defense forces and spending as well as DoD's plan for future programs and priorities. The historical part of the database shows costs, forces, and personnel levels since 1962. The plan part of the FYDP presents DoD's program budgets (estimates of funding needs for the next five or six years based on the department's current plans for all of its programs).

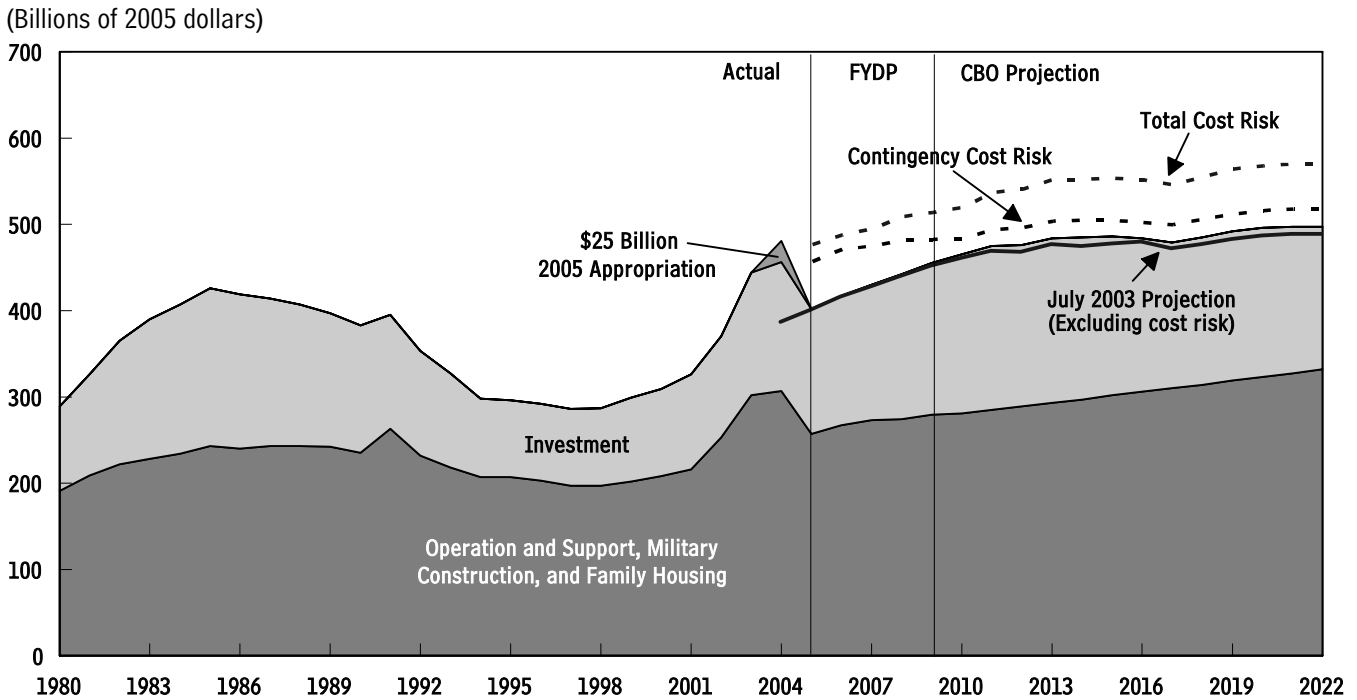
The budgetary implications of CBO's current projections are similar to those of the previous two: carrying out the plans in the FYDP would require annual defense funding to be sustained over the long term at higher real (inflation-adjusted) levels than have occurred since 1980, excluding supplemental appropriations.³ Four sources account for the growing demand for defense resources:

- Plans to rapidly increase purchases of new military equipment in the next few years (following the decline that occurred in the 1990s after the Cold War ended) and then to sustain that level of procurement over the long term;
- Plans to develop and eventually produce systems that will provide new capabilities as part of the push for "military transformation";
- The growing costs of pay and benefits for DoD's military and civilian personnel; and
- The increasing costs of operation and maintenance for aging equipment as well as for newer, more complex equipment.

Excluding cost risk, which is discussed below, average annual costs for defense over CBO's 2010-2022 projection period are about \$8 billion (or 2 percent) higher in the current estimates than in CBO's July 2003 ones (see Figure 1). That increase largely results from higher projected costs for some major weapons programs, such as the Joint

3. For most categories of spending, CBO's projections use DoD's inflation rates. However, for military personnel and operation and maintenance funding, CBO's projections use a measure of inflation for the entire economy (the gross domestic product deflator) to reflect real growth in the military and civilian pay accounts.

Figure 1.
Past and Projected Resources for Defense



Source: Congressional Budget Office.

Notes: FYDP = Future Years Defense Program.

Actual spending includes supplemental appropriations, whereas the FYDP and CBO's projections without cost risk do not.

Strike Fighter, the Air Force's Transformational Communications System, and the E-10 command-and-control aircraft.

In 2004, total obligational authority for the Department of Defense amounted to \$481 billion (in 2005 dollars).⁴ That total included \$68 billion in supplemental funding, primarily for military operations in Iraq and Afghanistan, and \$25 billion provided as part of the 2005 Department of Defense Appropriations Act.⁵ The 2005 FYDP anticipates that defense resources (excluding supplemental appropriations) will rise from \$402 billion in 2005 to \$455 billion in 2009.⁶ If the plans in the FYDP were carried

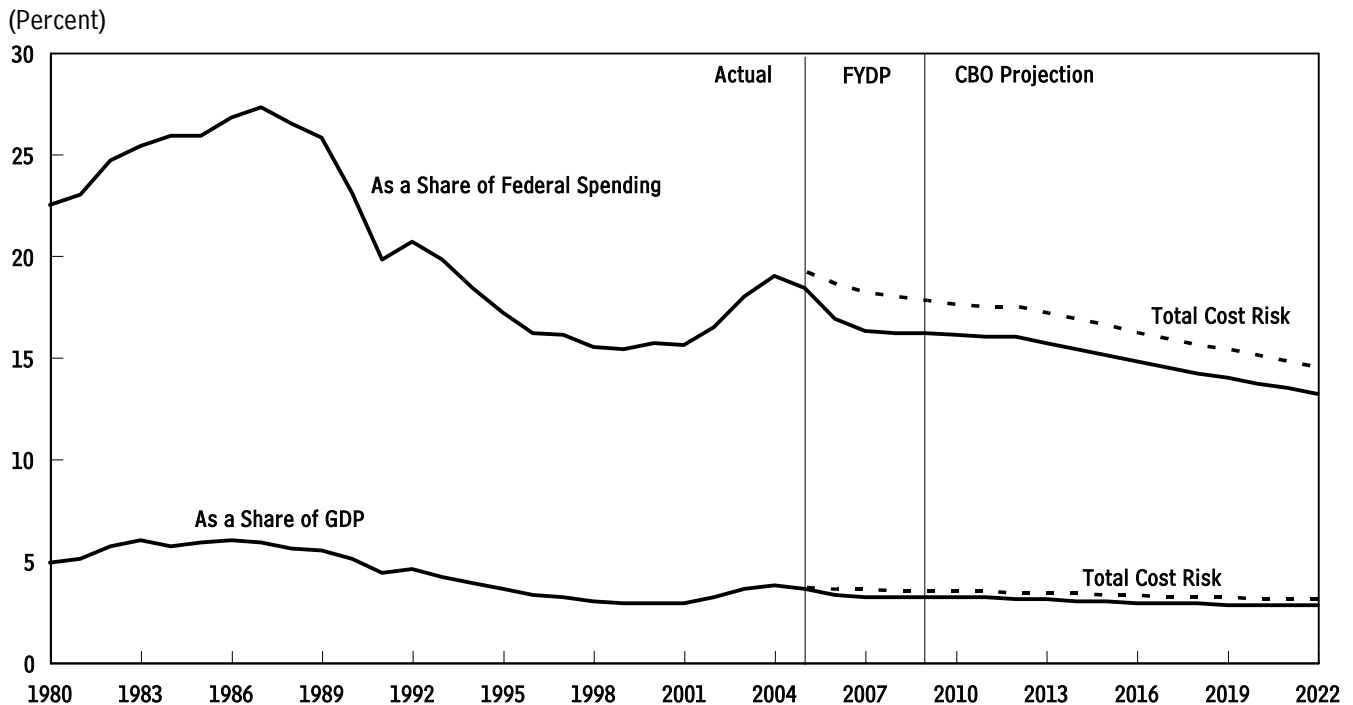
out as now envisioned, the demand for defense resources would continue to grow, CBO projects, and would average \$485 billion a year between 2010 and 2022.

Within that total, costs for day-to-day operation and support (O&S) activities—running units, maintaining equipment, and providing pay and benefits—as well as costs for military construction and family housing would grow from \$257 billion in 2005 to \$332 billion in 2022 if current plans were carried out. The demand for investment resources—mainly to develop and buy new equipment—would rise from \$145 billion in 2005 to a peak of

4. All FYDP funding is calculated as total obligational authority (TOA), the funding available to be obligated by a federal agency or department. The great majority of that funding is budget authority, which is appropriated by the Congress; however, TOA also includes funding that is derived from receipts as well as other nonappropriated amounts. In most years, the difference between TOA and budget authority in subfunction 051 of the federal budget (which funds the Department of Defense) is no more than about \$2 billion.

5. That \$25 billion was made available upon enactment and is thus counted as 2004 budget authority. However, the Administration will not disburse most of the funds until 2005. As a result, the new funding will have a negligible effect on 2004 outlays but will increase 2005 outlays by \$19 billion, CBO estimates.

6. CBO estimates that the recently enacted 2005 Department of Defense Appropriations Act will reduce total obligational authority for DoD in 2005 by approximately \$1 billion from the President's request of \$402 billion.

Figure 2.**Defense Resources as a Share of the Federal Budget and Gross Domestic Product**

Source: Congressional Budget Office.

Notes: FYDP = Future Years Defense Program.

Actual spending includes supplemental appropriations, whereas the FYDP and CBO's projections without cost risk do not.

\$191 billion in 2013 and then decline to \$165 billion by 2022.

Those projections are founded on DoD's current cost estimates for its planned programs and activities, where available. They exclude costs for continuing operations in Afghanistan and Iraq and for other activities conducted as part of the global war on terrorism. DoD does not expect funding for such contingencies to be unnecessary during its planning period; rather, it expects to request funding for them annually, as needed, in supplemental appropriations and possibly in the President's budget.

As it did in its previous reports, CBO has also projected the long-term demand for defense resources under the assumptions that costs for weapons programs and other activities grow as they have historically and that the U.S. military continues to play an active role overseas in missions equivalent to current engagements in Afghanistan, Iraq, and the global war on terrorism. According to those cost-risk projections, executing today's defense plans could require spending an average of \$498 billion a year

through 2009 and an average of \$553 billion a year between 2010 and 2022—about 14 percent more than in the current projections without cost risk.

Although the future demand for defense resources could exceed previous peak spending in dollar terms, it would remain lower than past spending in relation to the size of the economy, CBO projects. The share of U.S. gross domestic product (GDP) allocated to defense spending declined from an average of 6 percent in the 1980s to 4 percent in the 1990s. If current plans were carried out, defense spending would drop to 3.2 percent of GDP by 2009 and 2.8 percent by 2022 (see Figure 2)—assuming that GDP grew at the long-term rates projected by CBO. With cost risk included, defense spending might equal 3.2 percent of GDP in 2022.

Current policies would also cause defense spending to fall as a share of the federal budget over the long term. Defense accounted for 25 percent of federal spending in the 1980s, on average, dropping to 15 percent in 1999. Although in recent years that share has risen to 19 percent,

in CBO's current projections it declines fairly steadily over the long term. If the rest of the federal budget continued to grow in real terms through 2022 at the rates that CBO now projects, defense spending would fall to about 13 percent of the total budget by 2022 (or to 15 percent with cost risk) as the growth of mandatory programs such as Social Security, Medicare, and Medicaid outpaced projected increases for the military.⁷

Projections of Spending for Operation and Support, Military Construction, and Family Housing

The 2005 FYDP envisions that spending for O&S activities will rise from \$247 billion in 2005 to \$266 billion in 2009 (see Figure 3). Over the longer term, carrying out current plans would push O&S spending to \$322 billion in 2022, CBO projects, or to \$363 billion in 2022 with cost risk factored in.

For military construction and family housing, the FYDP envisions that total spending will increase from \$10 billion in 2005 to a peak of \$16 billion in 2007 and then fall to \$13 billion in 2009. Most of the increase during that five-year period results from temporary funding to implement the round of base realignments and closures (BRAC) that is scheduled to be decided on in 2005. In CBO's projections, spending for military construction and family housing remains roughly constant at \$10 billion a year between 2010 and 2022 in the absence of cost risk or \$11 billion a year with cost risk.

The estimates of future spending for O&S, military construction, and family housing in the 2005 FYDP are very similar to the estimates in the 2004 FYDP. As a result, CBO's current projections for those categories do not differ greatly from its July 2003 projections.

Projections for Operation and Support

The O&S budget, which now accounts for about 60 percent of defense spending, pays for DoD's day-to-day operations and for its military and civilian payrolls. In CBO's projections without cost risk, most of the growth in O&S spending results from personnel-related increases

—namely, rising real wages and growing costs for medical benefits. CBO projects details of the O&S budget not only by functional category (as shown in Figure 3) but also by military department and appropriation account (as shown in Figures 2-2 and 2-3 of CBO's supplemental briefing, available at www.cbo.gov.)

During the period covered by the 2005 FYDP, the Army receives the largest share of DoD's operation and support budget, 30 percent, followed by the Navy and Marine Corps with a total of 28 percent and the Air Force with 26 percent. (Similarly, the Army has received the biggest portion of supplemental appropriations for current operations.) The rest of the O&S budget covers DoD-wide programs and activities, including the Defense Health Program. CBO's projections indicate that over the 2010-2022 period, each of the military departments will see its O&S costs grow at a real rate of between 1.2 percent and 2.0 percent a year, on average.

Some 40 percent to 45 percent of the O&S budget is allocated to the military personnel account, which pays for the wages and most benefits of service members. The rest goes to the operation and maintenance (O&M) account, which funds wages and benefits for civilian personnel, the Defense Health Program, contractors' services, and purchases of fuel, supplies, and other materials. CBO's projections indicate that spending on military personnel will grow at an average real rate of 1.7 percent a year between 2010 and 2022 and that O&M spending will grow at a rate of 1.3 percent. (Although those projections do not include supplemental appropriations, most supplemental funding for military operations in Iraq, Afghanistan, and elsewhere is allocated to O&M.)

To more closely match DoD's budget structure, CBO has modified some of the subcategories of O&S spending that were used in its previous projections. The current subcategories are based on force and infrastructure codes that DoD program analysts use.⁸ Those categories are:

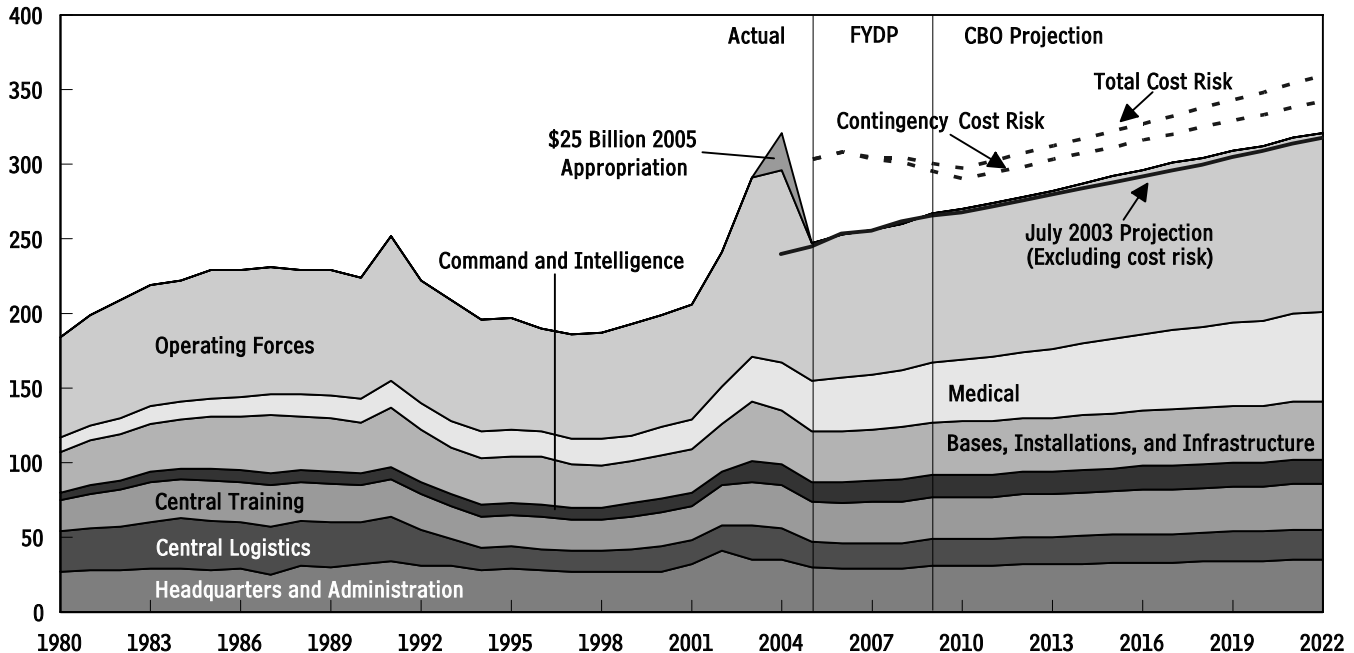
- *Operating forces*—military and support units assigned to combatant commands;

7. That estimate is based on an extrapolation from CBO's most recent 10-year projections for the federal budget, which were published in *The Budget and Economic Outlook: An Update* (September 2004).

8. The definitions shown here come from Institute for Defense Analyses, *DoD Force Infrastructure Categories: A FYDP-Based Conceptual Model of Department of Defense Programs and Resources* (Alexandria, Va.: IDA, 2002).

Figure 3.**Past and Projected Resources for Operation and Support, by Functional Category**

(Billions of 2005 dollars)



Source: Congressional Budget Office.

Notes: FYDP = Future Years Defense Program.

Actual spending includes supplemental appropriations, whereas the FYDP and CBO's projections without cost risk do not.

- *Medical*—medical personnel, hospitals, purchased care, and medical accrual charges;⁹
- *Bases, installations, and infrastructure*—installations for military forces, communications and information infrastructure, central benefit programs for DoD personnel, and miscellaneous activities;
- *Command and intelligence*—operational headquarters, command-and-control systems, and intelligence collection;
- *Central training*—training at central locations away from duty stations;
- *Central logistics*—depot-level maintenance, supplies, and transportation of materials; and
- *Headquarters and administration*—acquisition infrastructure, science and technology programs, central personnel administration, and departmental management.

In the case of all but the first two categories, increases in military and civilian pay account for the entire growth of costs in CBO's projections. DoD plans to raise pay for military personnel at a nominal rate of 3.5 percent in 2005 and 3.4 percent each year from 2006 to 2009.¹⁰ After that, CBO assumes that pay for military personnel will rise at the same rate as the employment cost index, a measure of compensation in the civilian economy. For civilian employees, DoD plans to raise pay by 1.5 percent

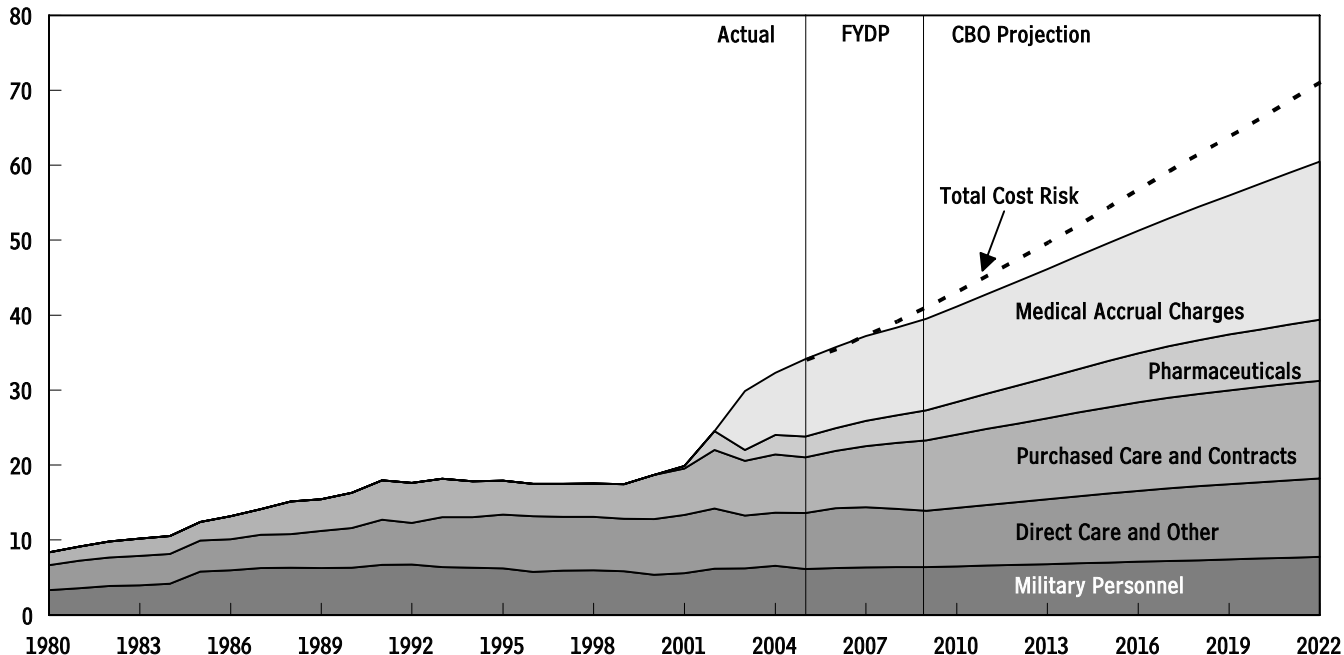
9. Medical accrual charges are payments to account for the future medical costs that current service members will incur once they retire from the military and reach the age of eligibility for Medicare. In the FYDP, medical accrual charges are distributed among all of the O&S subcategories. To provide a clearer estimate of DoD's total medical costs, CBO put all medical accrual expenses in the medical subcategory.

10. Memorandum from Dov S. Zakheim, DoD Comptroller, to the Secretaries of the military departments and others, "Inflation Guidance—Fiscal Year (FY) 2005 President's Budget," January 23, 2004.

Figure 4.

Past and Projected Resources for the Military Medical System

(Billions of 2005 dollars)



Source: Congressional Budget Office.

Notes: FYDP = Future Years Defense Program.

Actual spending includes supplemental appropriations, whereas the FYDP and CBO's projections without cost risk do not.

next year and 3.4 percent a year from 2006 to 2009.¹¹ CBO projects that civilian pay will also rise after 2009 at a rate equal to the growth of the employment cost index. If all of those increases occur, military and civilian pay will both grow by about 30 percent in real terms between 2005 and 2022, CBO projects.

In the case of medical spending, pay increases for personnel account for only a small fraction of the overall growth that CBO is projecting. Various other expenses—most notably, accrual charges, pharmaceuticals, and purchased care and contracts—play a much larger role (see Figure 4).¹² CBO estimates that under current plans, DoD's medical spending will nearly double in real terms by 2022, rising from \$34 billion in 2005 to \$60 billion (excluding cost risk, which is discussed below) and accounting for 35 percent of the growth projected for O&S spending over that period. Accrual payments make up

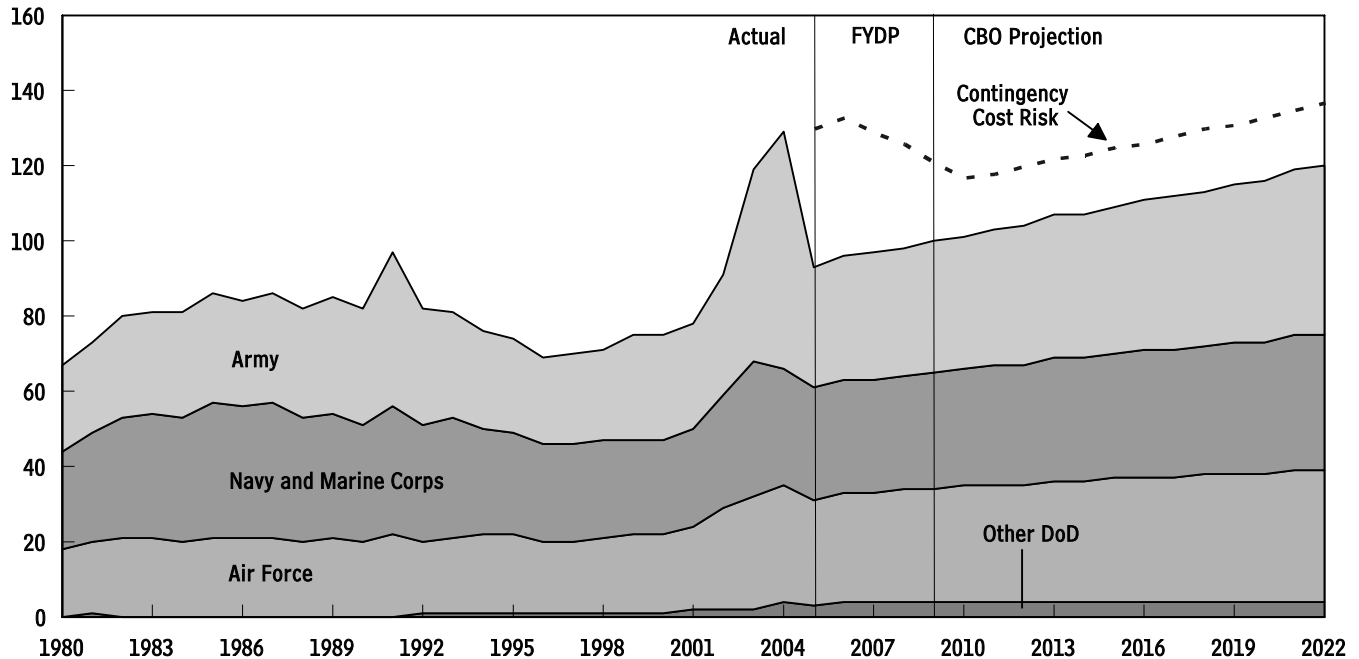
more than 40 percent of the projected increase in medical spending, growing at a nominal rate of 6.25 percent a year after 2006. By 2022, CBO's projection indicates, accrual charges will be twice as large in real terms as they are in 2005. Most of the remaining growth in medical spending results from pharmaceuticals and purchased care and contracts. Pharmaceutical spending per capita is projected to rise at a nominal rate of about 10 percent a year by 2010, slowing to less than 6 percent a year by 2022. Per capita spending for purchased care and contracts is expected to grow at a nominal rate of about 6 percent a year by 2010 and then fall to just over 4 percent a year by 2022. Those projections suggest that, adjusted for inflation, DoD's total pharmaceutical spending will triple be-

11. Although DoD estimates a 1.5 percent increase in civilian pay in 2005, civilian personnel have received the same raise as military personnel in recent years.

12. Pharmaceuticals include those dispensed by military treatment facilities, retail pharmacies, mail-order pharmacies, and private-sector contractors under TRICARE. Purchased care and contracts include managed care support contracts, various types of purchased care, and supplemental care. That category included pharmaceuticals until 2001, when DoD began accounting for pharmaceuticals separately in the FYDP.

Figure 5.**Past and Projected Resources for Operating Forces, by Military Department**

(Billions of 2005 dollars)



Source: Congressional Budget Office.

Notes: FYDP = Future Years Defense Program; DoD = Department of Defense.

Actual spending includes supplemental appropriations, whereas the FYDP and CBO's projections without cost risk do not.

tween 2005 and 2022 and that spending for purchased care will jump by 75 percent over the same period.¹³

Of the remaining types of medical costs, DoD anticipates that spending on direct care and other medical expenses will actually fall during the 2007-2009 period, but CBO's projections without cost risk assume that thereafter, such spending will grow at the same rate as hospital care and clinical services in the private sector. Pay for uniformed medical personnel is projected to follow the same trend as other military personnel costs in DoD's budget.

13. CBO estimated growth in pharmaceutical costs by using the pharmaceutical expenditure projections published by the Center for Medicare and Medicaid Services (CMS), which run through 2013. (Those projections are available at www.cms.hhs.gov/statistics/nhe/projections-2003.) CBO assumed that growth would slow after 2013, reaching a rate 1 percentage point higher than growth of per capita GDP by 2029. In a similar manner, CBO extended CMS's projections of spending on hospital care and physicians' and clinical services in order to estimate growth after 2009 in costs for military medical care purchased from the private sector.

In the case of spending to operate forces—the largest category of operation and support spending—CBO projects an increase from \$100 billion in 2009 to \$120 billion in 2022, excluding cost risk (see Figure 5). About \$11 billion of that growth reflects pay increases; the other \$9 billion results from three factors. First, O&M costs per active-duty member of the Army and Marine Corps ground forces have been rising; CBO expects that trend to continue over the long term. Second, as weapon systems age, costs to operate and maintain them will increase. Third, new generations of weapon systems will be more complex and more expensive to operate and maintain than the systems they replace, CBO estimates.

Projections for Military Construction and Family Housing

The military construction budget pays for the planning, design, construction, and major restoration of military facilities and for the up-front costs associated with BRAC rounds. Excluding BRAC funding, that budget has ranged between \$4 billion and \$8 billion per year since 1980. DoD plans to dedicate enough funding to facilities

to achieve a recapitalization rate (the replacement value of facilities divided by the average annual funding used to replace them) of 67 years. CBO estimates that achieving that goal will require about \$7 billion in annual funding.

The Administration's current plans also include a total of about \$9 billion over the 2005-2009 period for a 2005 BRAC round. CBO estimates that an additional \$2 billion in BRAC funding would be needed between 2010 and 2015. Judging by the historical ratio between BRAC costs and resulting savings, a 2005 BRAC round with \$11 billion in up-front costs would eventually produce recurring savings of \$2.4 billion per year. In CBO's projections, those savings do not reduce the total DoD budget. Rather, DoD is assumed to use them as a source of additional O&M funding, available for a variety of uses.¹⁴

The budget for family housing pays for the construction, operation, maintenance, and leasing of military family housing. Since 1980, family housing has been funded at \$3 billion to \$5 billion per year. The 2005 FYDP envisions that such funding will drop from \$4 billion in 2005 to \$3 billion by 2009 because of the privatization of some military housing. Although privatization can reduce DoD's spending to build and operate family housing, it increases spending on the basic allowance for housing that military personnel receive to pay for renting private housing units.¹⁵

Cost Risks for O&S, Military Construction, and Family Housing

In its cost-risk projections, CBO analyzed the potential effects of changes in a number of the assumptions incorporated in the 2005 FYDP. If all of those changes occurred, spending for O&S would total \$363 billion in 2022—12 percent higher than in CBO's projections without cost risk. Spending for military construction and

family housing would increase by 9 percent, to about \$11 billion per year.

Contingency Cost Risk. Much of the cost risk for O&S spending is associated with funding for ongoing operations in Iraq and Afghanistan as well as for military operations in the United States that support homeland defense (Operation Noble Eagle). Neither the 2005 FYDP nor CBO's projections without cost risk include future funding for contingency operations. In its cost-risk projections, CBO assumes that activities in Iraq, Afghanistan, and elsewhere could cost as much as \$56 billion in 2005. That figure rests on the assumption that force levels in Iraq and Afghanistan will remain at their current levels throughout fiscal year 2005—an assumption consistent with CBO's understanding of DoD's current plans for both operations.

Over the long term, CBO projects that the cost risk associated with those (or similar) operations could amount to about \$21 billion annually. That estimate is based on the assumption that between 2006 and 2009, U.S. force levels in Iraq decline to about 50,000 military personnel, operations in Afghanistan decrease to a level comparable to the peacekeeping missions in Bosnia and Kosovo, and Operation Noble Eagle slowly diminishes. Of course, those specific assumptions are unlikely to hold true through 2022. The \$21 billion estimate is simply a proxy for the budgetary impact of continued engagement by the U.S. military in such operations. If U.S. foreign policy shifted in a way that increased or decreased the nation's military presence overseas, costs would change accordingly.

Experience with supplemental appropriations in 2003 and 2004 indicates that roughly two-thirds of the supplemental funding for contingency operations is allocated to the O&S subcategory of operating forces. Thus, when CBO estimated the cost risk associated with future contingency operations, it allocated two-thirds of the total to that subcategory.

Medical Cost Risk. Aside from contingency operations, the next-largest possible source of additional growth in O&S costs is the military medical system. CBO incorporated three types of cost risk in its medical projections. The first is the risk that per capita spending on pharmaceuticals will grow more quickly than anticipated. In CBO's projections with cost risk, the nominal growth rate of such spending is 30 percent higher than it is in the

14. The possibility exists that the 2005 BRAC round will not occur. In that case, DoD would save a total of about \$11 billion in military construction costs between 2005 and 2015 but also forgo a total of \$9 billion in O&M savings between 2006 and 2011 and \$2.4 billion in O&M savings per year thereafter.

15. Housing allowance costs are included among military personnel costs in the O&S budget, not in the family housing budget. CBO's projection of overall military personnel costs beyond 2009 implicitly incorporates changes in the basic allowance for housing consistent with changes in the 2005 FYDP.

basic projections: 13 percent per year by 2010, slowing to 7.7 percent per year by 2022 (rather than 10 percent and 6 percent, respectively).¹⁶ Under that assumption, DoD's total spending on pharmaceuticals would quadruple (rather than triple) in real terms by 2022.

Second, CBO incorporated the risk that spending for purchased care and contracts will also grow 30 percent faster than anticipated. The current FYDP envisions that per capita spending on such care will increase at a nominal rate of more than 8 percent annually from 2007 to 2009. CBO projects that the growth rate will drop to 5.9 percent by 2010 and to 4.2 percent by 2022. CBO's cost-risk projections, by comparison, use growth rates of 7.7 percent and 5.4 percent, in which case real spending on purchased care and contracts would more than double by 2022 (instead of rising by 75 percent).

Third, as noted earlier, DoD's estimates in the 2005 FYDP imply that direct costs and other medical expenses will begin to fall by 2009. For its risk case, CBO instead used DoD's guidance on annual rates of cost growth for the Defense Health Program: 6.6 percent in 2006 and 6.7 percent in 2007 through 2009.¹⁷ CBO applied those rates to per capita spending in the FYDP and assumed that such spending would continue to grow at a nominal rate of 6.7 percent a year through 2022 rather than growing at the rate that the Center for Medicare and Medicaid Services projects for hospital care and clinical services in the private sector.¹⁸ Under those assumptions, direct costs and other medical expenses would more than double by 2022 in real terms.

CBO did not project a risk case involving faster growth in accrual payments to fund the medical benefits of military retirees over the age of 65. Those payments are currently growing at a nominal rate of 6.25 percent a year, which reflects the best estimate by DoD's independent Board of Actuaries of the ultimate growth rate for health care spending on that group.

16. For additional information on projections of the growth in military medical spending, see Congressional Budget Office, *Growth in Medical Spending by the Department of Defense* (September 2003).

17. Zakheim, "Inflation Guidance—Fiscal Year (FY) 2005 President's Budget."

18. The center's projections are available at www.cms.hhs.gov/statistics/nhe/projections-2003.

Other Cost Risks. Another potential source of additional costs is the possibility that the current temporary increase in the size of the Army will become permanent. The Secretary of Defense has given the Army authority through 2007 to add 30,000 soldiers, increasing its authorized end strength from 482,400 to 512,400 military personnel. CBO's projection of contingency cost risk includes funding for those 30,000 additional soldiers through 2007 since DoD currently plans to pay for them using supplemental appropriations. After 2007, that projection assumes that the increase in end strength is scaled down along with the size of operations and that the Army returns to its previous limit of 482,400 military personnel in 2010. To account for the possibility that the increase will not be temporary, however, CBO's estimate of other O&S cost risk assumes that the Army remains at 512,400 soldiers after 2010, with added annual costs of more than \$3 billion.

Finally, CBO's cost-risk projections include the possibility that privatization does not reduce the budget for military family housing as expected. Should family housing costs remain equal to their 1980-2009 average, that budget would cost an additional \$1 billion a year beginning in 2008.

Projections of Spending for Investment

The current FYDP envisions that investment spending—which pays for developing, testing, and buying weapon systems and other equipment—will rise from \$145 billion in 2005 to \$176 billion in 2009 (see Figure 6). Carrying out current plans over the long term would cause investment spending to peak at \$191 billion in 2013 without cost risk, CBO projects, and at \$228 billion in 2013 with cost risk.¹⁹ (CBO did not project contingency cost risk for the investment budget because contingency operations to date have not generated significant demands for additional investment spending.) The Air Force accounts for the largest share of investment funding over the 2005-2022 period, followed by the Navy and Marine Corps, the Army, and various DoD agencies.

Army Investment

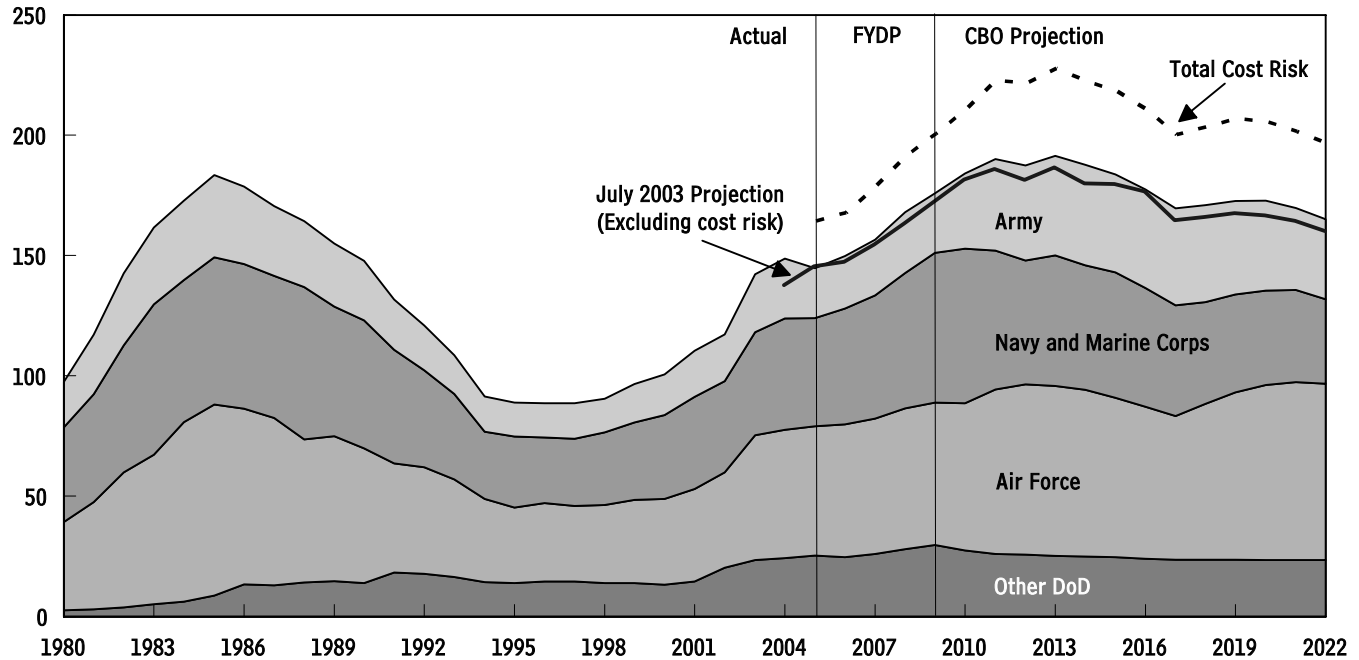
The total investment resources planned for the Department of the Army for the 2005-2009 period changed lit-

19. For a discussion of how CBO develops cost-risk projections for investment, see Congressional Budget Office, *The Long-Term Implications of Current Defense Plans* (January 2003), pp. 44-46.

Figure 6.

Past and Projected Resources for Investment, by Military Department

(Billions of 2005 dollars)



Source: Congressional Budget Office.

Notes: FYDP = Future Years Defense Program; DoD = Department of Defense.

Actual spending includes supplemental appropriations, whereas the FYDP and CBO's projections without cost risk do not.

tle between the 2004 and 2005 versions of the FYDP, although funds shifted from procurement to research and development. The average annual investment spending envisioned for the Army remains at \$23 billion. However, the total funds devoted to procurement over the five-year period have dropped by \$5 billion, from \$73 billion to \$68 billion, and funds devoted to the category of research, development, test, and evaluation have risen by a corresponding \$5 billion, from \$43 billion to almost \$48 billion. The decline in procurement spending compared with the previous FYDP, particularly for 2005 through 2008, results from the Army's decisions to cancel the Comanche reconnaissance helicopter program and to delay procurement of the Future Combat System (FCS), which is intended to replace today's ground combat equipment.

CBO's current projections of the investment resources needed after 2009 to carry out the Army's programs are roughly equal to the previous projections—an average of \$38 billion a year without cost risk and as much as \$51 billion a year when past rates of cost growth are factored in (see Figure 7).²⁰ Despite the long-term effects of can-

celling the Comanche and delaying the FCS, projected investment levels remain as high as they were before for two main reasons: funds freed up by the cancellation of the Comanche program are being reinvested in other Army aviation programs, and the current projections include procurement funding for a boost-phase missile defense system, which was not reflected in the July 2003 projections.

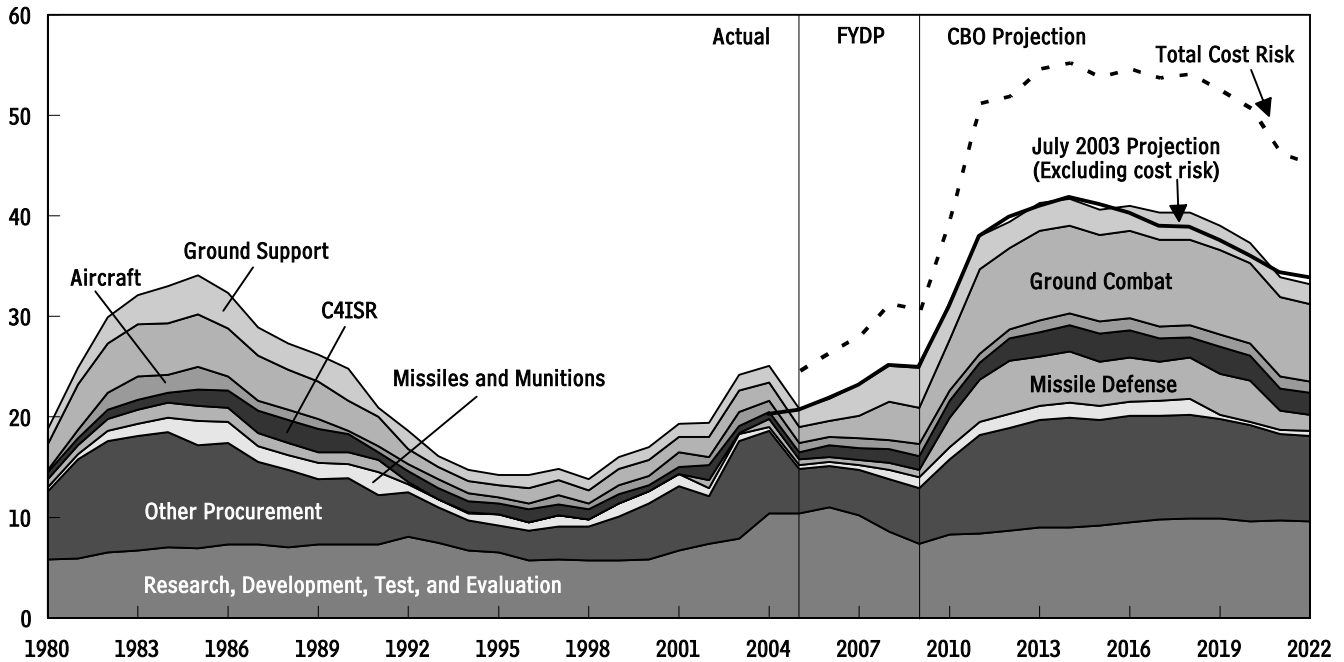
Changes to the Future Combat System. The President's 2005 budget described a slightly less aggressive schedule for the FCS program than the previous budget did. That new schedule featured a longer development phase, a

20. CBO's projections of the Army's investment costs beyond 2009 include procurement costs for missile defense systems such as the Patriot PAC-3, the Medium Extended Air Defense System, the Mobile Tactical High-Energy Laser, the Terminal High Altitude Area Defense, the Ground-Based Midcourse Defense system, and interceptors for a boost-phase missile defense. Research for three of those programs is currently funded by the Missile Defense Agency, but DoD plans to transfer procurement funding for those systems to the services when the systems enter production.

Figure 7.

Past and Projected Army Resources for Investment

(Billions of 2005 dollars)



Source: Congressional Budget Office.

Notes: FYDP = Future Years Defense Program; C4ISR = command, control, communications, computers, intelligence, surveillance, and reconnaissance.

Actual spending includes supplemental appropriations, whereas the FYDP and CBO's projections without cost risk do not.

two-year delay in initial procurement of long-lead items for the FCS, and a one-year delay in buying the first brigade's set of equipment. After 2009, however, the Army's plans remained the same: to purchase two brigades' worth of equipment each year, beginning in 2010, at an annual cost of \$7 billion to \$9 billion. Those purchases account for at least 90 percent of the funding devoted to ground combat vehicles in CBO's projections. The plan included in the President's 2005 budget suggests that the FCS program could require total funding of nearly \$147 billion through 2022, CBO projects.

In July 2004, the Army announced an additional restructuring of the FCS program that would further delay procurement of the first brigade's set of equipment. That extension of the FCS's development phase could add as much as \$20 billion to the cost of the first increment of the FCS program, which would equip 15 brigades. It would also delay the point at which all 15 brigades were fully equipped with the FCS from 2019 to 2021. Those additional changes to the FCS program will be incorpo-

rated in the President's 2006 budget. Consequently, they are not reflected in CBO's projections, which are based on the 2005 budget and FYDP.

The various delays in the FCS program will slightly increase the average age of the ground combat equipment that the Army will need to retain in its inventory until 2020.²¹ CBO now projects that only 22 Army combat brigades will be equipped with the FCS by 2022—two fewer than in CBO's July 2003 projections. (The Army's recently announced restructuring would reduce that number to 18 brigades.) Partly as a result of the delay outlined in the President's 2005 budget, CBO now projects that the average age of the Army's ground combat equipment will peak at 19.3 years in 2012, up from a peak of 18.6 years in 2011 in CBO's previous projections.

21. See Figures 3-4 and 3-5 in the supplemental briefing *The Long-Term Implications of Current Defense Plans: Detailed Update for Fiscal Year 2005*, available at www.cbo.gov.

(Delays associated with the recently announced restructuring would increase that age further.)

Changes to Army Aviation Programs. Plans for the Army's aviation programs have also been altered significantly in the past year. The cancellation of the Comanche scout helicopter was the most dramatic change, resulting in the redirection of more than \$25 billion to other aviation programs. The Army plans to use those funds to buy almost 370 new reconnaissance helicopters to replace its Kiowa Warriors and more than 300 new light utility helicopters to replace the recently retired UH-1H Hueys. In addition, tentative plans include initiating programs to develop new cargo and joint heavy lift aircraft. CBO's current projections incorporate those changes as well as an expanded program to upgrade and extend the service life of Apache helicopters so they can continue to operate past 2022.²² CBO's current projections also reflect the Army's evolving plan to equip its future forces with more unmanned aerial vehicles to perform surveillance and reconnaissance missions.

Army Procurement Costs for Missile Defenses. CBO's projections assume that the Army will make a significant investment after 2009 to purchase equipment to defend against ballistic missiles. Some of the funds—an average of slightly more than \$550 million per year from 2010 to 2022—would be used to buy kinetic-energy interceptors for a boost-phase missile defense. Those funds were not included in CBO's July 2003 projections. Funding for expanded deployment of the initial Ground-Based Mid-course Defense system that the Administration plans to field this calendar year is contained in CBO's current projections and was also included in the July 2003 projections. (CBO's projections for missile defenses are discussed in more detail later in this paper.)²³

22. See Figures 3-6 and 3-7 in the supplemental briefing *The Long-Term Implications of Current Defense Plans: Detailed Update for Fiscal Year 2005*, available at www.cbo.gov. CBO assumes that the Army will retain the capability to attack targets on the ground from the air. Although in the future that capability might be provided by unmanned aerial vehicles, the Army has so far announced no explicit plans to develop unmanned vehicles to perform that mission. Therefore, CBO's current projections assume that the Apache, which now performs that mission, will continue operating through 2022.

23. For more information about different types of missile defenses and about CBO's estimates of the costs of deploying a boost-phase defense, see Congressional Budget Office, *Alternatives for Boost-Phase Missile Defense* (July 2004).

Navy and Marine Corps Investment

Under current plans, investment resources for the Department of the Navy (which includes the Marine Corps) would rise from \$45 billion in 2005 to a peak of about \$64 billion in 2010 and then gradually decline to \$35 billion by 2022, CBO projects—a total of about \$1 billion more over that period than in the 2004 FYDP and CBO's previous long-term projections. Between 2010 and 2022, Navy investment would average \$48 billion a year. If program costs grew as they have in the past, however, the department's investment spending could peak at about \$74 billion in 2010 and then fall back to about \$43 billion by 2022—averaging \$57 billion a year over that period (see Figure 8).

Ships. Those projections are driven by planned procurement of battle force ships.²⁴ CBO's outlook for such procurement is based on the Navy's plans to increase its fleet from 295 ships today to about 375 ships by 2023, as outlined in *A Report to Congress on Annual Long-Range Plan for the Construction of Naval Vessels*.²⁵ CBO updated the procurement plans in that report with more recent data from the 2005 FYDP and from the selected acquisition reports on major Navy programs that must be submitted regularly to the Congress. On the basis of those sources, CBO estimates that the Navy would need to spend \$15.6 billion a year between 2005 and 2022 to build its 375-ship fleet at DoD's current cost estimates, or \$19.1 billion a year through 2022 if historical trends in cost growth continued.

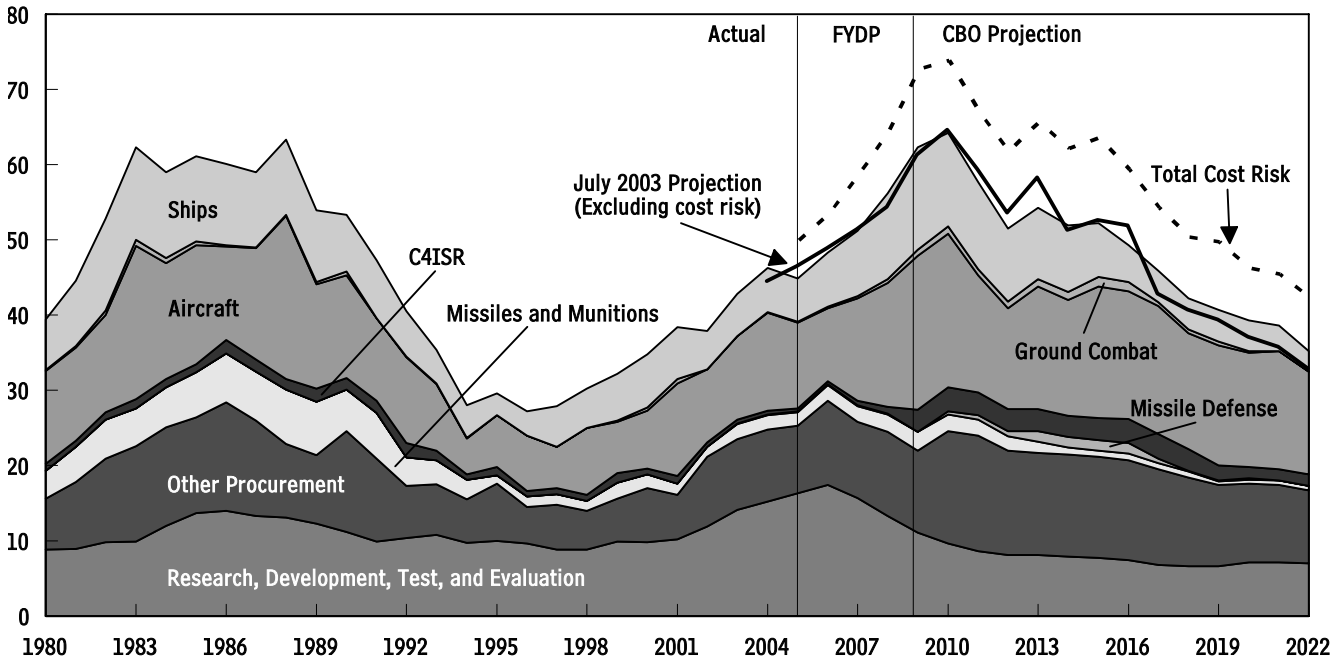
Most of the planned increase in the Navy's fleet occurs in the surface combatant force. Today, that force comprises 104 cruisers, destroyers, and frigates. By 2022, under the Navy's plans, it would consist of 164 ships—including 56 littoral combat ships (LCSs), which are small, fast vessels designed to prevent enemies from denying the Navy access to the world's coastal regions. On the whole, the Navy's current plans for surface combatants are consistent with those implied in the 2004 FYDP and used in CBO's previous projections. At the time this paper was written, the Navy planned to buy 24 new DD(X) destroyers beginning in 2005 and 24 new CG(X) cruisers starting in

24. See Figures 3-10 and 3-11 in the supplemental briefing *The Long-Term Implications of Current Defense Plans: Detailed Update for Fiscal Year 2005*, available at www.cbo.gov.

25. That report, which was submitted to the Congress in May 2003, was mandated by the National Defense Authorization Act for Fiscal Year 2003.

Figure 8.**Past and Projected Navy and Marine Corps Resources for Investment**

(Billions of 2005 dollars)



Source: Congressional Budget Office.

Notes: FYDP = Future Years Defense Program; C4ISR = command, control, communications, computers, intelligence, surveillance, and reconnaissance.

Actual spending includes supplemental appropriations, whereas the FYDP and CBO's projections without cost risk do not.

2018. Although the overall number of DD(X)s to be procured remains the same, the timing of those purchases has changed slightly: the 2004 FYDP envisioned buying one DD(X) a year between 2005 and 2007, whereas the current FYDP envisions purchasing none in 2006 and two in 2007. The Navy's LCS program has changed more dramatically. The Navy now plans to buy 13 of those ships between 2005 and 2009, four more during that period than in the 2004 FYDP. All told, the Navy's current procurement plans for surface combatants would cost an average of about \$4.7 billion a year between 2005 and 2022, CBO estimates, or \$6.1 billion a year with historical cost risk factored in.

The Navy has delayed its planned procurement of attack submarines in the 2005 FYDP, increasing the difficulty of keeping the force at the stated goal of 55 submarines. The 2004 FYDP assumed that the Navy would buy one attack submarine per year through 2006, with the procurement rate increasing to two per year by 2007 and three per year in 2012. The 2005 FYDP has pushed each of those dates

back by two years, although the total planned purchase remains 30 submarines. If the four Trident submarines that the Navy is converting to a guided-missile (or SSGN) configuration are included, the current schedule will allow the Navy to maintain a force of at least 55 attack submarines through 2023, two years less than under the 2004 schedule.²⁶ CBO projects that under the current plan, sustaining the attack submarine force will cost an average of more than \$5.3 billion per year over the next two decades, or as much as \$5.8 billion per year with cost risk.

In the case of amphibious forces, carrying out the Navy's plans would require greater resources over the next 20

26. Even so, the Navy's plan to base three attack submarines in Guam, which comes to fruition this year, will result in a force that is equivalent to 55 attack submarines through 2025 in terms of peacetime forward presence. The reason is that a submarine based in Guam, by virtue of its proximity to peacetime theaters of operations, can provide more than twice as much forward presence as one based in San Diego.

years than the service has spent historically, CBO estimates. The Navy now intends to buy six LPD-17 amphibious transport docks, five replacements for existing LHA or LHD amphibious assault ships, and 18 maritime prepositioning, or MPF(F), ships between 2005 and 2022. CBO projects that the investment costs involved in building those ships would average about \$2.4 billion a year through 2022—more than twice the average level between 1980 and 2000. The Navy has not determined what capabilities later versions of the LHA (and eventually LHD) replacements will have. Nor has it decided what capabilities the MPF(F) ships will have, although its current goal for the unit price of those ships is consistent with the low end of the capabilities under consideration. If the Navy selects other designs with greater capabilities that it has considered, the cost of buying those ships may be much higher.

Since the President's budget was submitted in February 2004, press reports have quoted senior Navy officials as discussing the possibility that the 375-ship goal may be reduced in coming months or years. For example, one Navy study under way may cut the goal for attack submarines from 55 to 37.²⁷ In addition, the Navy is considering reducing the number of DD(X)s it plans to purchase by between six and 15 ships and accelerating the CG(X) program.²⁸ One senior admiral stated that the Navy may need only 40 to 50 littoral combat ships instead of the planned 56.²⁹ Press reports also indicate that senior Navy officials are considering cutting the number of expeditionary strike groups (which are composed of amphibious ships, surface combatants, and attack submarines) by four.³⁰ That change would imply reducing the number of amphibious ships by 12 and possibly the number of surface combatants and attack submarines as well. Shrinking the aircraft carrier fleet has also been discussed.³¹ However, according to the Chief of Naval Operations, the Navy has not changed its position on the 375-ship goal,

27. Bryan Bender, "Navy Eyes Cutting Submarine Force," *Boston Globe*, May 12, 2004, p. A1.

28. Christopher J. Castelli, "Navy May Buy Fewer DD(X) Destroyers, Accelerate Cruiser Program," *Inside the Navy*, May 24, 2004.

29. Dave Ahearn, "Adm. Nathman Says Perhaps Just 40 to 50 LCSs Required," *Defense Today*, June 24, 2004.

30. Christopher J. Castelli, "Navy Wants to Cut Number of Strike Groups, Slash LPD-17 Shipbuilding," *Inside the Navy*, April 26, 2004.

although that number is only an approximation.³² If all of the additional reductions mentioned above were implemented and procurement programs were reduced accordingly, ship construction costs between 2005 and 2022 would be lowered by about \$3 billion per year, on average, CBO estimates.

Aircraft. With respect to investment in Navy and Marine Corps aircraft, the 2005 FYDP would procure 37 fewer planes than anticipated in the 2004 FYDP. The principal change is a delay of one year in the schedule of the Joint Strike Fighter (JSF), which reduces the number of those aircraft that the Navy plans to buy between 2005 and 2009 by 35. However, because of cost growth, the estimated cost of the JSF program through 2022 has risen by \$11 billion from the estimate in the 2004 FYDP and CBO's previous projection.

Carrying out the Navy's current plans for aircraft modernization (as envisioned in the 2005 FYDP) over the long term would cost an average of almost \$7 billion a year between 2005 and 2022, CBO projects, or more than \$10 billion a year with cost risk factored in. By comparison, the Navy spent around \$6 billion on aircraft in 2004.³³

Ground Combat Vehicles. The Marine Corps's plans for equipment bought through its procurement account also changed somewhat between the 2004 and 2005 FYDPs. Planned purchases of high-mobility multipurpose wheeled vehicles (HMMWVs) between 2005 and 2009 have declined by almost 1,700, and purchases of light-weight howitzers have been reduced by 60. Nevertheless, the Marine Corps remains committed to investing heavily in new ground combat vehicles (such as the expeditionary fighting vehicle and the future light combat vehicle) to replace its current inventory of aging vehicles. Carrying out that commitment through 2022 would require substantial resources: an average of about \$600 million a year, even without cost growth—or three times the

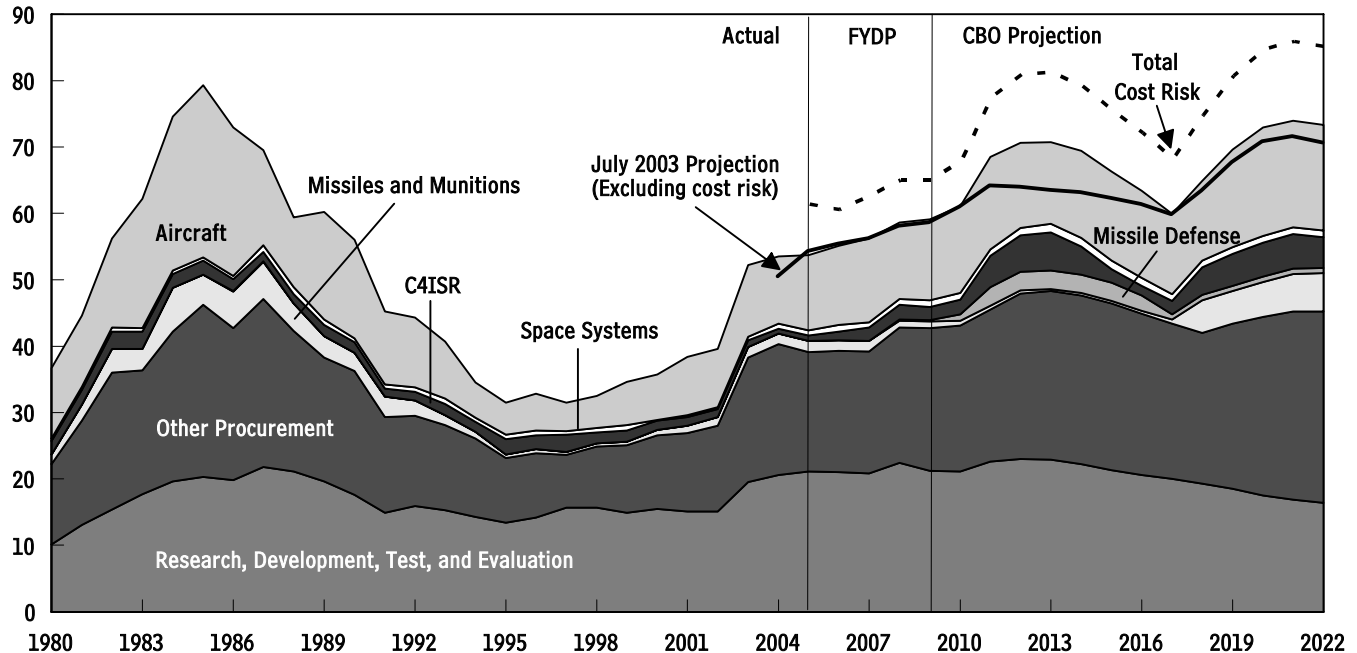
31. Christopher J. Castelli, "ESG Cut Would Be Gradual; Carrier Group Cut Possible, but Harder," *Inside the Navy*, May 3, 2004.

32. Malina Brown, "Davis: Clark Says 375-Ship Fleet Goal Will Not Change Dramatically," *Inside the Navy*, May 3, 2004.

33. See Figures 3-12 through 3-15 in the supplemental briefing *The Long-Term Implications of Current Defense Plans: Detailed Update for Fiscal Year 2005*, available at www.cbo.gov.

Figure 9.**Past and Projected Air Force Resources for Investment**

(Billions of 2005 dollars)



Source: Congressional Budget Office.

Notes: FYDP = Future Years Defense Program; C4ISR = command, control, communications, computers, intelligence, surveillance, and reconnaissance.

Actual spending includes supplemental appropriations, whereas the FYDP and CBO's projections without cost risk do not.

average annual amount that this category of procurement has received for the past two decades.³⁴

Air Force Investment

Under the 2005 FYDP, investment funding for the Air Force would rise from about \$54 billion in 2005 to about \$59 billion in 2009 (see Figure 9). Continuing the investment plans described in the FYDP thereafter would require sustaining higher levels of investment spending, CBO projects: an average of about \$68 billion per year between 2010 and 2022 (excluding cost risk), or almost 20 percent more than the average level envisioned for the next five years. If the costs of developing and purchasing Air Force systems exceeded the service's current estimates to the same extent that they have in the past, current plans would require an additional \$10 billion per year, on average, over the 2010-2022 period.

Funds to develop and procure new aircraft make up a significant portion of projected Air Force investment budgets.³⁵ CBO's assessment of resource needs in the near term assumes that purchases of F/A-22s and C-17s continue as the Administration currently plans. Although those plans would complete procurement of the aircraft fairly early in the projection period (in 2007 for the C-17 and 2011 for the F/A-22), the timing of the purchases and the final procurement quantities for both programs remain uncertain. For example, the Air Force and the U.S. Transportation Command are assessing the possible need to procure more C-17s than the 180 now planned.

Several other major aircraft programs have a sizable impact on CBO's projections of Air Force investment spending:

34. See Figures 3-16 and 3-17 in the supplemental briefing *The Long-Term Implications of Current Defense Plans: Detailed Update for Fiscal Year 2005*, available at www.cbo.gov.

35. See Figures 3-20 through 3-27 in the supplemental briefing *The Long-Term Implications of Current Defense Plans: Detailed Update for Fiscal Year 2005*, available at www.cbo.gov.

- Continued development of the conventional take-off and landing variant of the Joint Strike Fighter and eventual production of 110 aircraft per year;
- The beginning of a program to replace KC-135 airborne tankers, with the first 100 replacements obtained under a 20/80 lease/buy arrangement, followed by direct purchases of 10 aircraft per year;³⁶
- Development and initial production of two strike aircraft with greater range than current strike fighters (an intermediate-range strike fighter intended to provide an interim capability, beginning in 2014, before a new long-range strike fighter is fielded near the end of the projection period); and
- Continued development of unmanned combat aircraft, to be fielded starting in 2011.

For 2010 through 2014, CBO's current projections of Air Force investment spending are higher than its previous projections. Most of the change results from increased costs for several C4ISR (command, control, communications, computers, intelligence, surveillance, and reconnaissance) systems, reflecting the Air Force's most recent long-term projections. One of the largest projected increases is for the Transformational Communications System, in part because of an enhancement in the planned capability for that system. Other C4ISR systems with notably higher costs than in CBO's previous projections include Advanced Polar System satellites, replacement satellites for the Global Positioning System constellation, and the E-10 aircraft, which is intended to replace today's fleets of Joint Surveillance Target Attack Radar System (JSTARS) and Airborne Warning and Control System (AWACS) aircraft. The increase in estimated costs for the Joint Strike Fighter also contributes to the change relative to CBO's previous projections for Air Force investment.

The current projections for Air Force investment spending follow an uneven pattern: rising from \$59 billion in 2009 to a peak of about \$71 billion in 2013, then falling back to about \$60 billion by 2017 before rising to an even higher peak (just under \$74 billion) in 2021. That pattern results largely from a projected overlap in the fielding of C4ISR satellite systems, with several different

systems being put into service or replaced during the same period. Other factors that contribute to the increase in investment spending at the end of the projection period include replacement of the land-based fleet of Minuteman III intercontinental ballistic missiles and the beginning of production of a long-range strike aircraft.

The timing of specific investments in these projections is based on CBO's understanding of the Air Force's current plans. Because those plans are long term and necessarily tentative, considerable uncertainty exists about how they will be executed. In particular, when developing budget plans for future years, the Air Force may choose to smooth out the unevenness in the overall demand for funding shown in CBO's projections by adjusting the timing of various investment programs.

Investment for Defense Agencies, Including Missile Defenses

Besides funding the Departments of the Army, Navy, and Air Force, DoD's budget provides money for a variety of specialized agencies that perform advanced research, develop missile defenses, oversee special operations, and develop and manage information systems. Investment funding for those agencies averages about \$27 billion per year in the 2005 FYDP and about \$24 billion per year over the 2010-2022 period in CBO's projections (see Figure 10).

A significant portion of those costs, especially in the near term, is for research, development, testing, and evaluation of missile defense systems. CBO based its long-term projections for missile defenses on the Administration's policy statements as well as on the progress made so far with the individual programs being pursued by the Missile Defense Agency. The Administration has stated that through 2009, its missile defense programs will focus on researching and developing a broad range of technologies and potential systems. On the basis of those efforts' results, decisions will eventually be made about which systems should proceed to procurement and operational deployment. Thus, in CBO's projections, the research and development spending needed to carry out current plans declines steadily after 2009 as the ground-, sea-, and air-based systems that are assumed to be deployed move from development to procurement.

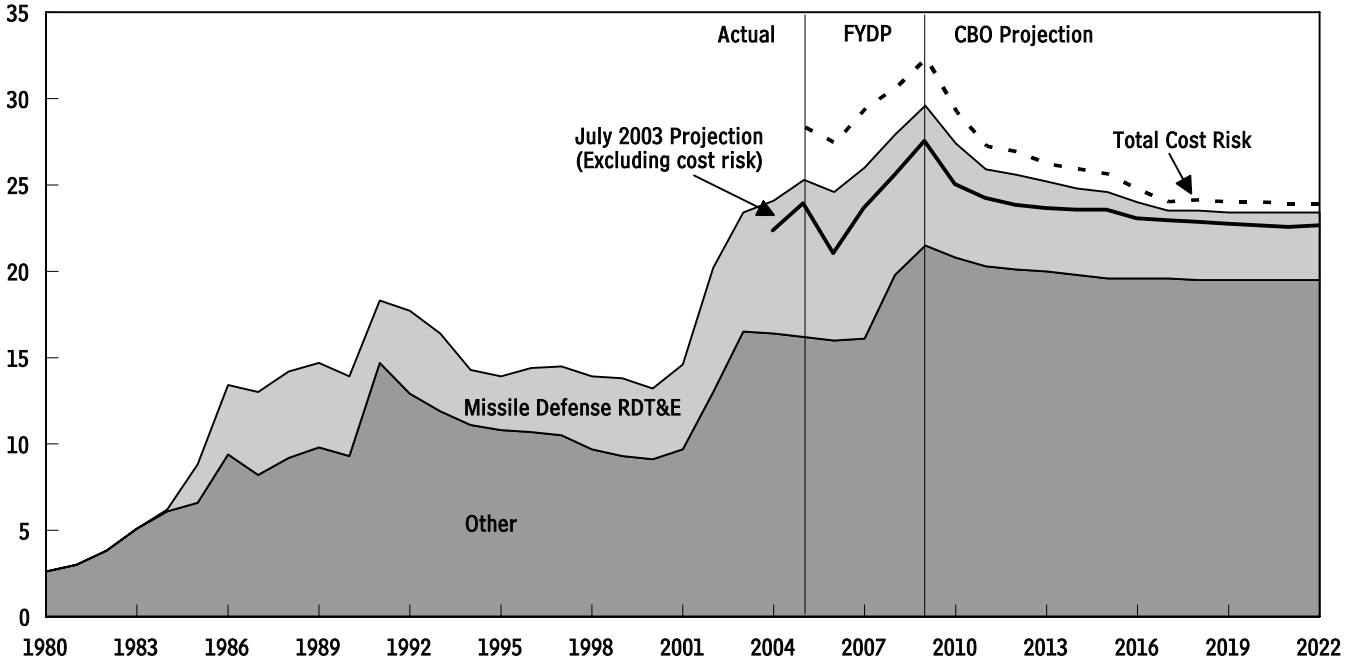
CBO's long-term projections of missile defense investment comprise research and development funding, which is included in spending for defense agencies, and procure-

36. CBO assumed unit costs for the replacement tankers consistent with a new airframe, such as the Boeing 767. DoD is currently conducting an analysis of alternatives to help define its tanker-replacement strategy.

Figure 10.

Past and Projected Defense Agency Resources for Investment

(Billions of 2005 dollars)



Source: Congressional Budget Office.

Notes: FYDP = Future Years Defense Program; RDT&E = research, development, test, and evaluation.

Actual spending includes supplemental appropriations, whereas the FYDP and CBO's projections without cost risk do not.

ment funding, which is included in the investment budgets of the services that will operate the systems. Carrying out current plans would cause total investment costs for missile defenses to peak in 2012 at about \$15 billion (excluding cost risk), CBO projects, and then decrease as systems finished procurement and became operational (see Figure 11). If costs grew as they have historically, however, projected investment needs would be \$4 billion higher per year, on average, peaking at about \$19 billion in 2012. CBO's projections assume that deployment of operational missile defense systems is completed by about 2020. After that, DoD is assumed to spend about \$6 billion a year for evolutionary upgrades to those operational systems as well as for continued research on other missile defense concepts, including space-based defenses.

The Ground-Based Midcourse Defense System and Supporting Elements. Notwithstanding its current emphasis on research and development, the Missile Defense Agency is scheduled to deploy the Initial Defense Capability (IDC) of the Ground-Based Midcourse Defense (GMD) system in this calendar year. According to the

Administration, the GMD system will eventually comprise an integrated set of layered missile defenses operating from land, ships, and space.

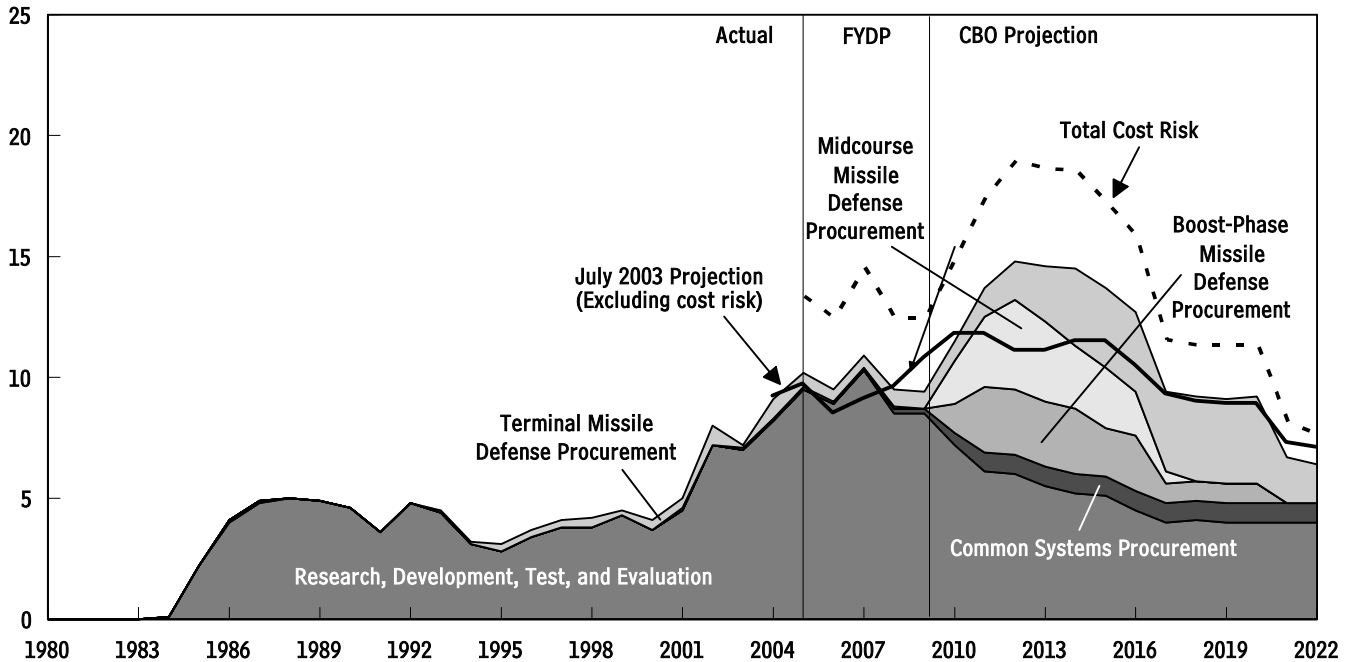
The GMD IDC activated this year will consist of a small number of interceptor missiles located at Fort Greely, Alaska, to intercept approaching warheads in the mid-course phase of flight (after the warheads separate from their booster rockets but before they reenter the atmosphere). Later, a sea-based radar now under construction will become part of the IDC, and some existing defense facilities and equipment will be upgraded. Consistent with the 2005 FYDP, CBO assumes that the IDC will subsequently be expanded, with the deployment of more ground-based interceptors in Alaska and at another, as-yet-undetermined location on the East Coast or on foreign soil, as well as the deployment of additional radars. In CBO's projections, deployment of that expanded system is assumed to conclude around 2016.

CBO also assumes that DoD will eventually deploy a constellation of 27 space-based infrared sensor satellites

Figure 11.

Past and Projected Resources for Missile Defense Investment

(Billions of 2005 dollars)



Source: Congressional Budget Office.

Notes: FYDP = Future Years Defense Program.

Actual spending includes supplemental appropriations, whereas the FYDP and CBO's projections without cost risk do not.

in low-Earth orbit—now called the Space Tracking and Surveillance System (STSS)—to support the GMD system. Those satellites are intended to track missiles and their warheads from launch to reentry and relay data to interceptors in flight, enabling them to acquire and hit the warheads. The Missile Defense Agency plans to launch two proof-of-concept flight-demonstration STSS satellites in 2007. CBO projects that a full STSS constellation could be in orbit by 2018.

Boost-Phase Interceptors. DoD has begun developing a boost-phase, kinetic-energy interceptor (KEI) system to destroy hostile missiles before their warheads separate from their boosters. The initial ground-based version of the KEI system is slated to be fielded in 2010, with a sea-based version planned for around 2013. The kinetic-energy interceptor being developed has been described by DoD as a multipurpose interceptor that may eventually replace the interceptors fielded as part of the GMD IDC. CBO projects that initial deployment of the KEI system could be completed around 2014, with a total investment cost of about \$10 billion, and that a follow-on system

with improved capabilities could be deployed by 2020, at a cost of about \$16 billion.³⁷

Other Missile Defense Programs. For several years, the Air Force has been developing a boost-phase missile defense system using airborne lasers. That system will consist of a high-energy chemical laser mounted on a Boeing 747 aircraft. In the current FYDP period, the Missile Defense Agency is developing an aircraft with a half-power laser to be used for initial testing. On the basis of previous plans by the Air Force, CBO assumes that seven airborne laser aircraft (including the test aircraft) will be purchased through 2016—enough to support 24-hour-a-day combat operations at two separate locations.

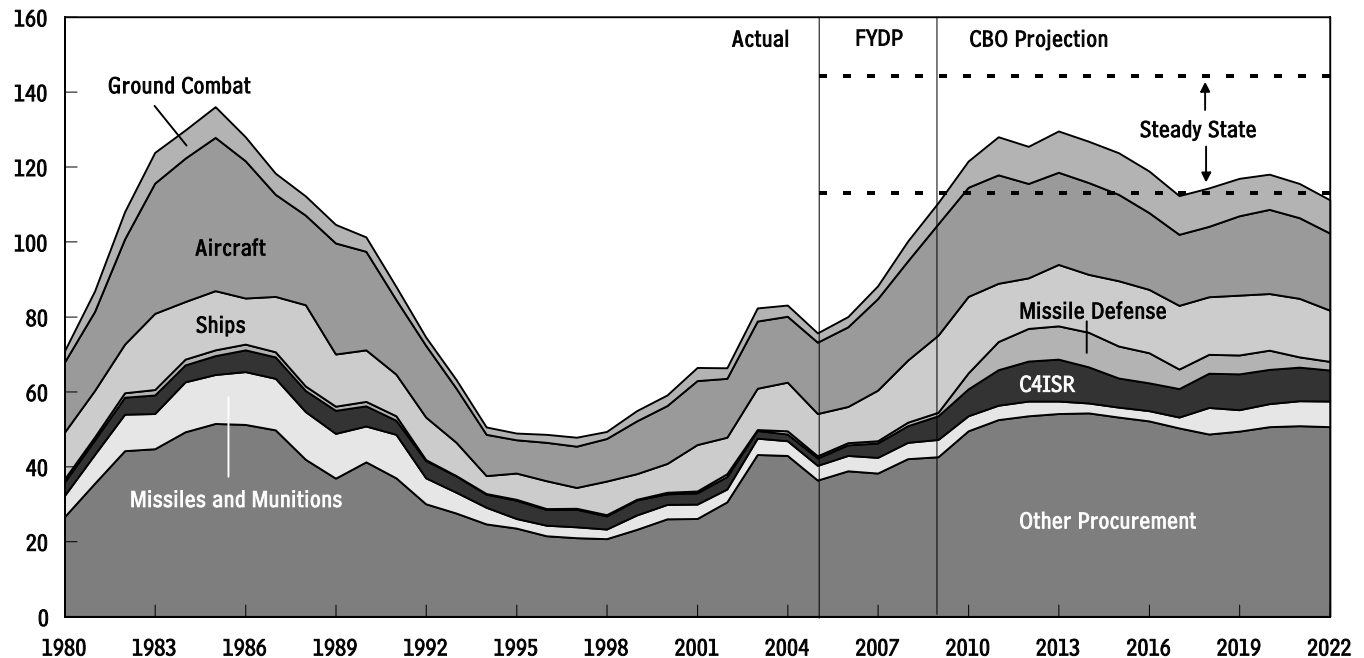
CBO's missile defense projections also include planned purchases of the Patriot Advanced Capability 3 short-range missile defense system and eventual procurement of the Terminal High Altitude Area Defense system. Both

37. Those estimates are based on the analysis in Congressional Budget Office, *Alternatives for Boost-Phase Missile Defense* (July 2004).

Figure 12.

Past and Projected Resources for Procurement Compared with Steady-State Funding Levels

(Billions of 2005 dollars)



Source: Congressional Budget Office.

Notes: FYDP = Future Years Defense Program; C4ISR = command, control, communications, computers, intelligence, surveillance, and reconnaissance.

The steady-state level of procurement resources is the amount needed to sustain planned forces indefinitely. The range shown here reflects different assumptions about the length of weapon systems' service lives.

Actual spending includes supplemental appropriations, whereas the FYDP and CBO's projections without cost risk do not.

systems will be mobile, ground-based defenses procured and operated by the Army.

CBO also projects that DoD will deploy an intermediate-range, sea-based missile defense system using the Navy's Aegis cruisers and Standard Missile 3 (SM-3) interceptors. The Navy has finished designing the Block 1 SM-3 missiles and plans to begin assembling and testing them soon. CBO assumes that those new interceptors will be deployed after 2010 on the Navy's air-defense-capable cruisers and destroyers. The Aegis radar system (the AN/SPY-1) is currently an element in the GMD IDC deployment program and is being used in GMD system tests.

Steady-State Procurement Levels

One way to measure the adequacy of planned purchases of military equipment over the long term is to compare them with steady-state levels (the procurement needed to

sustain planned forces indefinitely). For its long-term projections, CBO calculates the annual level of steady-state purchases by dividing a planned inventory of weapon systems by the expected service lives of those systems. It then multiplies steady-state purchases by the estimated per-unit costs (with or without cost risk) of the various systems that DoD plans to buy in order to produce an overall estimate of annual steady-state procurement costs. In making that calculation, CBO uses two alternative estimates of service lives. One follows DoD's current projections for service lives, which are generally longer than those envisioned during the Cold War; the other uses the shorter service lives incorporated in DoD's Cold War-era planning.

Based on DoD's estimates of the unit costs of new equipment, annual steady-state procurement funding for the military ranges from \$114 billion to \$145 billion, CBO

estimates, depending on the assumption about service lives that is used (see Figure 12 on page 19).³⁸ DoD's planned procurement budgets for the 2005-2009 period, as outlined in the current FYDP, are below CBO's estimates of the steady-state procurement needed to sustain currently planned forces. As a result, the average ages of

DoD's equipment will generally rise through 2009.³⁹ If current plans were carried out through the 2010-2022 period, however, procurement would be within the steady-state range, CBO projects, so average ages for many weapon systems would either remain constant or decline after 2010.

38. Alternatively, if unit costs for new equipment grow to the same extent that they have historically, steady-state procurement levels for DoD will range from \$137 billion to \$177 billion, CBO estimates.

39. For past and projected inventories and average ages of DoD's major types of equipment, see the supplemental briefing *The Long-Term Implications of Current Defense Plans: Detailed Update for Fiscal Year 2005*, available at www.cbo.gov.