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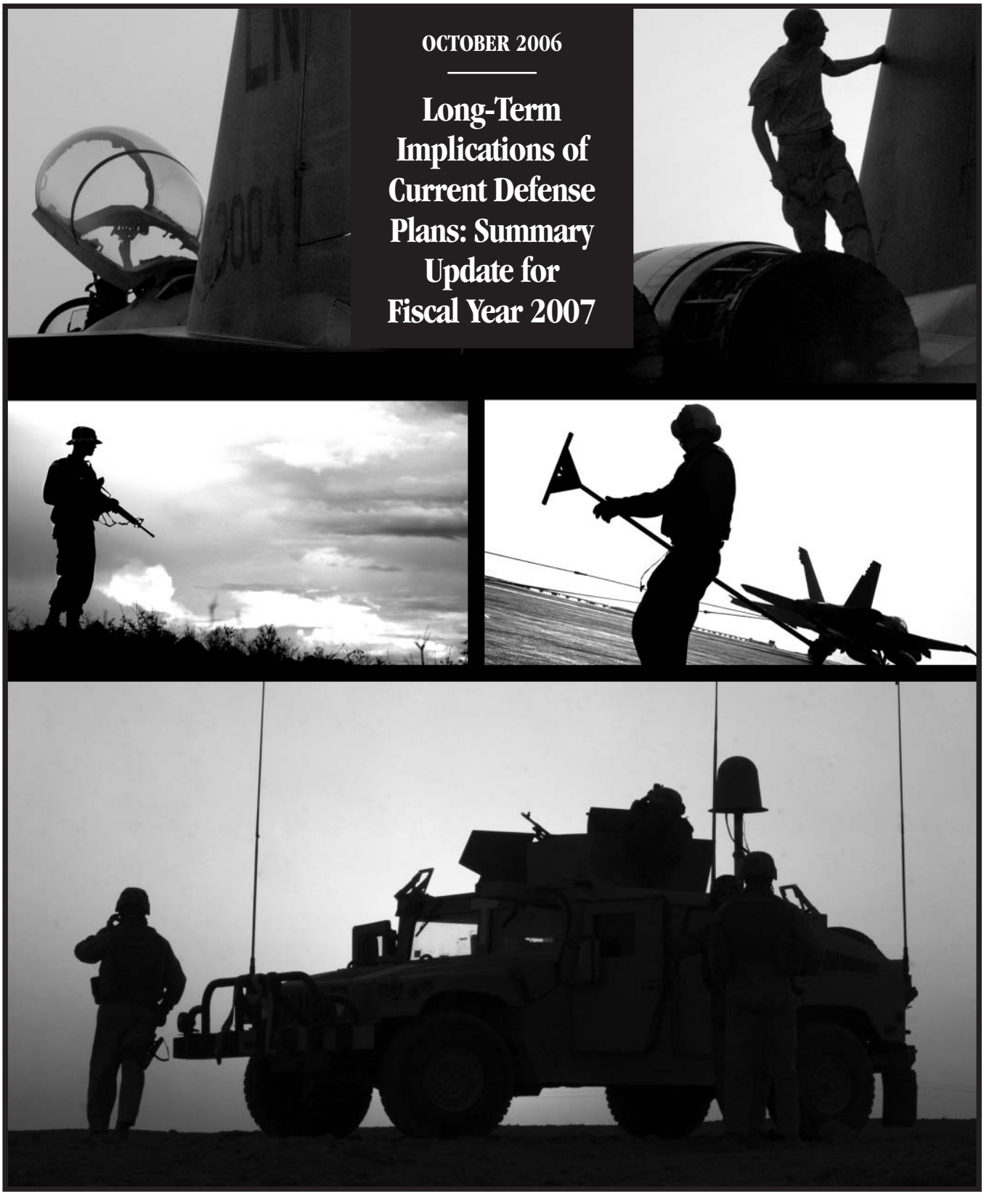

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Long-Term Implications of Current Defense Plans: Summary Update for Fiscal Year 2007

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CBO

PAPER

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October 2006

The Congress of the United States ■ Congressional Budget Office

Notes

Unless otherwise indicated, all years referred to in this paper are fiscal years, and all dollar amounts are expressed in 2007 dollars of total obligational authority.

The methodology used for this update is based on that used by the Congressional Budget Office 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).

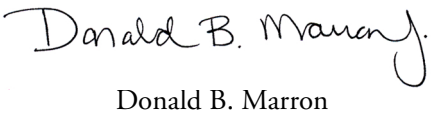
The cover photographs were provided courtesy of the following service branches (clockwise from top): U.S. Air Force (photograph taken by Master Sgt. Scott Wagers at a forward-deployed base in Southwest Asia); U.S. Navy (photograph taken by Seaman Rob Gaston aboard the USS *Enterprise*); U.S. Marine Corps (photograph taken by Cpl. Jonathan K. Teslevich in the Anbar Province of Iraq); and the Army National Guard (photograph taken by Sgt. Jim Greenhill on the U.S. border between Nogales, Ariz., and Mexico).

Preface

What level of budgetary resources might be needed in the long term to execute the 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. The paper updates the resource projections contained in CBO's October 2005 report *The Long-Term Implications of Current Defense Plans and Alternatives: Summary Update for Fiscal Year 2006*, reflecting changes that the Administration made to its defense plans in preparing the President's budget request for fiscal year 2007. CBO will also publish supplementary data on its Web site that provide more details about specific programs. In keeping with CBO's mandate to provide impartial analysis, the paper and supplementary materials make no recommendations.

Adam Talaber of CBO's National Security Division coordinated the preparation of this paper under the supervision of J. Michael Gilmore and Matthew S. Goldberg. David Arthur, Michael Bennett, Daniel Frisk, Eric J. Labs, Victoria Liu, Frances Lussier, and Allison Percy of the National Security Division contributed to the analysis, as did Joseph Post, formerly of CBO. Raymond Hall, David Newman, Matthew Schmit, and Jason Wheelock of CBO's Defense, International Affairs, and Veterans' Affairs Cost Estimates Unit also contributed to the report, under the supervision of Sarah Jennings.

Loretta Lettner edited the paper, and Christine Bogusz and Kate Kelly 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 Simone Thomas prepared the electronic version for CBO's Web site (www.cbo.gov).



Donald B. Marron
Acting Director

October 2006

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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 U.S. armed forces and the budgetary resources needed to support them. In the past four years, the Congressional Budget Office (CBO) has published a series of reports projecting the resources that might be needed over the long term to carry out the plans in the Administration's then-current Future Years Defense Program (FYDP).[1] Prepared by the Department of Defense (DoD), the FYDP is submitted to the Congress each fiscal year as part of the President's budget request.

This paper, like CBO's previous reports, provides long-term projections (in this case, through 2024) of the potential costs of DoD's current plans—that is, those plans contained in the 2007 FYDP, which covers fiscal years 2007 through 2011.[2] The 2007 FYDP reflects changes to the department's programs and priorities since February 2005, including changes to the defense program that the Administration now plans as a result of the 2006 Quadrennial Defense Review (QDR). The 2007 FYDP and CBO's projections both exclude potential future supplemental appropriations.[3]

The overall budgetary implications of DoD's current plans remain similar to those described in CBO's previous projections: carrying out plans proposed in the FYDP would require sustaining annual defense funding over the long term at higher real (inflation-adjusted) levels than those that have occurred since the mid-1980s. Four factors continue to account for the higher demand for defense resources that CBO projects:

- Plans to increase the purchase of new or costlier military equipment over the next several years and then to sustain that level of procurement over the longer term;
- Plans, as part of military transformation, to develop and eventually produce weapon systems that provide new capabilities—systems whose estimated costs are also increasing;

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), *The Long-Term Implications of Current Defense Plans: Detailed Update for Fiscal Year 2004* (February 2004), *The Long-Term Implications of Current Defense Plans: Summary Update for Fiscal Year 2005* (September 2004), *The Long-Term Implications of Current Defense Plans: Detailed Update for Fiscal Year 2005* (September 2004), *The Long-Term Implications of Current Defense Plans and Alternatives: Summary Update for Fiscal Year 2006* (October 2005), and *The Long-Term Implications of Current Defense Plans and Alternatives: Detailed Update for Fiscal Year 2006* (January 2006). The detailed updates are presented in briefing format and are available only on CBO's Web site (www.cbo.gov).

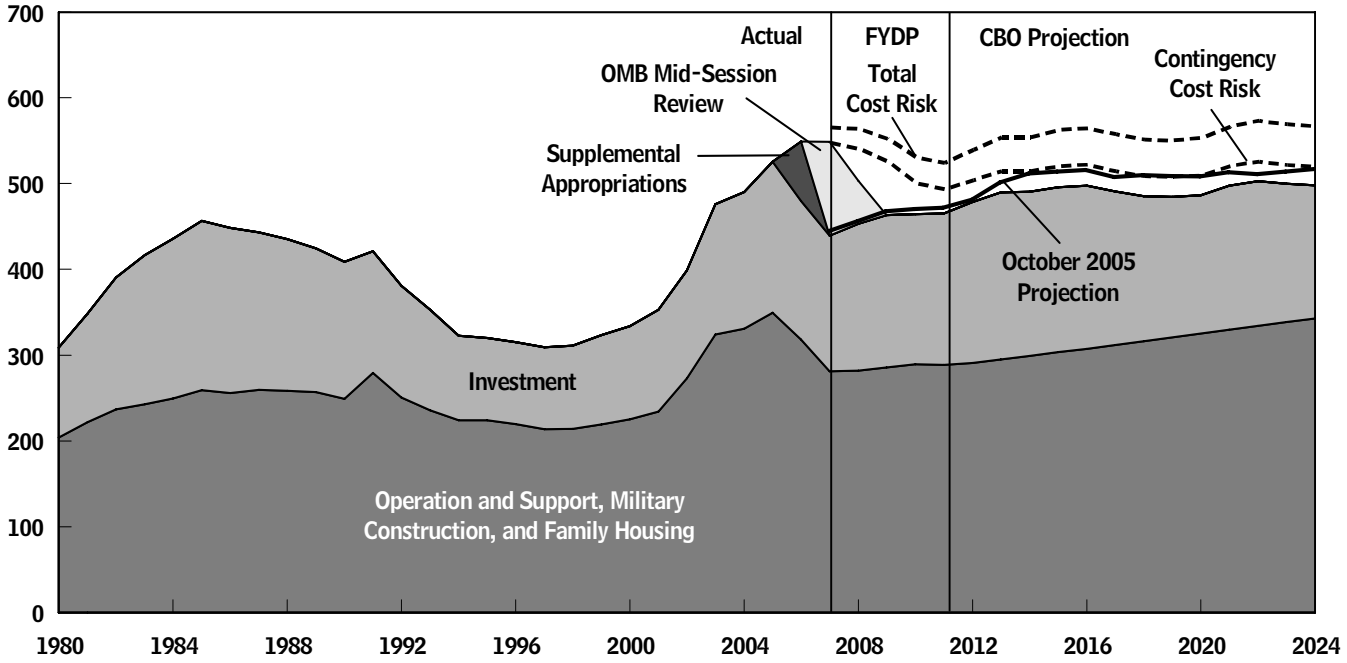
2. The FYDP is a database comprising a historical record of defense forces and spending as well as DoD's plans for future programs. The historical portion of the FYDP shows costs, forces, and personnel levels since 1962. The plan portion presents DoD's program budgets (estimates of funding needs for the next five or six years based on the department's current plans for all of its programs).

3. CBO's displays of defense funding for the period spanning 2006 to 2008 include funding that is not contained in the FYDP. Public Law 109-234 (Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006) provided $70 billion in appropriations for DoD. The President anticipates $110 billion and $50 billion in additional supplemental funding for DoD in 2007 and 2008, respectively (see Office of Management and Budget, *Fiscal Year 2007 Mid-Session Review: Budget of the U.S. Government*, July 11, 2006).

Figure 1.

Past and Projected Resources for Defense

(Billions of 2007 dollars)



Source: Congressional Budget Office.

Note: FYDP = Future Years Defense Program; OMB = Office of Management and Budget.

- The growing costs of pay and benefits for DoD's military and civilian personnel; and
- The increasing costs of operation and maintenance (O&M) for both aging equipment and newer, more complex equipment.

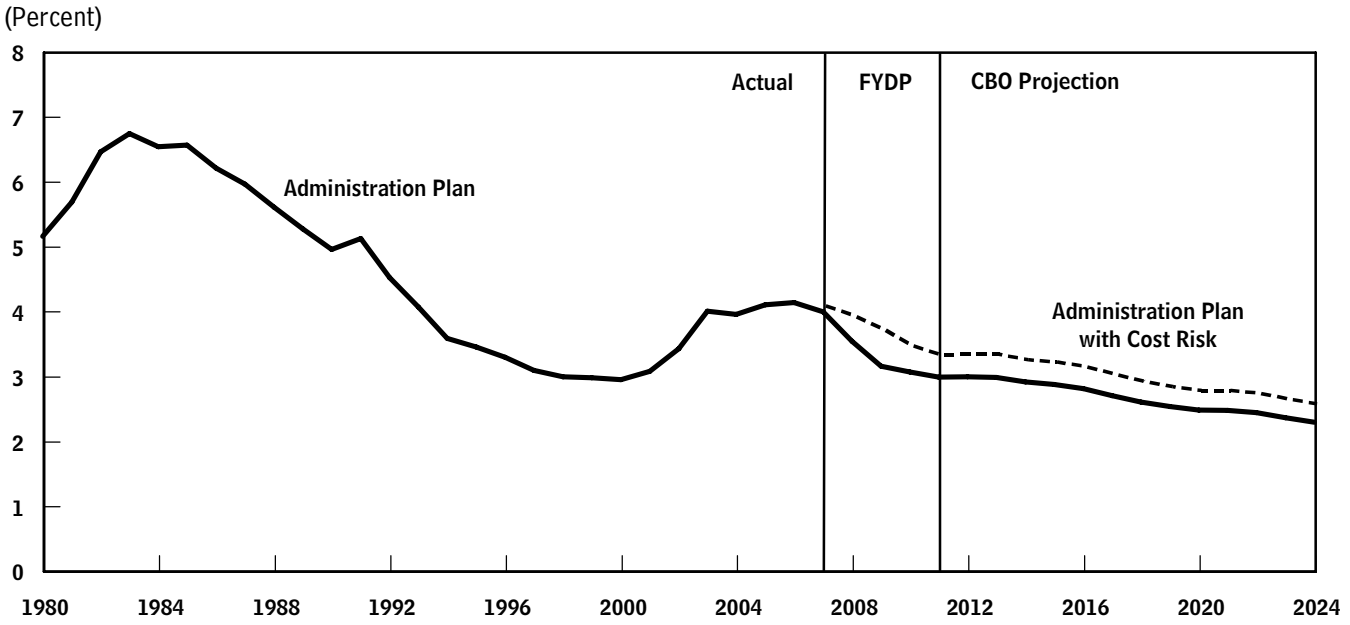
In CBO's projection of DoD's current plans, the demand for defense resources averages about $492 billion annually (in 2007 dollars) from 2012 to 2024, or about 12 percent more than the total obligational authority (TOA) for defense requested by the Administration for 2007 (see Figure 1).[4] Factoring in the potential risk of higher-than-anticipated costs raises the projected long-term demand for defense funding to an annual average of about $560 billion through 2024, or 27 percent more than the Administration's 2007 request of about $439 billion. CBO's analysis of cost risk included several possibilities: that the costs of weapon systems now under development might exceed early estimates, as they have in the past; that medical costs might rise more rapidly than has been projected; and that DoD might continue to conduct military operations overseas as part of the global war on terrorism, albeit at reduced levels relative to current operations in Iraq and Afghanistan.[5]

4. All FYDP funding is calculated as total obligational authority. The bulk of that funding is budget authority, which is the authority provided by the Congress to incur financial obligations; however, TOA also includes funding derived from receipts, trust funds, and interfund transactions, minus other amounts, such as accrual payments for military retirement. In most years, the difference between TOA and budget authority in subfunction 051 of the federal budget (which funds the Department of Defense) is about $2 billion or less.

5. CBO's fiscal year 2006 projection described two alternatives to DoD's current plans. Under the first, an "evolutionary" scenario, DoD would largely forgo acquiring new, advanced weapon systems and instead pursue evolutionary upgrades to its current equipment. Under the second, a "transformational" scenario, DoD would emphasize to a greater degree than do current plans the acquisition of the advanced capabilities that DoD associates with military transformation. CBO did not update those alternative projections for fiscal year 2007; given the limited changes in the projections, when compared with the Administration's plan, the relative costs and savings associated with each alternative would be largely unchanged.

Figure 2.

Defense Resources as a Percentage of Gross Domestic Product



Source: Congressional Budget Office.

Note: FYDP = Future Years Defense Program.

Under DoD's current plans and CBO's projection, the demand for defense resources in the future would remain lower than in the past in relation to the size of the economy. The share of U.S. gross domestic product (GDP) allocated to defense spending declined from an average of 6 percent in the 1980s to 3.8 percent in the 1990s. If DoD's current plans were carried out, defense spending would drop to 3 percent of GDP by 2011 and 2.3 percent by 2024 (see Figure 2).

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

The 2007 FYDP envisions that spending for operation and support (O&S) activities—running units, maintaining equipment, and providing pay and benefits—will grow from $264 billion in 2007 to $276 billion in 2011 (see Figure 3). (Those estimates translate into an average annual rate of real growth of 1.1 percent during the four-year period.) CBO projects that, over the longer term, carrying out current plans would push O&S spending to $331 billion in 2024 (again, starting from 2007, a 1.3 percent pace of annual real growth); if cost risk was included, that figure would rise to $377 billion.

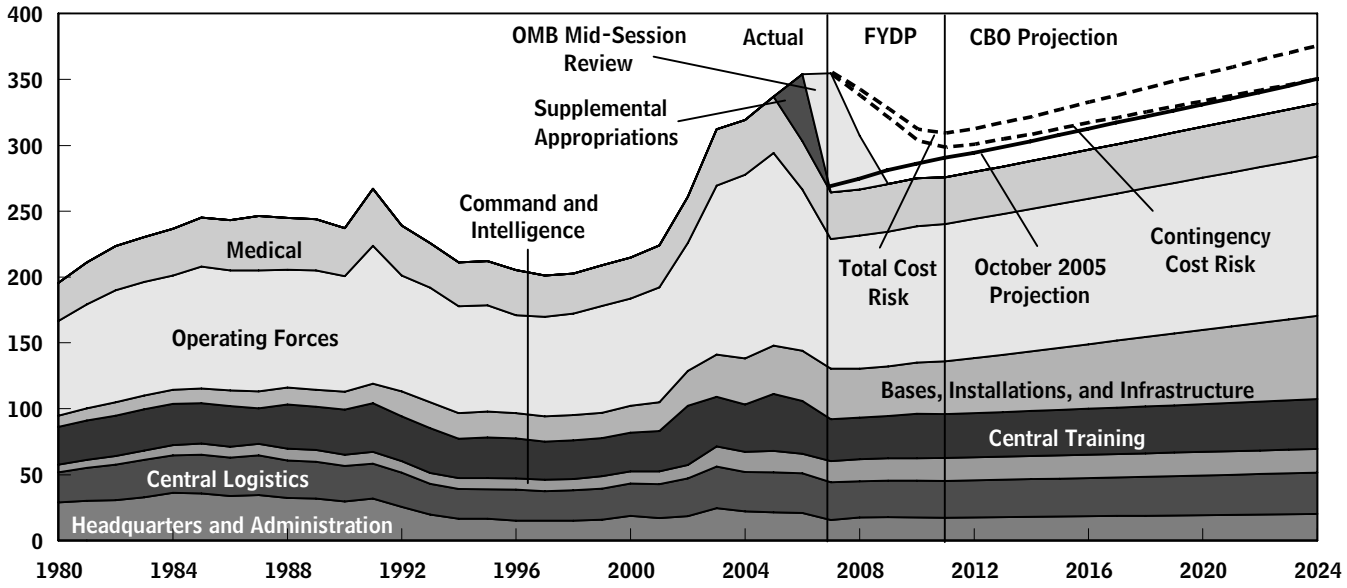
In comparison with last year's FYDP, DoD's current plans show an average reduction in total O&S spending of 3 percent. Two primary factors contribute to that reduction. First, DoD's FYDP projections for medical spending do not appear to incorporate all likely sources of growth in spending per beneficiary. Instead, for certain years within the FYDP, DoD projects declines in per capita medical spending on pharmaceuticals, purchased care (private-sector care), and direct care (that provided in-house at military medical treatment facilities, or MTFs). Second, recommendations from the Quadrennial Defense Review (reflected for the first time in the 2007 FYDP) call for "[reductions in] Air Force end strength by approximately 40,000 full-time equivalent personnel with balanced cuts across the total force."[6] Consistent with that general guidance, the 2007 FYDP shows cumulative declines in end strength of 17,700 active-duty Air Force personnel, 14,600 members of the Air National Guard, and 7,100 members of the Air Force Reserve between 2007 and 2011. CBO's projections reflect DoD's updated O&S spending plan.

6. Department of Defense, *Quadrennial Defense Review Report* (February 6, 2006), p. 47.

Figure 3.

Past and Projected Resources for Operation and Support

(Billions of 2007 dollars)



Source: Congressional Budget Office.

Note: FYDP = Future Years Defense Program; OMB = Office of Management and Budget.

For military construction and family housing, the FYDP envisions that total spending will decrease from $17 billion in 2007 to $13 billion in 2011. The decrease in that budget reflects a gradual reduction in funding to implement the 2005 round of base realignments and closures (BRAC), as well as a decline in the family housing budget resulting from privatization of DoD housing facilities. Spending for military construction and family housing under CBO's projections of current plans would remain roughly constant between 2012 and 2024 at $11 billion a year in the absence of cost risk, or $13 billion a year with cost risk.

Projections for Operation and Support

The O&S budget, which now accounts for about 60 percent of defense spending, is defined as the sum of appropriations for operation and maintenance, military personnel, and various revolving funds (see Figure 4).[7] The share of military personnel dollars in the overall defense budget declined during the early 1980s when a greater emphasis was placed on investment; it declined again during the 1990s when the force structure was reduced. CBO projects that beyond the period covered by the current FYDP, military personnel dollars as a share of all defense spending will increase, for reasons that will be discussed later. As a share of the defense budget, O&M spending also declined during the early 1980s; however, CBO projects that it, too, will rise after 2011.

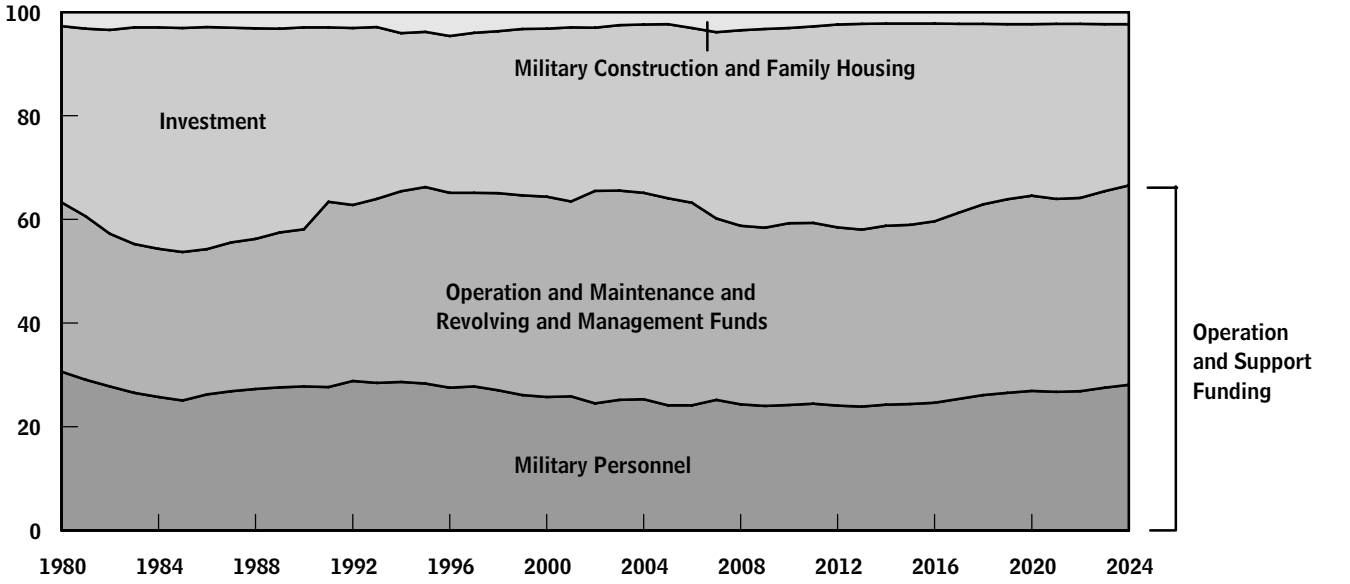
In CBO's estimation, most of the growth projected for O&S spending, if cost risk is excluded, will stem from personnel-related increases, such as rising real wages and increasing costs for medical benefits. For the purposes of its projections, CBO has broken down the O&S budget by functional category (see Figure 3). Funding for each such category derives from the O&M, military personnel, and, in some cases, revolving-fund appropriations; those resources may also be associated with the three military departments—the Army, the Navy (including the Marine Corps), and the Air Force. The functional categories that CBO has adopted are based on force and infrastructure

7. The revolving funds generate revenues from fees charged to users within DoD but may also receive appropriations as part of the defense budget. Currently, such funds include the National Defense Sealift Fund, the Defense Working Capital Fund, and each military department's working capital fund.

Figure 4.

Operation and Support as a Share of the Defense Budget

(Percent)



Source: Congressional Budget Office.

codes used by DoD's program analysts.[8] There are seven such categories:

- *Medical*—medical personnel, military hospitals, purchased care, pharmaceuticals, and medical accrual charges;[9]
- *Operating forces*—military and support units assigned to combatant commands;
- *Bases, installations, and infrastructure*—installations for military forces, communications and information infrastructure, central benefit programs for DoD personnel, and miscellaneous activities;
- *Central training*—training at central locations away from service members' duty stations;
- *Command and intelligence*—operational headquarters, command-and-control systems, and intelligence collection;
- *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.

If the medical and operating forces categories were excluded, increases in military and civilian pay would account for the entire growth of costs in CBO's projections (excluding cost risk). DoD plans to raise pay for military personnel at a nominal rate of 2.2 percent in 2007 and

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

9. Medical accrual charges are intragovernmental payments—payments from one governmental account to another—representing future medical costs that current service members (as well as their eligible family members, widows, and widowers) will incur under the military's TRICARE For Life program once they become eligible for Medicare. Within the FYDP, medical accrual charges are distributed among all of the O&S functional categories. To provide a comprehensive estimate of DoD's medical costs, CBO consolidated all such charges in the medical category.

3.4 percent each year from 2008 to 2011.[10] After that, CBO's projections incorporate the assumption that pay for military personnel will rise at the same rate as the employment cost index (ECI) for wages and salaries (a measure of compensation in the civilian economy). For civilian employees, DoD plans to increase pay at a nominal rate of 2.2 percent in 2007 and 2.3 percent each year from 2008 to 2011. In recent decades, civilian and military personnel have usually received equivalent percentage pay increases.[11] Consequently, CBO projects that civilian pay will also rise after 2011 at the same rate as the ECI.[12] If all of those increases occurred, military and civilian pay would grow in real terms by 29 percent and 23 percent, respectively, between 2007 and 2024—because wages (as measured by the ECI) are projected to grow more rapidly than prices (as measured by the GDP deflator).[13]

Medical Spending. As outlined in the 2007 FYDP, DoD's medical spending for 2008 decreases in every category except for accrual charges. Those decreases partly reflect increased user fees for non–Medicare-eligible military retirees and their family members, which were included in DoD's budget request for 2007. Specifically, the budget request would institute annual enrollment fees for TRICARE Standard and Extra (fee-for-service options), increase deductibles for TRICARE Standard and Extra, and index those fees to future inflation.[14] The budget request would also boost the annual enrollment fee for TRICARE Prime (the managed care option) and index that fee as well. DoD's proposed fee increases were designed both to increase collections and to reduce health care utilization. But because those fee increases have not been approved by the Congress, DoD's projections within the FYDP do not fully capture the likely growth in the department's health care costs.

In the 2007 FYDP, DoD projects real growth in medical spending of only $1.8 billion between 2007 and 2011, from $38.4 billion to $40.1 billion. CBO estimates that, under current plans, DoD's medical spending will grow to $63.3 billion by 2024, for a real increase of $25 billion, or 65 percent, compared with the 2007 amount. CBO estimates that medical spending will account for 37 percent of the growth projected for O&S spending between 2007 and 2024.

Pay increases for uniformed medical personnel account for less than 5 percent of the overall medical O&S growth that CBO projects between 2007 and 2024. Various other expenses—most notably, accrual charges, pharmaceuticals, and purchased care and contracts—play a much larger role (see Figure 5).[15] Accrual payments make up nearly 46 percent of the projected increase in medical spending, growing at a nominal rate of 6.25 percent a year after 2007.[16] In CBO's estimation, accrual charges will double in real terms between 2007 and 2024.

10. Memorandum from John P. Roth, Deputy Comptroller, Department of Defense, to the Secretaries of the Military Departments and others, "Inflation Guidance—Fiscal Year (FY) 2007 President's Budget," January 19, 2006.

11. Civilian personnel received the same percentage pay raise as military personnel in 25 of the past 31 years (1975 to 2006).

12. In calculating cost risk for O&S spending, CBO increased civilian pay raises to achieve parity with military pay raises during the FYDP period (2007 to 2011).

13. The ECI grew more rapidly than the GDP deflator (an index of overall prices) in each year of the period 1981 through 2006, and CBO projects that the pattern will continue between 2007 and 2024. Over the latter period, growth of the ECI will exceed growth of the GDP deflator by an average of 1.5 percentage points per year, CBO projects.

14. TRICARE is the general term for military health care. TRICARE Prime is the health maintenance organization that DoD operates on behalf of non-active-duty beneficiaries and encompasses care delivered both at military medical treatment facilities and through a network of contract providers. TRICARE Prime requires that a beneficiary enroll either for individual or family coverage. Beneficiaries who do not enroll in TRICARE Prime may still receive care at MTFs but only to the extent that space is available. They may also use TRICARE Standard or TRICARE Extra, programs that reimburse a portion of medical expenses incurred by nonenrolled beneficiaries who receive care from civilian providers.

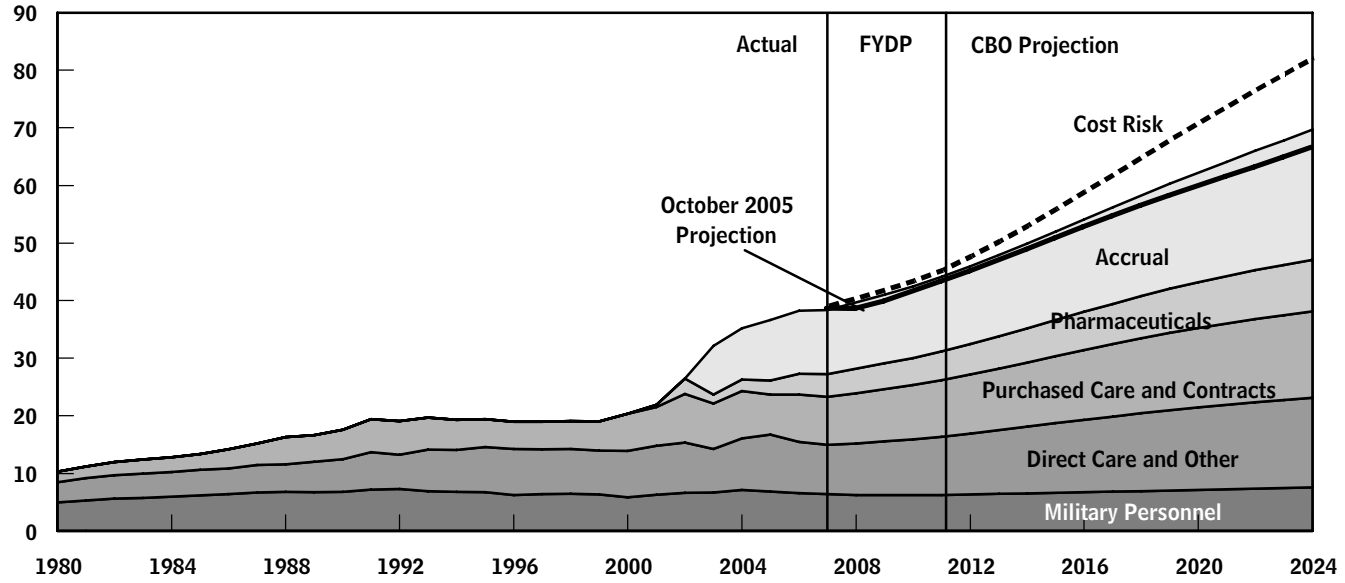
15. Pharmaceuticals include those dispensed by military medical treatment facilities, the military's retail pharmacy network, nonnetwork retail pharmacies, DoD's mail-order pharmacies, and private-sector contractors under TRICARE. Purchased care and contracts include managed care support contracts, various other types of purchased care, and supplemental care for active-duty personnel. In the past, that category also included pharmaceuticals; but after 2001, DoD began accounting for pharmaceuticals separately in the FYDP.

16. The independent Board of Actuaries for DoD's Medicare-Eligible Retiree Health Care Fund annually updates its estimate of the accrual charges necessary to fund the TRICARE For Life program, which is discussed in greater detail later.

Figure 5.

Past and Projected Resources for the Military Medical System

(Billions of 2007 dollars)



Source: Congressional Budget Office.

Note: FYDP = Future Years Defense Program.

DoD anticipates that pharmaceutical spending per capita will rise only marginally in real terms during the period encompassed by the FYDP.[17] Beyond the FYDP, CBO projects nominal growth of 8.1 percent in 2012 in per capita pharmaceutical spending, a pace that slows to about 5.4 percent a year by 2024.[18] The figures in the FYDP indicate that DoD anticipates per capita spending for purchased care to change at nominal annual rates that vary widely, from a decrease of 7 percent to an increase of 7 percent per capita each year, while spending on direct care ranges from a decrease of 1.6 percent to an increase of 5.0 percent per capita. Overall, DoD anticipates a slight fall of 2 percent in spending on direct care and a slight increase of 2 percent in spending on purchased care for the period from 2007 through 2011. CBO projects that, beginning in 2012, resource demands for those two categories will grow at the same rate as hospital care and physicians' and clinical services in the rest of the economy. As a result, CBO estimates that per capita spending for direct care and purchased care will grow at a nominal rate of 6.7 percent beginning in 2012 and taper to 4.7 percent per year by 2024. [19] Pay for uniformed medical personnel is projected to follow the same trend as other military personnel costs in DoD's budget. Those projections suggest that between 2007 and 2024, DoD's total spending on military medical personnel will rise by 4.6 percent, that spending for pharmaceuticals will increase by 13.9 percent, that spending for direct care will rise by 17.0 percent, and that funds allocated to purchased care and contracts will rise by 18.7 percent, all adjusted for inflation.

17. Although the 2007 FYDP anticipates a nominal *decrease* of 10 percent in per capita pharmaceutical spending from 2007 to 2008, DoD projects that per capita spending growth in other years within the FYDP will range from 6 percent to 11 percent.

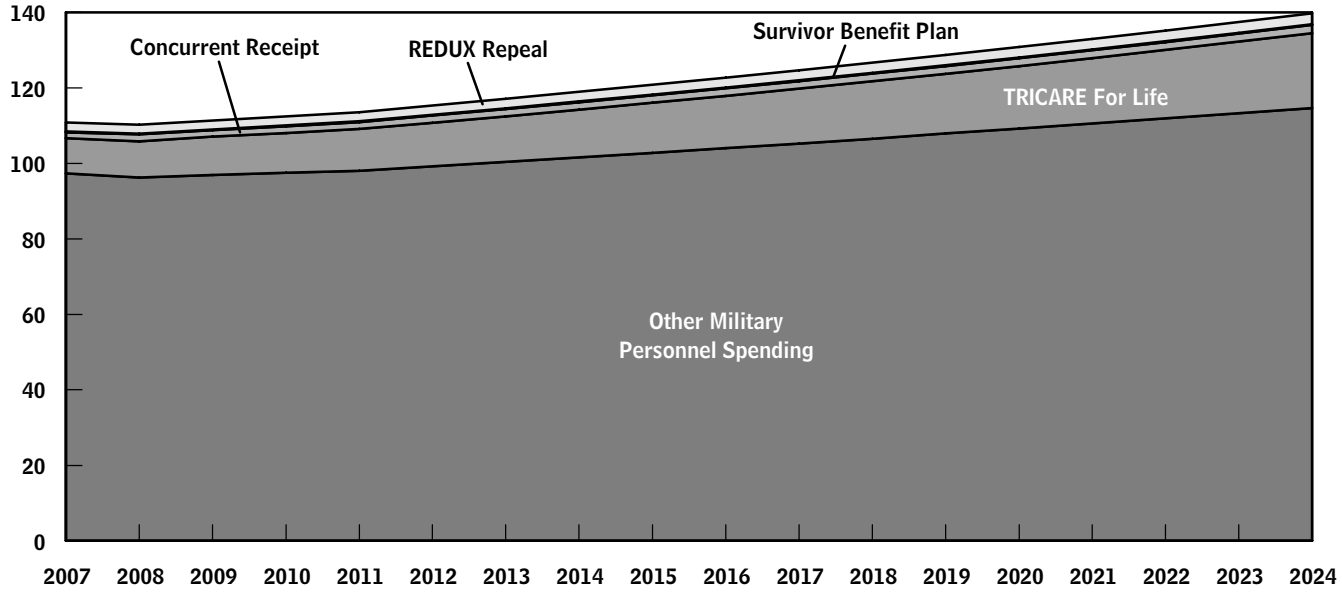
18. CBO derived its estimates for the growth of spending for pharmaceuticals from the pharmaceutical expenditure projections published by the Centers for Medicare and Medicaid Services (CMS), available at www.cms.hhs.gov/NationalHealthExpendData/downloads/proj2005.pdf. Because those projections extend only to 2015, CBO assumed that growth would slow after that date, eventually reaching a rate that is 1 percentage point higher than growth of per capita GDP in 2030.

19. To estimate spending for medical care provided at military medical treatment facilities and purchased from the private sector, CBO extended CMS's projections of spending on hospital care and physicians' and clinical services after 2011, again reaching a growth rate 1 percentage point higher than that of per capita GDP by 2030.

Figure 6.

Cost of New Benefits for Military Retirees and Their Families

(Billions of 2007 dollars)



Source: Congressional Budget Office.

Spending for Operating Forces. The largest category of O&S spending comprises resources for operating forces. CBO projects that, excluding cost risk, annual costs for that category will rise from $105 billion in 2011 to $121 billion in 2024. About $11 billion of that growth reflects pay increases; the other $5 billion is attributable to three factors. First, operation and maintenance costs for each active-duty member of the Army's and Marine Corps's ground forces (as well as the costs of the Army's aviation programs) have been rising; CBO expects that trend to continue over the long term. Second, as weapon systems age, the cost of operating and maintaining them will increase.[20] Third, new generations of weapon systems will be more complex and therefore more expensive to operate and maintain than the systems they replace. In CBO's estimation, costs to operate Air Force, Navy, and Marine Corps fighters, bombers, and transport and tanker aircraft take the latter two effects into account.

New or Enhanced Benefits That Contribute to Growth in Military Personnel Spending. Since 1999, policymakers have provided a number of new or improved retirement and health care benefits for military retirees and their families that are funded largely on an accrual basis.[21] The increased costs of those benefits have added several billion dollars to military personnel spending each year, and such costs are expected to continue to grow in the future (see Figure 6). The four costliest such benefits are the repeal of the REDUX retirement system, the establishment of TRICARE For Life, the elimination of the Social Security offset for the military's Survivor Benefit Plan (SBP), and changes in the rules regarding concurrent receipt of both military retired pay and veterans' disability compensation. As a share of total military personnel spending, the benefits' accrual charges and direct costs are projected to account for 12 percent in 2007, growing to 18 percent by 2024. CBO estimates that during the 2007–2024 period, the growth of accrual and direct costs for those new benefits will account for 41 percent of the total growth of military personnel spending. Without those costs, the mili-

20. See Congressional Budget Office, *The Effects of Aging on the Costs of Operating and Maintaining Military Equipment* (August 2001). That study found that O&M spending for aircraft, after an adjustment for inflation, increases by 1 percent to 3 percent for every additional year of age.

21. Those accrual funds are managed similarly to the Medicare and Social Security trust funds. The Social Security funds are described in Congressional Budget Office, *Social Security: A Primer* (September 2001).

tary's personnel budget would be $115 billion in 2024, in CBO's estimation—or $25 billion less than the projected budget that includes those costs.

The Repeal of REDUX. Prior to 1986, military personnel who retired after 20 years of service received an immediate annuity equal to 50 percent of their "high-three" basic pay.[22] (That 50 percent factor is called the multiplier.) The annuity increased with additional years of service but was capped at 75 percent of basic pay for members who retired after 30 or more years of service. The Military Retirement Reform Act of 1986 created the REDUX retirement system, which applied to all personnel who entered military service on or after August 1, 1986.[23] Under REDUX, the multiplier would equal only 40 percent of a member's high-three basic pay after 20 years of service but would again increase to 75 percent of basic pay after 30 or more years of service.

Another change that REDUX implemented was partial insulation from inflation rather than the full protection that the older high-three system provided. Specifically, through age 62, a retiree's annual cost-of-living adjustment (COLA) under REDUX would equal the annual percentage increase in the consumer price index (CPI) minus 1 percentage point. The annuity payment would be recomputed when the retiree reached age 62 so that he or she would receive the same payment in that year that he or she would have received under the older (more generous) high-three system. Once the retiree passed age 62, and for the remainder of his or her life, the retirement annuity would again be subject to a COLA equal to the CPI minus 1 percentage point.

The first cohort of service members to be affected by REDUX would have begun to retire in 2006. However, the National Defense Authorization Act (NDAA) of 2000 gave military personnel a choice between the high-three retirement system and an enhanced REDUX retirement system.[24] Service members who were anticipating retirement could elect during their 15th year of service either the high-three retirement plan or the (less generous) REDUX formula, now supplemented by a lump-sum $30,000 payment (to be received during their 15th year of service) called the Career Status Bonus. Either choice would increase DoD's retirement liability—in the former instance, as a result of the higher multiplier and COLA; in the latter instance, as a result of the $30,000 bonus. However, the higher multiplier and COLA would add to the amount that must be covered by the accrual charges, whereas the $30,000 bonus would be paid immediately out of the military personnel appropriation for the fiscal year in which the service member made his or her decision.

As a result, the total estimated cost of REDUX repeal includes both projected spending for the Career Status Bonus and the increase in DoD's accrual charges resulting from the higher multiplier and COLA, weighted by the respective proportions of retirees who elect either the REDUX or the high-three retirement plan. Using data from the DoD Office of the Actuary, CBO estimates that those two costs combined will add $1.5 billion to the military's personnel budget in 2007; in 2024, those costs will rise to $2.1 billion.[25]

TRICARE For Life. The introduction of this second new benefit expanded the health care coverage of Medicare-eligible military retirees and their families.[26] Before the implementation of TRICARE For Life (TFL), retirees and their families lost access to the civilian portion of their TRICARE benefit once they became eligible for Medicare. However, they retained the right to obtain care at MTFs (on a space-available basis), including purchasing pharmaceuticals. Following the introduction of TFL, TRICARE became the second payer to Medicare. Thus, when Medicare-eligible military retirees or family members receive medical services that are covered by both Medicare and TRICARE, Medicare pays whatever portion of the service's cost that is allowed under its rules, and TRICARE then pays most and in some cases all of the remaining Medicare deductibles and copayments. In addition, when those beneficiaries receive services that are covered by TRICARE but excluded by Medicare, TRICARE covers most of the costs (although beneficia-

22. The basic pay that determines a service member's retirement annuity is computed as the average of the 36 highest months of basic pay in the service member's career—the "high-three" (-year) average.

23. 99th Congress, H.R. 4420, Public Law 99-348.

24. 106th Congress, S. 1059, Public Law 106-65, enacted October 1, 1999.

25. Personal communications to the Congressional Budget Office from the DoD Office of the Actuary, August 31 and September 1, 2006.

26. 106th Congress, H.R. 4205, Public Law 106-398, enacted October 30, 2000.

ries may still be responsible for some copayments). In addition, for a modest copayment, those beneficiaries can now use TRICARE to purchase pharmaceuticals at retail pharmacies.

TFL is funded on an accrual basis, with payments into the Medicare-Eligible Retiree Health Care Fund charged against the military personnel accounts.[27] The independent Board of Actuaries for the DoD Medicare-Eligible Retiree Health Care Fund, which oversees the financial health of that fund, has estimated that those charges will grow in the foreseeable future at a nominal growth rate of 6.25 percent, and CBO has adopted that estimate. However, CBO subtracted from the annual accrual charges the portion of outlays from the fund that is projected to cover care that retirees receive at MTFs—because those outlays cover a benefit that was already in place before TFL's introduction in 2002. CBO projects that the accrual charges for the TFL benefit (excluding anticipated outlays for MTF care, which is not a new benefit) will grow from $9.3 billion in 2007 to $19.9 billion in 2024.

Elimination of the Social Security Offset for the Survivor Benefit Plan. Military retirees can elect to pay a premium so that when they die, their surviving spouse will continue to receive a portion of their retirement pay. In the past, once that survivor reached the age of 62 and became eligible for Social Security benefits, payments under the SBP were reduced from 55 percent of the retirement pay that the service member would have received to 35 percent—a reduction intended to partially offset the survivor's income from Social Security. However, that offset is scheduled to be eliminated by April 1, 2008, as required in the National Defense Authorization Act for Fiscal Year 2005.[28] According to projections provided to CBO by the DoD Office of the Actuary, the accrual charges needed to cover the enhanced benefit from eliminating the SBP offset will add $192 million to military personnel spending in 2007, an amount that is projected to increase to $236 million in 2024.[29]

Changes in the Rules Regarding Concurrent Receipt. Until recently, the law required that military retirement pay be reduced dollar-for-dollar by the amount of disability compensation that a retiree received from the Department of Veterans Affairs (VA). (Nevertheless, many eligible retirees chose to receive their VA disability compensation despite that required offset because such compensation is not subject to federal income taxes.) The National Defense Authorization Act for Fiscal Year 2003 created a new benefit called combat-related special compensation (CRSC), which in effect exempted certain seriously disabled retirees from the offset requirement.[30] Moreover, the 2004 National Defense Authorization Act introduced concurrent receipt for retirees who were at least 50 percent disabled, including those whose disability was not related to combat.[31] For all but the most severely disabled retirees, however, the amount of concurrent receipt is being phased in over a 10-year period from 2004 to 2013. The DoD Office of the Actuary projects that those new benefits will add $2.4 billion to defense accrual charges in 2007; in 2024, those benefits will add $2.9 billion.[32]

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 (for example, performing environmental assessments of sites designated for closure). Excluding the BRAC funding, that budget has ranged between $3 billion and $9 billion annually since 1980. DoD plans to dedicate enough funding to its facilities to achieve a recapitalization rate of 67 years. (The recapitalization rate is

27. Elsewhere in this report, CBO grouped the TFL accrual charges paid from the military personnel appropriation and consolidated them in the medical category to show the full costs of both current and future medical benefits. For the current analysis, however, CBO considered accrual charges for TFL as a component of the overall military personnel appropriation, with the objective of estimating how much the TFL program has added to the future funding requirements for that appropriation.

28. 108th Congress, H.R. 4200, P.L. 108-375, Sec. 644, enacted October 28, 2004.

29. Personal communications to CBO from the DoD Office of the Actuary.

30. 107th Congress, H.R. 4546, Public Law 107-314, Sec. 636, enacted December 2, 2002, as amended by the Sec. 642 of the National Defense Authorization Act for Fiscal Year 2004, H.R. 1588, P.L. 108-136, enacted November 24, 2003.

31. 108th Congress, H.R. 1588, P.L. 108-136, Sec. 641, enacted November 24, 2003.

32. Personal communications to CBO from the DoD Office of the Actuary.

calculated by dividing the replacement value of all military facilities by the average funding used to restore or replace a portion of them annually.) In CBO's estimation, achieving that goal will require average annual funding of about $8 billion to $9 billion.

The Administration's plans for the 2007–2011 period include a total of $15 billion of military construction funding for a 2005 BRAC round. An additional $1 billion to $2 billion in such funding will be needed for BRAC purposes after 2011, CBO estimates. DoD projects that six years into the implementation of the 2005 BRAC round, recurring annual savings will reach more than $5 billion.[33] In CBO's projections, however, those savings do not reduce DoD's total budget. Instead, the projections incorporate the assumption that DoD will retain the budget authority for that money and use it for other purposes. (CBO could not determine specific uses on the basis of the information in the FYDP.)

The budget for family housing pays for the construction, operation, maintenance, and leasing of military family housing. Since 1980, that budget has ranged between $3.4 billion and $5.4 billion per year. The 2007 FYDP envisions that such funding will drop from $4.3 billion in 2007 to $2.8 billion by 2011, because some military housing will be privatized. Privatization, however, while reducing DoD's spending for building and operating family housing, may also increase expenditures for the basic allowance for housing that military personnel receive to pay for the rental of private housing units.[34]

Cost Risks for Operation and Support, Military Construction, and Family Housing

In its projections of cost risk, CBO analyzed the potential effects of changes in a number of the assumptions incorporated in the 2007 FYDP. If all of those changes were made, spending for O&S would total $377 billion in 2024, or 14 percent higher than in CBO's estimate without cost risk. Spending for military construction and family housing in 2024 would reach about $14 billion per year, an increase of 16 percent over CBO's estimate without cost risk.

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 other military efforts in the global war on terrorism. Neither the 2007 FYDP nor CBO's projections without cost risk include future funding for contingency operations. However, the President's *Mid-Session Review* of the budget anticipates an additional $110 billion to fund operations in Iraq and Afghanistan in 2007, as well as a $50 billion allowance to pay for a portion of contingency operations in 2008.[35] In its projection with cost risk, CBO includes an additional $38 billion in 2008 (for a total of $88 billion that year) and $64 billion in 2009 for military operations in Iraq, Afghanistan, and elsewhere (of which $31 billion and $51 billion would be O&S spending, with the remainder being investment spending).

CBO projects that over the long term, cost risk associated with those (or similar) operations could decline to about $25 billion annually (of which about $20 billion would be O&S and $5 billion would be investment). That estimate is based on the assumption that between 2007 and 2011, the number of U.S. military personnel deployed in contingency operations will fall from 205,000 to about 55,000 and remain at that level through 2024. Of course, that kind of specific assumption represents one of many possible scenarios and is not a prediction from which future war spending or budget requests could be derived. In particular, that kind of specific assumption is unlikely to hold true for the entire projection period. CBO's estimate of average annual funding of $25 billion is simply a proxy for the budgetary impact of the U.S. military's continued engagement in such operations, wherever they might occur. If U.S. foreign policy shifted in a way that increased or decreased the nation's military presence overseas, costs would also change accordingly.

33. Department of Defense, *Base Realignment and Closure Report*, vol. 1 (May 2005), p. 4. The BRAC Commission, however, estimates that recurring annual savings from implementing its recommendations will be about $4.2 billion.

34. Housing allowance costs are not included in the family housing budget but appear among military personnel costs in the O&S budget. CBO's projection of overall military personnel costs beyond 2011 implicitly incorporates changes in the basic allowance for housing to reflect changes in the 2007 FYDP.

35. That estimate includes funding for operation and maintenance, military personnel, and coalition support as well as some (relatively small) miscellaneous contingency costs. A portion of supplemental funding also goes toward purchasing equipment; CBO estimates that about $90 billion and $41 billion of that funding would go toward O&S spending in 2007 and 2008 respectively, with the remainder going toward investment.

CBO's projection of O&S contingency cost risk includes the cost of the temporary increase in the size of the Army. The active Army's end strength is currently about 497,000 soldiers, an "over-end strength" of roughly 15,000 soldiers relative to the 482,400 end strength from 2004 and earlier. CBO assumed that the Army would remain at 497,000 soldiers through 2008. After 2008, that end strength would be scaled down along with the extent of operations, CBO assumes, so that by 2011 the Army would return to an end strength of 482,400. (DoD might, however, choose to sustain a larger Army despite declines in the pace of overseas operations. CBO's analysis considers that risk as well, as is discussed subsequently.)

Medical Cost Risk. Aside from contingency operations, the next-largest possible source of additional growth in O&S costs is the military medical system. Because DoD's FYDP projections for medical spending do not appear to incorporate all likely sources of growth in per-beneficiary spending, CBO incorporated cost risk within the FYDP period in its medical projections as well as risk outside the FYDP period. In the base case, CBO used DoD's FYDP estimates from 2007 through 2011, which include a decline in per capita medical spending on pharmaceuticals and purchased care in 2008, and declines in spending on direct care for 2007 through 2009. Such declines in spending would reverse recent trends unless accompanied by fee increases or other major restrictions in the TRICARE benefit.

In the risk case, CBO used DoD's projections in the FYDP for military personnel costs and accrual costs but applied different rates of growth for spending in other medical categories. CBO used DoD's 2006 spending levels as a base and then applied DoD's own inflation guidance assumptions to the per capita spending levels for direct care, purchased care, and pharmaceuticals throughout the FYDP period. Those growth rates were 6.7 percent per year for direct care, 7.0 percent for purchased care, and 10.1 percent for pharmaceuticals. CBO applied those nominal growth rates to per capita spending in each category for 2007 through 2011.

For the years beyond the FYDP period, CBO's projection with cost risk incorporates nominal growth that is 30 percent higher than in the projection without risk. For direct care and purchased care, those rates are 8.7 percent per year in 2012, slowing to 6.1 percent per year by 2024 (rather than 6.7 percent and 4.7 percent, respectively). For pharmaceuticals, CBO assumed 10.5 percent growth in 2012, falling to 7.0 percent in 2024 (rather than the 8.1 percent and 5.4 percent, respectively, used in the base case).[36] Under those assumptions, DoD's total medical spending would increase by 110 percent (rather than 65 percent) in real terms from 2007 to 2024.

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.

Other Cost Risks. Another source of cost risk is the possibility that the current temporary 15,000-soldier increase in the size of the Army will become permanent. As previously discussed, CBO assumed that the Army's end strength would return to 482,400 by 2011; over-end-strength costs are no longer included in the contingency-cost-risk projection after that year. To account for the possibility that the increase could be permanent, CBO's estimate of other O&S cost risk incorporates the assumption that the size of the Army will remain at 497,000 soldiers through 2024, with added annual costs of more than $1.5 billion.

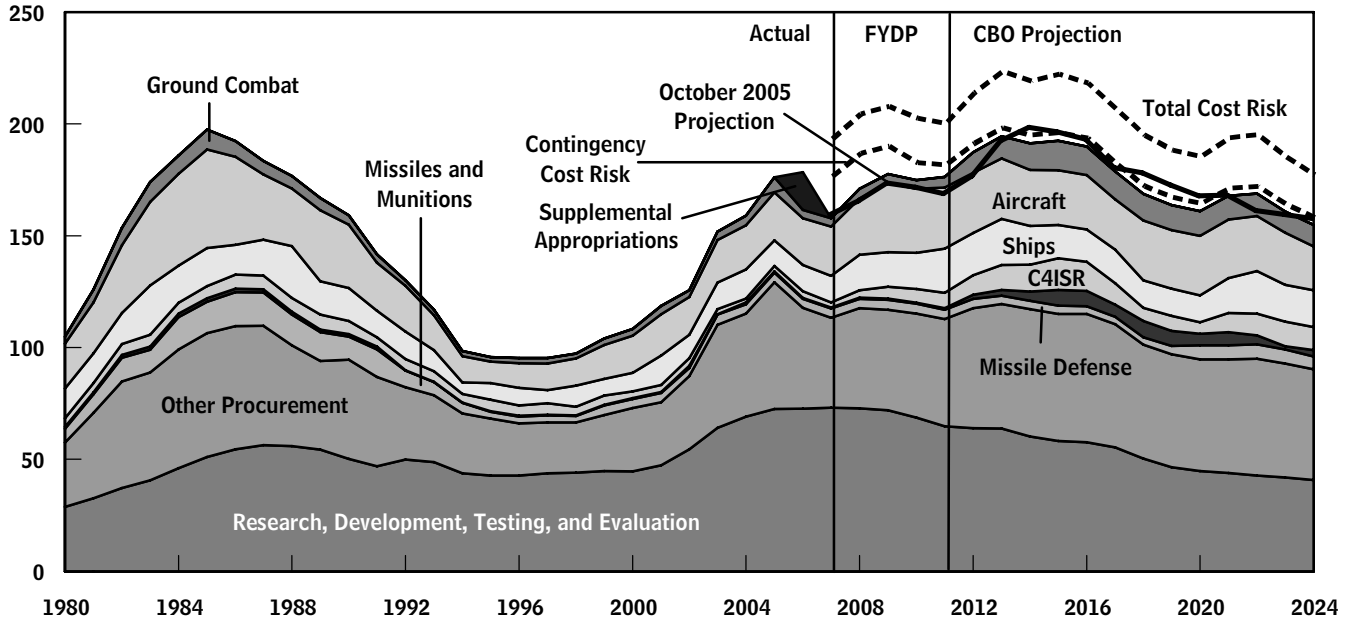
CBO's estimates of other cost risks also include the possibility that civilian pay raises will equal military pay raises, as has historically been the case. Under DoD's current plans, the annual pay raise for civilians would be about 1 percentage point less than the pay raise for service members. Making the raises equivalent in percentage terms from 2007 to 2011 would add $400 million of cost risk in 2007, growing to $4.6 billion annually by 2024. (Although CBO projects that after 2011, military and

36. CBO examined 10-year projections of medical-cost growth developed by the Department of Health and Human Services in the late 1980s and early 1990s. The projections ranged from 45 percent below actual growth to 65 percent above. However, CBO's projections cover a longer period (the 17 years from 2007 to 2024), and during such a span, it is unlikely that the most extreme rates of growth would be sustained. Thus, CBO trimmed the range of growth rates (to plus or minus 30 percent) relative to the historical differences between projected and actual costs. For additional information on the methodology CBO uses to project growth in military medical spending, see Congressional Budget Office, *Growth in Medical Spending by the Department of Defense* (September 2003).

Figure 7.

Past and Projected Resources for Investment

(Billions of 2007 dollars)



Source: Congressional Budget Office.

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

civilian pay will rise by equal annual percentage increases, the difference in cumulative increases through that year compounds in later years, and CBO thus includes it as part of cost risk.)

Finally, CBO's cost-risk projections incorporate the possibility that the expected decrease in the military family housing budget resulting from military housing privatization will not occur. Rather, in the risk case DoD would use the anticipated savings from military housing privatization initiative to increase the stock of housing controlled by DoD.[37] Should the family housing budget remain close to its 1980–2006 average level, CBO projects that an additional $1 billion to $2 billion per year in annual resources would be allocated for family housing beginning in 2008.

Projections of Spending for Investment

The Administration's current FYDP envisions that over the 2007–2011 period, investment spending—which pays for developing, testing, and buying weapon systems and other equipment—will rise at an average annual rate of 2.8 percent, from $158 billion in 2007 to $176 billion in 2011 (see Figure 7). Carrying out current plans over the long term would cause investment spending—excluding cost risk—to peak at $195 billion in 2013, CBO projects.

If cost risk was included, spending would peak, in 2013, at $224 billion. (Box 1 discusses CBO's methods for projecting investment.) Funding for investment over the 2007–2024 period would average $201 billion annually.

Army Investment

Relative to the 2006 FYDP, total investment resources allocated to the Department of the Army in the 2007

37. Housing controlled by DoD includes that owned directly by the military as well as that considered part of the privatization initiative. The government exercises significant control over privatized housing by controlling business operations, occupancy, access, construction, and management through various means. For additional information on military family housing and the privatization initiative, refer to Congressional Budget Office, *H.R. 4879, the Military Housing Improvement Act of 2004*, CBO Cost Estimate (July 30, 2004).

Box 1.

Methods Used by CBO to Project Defense Investment Demands

The Congressional Budget Office (CBO) uses several methods to project the military's requirements for investment resources.

Major Investment Programs

CBO projects long-term resource demands for major weapon systems on an individual basis, using, as appropriate, the Administration's long-range program plans (which may include development schedules, quantities to be purchased, and rates of annual purchases). That information is drawn from several documents. The Future Years Defense Program (FYDP) provides details about a broad spectrum of programs—in the current FYDP, through 2011. In addition, the Department of Defense (DoD) prepares backup books for Congressional committee staff for each of the accounts in the procurement title of the defense appropriation act and descriptive summaries for accounts in the title covering research, development, testing, and evaluation (RDT&E) activities. Those reports provide additional detail at the appropriation and account level and, for some programs, include summaries of plans for periods beyond that covered by the FYDP. For major programs (including, for example, the Army's Future Combat Systems), DoD provides Selected Acquisition Reports (SARs), which contain the department's projections of development schedules, rates and quantities of purchases, and costs throughout a program's duration.

In preparing its projections, CBO developed its own estimates where data for a major investment program were lacking. For example, it developed estimates for the potential costs of a new long-range strike aircraft using parametric cost-estimating models with aircraft weight and other technical characteristics as inputs.

Other Investment

Procurement funding in CBO's "other procurement" category pays for purchases of such items as artillery rounds, radios, passenger vehicles, and spare parts. About one-third of RDT&E funding pays for basic and applied research, development of advanced technologies, management activities in support of development, and some lower-cost programs to develop modifications to systems already being used in the field. Because DoD provides no detailed plans for those items and activities, CBO projects their long-term resource demands on the basis of trends in their funding since 1980 and the relationship between that funding and spending for major programs. Through those relationships, CBO implicitly projects funding for some highly classified (or "black") programs.

Cost Risk

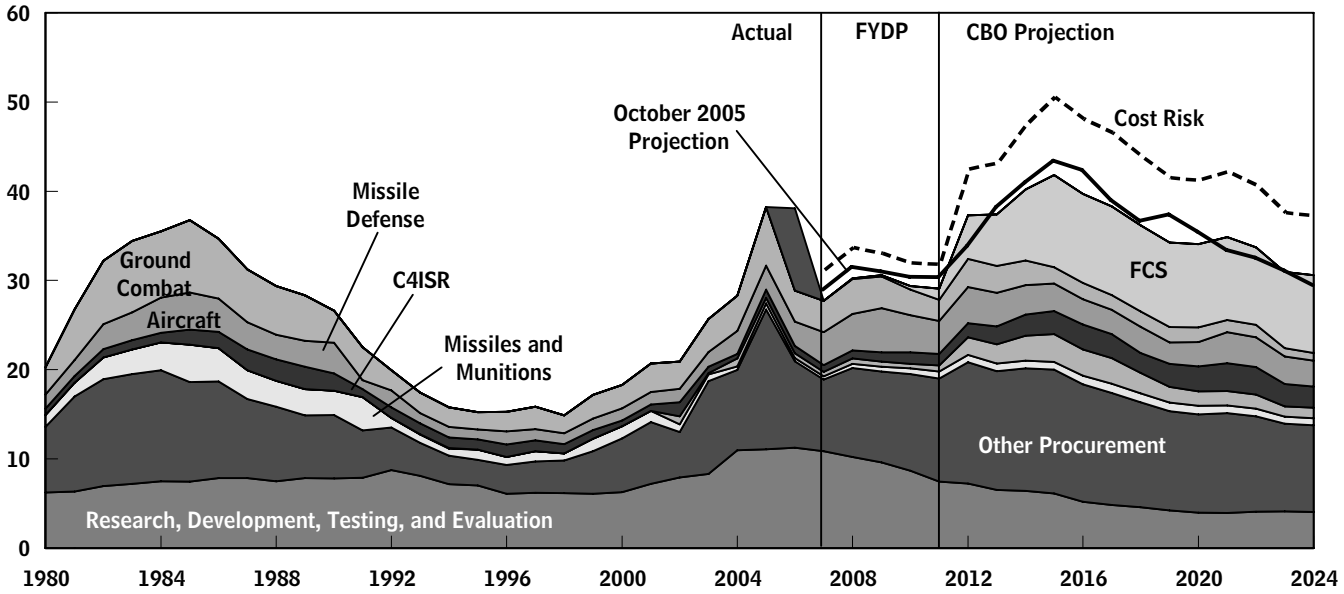
In the past, DoD has often underestimated the cost to develop and purchase new weapon systems. Consequently, CBO also projects the demand for defense investment resources under the assumption that future costs will exceed early estimates to the degree that they have in the past. Those projections are based largely on information from RAND analyses of the cost growth that has occurred since 1969 for all major programs for which, through 2002, DoD had submitted SARs to the Congress.[1]

1. For a more detailed 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 8.

Past and Projected Resources for Army Investment

(Billions of 2007 dollars)



Source: Congressional Budget Office.

Note: FYDP = Future Years Defense Program; C4ISR = command, control, communications, computers, intelligence, surveillance, and reconnaissance; FCS = Future Combat Systems.

FYDP decreased for the 2007–2011 period. Average annual investment spending would decline from $30 billion to $29 billion, and fewer funds would be devoted to procurement between 2007 and 2011—$100 billion in the 2007 FYDP as compared with $107 billion in the 2006 FYDP for the same period. At the same time, funds devoted to research, development, testing, and evaluation (RDT&E) over the same period would rise by $2 billion.

The decline in procurement spending in the last two years of the five-year period results from the Army's decision to delay the start of procurement of the Future Combat Systems (FCS), which will replace current ground-combat equipment. Reductions in the early years, however, are attributable primarily to cuts in funds for smaller programs.

CBO's updated projection of the investment resources needed beyond 2011 to carry out the Army's programs averages $36 billion a year without cost risk and as much as $43 billion a year when adjusted for past rates of cost growth (see Figure 8).[38] Despite the reduction in annual quantities of FCS components purchased between the two FYDPs, investment levels remain almost as high in the updated projection as those in the previous projection—in part due to increased FCS costs.

The Future Combat Systems Program. As described in the President's budget for fiscal year 2007, the schedule for the Army's FCS program is slightly slower than that included in the previous budget. It includes a longer development phase, a two-year delay in the initial procurement of FCS components, and a lower annual rate of procurement. Beginning in 2015, the Army's plans call for annual purchases of equipment for 1.5 brigades' worth of equipment per year at a yearly cost of $8 billion to $10 billion, accounting for 90 percent or more of funds devoted to ground combat vehicles included in CBO's projection. On the basis of plans provided by the

38. CBO's projection of the Army's investment beyond 2011 includes funds to procure missile defense systems such as the Patriot PAC-3, the Medium Extended Air Defense System, the Theater High Altitude Area Defense, and interceptors for a boost-phase missile defense. Most of the 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.

Army and included in the 2007 President's budget, total resources associated with the FCS through 2024 could approach $136 billion.

The various delays experienced by the FCS program will result in a slight increase in the average age of the ground combat equipment that the Army will need to retain in its inventory until 2024. In its updated projection, CBO estimates that the Army will have purchased only 17 combat brigades' worth of FCS components by 2024—nine fewer than in CBO's October 2005 projection.[39] Partly as a result of the changes included in the President's 2007 budget, CBO projects that, by 2024, the average age of the Army's ground combat equipment will exceed 26 years.

Aviation Programs. Plans for the Army's aviation programs have not changed significantly in the past year. Those programs—which CBO estimates could require a total of $61 billion between 2007 and 2024—include the purchase of almost 370 new reconnaissance helicopters to replace the Army's Kiowa Warriors and more than 300 new light utility helicopters to replace the soon to be retired UH-1H Hueys. In addition, tentative plans include initiating a new joint heavy lift aircraft program. CBO's updated projection incorporates those changes, as well as an expanded program to upgrade and extend the service life of Apaches and enable them to continue operating past 2024.

Missile Defenses. Finally, CBO's projection assumes the Army will make a significant investment after 2011 to purchase equipment to defend against ballistic missiles. Those funds—averaging slightly less than $2 billion per year from 2007 to 2024—would be used to purchase various systems to defend against tactical ballistic missiles including the Terminal High Altitude Area Defense (THAAD) system, the Patriot Advanced Capability-3 (PAC-3) system, and the Medium Extended Air Defense System (MEADS). (Details of CBO's projection for missile defenses are provided in a separate section of this paper.)

39. The Army's official plans currently include the purchase of 15 brigade-sets of FCS equipment. Because that amount would be insufficient to equip all of the Army's planned heavy brigades and would purchase no equipment for the Army's prepositioned equipment sets, CBO's projection assumes that purchases of FCS equipment would continue after the first 15 brigade sets are procured.

Navy and Marine Corps Investment

Under the DoD's current plans, investment resources for the Department of the Navy (which includes the Marine Corps) would rise from $49 billion in 2007 to a peak of about $66 billion in 2013 and then decline to $35 billion by 2024, CBO projects. Between 2012 and 2024, Navy investment would average $49 billion a year. If program costs grew as they have in the past, however, the department's investment spending could peak at $75 billion in 2013 and then fall back to about $39 billion by 2024—averaging $55 billion a year over the 2012–2024 period (see Figure 9).

Ships. Projections of the Navy's resource demands are driven largely by the procurement of battle force ships. CBO based its assumptions about ship procurement on the Navy's new plan for building a fleet of 313 ships, compared with about 280 today.[40] Based on the profile provided in the Navy's 2006 shipbuilding plan, CBO estimates that the Navy would need to spend $16 billion a year between 2007 and 2024 to increase its fleet to about 313 ships, or $19 billion a year through 2024 if historical trends in cost growth continued.

Surface Combatants. The planned increase in the Navy's fleet is reflected primarily in the surface combatant force as a result of the Navy's plans to purchase large numbers of littoral combat ships (LCSs). Today the surface combatant force comprises 101 cruisers, destroyers, and frigates. By 2024, under CBO's projection of current plans, it would consist of 149 ships—including 55 LCSs—with a steady-state size of 143.[41]

The Navy's plans for the surface combatant force have changed markedly since the spring of 2005, when the Navy's shipbuilding plan envisioned fleets of 260 to 325 ships. At that time, the Navy planned to buy eight to 12 DDG-1000 Zumwalt class destroyers—formerly DD(X)s—and 15 to 18 CG(X) cruisers, but those plans have been modified; the service now intends to purchase seven DDG-1000s and 19 CG(X)s, respectively. The number of LCSs planned for procurement has decreased from between 63 and 82 under the old Navy plan to 55

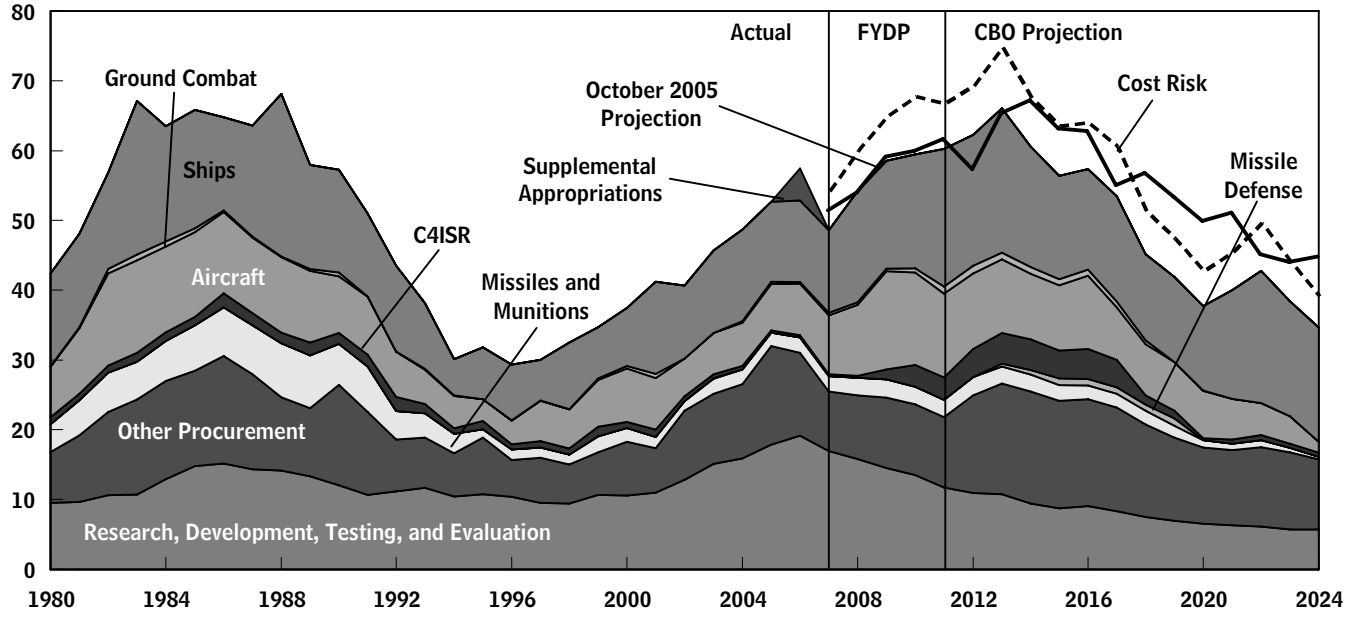
40. Department of the Navy, *A Report to Congress on Annual Long-Range Plans for the Construction of Naval Vessels, Fiscal Year 2007* (February 2006).

41. The size of the steady-state fleet equals the sum of the average annual purchases of all types of ships in that fleet multiplied by their expected lifetimes.

Figure 9.

Past and Projected Resources for Navy and Marine Corps Investment

(Billions of 2007 dollars)



Source: Congressional Budget Office.

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

under the 2006 shipbuilding program. In total, the Navy's current procurement plan for surface combatants would cost an average of $5.9 billion a year between 2007 and 2024, CBO estimates—or $8 billion annually, if historical cost risk is considered.

Submarines. By contrast with the Navy's plans for the surface combatant force, the 2006 shipbuilding plan envisioned reducing the attack submarine force to an inventory of 48 boats. (That number represents an increase from the Navy's 2005 interim report on shipbuilding, which called for 37 to 41 attack submarines.) The Navy's current plan also indicates that the fleet would continue through 2024 to deploy 14 ballistic missile submarines (SSBNs) and four guided missile submarines (SSGNs). Beyond 2024, the Navy's 2006 shipbuilding plan does not anticipate replacing the SSGNs when they are retired in the mid-2020s but would continue to maintain a force of 14 SSBNs. That requires ordering the first ship in 2022 and one per year thereafter until 2033.

In the short term, the Navy's key goal is to reduce the price of new Virginia class submarines to $2.1 billion in 2007 dollars and increase the procurement rate to two boats per year starting in 2012. CBO projects that the Navy's current plans for sustaining the attack, guided missile, and ballistic missile submarine forces will cost, on average, more than $4.6 billion per year over the next two decades, or as much as $5.2 billion annually, including cost risk.

Amphibious and Maritime Prepositioning Ships. The Navy's amphibious lift ships are organized into expeditionary strike groups (ESGs), each comprising one amphibious assault ship or helicopter carrier (LHA or LHD), one amphibious transport dock (LPD), and one dock landing ship (LSD), together with some surface combatants and an attack submarine. The Navy's 2006 shipbuilding plan envisions reducing the number of ESGs from the 11 existing today to nine by 2020 (or one more than the eight envisioned in the Navy's 2005 interim report on shipbuilding). To support that force goal, two new LHA-6 class amphibious assault ships would be purchased under the current plan. (However, the Navy's 2007 budget submission implies that the second LHA-6 will be larger and more capable than the first.) The plan

would buy nine LPD-17s and 12 replacements for existing LSD-41 and LSD-49, six of which would be purchased by 2024.

In addition to the ESGs, the Navy's 2006 shipbuilding plan would include the purchase of 11 new maritime prepositioning ships—MPF(F)s—to forward deploy the equipment of one Marine expeditionary brigade. The Navy plans to buy a mix of different ship types to populate the MPF(F) squadron. In addition, three existing ships transferred from the amphibious and existing maritime prepositioning forces would also operate with the squadron.

CBO projects that resource demands for new amphibious and maritime prepositioning ships would be $1.7 billion per year, on average, through 2024. If cost risk was included, required resources would average $2.1 billion per year.

Aircraft Carriers. The Navy's 2006 shipbuilding plan projected a future carrier force of 11 large-deck ships, all of which would eventually be nuclear-powered. According to the 2007 FYDP, the Navy expects to order the first of its new class of aircraft carriers, the CVN-21, in 2008. Under the plan to maintain 11 carriers, the Navy would order a new ship every four or five years thereafter in addition to refueling an existing nuclear-powered Nimitz class carrier about every three years. CBO projects that those efforts would require $2.9 billion annually, on average, through 2024, or $3.3 billion with cost risk.

Aircraft. The Department of the Navy's investment in aviation programs includes funding for Navy and Marine Corps aircraft and for aircraft-related weapon systems. As envisioned in the 2007 FYDP, carrying out the Navy's current plans for modernizing the Navy's and Marine Corps's aircraft forces would cost, on average, somewhat less than $9 billion per year between 2007 and 2024, or about $10 billion per year with cost risk factored in, according to CBO's projections. Average annual spending would be considerably higher, about $11 billion per year, for the years 2008 through 2016 because of simultaneous purchases of several types of fixed- and rotary-wing aircraft. In 2009, the year of highest expected spending, the Navy would purchase 257 aircraft including 74 fixed wing fighters, 115 rotary-wing and tilt-rotor aircraft, and 48 trainers. The completion of production for several of those aircraft results in lower average expenditures, less than $6 billion per year from 2017 through the end of CBO's projection. CBO's current projection of aircraft spending by the Department of the Navy is about seven percent higher than its 2005 projection. Most of that increase resulted from cost growth experienced by the F-35 Joint Strike Fighter program and from a better definition of plans for replacing the Marine Corps's CH-53E heavy-lift helicopter.

Fighter Aircraft. The Navy's plans for fighter aircraft include the purchase of 116 more F/A-18E/F aircraft, 90 EA-18G electronic warfare aircraft (to replace the EA-6B), and 680 F-35 Joint Strike Fighters in two variants: the F-35B short takeoff/vertical landing (STOVL) variant for the Marine Corps and the F-35C carrier variant for the Navy.[42] In addition, the Navy is pursuing an unmanned combat air vehicle (UCAV-N) for carrier-based strike or defense-suppression operations, and CBO assumed that 90 of those vehicles would be purchased by 2024.

Other Fixed-Wing Aircraft. In addition to fighters, the Navy plans to procure several other types of carrier- and land-based fixed-wing aircraft:

- A new version of the carrier-based E-2 Hawkeye airborne early warning aircraft;
- A new land-based patrol aircraft, the Multi-Mission Maritime Aircraft, or MMA (the MMA is based on a Boeing 737 airframe and will replace the P-3C Orion); and
- An unmanned Broad-Area Maritime Surveillance aircraft that is currently envisioned to fill a role similar to the Air Force's Global Hawk.

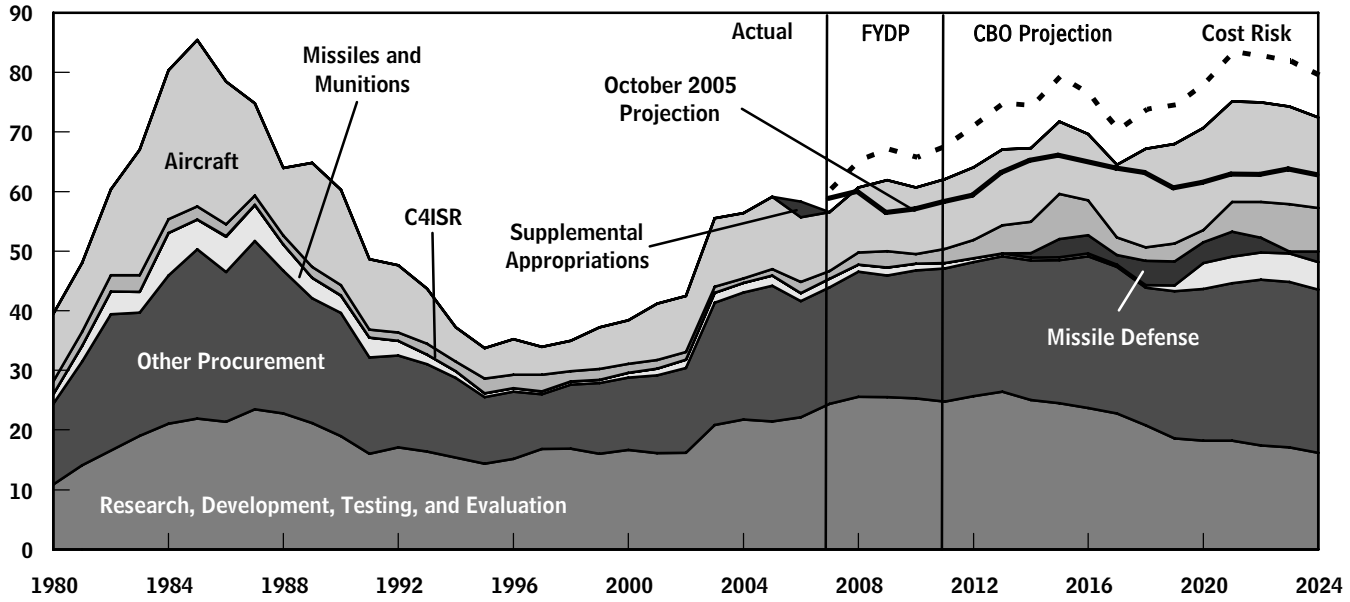
Marine Corps Rotary-Wing and Tilt-Rotor Aircraft. The 2007 FYDP calls for replacing or upgrading nearly every component of the Marine Corps's tilt-rotor and rotary-

42. The October 2001 Milestone B procurement baseline for the Department of the Navy reflected 609 STOVL aircraft for the Marine Corps and 480 CV (carrier) aircraft for the Navy—a total of 1,089 aircraft. The Navy/Marine Corps Tactical Aviation Integration Plan reduced that total to 680 aircraft. The resulting mix of STOVL and CV variants remains undetermined.

Figure 10.

Past and Projected Resources for Air Force Investment

(Billions of 2007 dollars)



Source: Congressional Budget Office.

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

wing forces. The MV-22 Osprey tilt-rotor aircraft is slated to replace the current fleet of CH-46E medium-lift helicopters. For its heavy-lift transport mission, the Marine Corps is finalizing plans to replace its fleet of CH-53E helicopters with an upgraded version currently called the CH-53K. Current plans also include the modernization of the fleets of UH-1N light utility helicopters and AH-1W attack helicopters with remanufactured aircraft.

Ground Combat. The Marine Corps's plans for equipment bought through its procurement account also changed somewhat between the 2006 FYDP and the 2007 FYDP. Plans to purchase high-mobility multipurpose wheeled vehicles between 2007 and 2011 have declined by about 1,700 vehicles. 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.[43] Carrying out that commitment through 2024 would require substantial resources: an average of about $500 million a year, without cost growth—or twice the average amount that this category of procurement has received for the past two decades.

Air Force Investment

Under the Administration's current plans, funding for research, development, testing, and evaluation and for procurement of Air Force systems would rise from roughly $57 billion in 2007 to about $62 billion in 2011. CBO projects that continuing those plans beyond the FYDP period would require average annual investment funding of about $70 billion from 2012 through 2024, a level that is about 16 percent higher than the annual average from 2007 through 2011 (see Figure 10). If the costs of developing and purchasing Air Force systems grew beyond the service's current estimates to the same extent that they have in the past, carrying out the Administration's current plans for that time period would require an additional $7 billion per year between 2012 and 2024.

43. Press reports since the release of the President's 2007 budget, however, have indicated the Marine Corps may reduce the number of expeditionary fighting vehicles substantially in the future. See Christopher J. Castelli, "Marines Plan Huge Production Cut for Expeditionary Fighting Vehicle," *Inside the Navy* (June 12, 2006).

The Administration's 2007 budget request for Air Force investment is about $2 billion lower than the level anticipated in the previous year's FYDP. Much of that decrease is attributable to the Air Force's plan to incrementally fund F-22 procurement and reduce the rate at which those aircraft are procured.[44] By contrast, average investment spending for the later years in the FYDP (2009 through 2011) averages over $4 billion more per year than was estimated in the 2006 FYDP. Factors that contribute to this increase include the following:

- The shift of F-22 production to later years through the use of incremental funding, a reduction in the previously planned production rate, and an overall increase in the number of F-22s to be procured;
- An increase in planned procurement of Predator unmanned aerial vehicles;
- The addition of a Light Cargo Aircraft program; and
- A general increase in planned RDT&E funding.

For 2012 through 2024, CBO's current projections of spending for Air Force investment are higher than its previous projection for every year except 2017. The increased spending anticipated in the final years of the FYDP contributes to the increase. Also contributing are significant changes in plans in areas such as long-range strike systems as well as cost growth in already established programs. (An example of the latter is the DoD's estimate of a nearly $8 billion increase in Air Force procurement funding needed for the F-35 from 2012 through 2024). In CBO's projection, spending would increase steadily over the first four years beyond the FYDP, from about $64 billion in 2012 to just over $72 billion in 2015, excluding cost risk, before dropping back to $65 billion in 2017. The peak in 2015 results from the concurrent procurement of several C4ISR and missile defense systems, most notably Global Positioning System (GPS III) navigation satellites, Space Radar (SR) satellites, and Space Tracking and Surveillance System (STSS, formerly known as SBIRS-Low) satellites. It is likely, however, that the Air Force would have the flexibility to smooth funding during those years by changing the procurement profile of one or more of these programs.[45]

After 2017, CBO's projection of Air Force investment spending again increases steadily to a peak of about $75 billion in 2021 (the high point in the projection) and then decreases moderately over the final three years of the projection. If costs were to grow as they have in the past, the peak in 2021 would be about $84 billion, a level almost equal to the Air Force investment spending seen at the high point of the Reagan buildup in 1985. As with 2015, the rise in spending to the peak at 2021 results from a number of procurement programs, including increases in the following:

- C4ISR spending with the procurement of Transformational Satellite Communications satellites, replacement GPS III and SR satellites, and future airborne C4ISR platforms;[46]
- Missiles and munitions spending with the procurement of replacements for Minuteman III intercontinental ballistic missiles; and
- Aircraft spending with the procurement of a new long-range strike aircraft.

The year 2021 is also the point of greatest difference between CBO's current projection and its projection for fiscal year 2006. The bulk of this difference results from changes in plans for new long-range strike aircraft. Previous Air Force plans called for fielding an interim strike capability, perhaps a medium-range bomber derived from the F-22, around 2018. This interim bomber would have been followed by a new, highly advanced heavy bomber, the procurement of which was beyond CBO's projection window that extended through 2024. The 2006 QDR, however, changed those plans and committed the Air Force to fielding a significantly improved and enlarged long-range strike force by 2025.[47] Meeting this goal will

44. The previous plan would have purchased 29 aircraft in 2007 and 27 aircraft in 2008. The new plan consists of a multiyear procurement, with incremental funding beginning in 2007, which would buy 20 aircraft per year in 2008, 2009, and 2010.

45. The actual development times needed for those systems could change required funding profiles and modify currently planned procurement schedules.

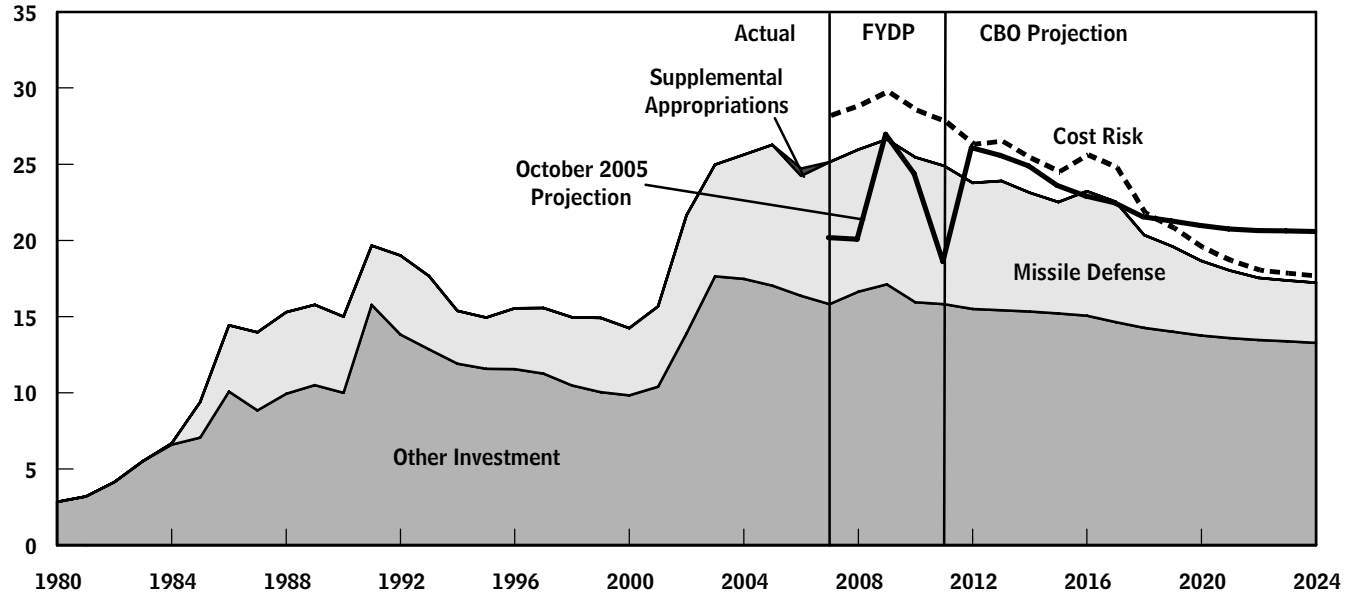
46. CBO modeled this aircraft, which could replace today's E-8 Joint Surveillance and Target Attack System and/or E-3 Airborne Warning and Control System aircraft, after earlier plans for the E-10 aircraft.

47. Rumsfeld and others, *Quadrennial Defense Review Report* (February 2006).

Figure 11.

Past and Projected Resources for Defense Agency Investment, Including Missile Defenses

(Billions of 2007 dollars)



Source: Congressional Budget Office.

Note: FYDP = Future Years Defense Program.

require substantial RDT&E and procurement spending during the projection period. CBO based its projected costs for this aircraft on a notional stealthy subsonic bomber it developed for a previous study and estimated that over 100 such bombers would be needed by the end of the projection to provide the capability described in the QDR.[48]

Defense Agency Investment, Including Missile Defenses

In addition to resources for 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 manage information systems. Excluding development of missile defenses—which is discussed in detail below—investment funding for those agencies averages about $16 billion per year under the 2007 FYDP and about $14 billion per year over the 2012–2024 period under CBO's projection of DoD's current plans (see Figure 11).[49]

Missile Defenses. The President's 2007 budget request and the 2007 FYDP propose funding averaging $10 billion annually for the research, development, testing, and evaluation of missile defense systems and about $500 million annually for procurement of

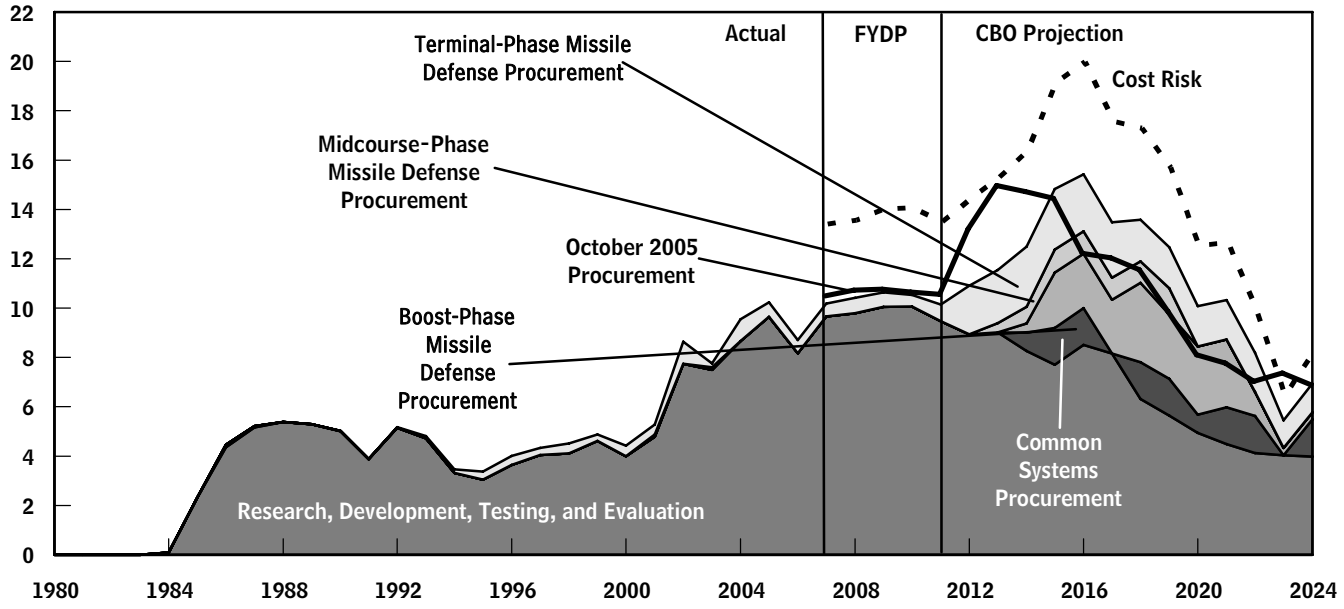
48. See Congressional Budget Office, *Alternatives for Long-Range Ground-Attack Systems* (March 2006), available at www.cbo.gov.

49. The 2006 FYDP contained an accounting credit of about $20 billion in the defense agency accounts over the 2006–2011 period. That credit (what some observers call a negative wedge) is the difference between the costs of the programs set out in the FYDP and the fiscal controls that DoD used for planning. The 2007 FYDP does not contain the same credit, which accounts for the majority of the difference between CBO's October 2005 and current projections for defense agency investment through 2011.

Figure 12.

Past and Projected Resources for Missile Defense Investment

(Billions of 2007 dollars)



Source: Congressional Budget Office.

Note: FYDP = Future Years Defense Program.

terminal-phase defense programs (see Figure 12).[50] CBO based its projection of DoD's current plans for missile defenses on the Administration's policy statements as well as on the more-detailed plans developed by the Missile Defense Agency (MDA) and the services for executing the individual programs for which they are responsible. The Administration has indicated that throughout the period of the FYDP, MDA will focus on researching and developing a broad range of technologies and potential systems. Decisions about which systems should proceed to procurement and operational deployment by one of the services will eventually be made on basis of the results of those efforts. As with existing programs, CBO has included projected procurement costs in the investment budgets of the services that would operate them; in cases where the end service has yet to be designated, CBO has assigned programs to services based on the nature of the program. Thus, Figure 12 displays a combination of MDA and service funding for missile defense programs.

Carrying out current plans would cause total investment costs for missile defenses to peak in 2016 at about $15 billion (excluding cost risk), CBO projects, and then decrease, as systems finished the procurement phase and became operational. This peak occurs about three years later than that projected by CBO in October 2005 because of delays in several major programs, as discussed below. If cost risk is taken into account, DoD's projected investment needs for missile defenses might be about $3 billion higher each year.

Midcourse-Phase Defenses. The Ground-Based Midcourse Defense (GMD) system comprises ground-based interceptors, sensors and fire-control systems designed to intercept and destroy ballistic missiles during their midcourse phase of flight. In December 2005, MDA fielded the GMD Initial Defense Capability (IDC) with eight interceptors at Fort Greely, Alaska, and two at Vandenberg

50. Ballistic missile defense programs are categorized by the portion of the incoming missile's trajectory that they target. Boost-phase defenses attempt to destroy hostile missiles before their warheads separate from their booster rockets. Midcourse-phase defenses attempt to destroy warheads after they separate from their boosters but before they reenter the Earth's atmosphere. Terminal-phase defenses attempt to destroy warheads after they have reentered the Earth's atmosphere and are relatively close to their intended targets.

Air Force Base in California.[51] In addition, the IDC includes land-based radar, radar on Navy Aegis cruisers and destroyers, and a large sea-based radar (SBX). The SBX was delivered from its shipyard in Texas to Hawaii in January 2006 and will eventually be based off the coast of Alaska. CBO's projection of DoD's current plans incorporates the assumption that the IDC will subsequently be expanded to include additional land-based radar as well as a third site for interceptor missiles that will not necessarily be located in the United States. Deployment of that expanded GMD system would be completed in about 2013, with procurement of spare interceptors to continue through 2017, at a total cost of roughly $18 billion over the 2007–2017 period, CBO estimates. Current administration plans call for MDA to pay for deployment of the GMD system with RDT&E funds; CBO has followed this categorization, so that GMD costs are included in the RDT&E portion of Figure 12.

Procurement by the Navy of SM-3 Block II missiles for the Aegis Sea-Based Ballistic Missile Defense (BMD) is included in the Midcourse Missile Defense category in Figure 12. Aegis BMD combines the ability of the SPY-1 radar and associated fire control system to detect and track ballistic missiles of all ranges with the ability of the Standard Missile (SM) to engage missiles from short-range through intermediate-range in their midcourse phase of flight. Current DoD plans include the development of a new, larger version of the SM, designated as SM-3 Block II, to increase the effectiveness of the system against more difficult threats, including long-range ballistic missiles. MDA, in cooperation with Japan, is supporting the development of the SM-3 Block II with MDA RDT&E funds. CBO has assumed the Navy will procure this new version of the SM-3 missile at a level sufficient to perform BMD from 25 percent of the available vertical launch system tubes on Aegis-equipped ships. CBO projects procurement of these missiles by the Navy would begin in 2013, and reach $1 billion per year over the period spanning 2015 to 2019.

51. The GMD IDC originally called for 16 interceptors at Fort Greeley. On the recommendation of the Mission Readiness Task Force, commissioned in light of recent GMD test failures, four of those interceptors will be used for ground testing purposes. According to the Ballistic Missile Defense System December 31st, 2005 SAR, delivery of four interceptors was delayed because of production quality issues.

Under CBO's projection of DoD's current plans, the Defense Department would also develop and deploy in low earth orbit a constellation of space-based infrared sensor satellites. Those satellites would have the capability to detect and track missiles and their warheads from shortly after their launch to their reentry into the atmosphere and to relay those tracking data to interceptors in flight, enabling them to identify and hit the warheads. MDA calls that constellation the Space Tracking and Surveillance System and currently plans to launch two so-called proof-of-concept satellites in 2007. Although DoD's earlier plans envisioned a constellation comprising 24 to 27 satellites, its current plans call for launching five satellites in the initial constellation, with more satellites potentially being added through spiral development. Under CBO's projection of DoD's current plans, MDA would begin to field a five-satellite constellation in 2014, with a second spiral beginning in 2017 that would increase the constellation to a total of nine satellites. CBO estimates a total procurement cost (including launch costs) for the two spirals of about $7 billion. Assuming a six-year lifetime, replacement of the original satellites would start in 2020.

Boost-Phase Defenses. MDA is currently developing a boost-phase, kinetic-energy interceptor (KEI) system to destroy hostile missiles. A flight test of the booster for the ground-based version of the KEI system is planned for 2008, with subsequent development aimed at intercept tests in about 2012 and initial deployment in about 2014. MDA is also conducting studies to select a platform for development of a sea-based version.

In addition to the KEI program, MDA is pursuing the Airborne Laser (ABL), which will consist of a high-energy chemical laser carried on a modified Boeing 747-400 aircraft. In 2004, MDA procured one aircraft that is currently being used for integration tests with the laser and targeting system in preparation for a "shoot-down" test scheduled for 2009. In a "knowledge-based" strategy, MDA has delayed plans for procurement of a second ABL aircraft, contingent on the outcome of the 2009 test. CBO assumed that the second aircraft would be procured in 2012 and, consistent with previous plans formulated by both MDA and the Air Force, the Air Force would procure an additional seven operational aircraft starting in 2015.

According to Congressional testimony by Lt. Gen. Henry Obering, Director of MDA, the KEI program began as an alternative to the ABL for boost-phase defense based

on a recommendation by the Defense Science Board.[52] In some public statements, MDA officials have indicated that, depending on the progress in development, eventually only one of the programs may be pursued.[53] However, MDA's vision for KEI has grown from a boost-phase alternative to a potential next-generation replacement for midcourse or terminal interceptors, and current MDA budget documents describe KEI as a "complement" to the ABL. For the purposes of this projection, CBO has assumed that both ABL and KEI will be fully developed and fielded; actual costs could be reduced if MDA should decide to terminate one of the programs.

MDA has established a Space Test Bed to conduct research to support potential deployment of boost-phase intercept defenses in space. In the 2007 FYDP, MDA has planned to spend around $500 million starting in 2008 for this research. CBO's projection of DoD's current plans incorporates the assumption that an operational space-based interceptor system will be developed and would be available in about 2017.[54]

Terminal-Phase Defenses. CBO's projection of investment in missile defenses also includes funding for systems that are designed to hit incoming warheads during the terminal phase of their flight. Such systems include the PAC-3 short-range missile defense system, MEADS, and the THAAD system. All are mobile ground-based systems. The PAC-3, already in operation by the Army, will eventually be replaced by MEADS, which is an international joint venture with Italy and Germany. The THAAD system is still being developed by MDA; however, CBO's projections incorporate the assumption that as the THAAD system's operational deployment proceeds beyond 2011, its funding will move from MDA to the Army. According to CBO's projection of DoD's current plans, annual funding for terminal defense systems averages about $2 billion a year through 2024.

52. Statement of Lt. Gen. Henry Obering, Director, Missile Defense Agency, before the Strategic Forces Subcommittee of the House Armed Services Committee, March 9, 2006.

53. See, for example, Jeremy Singer, "MDA Officials Map Out Test Milestones for Airborne Laser," *Space News* (March 13, 2006), p. 12.

54. CBO's estimates of costs for an initial KEI system and a space-based boost-phase intercept system are based on the analysis in Congressional Budget Office, *Alternatives for Boost-Phase Missile Defense* (July 2004).