

**The Long-Term Implications of Current Defense Plans:  
Detailed Update for Fiscal Year 2008 (March 2008)**

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## **The Long-Term Implications of Current Defense Plans:**

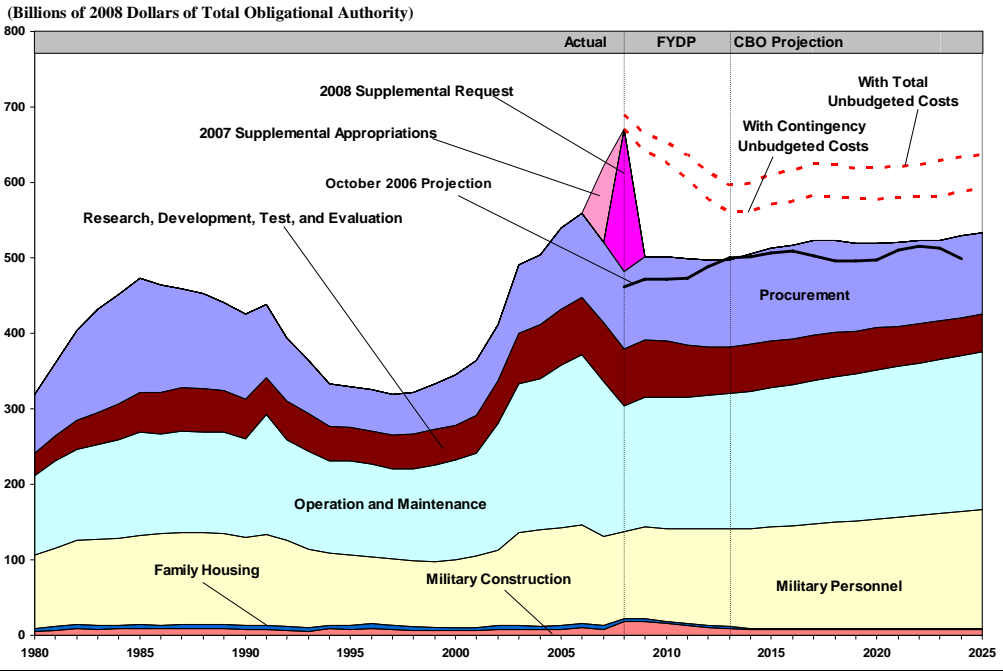
Detailed Update for Fiscal Year 2008

All Funding in Billions of 2008 Dollars

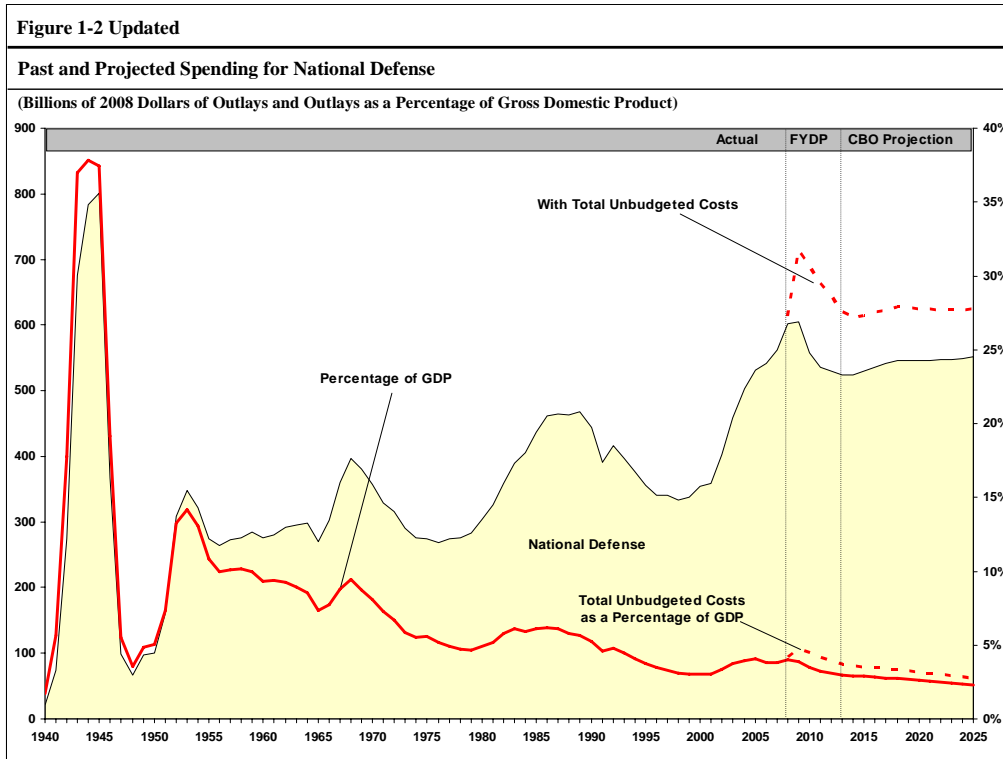
- This presentation updates the analysis of current defense plans contained in the Congressional Budget Office's (CBO's) April 2007 Web document *The Long-Term Implications of Current Defense Plans: Detailed Update for Fiscal Year 2007* to account for changes incorporated in the President's budget for fiscal year 2008 and in the 2008 Future Years Defense Program (FYDP). The presentation provides additional data not found in CBO's December 2007 publication *The Long-Term Implications of Current Defense Plans: Summary Update for Fiscal Year 2008*. Both of those documents respond to standing requests from the Senate Budget Committee.
- This presentation does not incorporate changes to the FYDP resulting from Congressional action on the President's 2008 budget request.
- Charts in this detailed update use the concepts "steady state" and "half-life" for the Department of Defense's (DoD's) investment plans and weapon systems. Those concepts and how CBO estimates their values are explained more fully in Appendix A at the end of the presentation.
- The updated displays in this presentation differ in some instances from those in previous presentations. In some cases, CBO has altered the display format to include additional historical data; in other cases, it has revised its historical database of procurement quantities and funding, as well as its projections of the inventories of weapon systems that the military services plan to sustain. CBO also, in some instances, departs from previous presentations by using different color schemes for the displays.
- All budgetary projections in this presentation are in billions of 2008 dollars of total obligational authority, and all years are federal fiscal years. Numbers in the text may not sum to totals because of rounding. See Appendix B at the end of the presentation for an explanation of selected acronyms and abbreviations.
- The text accompanying the charts composing this Web document assumes that the reader is familiar with DoD programs and their content.

**Figure 1-1 Updated**

**Past and Projected Funding for Defense**



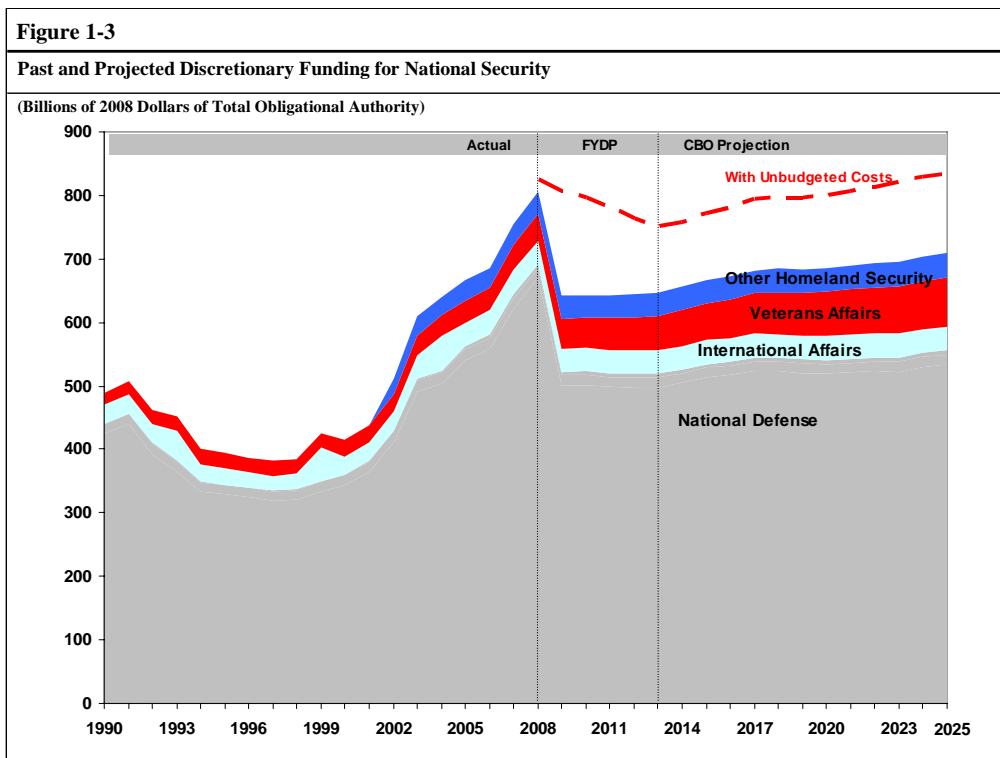
- This chart shows total obligational authority (TOA) for the Department of Defense for the 1980–2025 period. TOA for defense grew rapidly between the early and mid-1980s, reaching a peak of \$473 billion in 1985 (all funds are in 2008 dollars). TOA then generally declined during the late 1980s and into the 1990s, reaching a low point of about \$319 billion in 1997. DoD’s TOA began to rise thereafter, reaching \$364 billion by 2001. It has grown even more rapidly in recent years as U.S. forces have become engaged in operations in Afghanistan and Iraq. In 2007, DoD’s TOA reached \$622 billion, including \$170 billion to fund those operations.
- The President requested \$482 billion for DoD in 2008. The President’s budget anticipated \$188 billion in additional emergency and supplemental funding, of which \$87 billion has been provided by the Congress. The 2008 FYDP included none of that anticipated emergency and supplemental funding.
- The 2008 FYDP—on which CBO based the projections shown in this briefing—anticipated that defense resources (excluding supplemental appropriations) would rise from \$482 billion for 2008 to \$497 billion for 2013.
- If the program in the 2008 FYDP was carried out as currently envisioned, the demand for defense resources, excluding funding for contingencies, would average \$521 billion a year between 2014 and 2025, CBO projects—or about 8 percent more than the 2008 request excluding emergency supplemental funding.
- CBO also made projections of potential unbudgeted costs (shown by the dashed red lines in the figure). CBO projects that resource demands including unbudgeted costs will average about \$146 billion a year through 2013 and about \$100 billion annually between 2014 and 2025. Those values are about 29 percent and 19 percent higher, respectively, than the amounts excluding those unbudgeted costs. Assumptions underlying the projections for unbudgeted costs include the following:
  - Costs for weapons programs grow as they have since the Vietnam War; and
  - The United States continues to conduct military operations overseas as part of the global war on terrorism (represented as “With Contingency Unbudgeted Costs” in the figure), albeit with levels of deployed personnel declining by 2014 to about 35 percent of current deployments.



This chart displays historical and projected spending for DoD as well as for the other activities composing budget function 050, which contains funding for all of the government's activities related to national security. (CBO projects spending for national security activities funded outside DoD as a constant level of effort relative to spending for those activities in 2008.)

Spending for national security reached peaks during the Korean and Vietnam wars, as well as during the so-called 'Reagan Build-Up' of the early 1980s. Spending for national security, including for operations in Iraq and Afghanistan, is currently about three-quarters of the peak in annual spending that occurred during World War II.

Measured as a share of Gross Domestic Product (GDP), however, spending for national security has declined relatively steadily since the Korean War and, under CBO's projection, would continue to decline, reaching 2 percent to 3 percent of GDP by 2025.



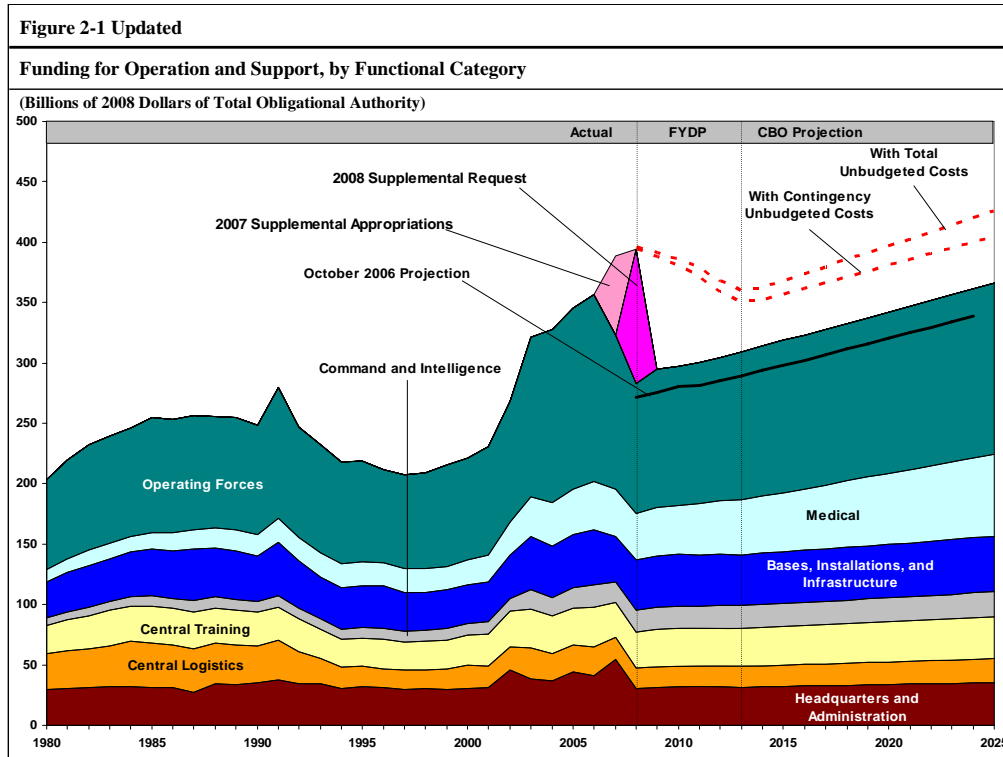
- This chart displays historical and projected discretionary funding for what some observers have characterized as the government activities composing National Security. Those activities are funded in budget functions 050 (National Defense), 150 (International Affairs), 700 (Veterans Affairs), and the set of accounts defined by the Office of Management and Budget (OMB) as composing Homeland Security programs and activities. (The category labeled “Other Homeland Security” in the chart includes the portion of homeland security funding outside budget functions 050, 150, and 700.) CBO’s projection for National Security discretionary funding averages \$673 billion annually during the period spanning 2009 to 2025.

- CBO projects funding for National Defense as described in the text accompanying Figure 1-2; it composes 80 percent of National Security funding during the period spanning 2009 to 2025.

- Discretionary funding for International Affairs and for Homeland Security outside budget functions 050, 150, and 700 is projected to grow at the rate of inflation and is therefore constant in 2008 dollars. Respectively, those two areas compose 6 percent and 5 percent of CBO’s projection for discretionary National Security funding during the 2009 to 2025 period.

- In projecting discretionary funding for veterans health care, CBO used the estimates for enrollment, reliance, and relative costs of care of enrollees by priority group developed by the Department of Veterans Affairs for its 2007 Enrollee Health Care Projection Model, released in February 2008. To estimate real growth (above regular inflation) in per capita spending by VA, CBO used projections of national health expenditures on hospital care and physicians’ and clinical services made by the Office of the Actuary, Centers for Medicare and Medicaid Services (CMS), Department of Health and Human Services. After 2016, CBO assumed that real annual growth would slow gradually, eventually reaching a rate that is 1 percentage point higher than growth of per capita GDP in 2031. CBO projects discretionary funding for VA’s activities other than health care to grow at the rate of inflation. Funding for VA composes 9 percent of CBO’s projection for discretionary National Security funding through 2025.

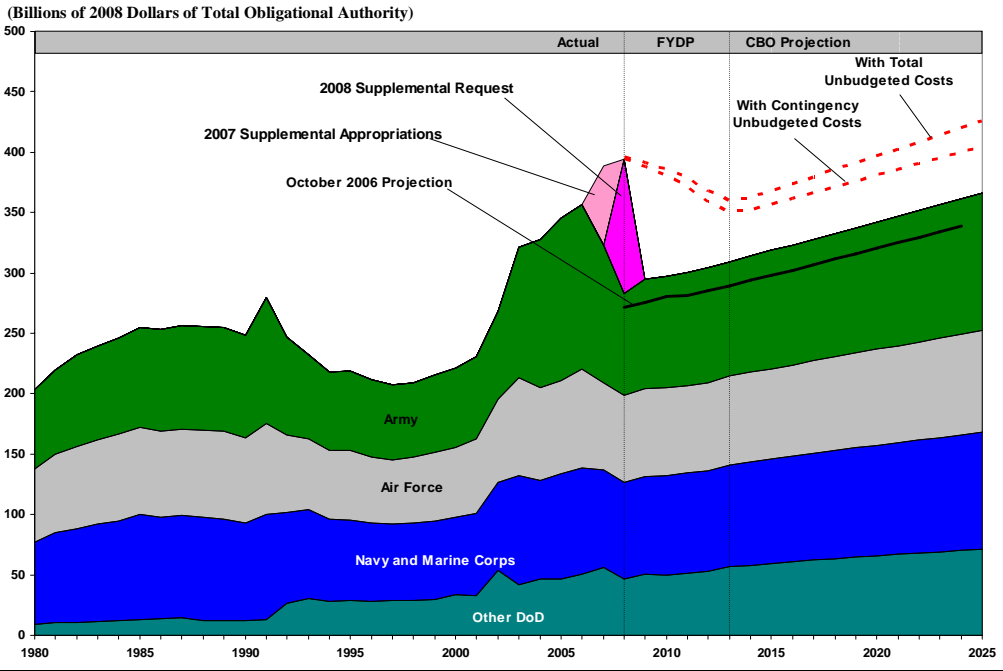
- CBO’s projection of National Security funding with unbudgeted costs includes the unbudgeted costs for the Department of Defense (budget subfunction 051) described in the text accompanying Figure 1-1. To project potential unbudgeted costs for VA health care, CBO assumes that beginning in 2009 annual growth in per capita medical expenditures is 30 percent higher than anticipated by CMS, consistent with the methodology CBO used to project unbudgeted costs for DoD health care and with the projections for VA health care funding contained in “Potential Growth Paths for Medical Spending by the Department of Veterans Affairs”, CBO, July 2006. No unbudgeted costs for National Security activities other than the two just described are contained in CBO’s projection. With potential unbudgeted costs, CBO’s projection of discretionary funding for National Security would increase by 18 percent, averaging \$793 billion during the period spanning 2009 to 2025.



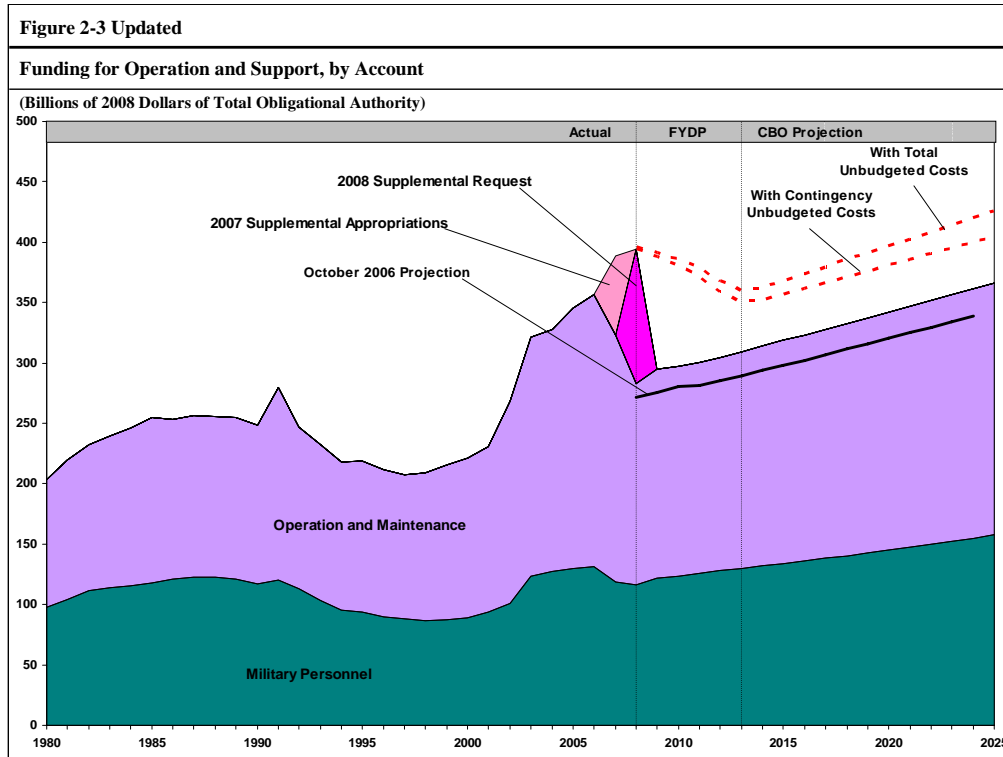
- This chart shows funding for operation and support (O&S), which accounts for about 60 percent of defense funding and pays for DoD's day-to-day operations as well as for military and civilian payrolls. CBO created subcategories of O&S funding based on the force and infrastructure codes used within DoD. O&S funding will reach \$366 billion in 2025 not including potential unbudgeted costs, CBO projects.
- Most of the projected growth in O&S funding results from the growing cost of medical benefits for military personnel and from rising wages for both military and civilian personnel.
- As the dashed red lines in the figure show, growth in the demand for O&S resources could be greater than DoD anticipates. CBO estimates that with unbudgeted costs, the O&S budget might reach \$426 billion in 2025. The largest potential unbudgeted costs are the following:
  - Continued involvement in contingency operations associated with the war on terrorism, such as those in Afghanistan, Iraq, and elsewhere (those unbudgeted costs decrease to about \$38 billion in 2025 under the assumption that U.S. forces comprising about 75,000 personnel continue to be deployed overseas as part of the war on terrorism); and
  - Faster-than-expected growth in DoD's health care costs (\$12 billion of unbudgeted costs in 2025).
- Increases in military and civilian pay account for all of CBO's projected funding growth in every subcategory except "Operating Forces" (see Figure 2-4) and "Medical" (see Figure 2-5). CBO projects that those pay levels will grow at the same rate as the employment cost index (ECI), a measure of the average pay level in the U.S. civilian economy.
- In comparison with last year's FYDP (covering 2007 to 2011), the 2008 FYDP shows an average increase in total O&S funding of 6 percent. That increase is largely the result of planned growth in the number of Army and Marine Corps personnel. For the 2007-2013 period, the 2008 FYDP shows a cumulative end-strength increase of 65,000 active-duty Army personnel and nearly 28,000 active-duty Marine Corps personnel.

Figure 2-2 Updated

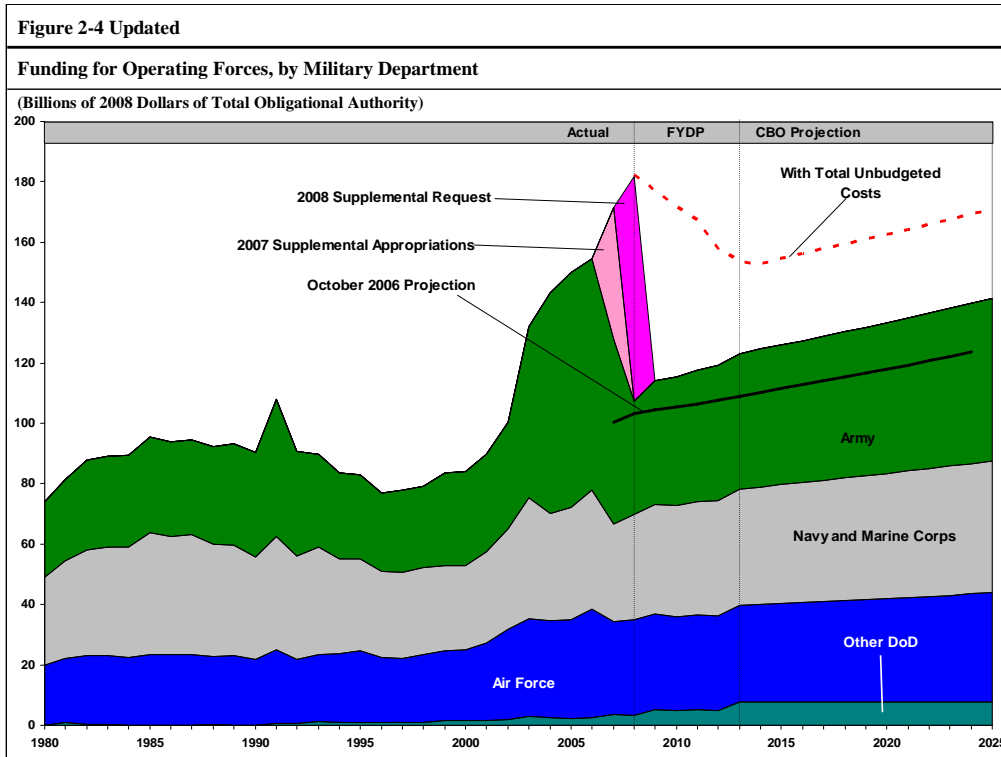
Funding for Operation and Support, by Military Department



- Under DoD’s plans, between 2008 and 2013 the Departments of the Army, Navy, and Air Force will receive approximately 31, 28, and 24 percent of the O&S budget, respectively. Defense-wide activities (labeled “Other DoD” in the figure), including the Defense Health Program, make up the rest of the O&S budget.
- CBO projects that for every military department, average annual O&S funding will grow at a real (inflation-adjusted) rate of between 1.2 percent and 1.9 percent from 2013 to 2025.
- The Army has received the largest portion (about 60 percent in 2008) of supplemental contingency funding for current operations.



- CBO projects that funding for military personnel will increase from \$130 billion in 2013 to \$158 billion in 2025, an average annual growth rate of 1.6 percent. That growth is attributable to two factors:
  - CBO's assumption that military pay raises will keep pace with the ECI (which has historically grown faster than inflation); and
  - CBO's assumption, which is consistent with that of DoD's actuaries, that medical accrual costs will steadily increase at a nominal annual rate of 6.25 percent. Those accrual costs are intended to reflect the future liability arising from the government's obligation to provide medical care for current service members (and their dependants) after they retire from the military and reach age 65.
- In CBO's projection, operation and maintenance (O&M) funding will increase from \$180 billion in 2013 to \$209 billion in 2025, an average annual growth rate of 1.3 percent. Most of that growth comes from the following sources:
  - The assumption that DoD civilian employee pay raises, like military pay raises, will also keep pace with the ECI; and
  - Rising medical costs associated with the Defense Health Program, which provides medical care to active-duty military personnel and their dependants. The Defense Health Program is not funded on an accrual basis.
- About 84 percent of emergency and supplemental funding for O&S is allocated to O&M in 2008; about 16 percent is allocated to paying for military personnel, including special pays and compensation for activating reserve component personnel.

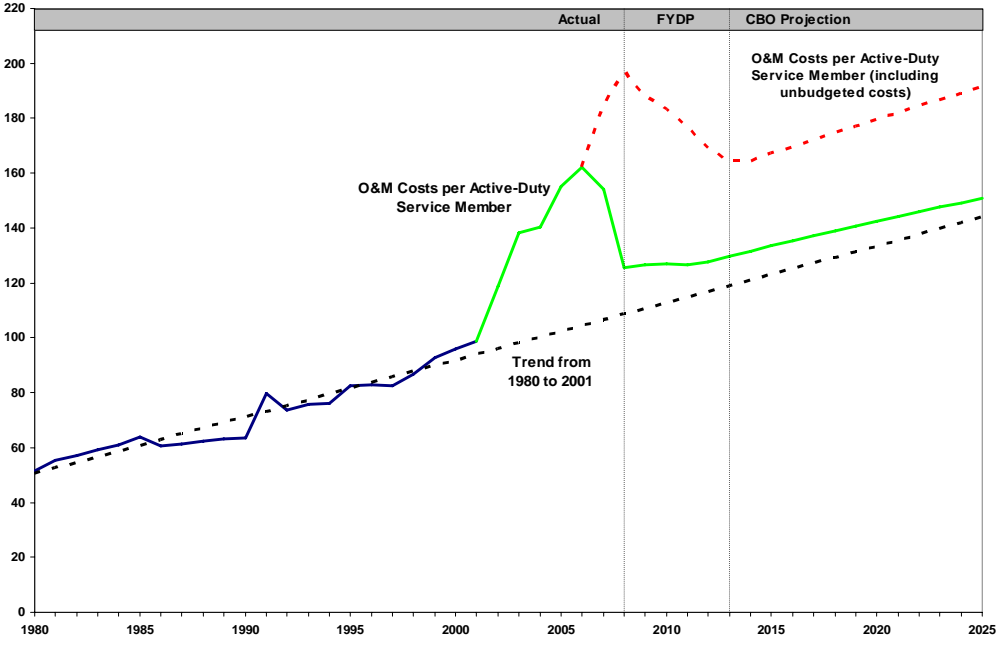


- The O&S subcategory “Operating Forces” pays for military and support units assigned to Combatant Commands.
- CBO projects that the Operating Forces category will experience \$6 billion of funding growth between 2013 and 2025, in addition to pay increases. That extra growth is attributable to the following sources:
  - Continuing long-term trends of rising O&M costs per active-duty service member in the Army and Marine Corps ground forces (see Figure 2-4a);
  - Increased O&M costs for aging weapon systems; and
  - New weapon systems that are more complex and have higher O&M costs than the systems they replace.
- In comparison with the 2007 FYDP, the 2008 FYDP shows an average increase in total Operating Forces funding of about 9 percent over the period spanning 2008 to 2013. That increase is largely the result of planned growth in the number of Army and Marine Corps personnel.
- Historically, the Operating Forces category has received about two-thirds of all O&S supplemental contingency funding appropriated by the Congress. Therefore, in its projection, CBO has allocated about two-thirds of unbudgeted contingency costs for O&S to that category.

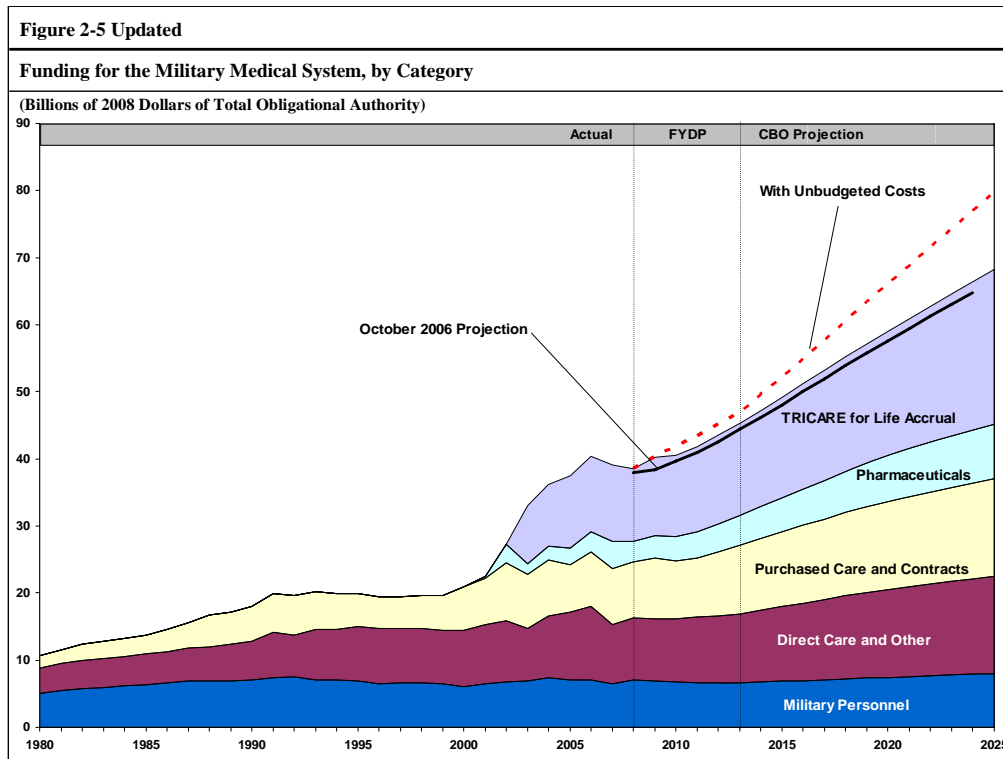
Figure 2-4a

Trends in Operation and Maintenance Funding per Active Duty Service Member

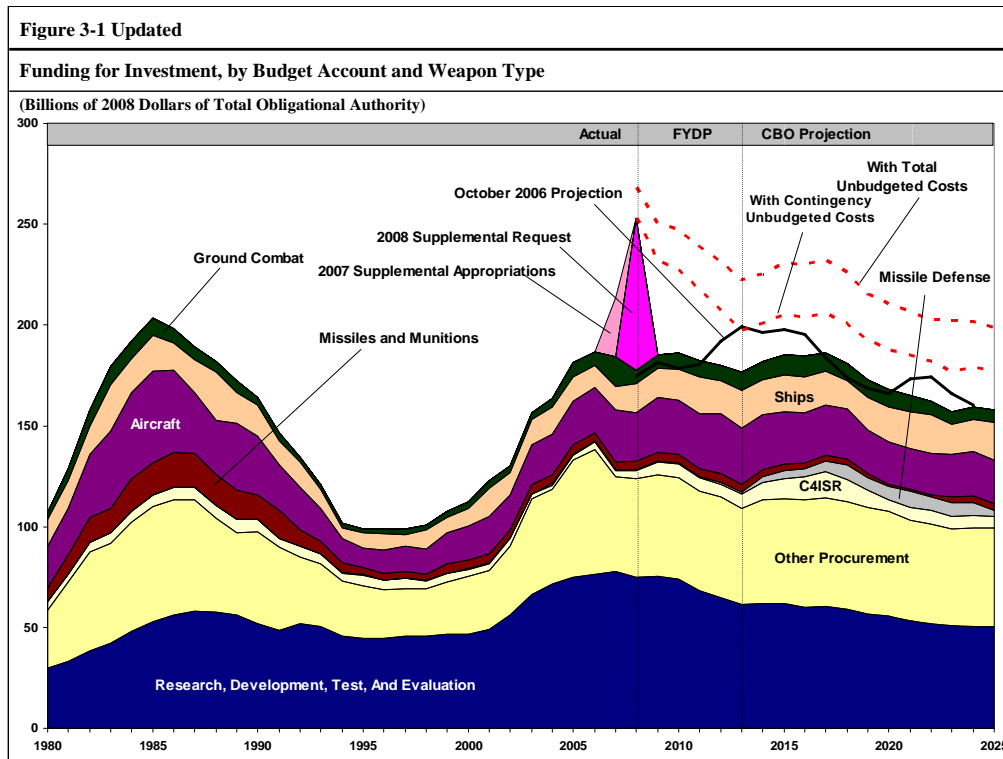
(Thousands of 2008 Dollars of Total Obligational Authority)



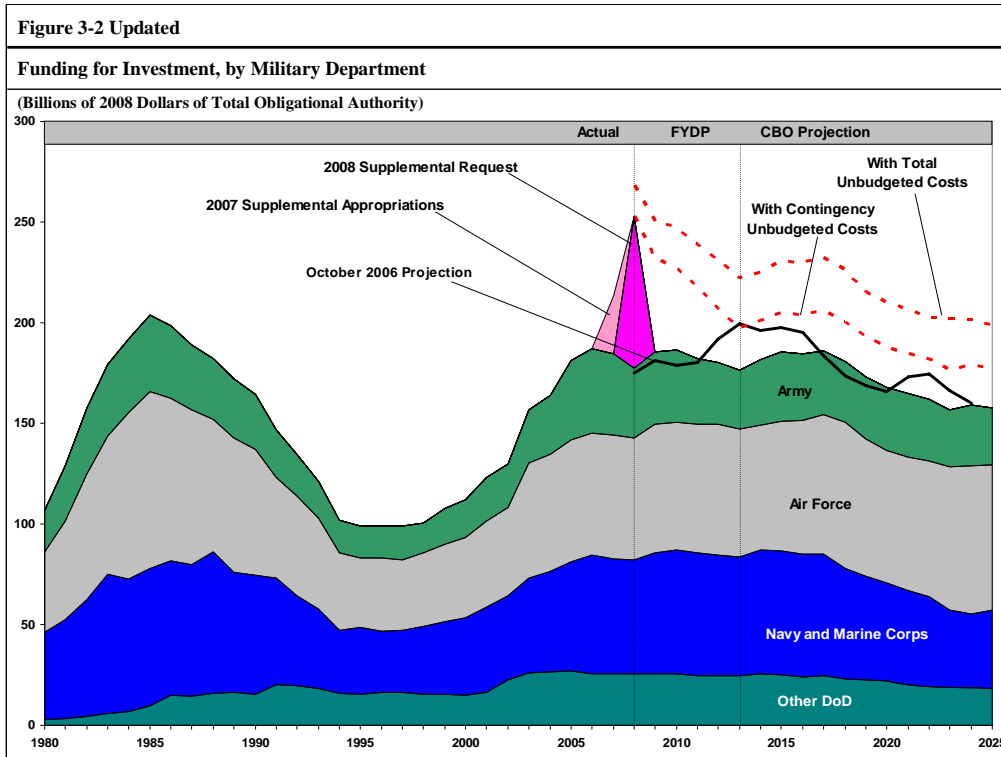
- From 1980 to 2001, operation and maintenance costs grew steadily by an average of about \$2,000 per active-duty service member per year. Excluding potential unbudgeted costs, CBO projects a similar rate of O&M cost growth in the future.
- Since 2001, O&M costs per service member have grown more rapidly because of funding for operations in Iraq and Afghanistan. The FYDP and CBO's projection exclude future funding for those operations.



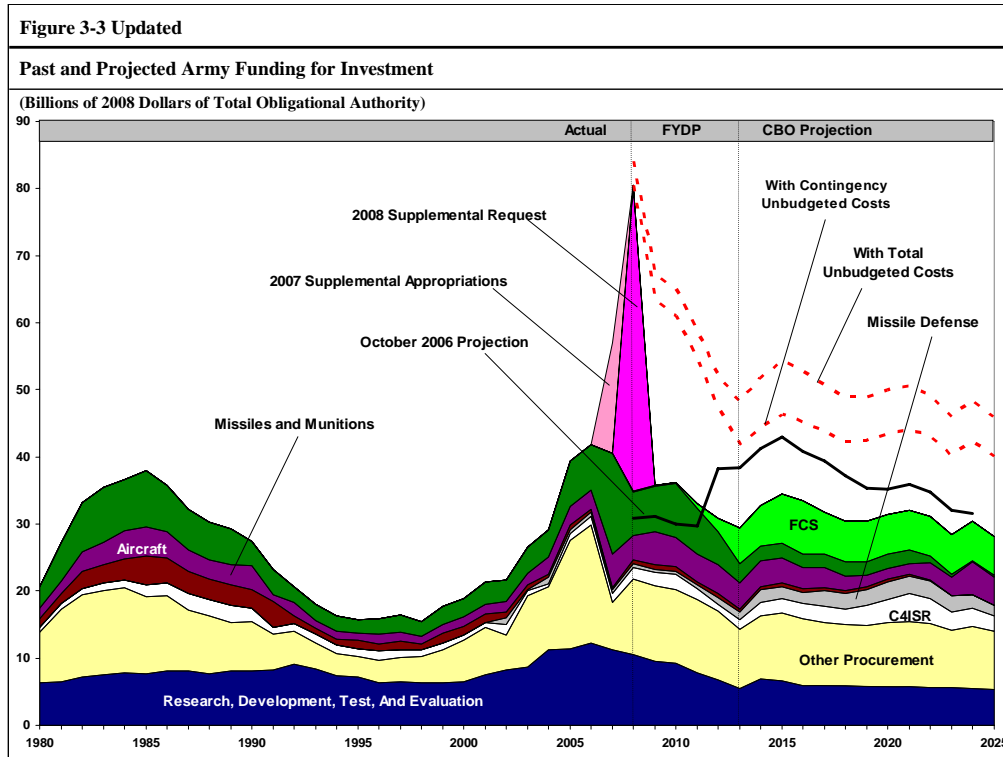
- CBO estimates that total real medical funding will increase by 77 percent, from \$39 billion in 2008 to \$68 billion by 2025. Real medical funding including potential unbudgeted costs could more than double, reaching \$80 billion by 2025, CBO projects.
- Accrual payments for beneficiaries over age 65 will make up more than 41 percent of the increase in medical funding. CBO's projection indicates that by 2025, accrual payments will be more than twice as large in real terms as they are currently, reaching a total of \$23 billion. (Note that payments are made out of the accrual fund to cover pharmaceuticals, purchased care, and direct care for Medicare-eligible beneficiaries. The amounts spent on those beneficiaries are therefore excluded from the remaining categories described below.)
- Pharmaceutical expenditures are projected to more than double, from \$3 billion in 2008 to \$8 billion in 2025; with cost risk included, real drug expenditures will more than triple, to \$11 billion in 2025.
- Purchased care and private-sector contracts are projected to grow by 75 percent in real terms, from \$8 billion in 2008 to \$15 billion in 2025. Funding for that category including cost risk could increase by 117 percent in real terms, reaching \$18 billion in 2025.
- The category that comprises the military's direct-care system and other medical funding is projected to grow by nearly 60 percent in real terms, from \$9 billion in 2008 to \$15 billion in 2025. If costs grew more quickly than DoD has anticipated, funding in that category could rise by 114 percent in real terms, reaching \$20 billion in 2025, and contributing (along with other factors) to the dashed line labeled "With Unbudgeted Costs" in the figure.
- CBO anticipates that funding for uniformed medical personnel will grow by 14 percent in real terms by 2025 as a result of pay increases that outpace inflation. CBO expects real funding in the military personnel category to grow from \$7 billion in 2008 to \$8 billion in 2025.



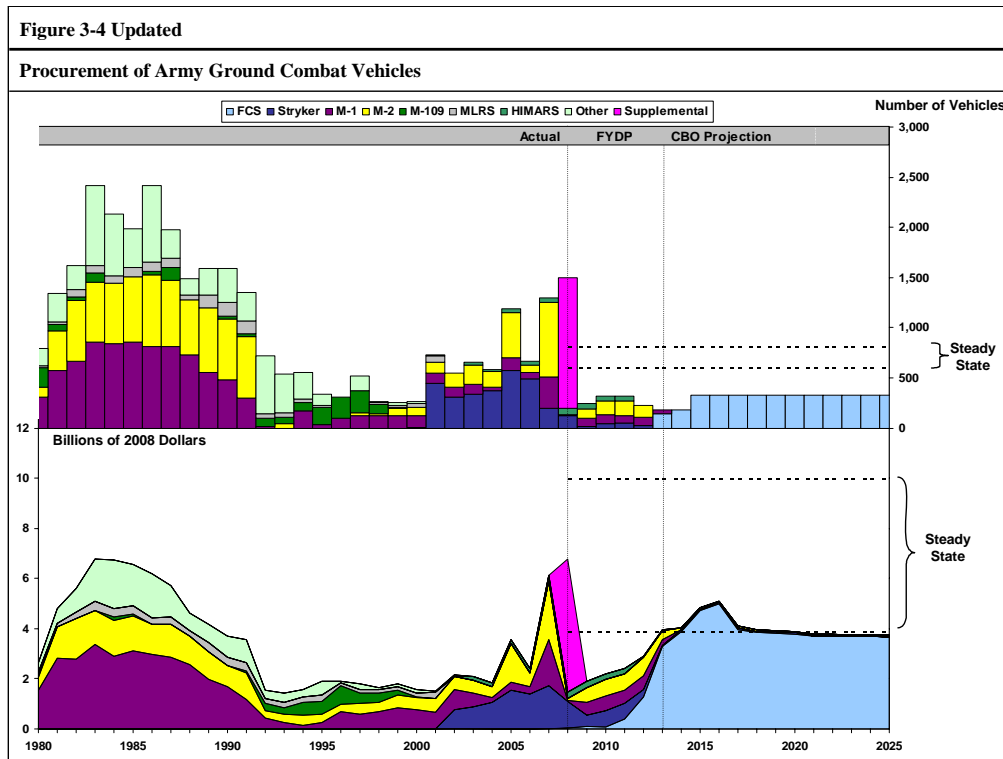
- This chart provides a breakout of the more than one-third of DoD's budget allocated to investment, which funds development and procurement of DoD's weapon systems.
- The 2008 FYDP anticipated that investment funding would be \$177 billion by 2013—about the same as the Administration's request in 2008 excluding emergency supplemental funding. On the basis of that plan, CBO projects that if weapons costs do not grow as they have historically, investment funding will reach about \$185 billion by 2015, and then decline. Over the 2014–2025 period, that funding would average about \$172 billion a year.
- If the costs of weapons grow in the future as they have over the past 30 years, funding for planned purchases in 2013 (excluding unbudgeted costs for contingencies) could equal \$201 billion, or about 14 percent more than without unbudgeted costs. In that case, funding during the 2014–2025 period could average almost \$195 billion a year. Including both growth in the costs of weapon systems and potential unbudgeted costs for contingency operations, investment funding would average \$215 billion annually over the 2014-2025 period, CBO projects.
- The decrease in this year's projection over the latter years of the FYDP period, relative to CBO's October 2006 projection, stems from several changes DoD has made to its plans, including a delay in the start of production of the Army's Future Combat Systems program, cancellation of the Air Force's E-10 surveillance aircraft, delays in the KC-X tanker program, and reductions in the annual purchases of F-35 Joint Strike Fighters.



- During the period from 1980 to 2007, DoD’s investment funding was distributed as follows:
  - Army investment averaged \$27 billion, or 18 percent of total DoD investment;
  - Navy and Marine Corps investment averaged \$50 billion, or 34 percent of the total;
  - Air Force investment averaged \$55 billion, or 37 percent of the total; and
  - Investment in other DoD activities averaged \$16 billion, or 11 percent of the total.
- During the period from 2008 to 2013, DoD anticipates allocating its investment resources as follows:
  - Army investment would average \$33 billion, or 18 percent of total DoD investment;
  - Navy and Marine Corps investment would average \$60 billion, or 33 percent of the total;
  - Air Force investment would average \$63 billion, or 35 percent of the total; and
  - Investment in other DoD activities would average \$25 billion, or 14 percent of the total.
- During the period covered by CBO’s projection (2014 to 2025), DoD’s investment resources would be distributed as follows:
  - Army investment would average \$31 billion, or 18 percent of total DoD investment;
  - Navy and Marine Corps investment would average \$50 billion, or 29 percent of the total;
  - Air Force investment would average \$68 billion, or 40 percent of the total; and
  - Investment in other DoD activities would average \$22 billion, or 13 percent of the total.



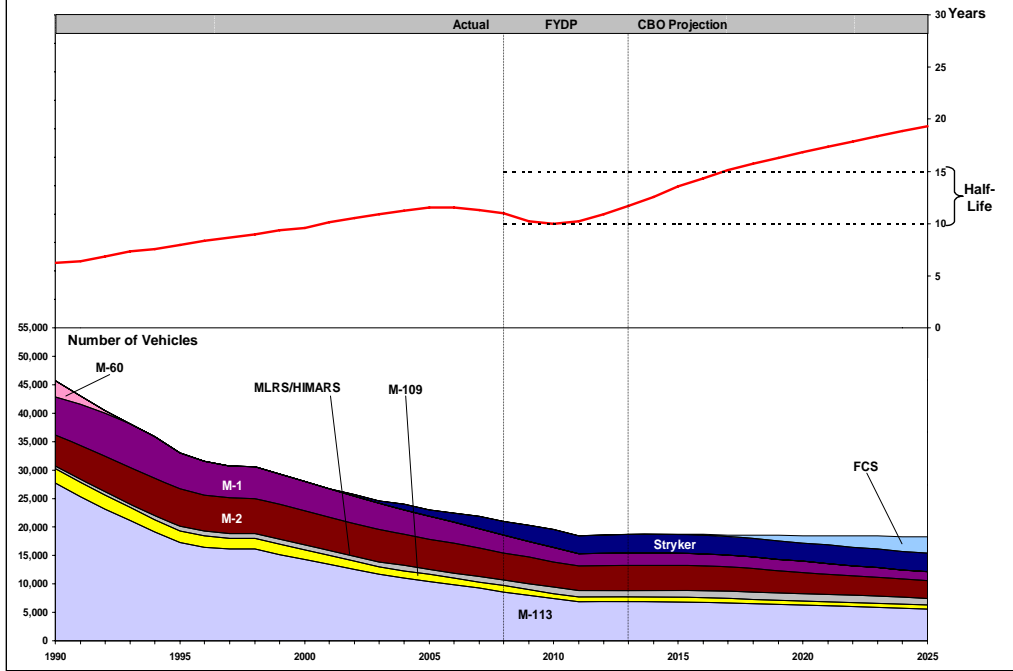
- This chart depicts the Army's past overall level of investment and future investment plans.
- On the basis of those plans, CBO projects that after 2013, the demand for Army investment funding will reach a peak of \$35 billion in 2015 and then decline to about \$28 billion by 2025, averaging about \$31 billion a year between 2014 and 2025.
- If the war in Iraq and other contingencies continue to require additional Army investment, funding after 2013 could rise to a peak of about \$45 billion in 2015, average \$43 billion a year between 2014 and 2025, and then fall back to about \$40 billion annually by the end of the period, as depicted by the line labeled "With Contingency Unbudgeted Costs".
- If costs for weapon systems grew as they have in the past, however, the Army's total annual investment funding—including unbudgeted contingency costs—could rise to a peak of \$53 billion in 2015, average \$50 billion between 2014 and 2025, and then decline to about \$46 billion by the end of the period. (See the line labeled "With Total Unbudgeted Costs".)
- CBO's projection is based on the Army's plan to procure a maximum of 1 brigade set per year of its Future Combat Systems (FCS). In the 2007 FYDP (the basis of CBO's October 2006 projection), the Army had planned to procure 1.5 brigade sets of FCS annually.
- Relative to the 2007 FYDP, the 2008 FYDP shows an increase in Army investment in 2008 through 2011 primarily resulting from higher funding for new and upgraded vehicles supporting the Army's plan to boost its number of brigade combat teams from 42 to 48 and to increase its active-duty personnel by 65,000. In contrast, investments are lower in 2012 and 2013 relative to the 2007 FYDP because of production delays for the FCS.



- This chart shows past and projected purchases of ground combat vehicles for the Army as measured by the number of vehicles (the top part of the chart) and by billions of 2008 dollars invested (the bottom part of the chart).
- The “Other” category includes vehicles such as the M-88 recovery vehicle, the field artillery ammunition supply vehicle, and the M-113 armored personnel carrier.
- This chart includes the procurement of Stryker vehicles and of M-1 and M-2 ground combat vehicle upgrades (restoring those vehicles to like-new condition) funded in the amended supplemental request for 2008.
- Annual purchases of ground combat vehicles from 1993 to 1999 averaged about 400, or less than 60 percent of the upper end of the range of steady-state purchases needed to sustain the fleet indefinitely.
- Under DoD’s 2008 FYDP, the FCS program—a key element of the Army’s transformation plans—would:
  - Purchase the first FCS vehicles for the Army’s brigades in 2013; and
  - Purchase enough FCS vehicles to equip 1 brigade a year beginning in 2015.
- The projected annual procurement rate of about 320 FCS manned vehicles would not be sufficient to maintain the combat vehicle fleet in a steady state.
- The Army’s 2008 plan, compared with the 2007 plan, reduces annual FCS procurement from an average of 1.5 brigade sets to 1 brigade set.
- Because the Army’s future plans for equipping its force are uncertain, CBO’s estimate of the range of steady-state procurement costs for Army combat vehicles is broad. The upper end of the steady-state range assumes that all heavy brigade combat teams would be equipped with FCS. The lower end of the range assumes the Army’s brigades will be equipped with a mix of vehicles drawn from the FCS program as well as upgraded versions of existing vehicles such as the Abrams tank and Bradley fighting vehicle.

Figure 3-5 Updated

Age and Inventory of Army Ground Combat Vehicles



- This chart shows the average age of the Army's fleet of ground combat vehicles (the top part of the chart) and inventories of the various vehicle types (the bottom part of the chart). The inventories include only those vehicles needed to equip and support the Army's forces that are planned through 2025. (Previous versions of CBO's update have depicted all Army vehicles in its inventories. The Army's total vehicle inventories are larger than the numbers of vehicles, including spares, that are needed to equip the Army's active and reserve units. For example, CBO estimates that the Army's total inventory of M-1 Abrams tanks exceeds by about 40 percent the number of tanks it would need to equip its units if they were all converted to a modular design.)

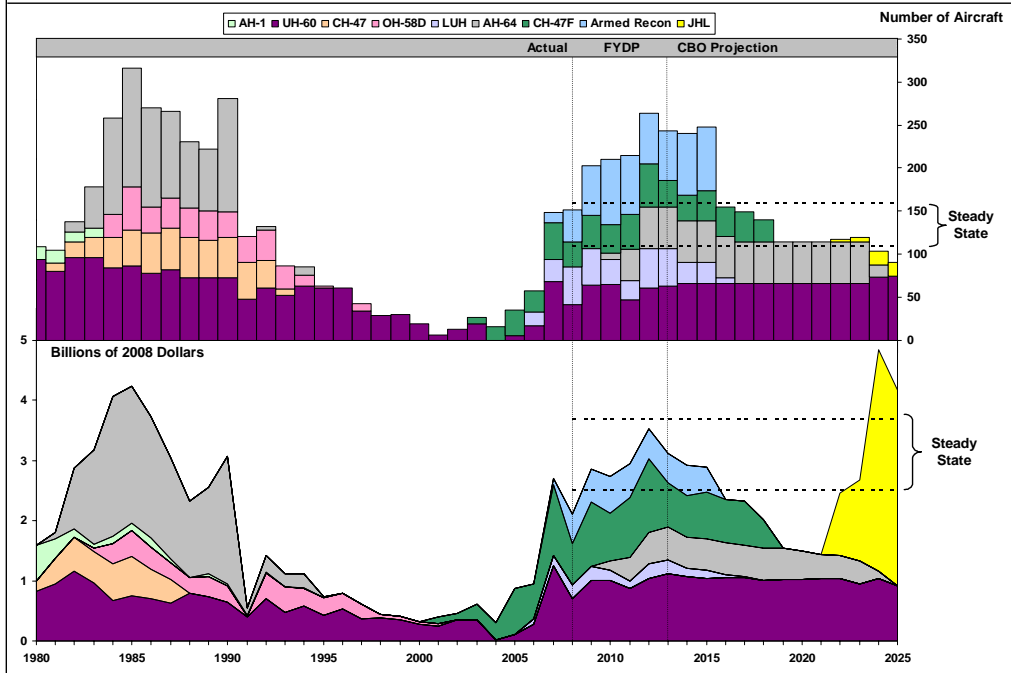
- The Army had not purchased enough combat vehicles during the decade preceding 2002 to prevent its ground combat fleet as a whole from aging. Even with the retirement of more than 20,000 older vehicles from 1990 through 2005, the fleet's average age had risen almost steadily after 1990 to about 12 years—almost double what it was in 1990.

- Significant investment between 2002 and 2007 in new Stryker vehicles and upgrades for the Army's existing M-1 Abrams tanks, M-2/3 Bradley fighting vehicles, and M113 personnel carriers has resulted in an infusion of "younger" vehicles into a shrinking fleet. These two actions combined should reduce the average age of the fleet as a whole from a peak of about 12 years in 2005 to roughly 10 years in 2010.

- After 2010, however, deliveries of new vehicles will be insufficient to prevent the fleet's aging. Even when FCS vehicles begin to enter the fleet in 2015, the increase in the fleet's average age will be only slightly less rapid. That is because the planned rates for procuring FCS components is lower than the procurement rate needed to maintain the inventory of ground combat vehicles that the Army needs to equip and support its forces in a steady state.

Figure 3-6 Updated

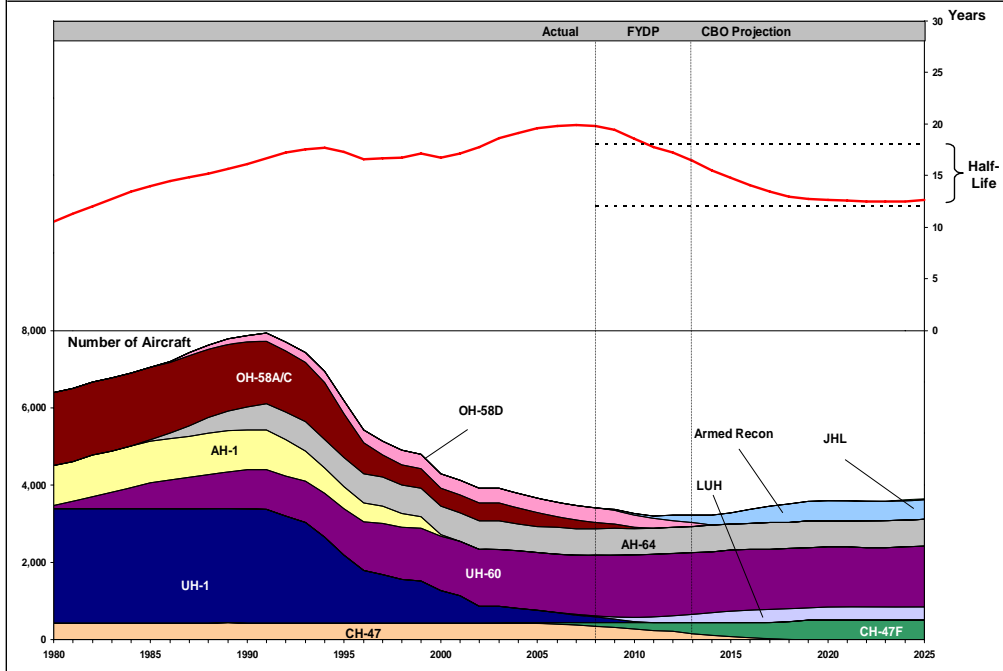
Procurement of Army Helicopters



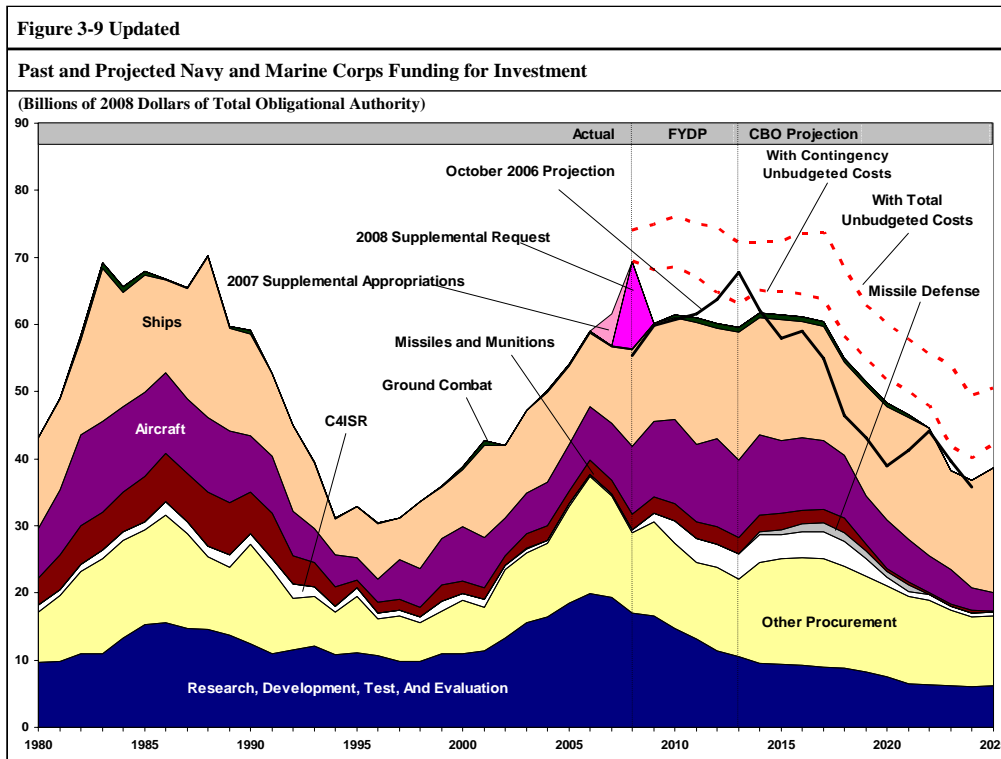
- This chart shows past and projected purchases of helicopters for the Army as measured by the number of helicopters (the top part of the chart) and by billions of 2008 dollars invested (the bottom part of the chart).
- The Army plans to increase its annual purchases of new and remanufactured helicopters from 148 in 2007 to 263 by 2012, with a corresponding increase in funding during that period. Annual purchases are then slated to decline, averaging 121 from 2016 to 2024.
- CBO's projection of Army investment includes the prospective Joint Heavy Lift (JHL) rotorcraft. The future of that program and its associated costs are uncertain because of technical challenges and ongoing discussions regarding the JHL's operational requirements. However, based on the Army's current plans, CBO's projection incorporates a JHL costing about \$200 million per aircraft and capable of transporting an FCS vehicle weighing about 29 tons for 500 miles.
- The steady-state range for annual procurement of aircraft displayed on this chart has increased compared with CBO's previous projection, reflecting earlier retirement ages for aircraft in the Army's most recent plans (see CBO's November 2007 study, *Modernizing the Army's Rotary-Wing Aviation Fleet*).
- The steady-state funding for Army aircraft displayed on this chart has increased compared with CBO's previous projection, reflecting both reduced retirement ages for aircraft and increased projected investment demands for the JHL program.

Figure 3-7 Updated

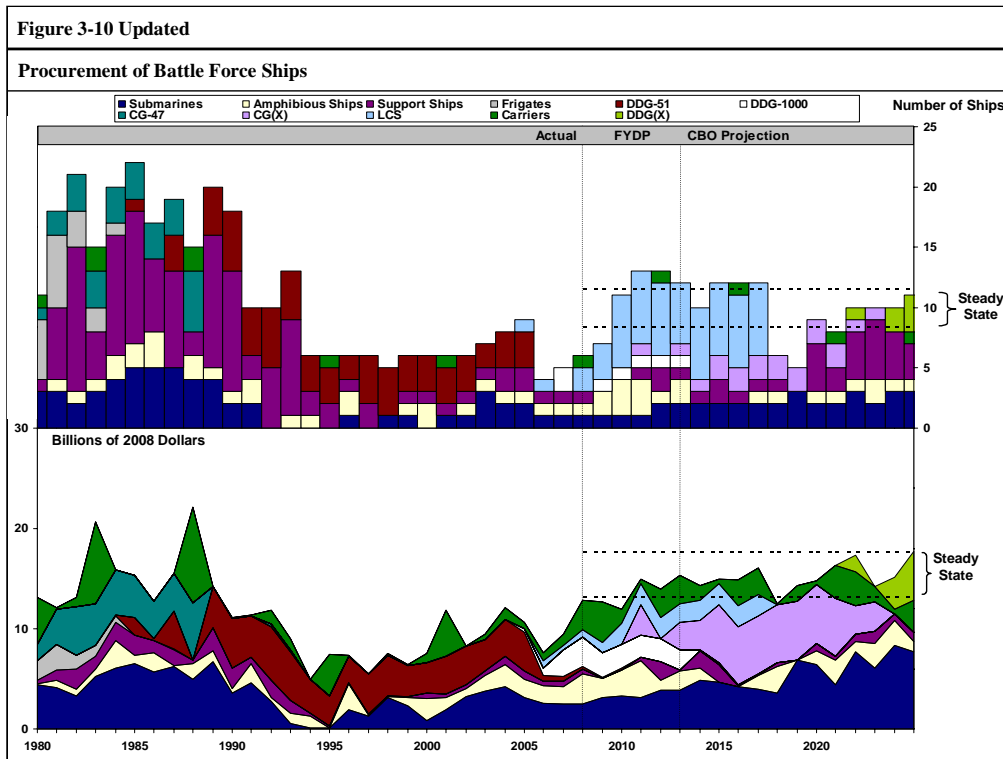
Age and Inventory of Army Helicopters



- This chart shows the average age of the Army's fleet of helicopters (the top part of the chart) and inventories of the various helicopter types (the bottom part of the chart).
- Although the Army bought few new helicopters before 2006, it has retired a large number of older aircraft, reducing its total helicopter inventory to less than half of what it was in the late 1980s and early 1990s. Those retirements have allowed the average age of the helicopter fleet to remain within or close to the half-life range of 12 to 18 years.
- Beginning in about 2008, projected deliveries of new armed reconnaissance and utility helicopters will cause the average age of the fleet to decline and then stabilize.



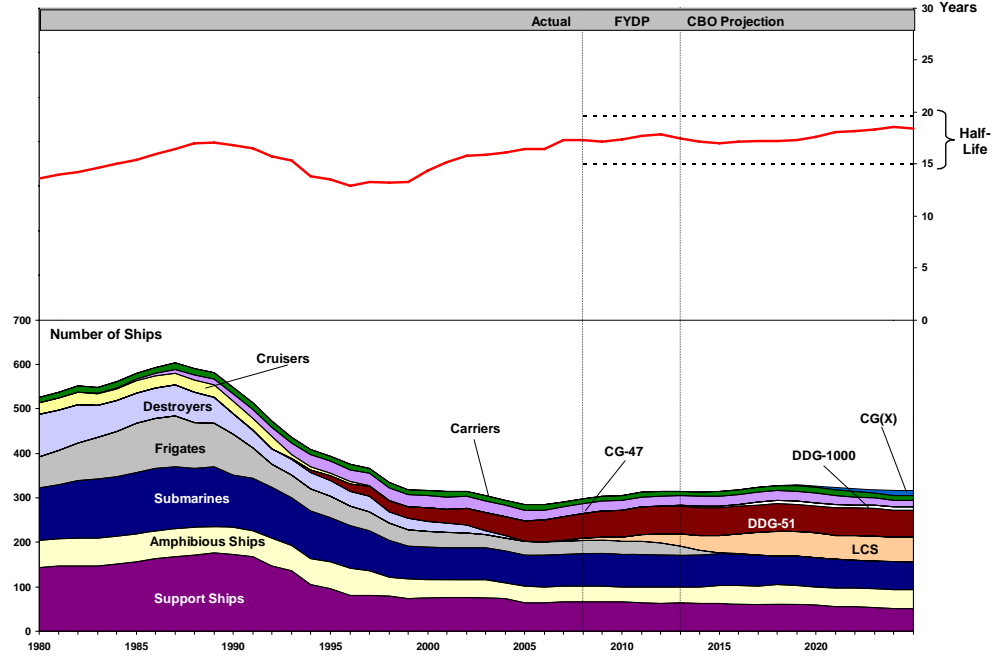
- This chart depicts the Navy's past overall level of investment and future investment plans.
- Under DoD's current plans, the Navy would increase investment from \$49 billion in 2008 to about \$60 billion a year between 2009 and 2013. After that, CBO projects demand for investment resources would remain relatively stable and then decline—to \$39 billion by 2025—averaging about \$50 billion a year between 2014 and 2025.
- If costs grew as they have in the past, however, the Navy's investment funding could rise to a peak of about \$70 billion in 2017, average \$59 billion a year between 2014 and 2025, and then fall back to about \$47 billion annually by the end of the period.
- Under the 2008 FYDP, the Navy's planned annual shipbuilding would grow from 7 to 12 ships between 2008 and 2013. Under the 2007 FYDP, the Navy planned to buy 51 ships from 2006 to 2011. Under the 2008 FYDP, the Navy plans to buy 67 ships from 2008 to 2013. For 2008, the President has requested 1 aircraft carrier (although the funding for that ship is spread over several years), 3 littoral combat ships (LCSs), 1 attack submarine, 1 amphibious ship, and 1 support ship.
- The Marine Corps's plans for purchases through its procurement account have changed substantially from the 2007 FYDP to the 2008 FYDP. The service still proposes to invest heavily in ground combat vehicles (such as the new Expeditionary Fighting Vehicle and the Future Light Combat Vehicle) to replace its current inventory of aging equipment, a plan that would require substantial resources over the next decade. However, between the 2007 FYDP and the 2008 FYDP, the Marine Corps reduced planned purchases of the EFV by about half, reflecting cost overruns and technical problems in the development of that weapon system.



- This chart shows past and projected purchases of battle force ships for the Navy as measured by the number of ships (the top part of the chart) and by billions of 2008 dollars invested (the bottom part of the chart).
- The 2008 FYDP and CBO's projection anticipate an increase in annual ship purchases because of the Navy's plan to enlarge the fleet from about 280 ships today to 313 ships by 2025. Most of the planned expansion would occur in the surface combatant force, with the purchase of 55 littoral combat ships (LCSs).
- Planned increases in the capabilities of LHA-6 and MPF(F) amphibious ships would also contribute to higher levels of funding for shipbuilding.
- The Navy anticipates that the CVN-21 aircraft carrier class will cost, on average, about \$2 billion more per ship than the Nimitz class that the CVN is replacing.
- Under the 2008 FYDP, the Navy plans to buy one DDG-1000 per year between 2009 and 2011 in addition to the two ships purchased in 2007. It also plans to begin buying its future cruiser, designated the CG(X), in 2011. Despite the recent doubling of ship costs in the LCS program, Navy officials state they still plan to buy 55 of those ships over the next 10 years.
- Attack submarine purchases under the 2008 FYDP would continue at one per year through 2011 but increase to two per year thereafter.
- In March 2007, the Navy announced that, because of cost overruns in the LCS program, it was reducing planned purchases of those ships. Instead of two in 2007, three in 2008, and six in 2009, the Navy would purchase no LCSs in 2007, and two and three ships in 2008 and 2009, respectively. In making appropriations for the Department of Defense, Congress then reduced further the number of LCSs to be purchased in 2008 from two to one. With those adjustments, the Navy would purchase five ships in 2008, and a total of 63 ships between 2008 and 2013. Press reports indicate that the Navy may reduce LCS purchases further in the 2009 FYDP. The changes made by the Navy in March 2007 are reflected in the chart displayed above. Actions on the LCS program by the Congress subsequent to that date are not reflected in this chart.

Figure 3-11 Updated

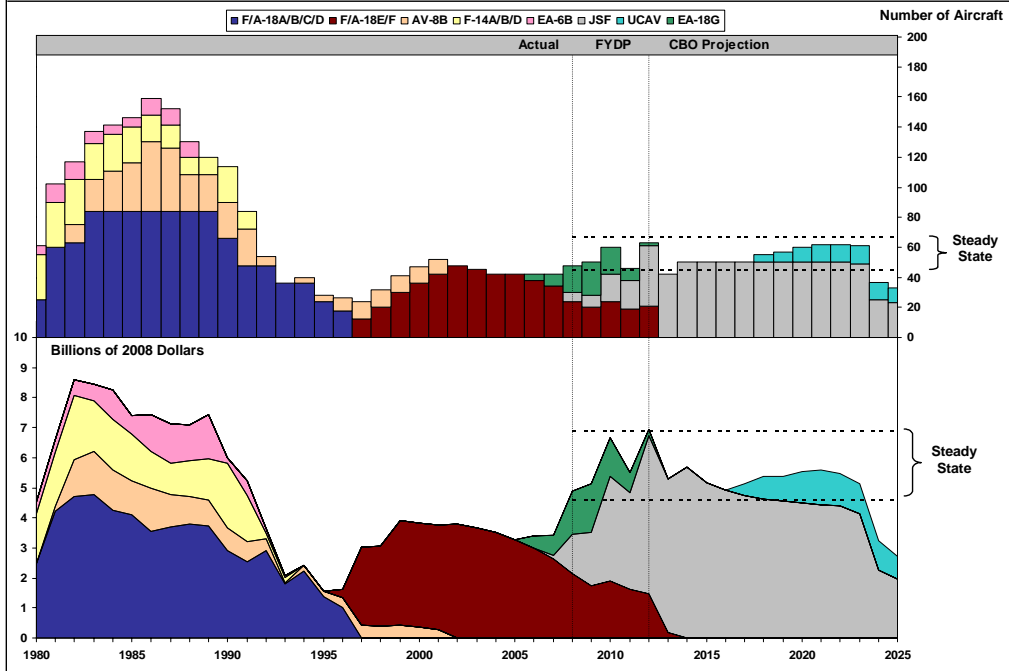
Age and Inventory of Battle Force Ships



- This chart shows the average age (the top part of the chart) and inventories (the bottom part of the chart) of the Navy's battle force ships.
- Between 2008 and 2012, the average age of the Navy's fleet increases slightly from about 17 to 18 years. Between 2012 and 2017, as ships are purchased at annual rates within or above steady-state levels, the average age of the fleet declines.
- After 2017, the average age of the fleet begins to increase slightly as ships are no longer purchased in steady-state numbers. By 2024, the age of the fleet reaches a high of almost 19 years, before it begins to decline again as a result of the purchase of ships at steady-state levels beginning in the 2020s.

Figure 3-12 Updated

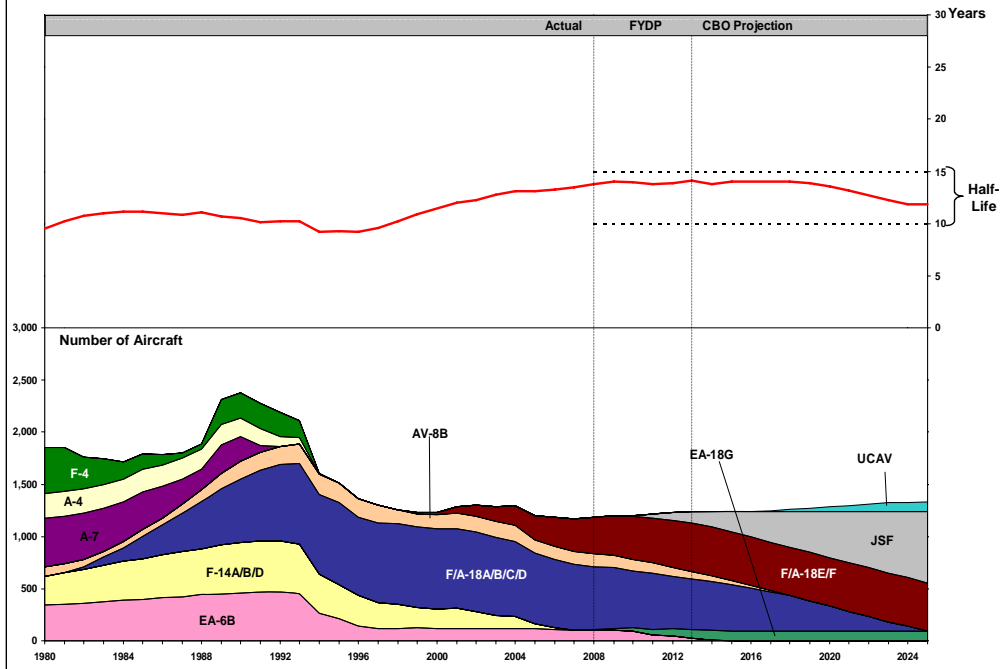
Procurement of Navy Fighter and Attack Aircraft



- This chart shows past and projected purchases of fighter and attack aircraft for the Navy and Marine Corps as measured by the number of aircraft (the top part of the chart) and by billions of 2008 dollars invested (the bottom part of the chart).
- Funding for procurement of tactical fighters will average about \$5 billion a year (without cost risk) in the 2008–2025 period, CBO projects.
- In most years of the projection period, funding would be close to that average. The higher funding peaks in 2010 and 2012 result from the phasing of F/A-18E/F, EA-18G, and F-35 Joint Strike Fighter purchases. (During the period spanning 2010 to 2012, procurement of the F/A-18E/F and EA-18G will decline, while procurement of the JSF will increase.)
- Annual purchases of tactical aircraft will average about 50 per year during the period spanning 2014 to 2025, a quantity sufficient to maintain steady-state levels for the Navy’s and Marine Corps’s tactical fighter fleets.
- The Navy is developing an unmanned combat air vehicle (UCAV-N) for operation aboard aircraft carriers. CBO’s projection assumes the Navy will procure the UCAV-N in quantities similar to the EA-18G, quantities that will provide a small contingent of aircraft in each carrier air wing for use in specialized roles.
- Under current plans, the last Navy JSF aircraft will be purchased in 2025, the final year of the projection period. At that time, the first F/A-18E/F aircraft will be nearing 30 years of age and will probably require retirement. Those aircraft could be replaced with additional JSF, with UCAV-N, or with a new aircraft design. CBO’s projections do not include the RDT&E funding that would be needed before 2025 for a new design.

Figure 3-13 Updated

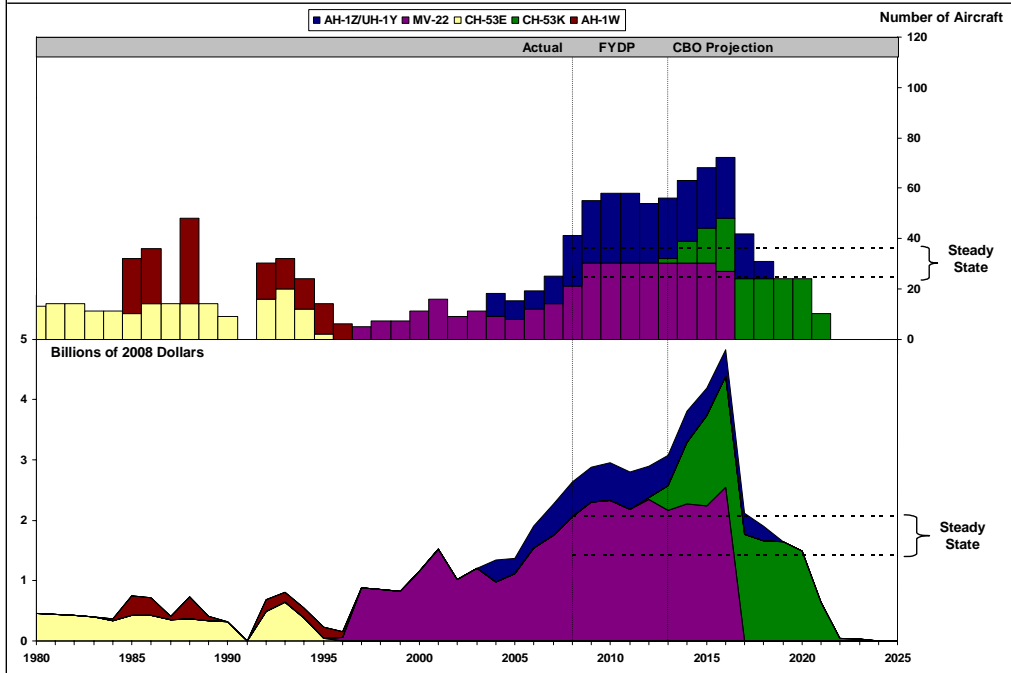
Age and Inventory of Navy Fighter and Attack Aircraft



- This chart shows the average age (the top part of the chart) and inventories (the bottom part of the chart) of the Navy's and Marine Corps's fighter and attack aircraft.
- If DoD's current plans are carried out, CBO projects that the average age of the Navy's fighter and attack aircraft fleet will remain within the target half-life range of 10 to 15 years throughout the 2008–2025 projection period, with a decline in the later years of that period resulting from deliveries of Joint Strike Fighters and UCAVs.
- The end of production of Joint Strike Fighters for the Navy in 2025 will cause the average age of the Navy's tactical aircraft fleet to increase beyond that year.

Figure 3-14 Updated

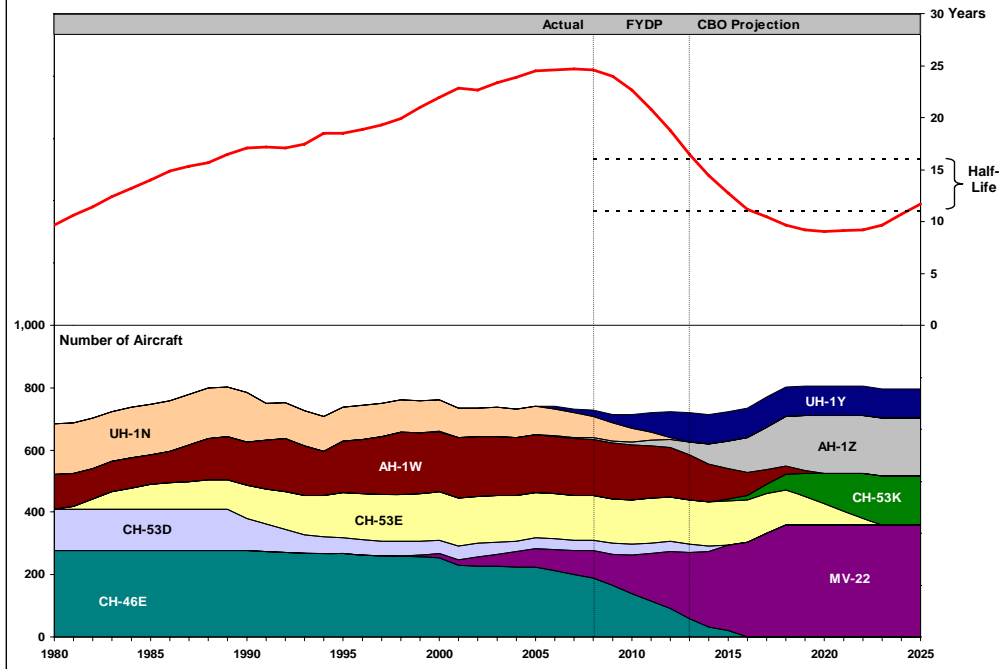
Procurement of Marine Corps Helicopters



- This chart shows past and projected purchases of helicopters and tilt-rotor aircraft for the Marine Corps as measured by the number of helicopters (the top part of the chart) and by billions of 2008 dollars invested (the bottom part of the chart).
- Procurement of the V-22 tilt-rotor transport (to replace the existing CH-46 fleet) and of the CH-53K (to replace the CH-53E fleet) accounts for about 85 percent of the funding projected for purchases of Marine Corps helicopters.

Figure 3-15 Updated

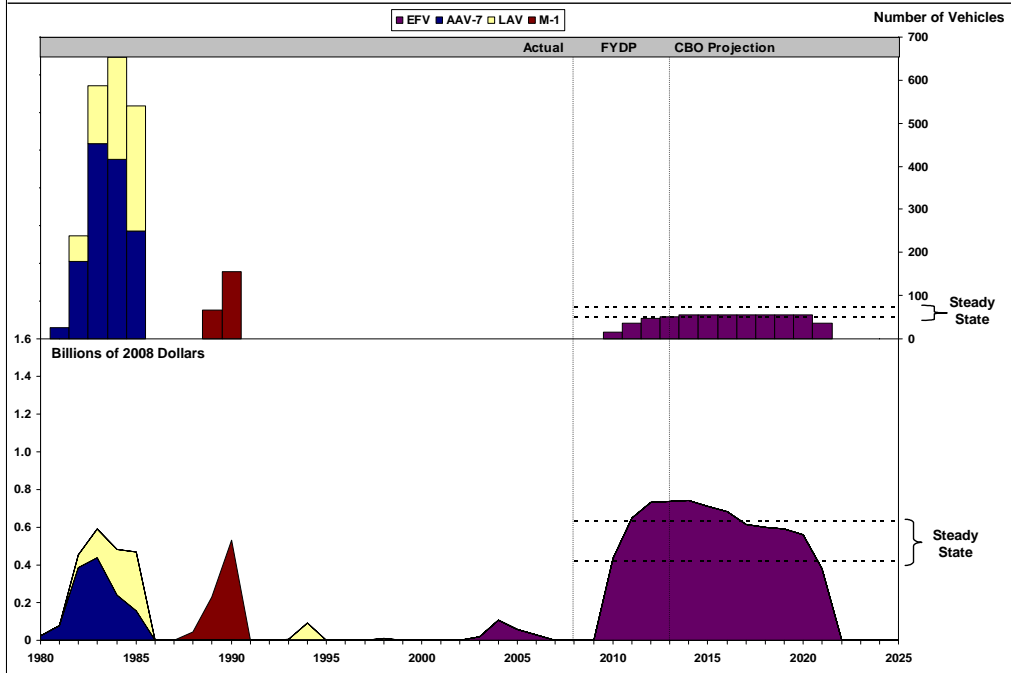
Age and Inventory of Marine Corps Helicopters



- This chart shows the average age (the top part of the chart) and inventories (the bottom part of the chart) of helicopters and tilt-rotor aircraft for the Marine Corps.
- Under DoD's current plans, the average age of the Marine Corps's helicopter fleet would begin to decline rapidly through the 2008–2013 period spanned by the 2008 FYDP as a result of deliveries of rebuilt and upgraded utility and attack helicopters and deliveries of the V-22 tilt-rotor aircraft. After deliveries of new aircraft end in 2023, the average age of the Marine Corps fleet of helicopters begins to increase.

Figure 3-16 Updated

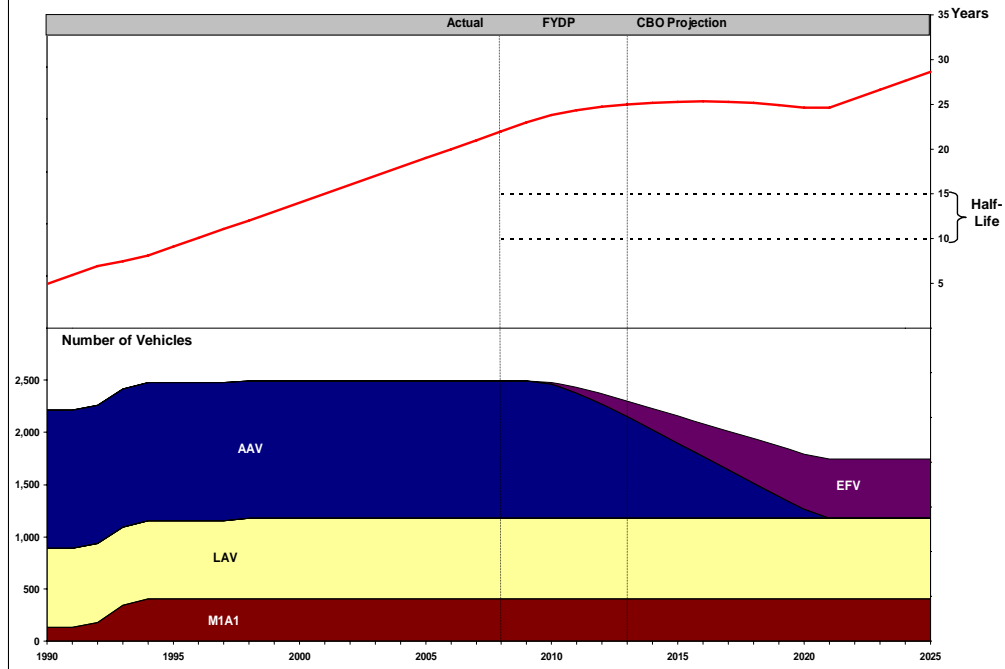
Procurement of Marine Corps Ground Combat Vehicles



- This chart shows past and projected purchases of ground combat vehicles for the Marine Corps as measured by the number of vehicles (the top part of the chart) and by billions of 2008 dollars invested (the bottom part of the chart).
- Projected purchases of the new Expeditionary Fighting Vehicle (EFV), which will replace the existing fleet of amphibious assault vehicles, account for all of the procurement funding for new ground combat vehicles for the Marine Corps in CBO's projection.
- Under the 2007 FYDP, the Marine Corps planned to buy more than 1000 EFVs beginning in 2007. Cost growth and difficulties in the development of the EFV caused the Marine Corps to restructure the program, cutting total purchases by about one half. Under the 2008 FYDP, the Marine Corps would buy 574 EFVs, and the acquisition of the vehicles would not begin until 2012.

Figure 3-17 Updated

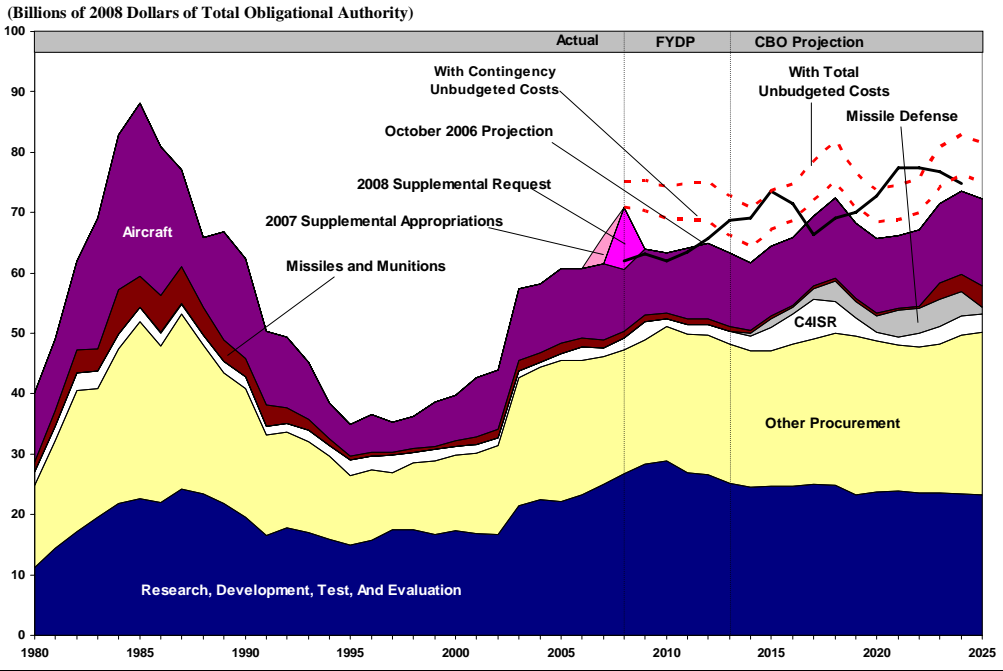
Age and Inventory of Marine Corps Ground Combat Vehicles



- This chart shows the average age (the top part of the chart) and inventories (the bottom part of the chart) of ground combat vehicles for the Marine Corps.
- When deliveries of the EFV begin, the average age of the fleet will stabilize for the duration of planned purchases of those vehicles, remaining at about 25 years of age. After that time, EFV deliveries will end, the retirement of the current fleet of advanced amphibious assault vehicles (AAVs) will be complete, and the average age of the fleet of Marine Corps combat vehicles will begin to increase steadily.

Figure 3-19 Updated

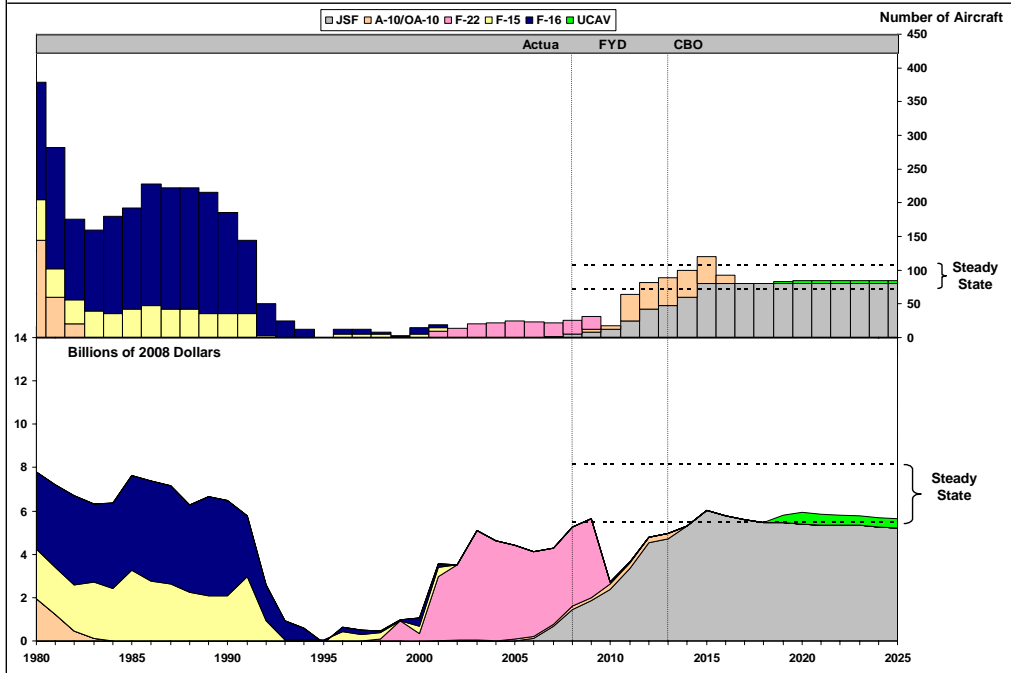
Past and Projected Air Force Funding for Investment



- This chart depicts the Air Force's past overall level of investment and future investment plans.
- The 2008 FYDP anticipates that Air Force investment will increase from \$61 billion in 2008 to \$63 billion in 2013. Under DoD's current plans, CBO projects that investment funding would average about \$68 billion a year between 2014 and 2025.
- If costs grew as they have in the past, however, the Air Force's investment funding could average \$74 billion a year between 2014 and 2025.
- CBO projects sustained increases in purchases of new tactical aircraft, reflecting continued procurement of the F-22 fighter through 2009 and the beginning of production of the F-35A Joint Strike Fighter (JSF). Relative to the 2007 FYDP, however, 89 fewer F-35A aircraft would be procured through 2013 under the 2008 FYDP.
- Changes that occurred in the Air Force's long-term planning between the submission of the 2007 and 2008 FYDPs led to a decrease in CBO's projection for investment funding spanning the period from 2014 through 2025. Those changes included the cancellation of the E-10 surveillance aircraft program, a revision in the service's plans for the capabilities of a new long-range strike aircraft from a heavy bomber to a less costly medium bomber, and a reduction in the peak annual production rate of the JSF after 2014 from 110 aircraft to 80 aircraft.

Figure 3-20 Updated

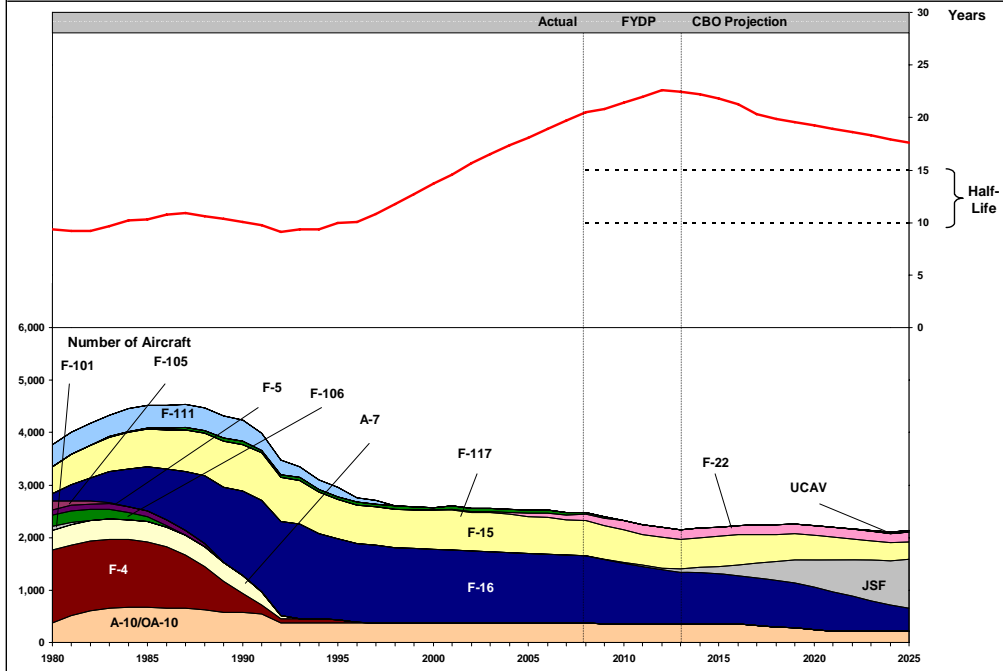
Procurement of Air Force Fighter and Attack Aircraft



- This chart shows past and projected purchases of fighter and attack aircraft for the Air Force as measured by the number of aircraft (the top part of the chart) and by billions of 2008 dollars invested (the bottom part of the chart).
- CBO projects that purchases of tactical aircraft by the Air Force will be within the steady-state range beginning in 2012.
- As noted on the previous slide, the peak production rate for the JSF has been reduced from 110 aircraft per year to 80 aircraft per year after 2014. That slower production rate, coupled with near-term delays in the program, result in 472 fewer Air Force Joint Strike Fighters being procured by 2025. With the current production schedule, JSF procurement will not be completed until 2034, seven years later than under the 2007 FYDP.

Figure 3-21 Updated

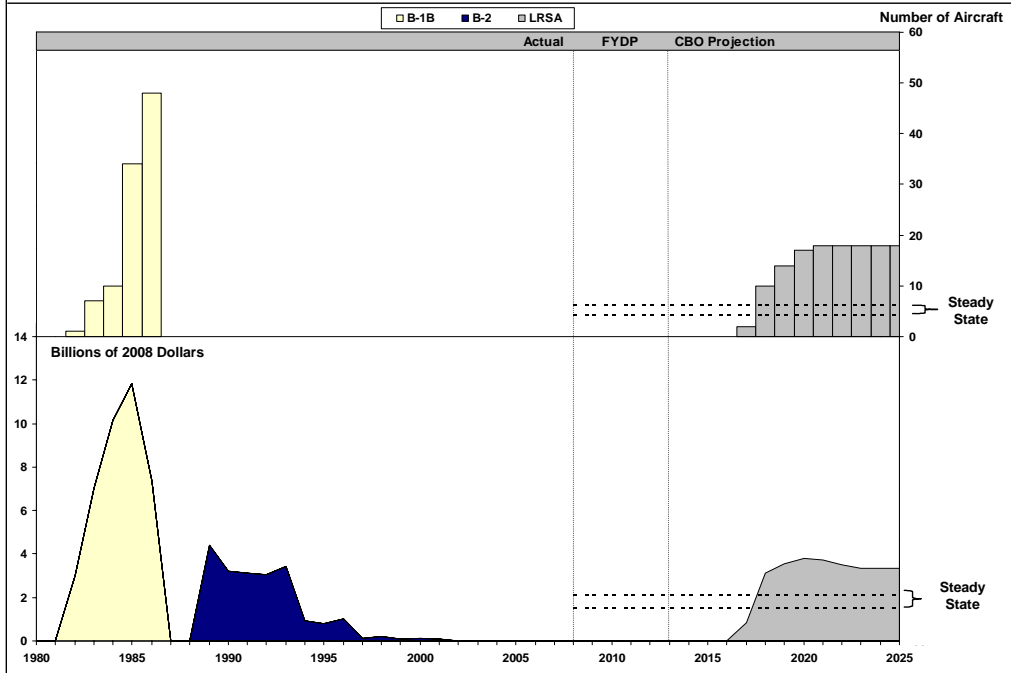
Age and Inventory of Air Force Fighter and Attack Aircraft



- This chart shows the average age (the top part of the chart) and inventories (the bottom part of the chart) of the Air Force's fighter and attack aircraft.
- The fleet's average age increases steadily to a peak of about 22 years in 2012. After that, deliveries of Joint Strike Fighters cause the fleet's average age to decline, but purchases would be insufficient to bring the average age within the half-life range of 10-15 years by 2025.

Figure 3-22 Updated

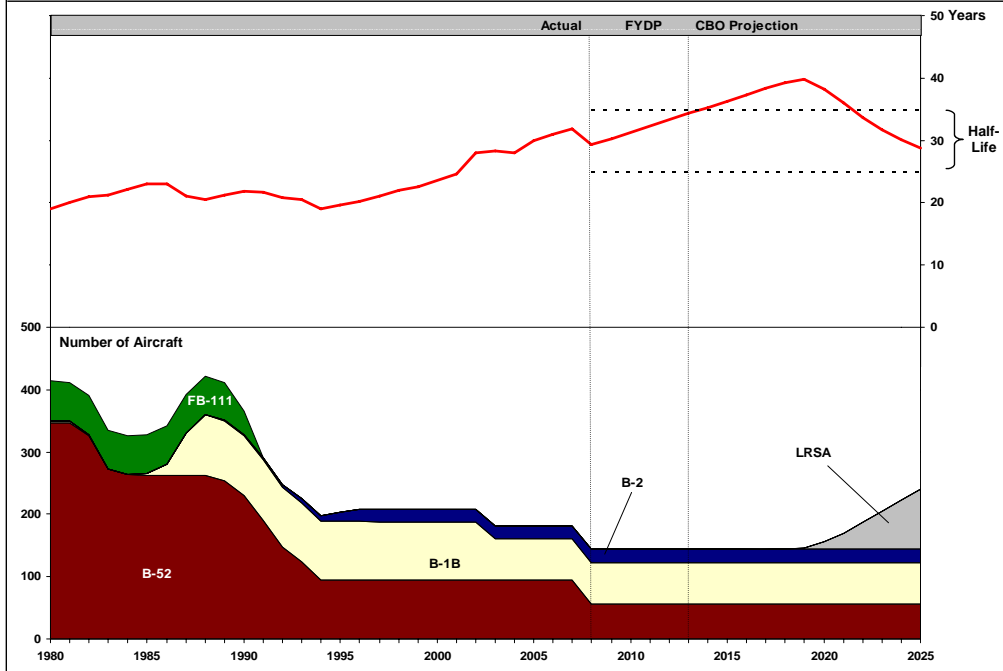
Procurement of Air Force Bombers



- This chart shows past and projected purchases of bombers for the Air Force as measured by the number of aircraft (the top part of the chart) and by billions of 2008 dollars invested (the bottom part of the chart).
- Consistent with language in the 2006 Quadrennial Defense Review that called for initial fielding of a new long-range strike capability by 2018, CBO projects that a new long-range strike aircraft (LRSA) will begin to be produced in 2017. When formulating its projection for 2006, CBO assumed the new aircraft would have capabilities similar to the existing long-range B-2 heavy bomber. Over the past year, however, the Air Force has indicated that it is committed to fielding a medium bomber with a shorter range and smaller weapons load. Developing and fielding that less capable aircraft would cost about \$34 billion less, CBO projects. (See CBO's March 2006 report, *Alternatives for Long-Range Ground Attack Systems*.)

Figure 3-23 Updated

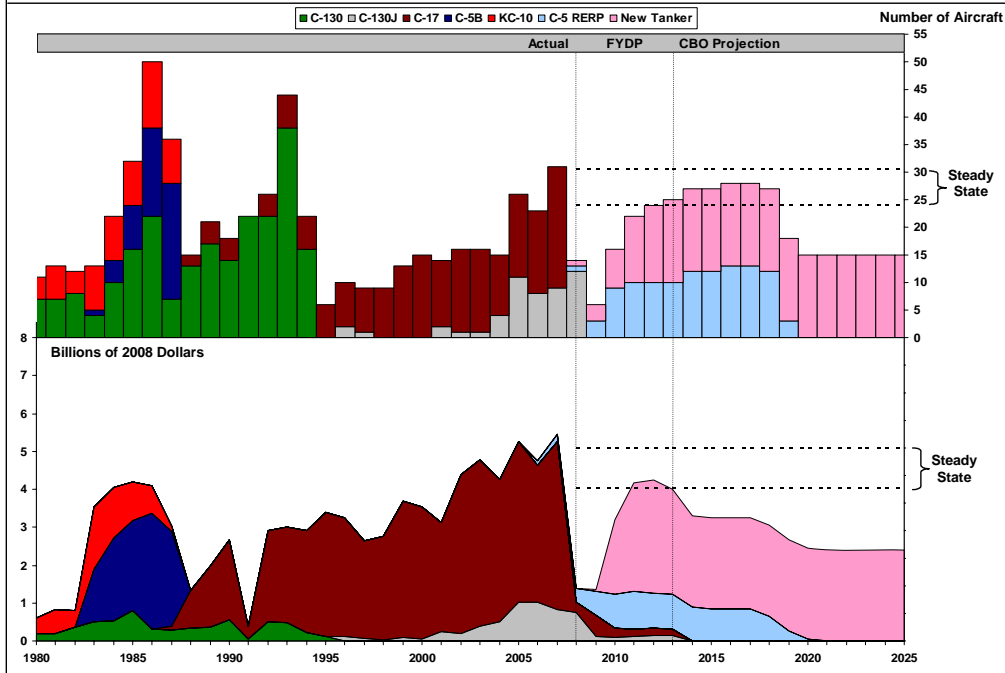
Age and Inventory of Air Force Bombers



- This chart shows the average age (the top part of the chart) and inventories (the bottom part of the chart) of bombers for the Air Force.
- Once deliveries of the LRSA begin in 2019, the average age of the bomber fleet will steadily decline. The LRSA may either augment or replace portions of the existing fleet of B-52, B-1, and B-2 long-range bombers. (In the projection displayed in the chart, CBO assumed that the LRSA augments the existing fleet.) To replace the intercontinental capability offered by today's bombers, however, the Air Force would need to develop an aircraft with greater range and payload than currently planned for the LRSA.

Figures 3-24 and 3-26 Updated

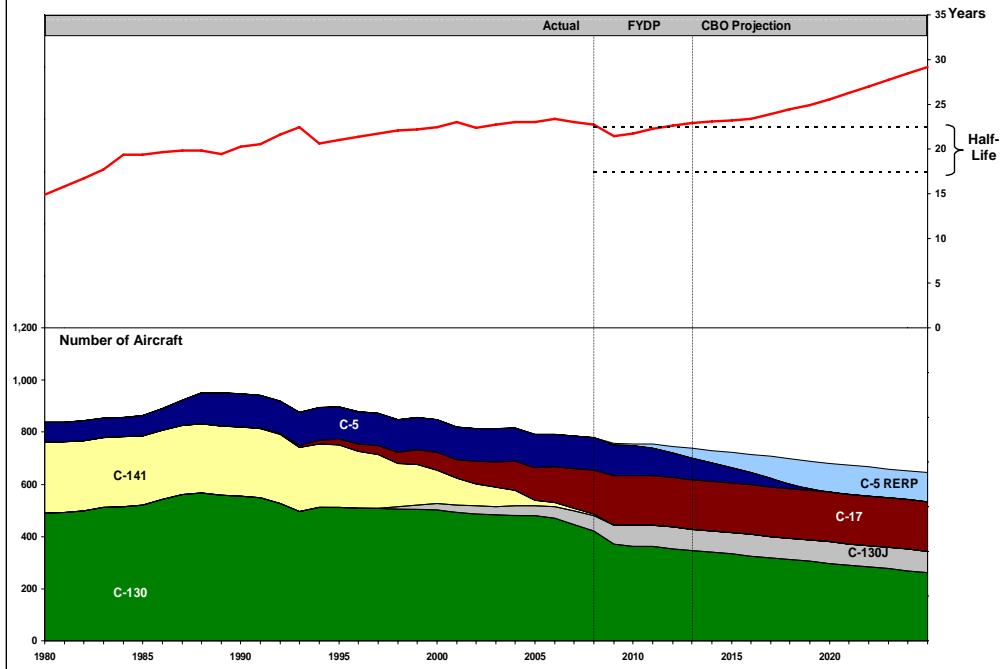
Procurement of Air Force Airlifters and Tankers



- This chart shows past and projected purchases of airlifters and tankers for the Air Force as measured by the number of aircraft (the top part of the chart) and by billions of 2008 dollars invested (the bottom part of the chart).
- For strategic airlift, the projection incorporates the assumption that C-17 production will end at 190 aircraft and that 111 C-5 aircraft will be modernized with new engines. Additional C-17s under consideration as part of a wartime supplemental appropriation are not included in this projection.
- For tactical airlift, the projection assumes C-130J procurement would end at 82 aircraft as indicated in the December 2006 Selected Acquisition Report. The Air force is exploring concepts for a new advanced tactical airlifter that might be fielded near the end of the next decade. That aircraft is not included in this projection.
- In early 2007, the Air Force released a request for proposals for an airborne tanker to replace the KC-135. The two primary competitors for the initial production were Boeing (with a proposal based on its B-767 aircraft) and a team from Northrop Grumman and the European Aeronautic Defence and Space Company (with a proposal based on the Airbus A-330). CBO based its cost estimates on the smaller B-767.
- For this projection, CBO assumed that DoD would purchase new tankers at a rate that would rise to 15 aircraft a year by 2013. Although the initial Air Force contract is expected to be for 179 aircraft, CBO assumed procurement would continue until DoD had replaced the entire KC-135 fleet. Nearly 250 tankers would be procured by the end of CBO's projection, about half the number in today's KC-135 fleet.

Figure 3-25 Updated

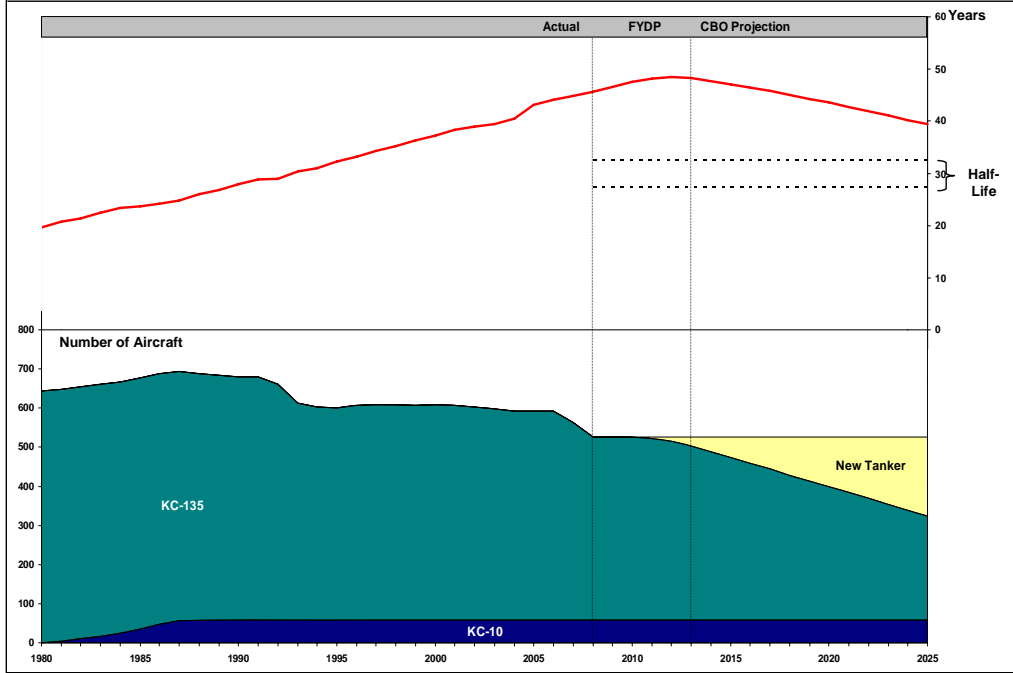
Age and Inventory of Air Force Airlifters



- This chart shows the average age (the top part of the chart) and inventories (the bottom part of the chart) of the Air Force's airlifters.
- Once deliveries of the C-17 and C-130J end around 2010, the fleet's average age will increase steadily.
- CBO's projections assume that as older versions of the C-130 are retired they are not replaced, resulting in a decline in the overall inventory of Air Force airlifters.

Figure 3-27 Updated

Age and Inventory of Air Force Tankers

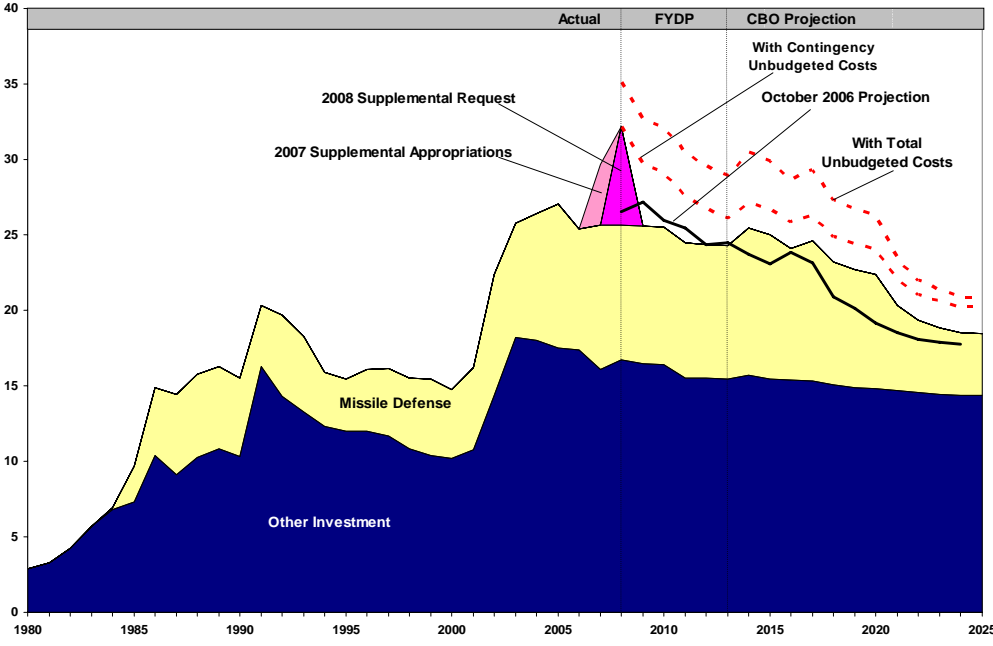


- This chart shows the average age (the top part of the chart) and inventories (the bottom part of the chart) of the Air Force's tanker fleet.
- Once deliveries of a new tanker begin in 2010, average age will decline steadily although it will not reach the half-life range until beyond the end of CBO's projection period in 2025.

Figure 3-29 Updated

Past and Projected Investment Funding for Defense Agencies

(Billions of 2008 Dollars of Total Obligational Authority)

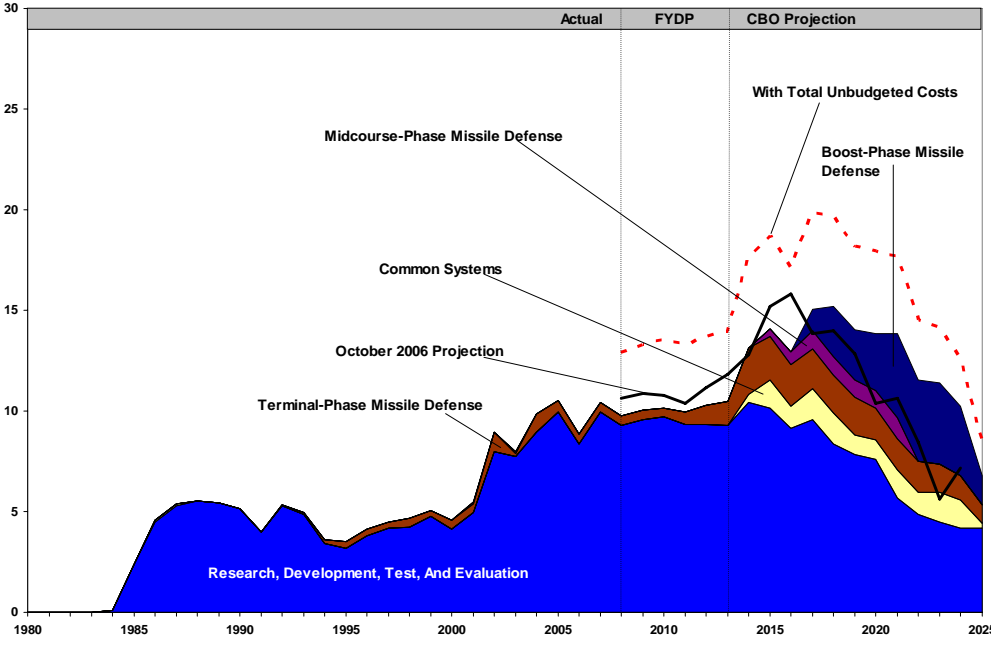


- This chart shows the portion of DoD's budget that provides money for various specialized agencies that perform advanced research, develop missile defenses, oversee special operations, and develop and manage information systems.
- The investment funding allocated to those activities in the 2008 FYDP averages about \$25 billion a year over the period from 2008 to 2013 and averages about \$22 billion a year in CBO's projection spanning the years from 2014 to 2025.
- Differences between CBO's October 2006 projection and its current projection result primarily from delays in missile defense programs, as explained in the update to Figure 3-30.

Figure 3-30 Updated

Past and Projected Investment Funding for Missile Defense

(Billions of 2008 Dollars of Total Obligational Authority)



- This chart depicts past and projected investment for missile defense. In CBO's projection, total investment in missile defense peaks in 2018 at about \$15 billion and then decreases, as procurement of systems ends and they become operational. If, however, costs grow as they have historically, pursuing the programs included in CBO's missile defense projection would cost an additional \$4 billion a year, on average, with projected investment spending peaking at about \$20 billion in 2018.
- Compared with its October 2006 projection, the amount of the estimated peak annual investment for missile defenses in CBO's current projection is similar, but the peak occurs about two years later. That shift is driven primarily by schedule delays in the development of the Airborne Laser (ABL) and Kinetic Energy Interceptor (KEI), and in the development of the SM-3 Block II missile for the Aegis Ballistic Missile Defense program.
- The Missile Defense Agency (MDA) fielded the Initial Defense Capability of the Ground-Based Midcourse Defense System (GMD) in December 2005. CBO assumes that DoD will expand GMD beyond that initial capability, including the establishment of a third site for interceptor missiles as well as the procurement of additional interceptors, radars, and command-and-control systems.
- CBO also assumes that DoD will use a spiral development approach to deploy the Space Tracking and Surveillance System, including two proof-of-concept satellites scheduled to be launched in 2008. The operational constellation would consist of an initial set of four satellites, with the first being launched in 2016, followed by a second 'spiral' of five additional satellites beginning in 2019.
- The ABL boost-phase system will consist of a high-energy chemical laser mounted on a Boeing 747 aircraft. CBO's projection incorporates the procurement of an operational fleet of seven ABL aircraft in addition to the two developmental aircraft.
- In some public statements, officials of the Missile Defense Agency (MDA) have indicated that, depending on the progress in development, only one of the boost-phase programs, ABL or KEI, may eventually be pursued. However, MDA's plans for KEI have 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 terminated one of the programs.
- MDA has established a Space Test Bed to conduct research to support potential deployment of boost-phase interceptors in space. CBO's projection of DoD's current plans incorporates the assumption that an operational space-based interceptor will be developed and would be available for initial fielding around 2023. The projected size of the constellation (168 space-based interceptors) is based on a design described in the CBO study *Alternatives for Boost-Phase Missile Defense*, published in 2004.
- CBO's projection also reflects the assumption that DoD will purchase, as planned, the Patriot Advanced Capability 3 short-range missile defense system and its follow-on, the Medium Extended Air Defense System, as well as the Theater High-Altitude Area Defense system.

**Appendix A**

**Calculating Steady-State Procurement Funding and Fleet Half-Lives**

To provide measures to use in assessing the long-term implications of the Administration's current procurement plans, the Congressional Budget Office (CBO) estimated how much the Department of Defense (DoD) would need to spend on major procurement each year to sustain its forces and keep the average age of various types of weapon systems constant.

Those estimates are based on the number of weapons that DoD has in its current inventory, the projected life spans of those weapons, and the costs of their replacements. For example, the Air Force's desired inventory of fighter and attack aircraft totals about 2,200 planes (including reserves to replace lost or damaged planes). In the past, the Air Force expected to keep its fighter and attack aircraft flying for about 20 years before replacing them. Beginning in the 1990s, however, the service planned to retain its fighters for 30 years or more. Thus, for Air Force fighters, CBO assumes service lives that span 20 to 30 years.

Annual steady-state purchases equal the desired inventory level divided by the expected service life—or, in this case, purchases of 72 to 108 Air Force fighters per year. The cost of the Joint Strike Fighter (JSF) and the F-22 aircraft, which will eventually replace current fighters, ranges from about \$80 million for the Air Force version of the JSF to about \$180 million for the F-22. (The Air Force plans to replace some 80 percent of its

fleet with the lower-cost JSF.) CBO multiplied annual steady-state purchases for each type of aircraft by the estimated cost for each replacement to estimate total steady-state procurement costs for the Air Force's fleet of tactical aircraft. That estimate ranges from \$5 billion to about \$8 billion a year.

Steady-state procurement funding relates only to the size and type of systems purchased; it is independent of the current amount of the procurement budget. Implementation of actual plans could bring annual budgets that are higher or lower than steady-state levels. If DoD bought all systems in the annual quantities reflected in a steady-state estimate, inventories of equipment would eventually be evenly distributed throughout the age range from new deliveries to systems at retirement age. For inventories with such an age distribution, annual retirements would be steady rather than varying from year to year, as would happen if systems were purchased unevenly. The average age of each type of equipment would eventually equal half the equipment's service life and would neither increase nor decrease thereafter. Thus, steady-state funding would ensure that a fleet's average age remained stable at the half-life of that fleet's expected service life.

**Appendix B**

**Selected Acronyms and Abbreviations**

<b>AAV:</b> amphibious assault vehicle	<b>LAV:</b> Light Armored Vehicle
<b>ABL:</b> Airborne Laser	<b>LCA:</b> Light Cargo Aircraft
<b>C4ISR:</b> command, control, communications, computers, intelligence, surveillance, and reconnaissance	<b>LCS:</b> littoral combat ship
<b>CBO:</b> Congressional Budget Office	<b>LHA(R):</b> Landing Helicopter Assault (Replacement)
<b>CVN:</b> Aircraft Carrier, Nuclear-powered	<b>LRSA:</b> long-range strike aircraft
<b>DoD:</b> Department of Defense	<b>LUH:</b> Light Utility Helicopter
<b>ECI:</b> employment cost index	<b>MDA:</b> Missile Defense Agency
<b>EFV:</b> Expeditionary Fighting Vehicle	<b>MILPERS:</b> military personnel
<b>FCS:</b> Future Combat Systems	<b>MLRS:</b> Multiple-Launch Rocket System
<b>FUR:</b> Future Utility Rotorcraft	<b>MPF(F):</b> Maritime Prepositioning Force (Future)
<b>FYDP:</b> Future Years Defense Program	<b>O&amp;M:</b> operation and maintenance
<b>GDP:</b> gross domestic product	<b>O&amp;S:</b> operation and support
<b>GMD:</b> Ground-Based Midcourse Defense System	<b>OMB:</b> Office of Management and Budget
<b>HIMARS:</b> High-Mobility Artillery Rocket System	<b>SAR:</b> Selected Acquisition Report
<b>JHL:</b> Joint Heavy Lift	<b>STSS:</b> Space Tracking and Surveillance System
<b>JSF:</b> Joint Strike Fighter	<b>TOA:</b> total obligational authority
<b>KEI:</b> Kinetic Energy Interceptor	<b>UCAV:</b> unmanned combat air vehicle