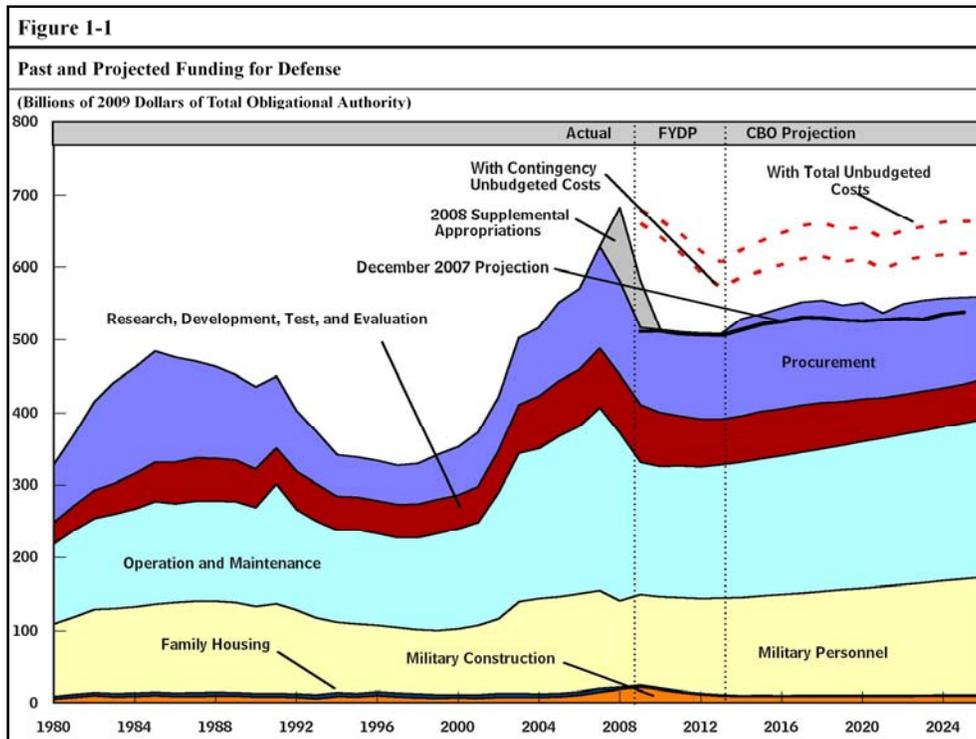
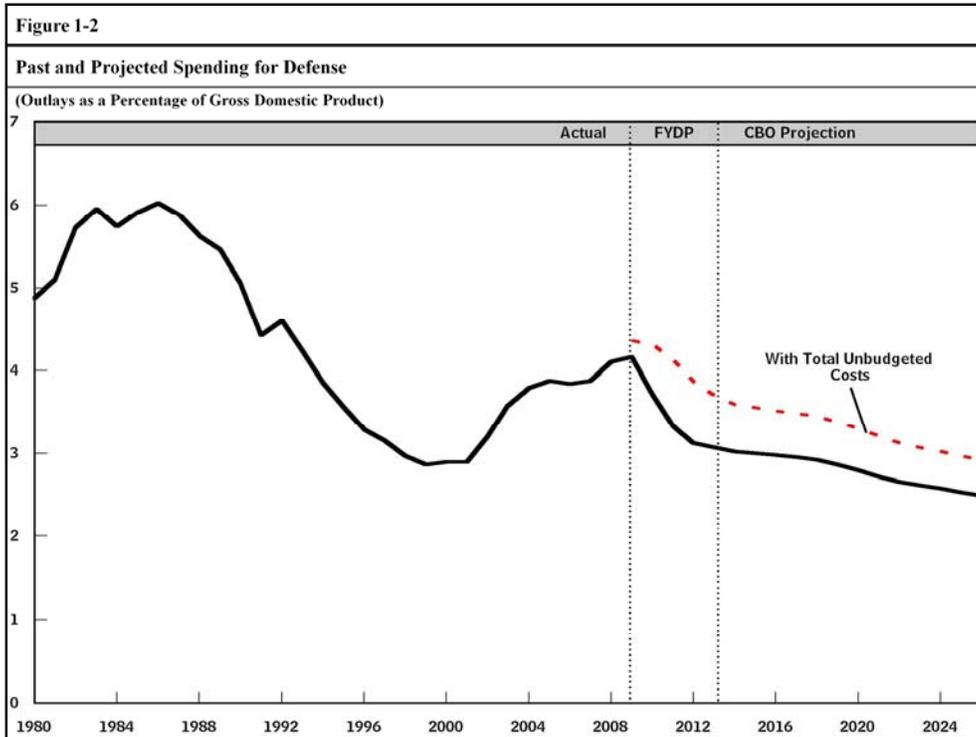


- This presentation updates the analysis of defense plans contained in the Congressional Budget Office's (CBO's) March 2008 Web document *The Long-Term Implications of Current Defense Plans: Detailed Update for Fiscal Year 2008* to account for changes incorporated in the President's budget for fiscal year 2009 and in the 2009 Future Years Defense Program (FYDP). The presentation provides additional data not found in CBO's January 2009 publication *Long-Term Implications of the Fiscal Year 2009 Future Years Defense Program*. Both of those documents respond to standing requests from the Senate Budget Committee.
- This presentation does not incorporate changes to the FYDP that have resulted from Congressional action on the President's 2009 budget request. (In particular, it does not display amounts appropriated for defense by the Congress for fiscal year 2009.) Nor does it incorporate changes to the defense program proposed by the Obama Administration and under consideration by the Congress as part of its action on the fiscal year 2010 defense budget.
- Charts in this detailed update use the concepts "steady state" and "half-life" to assess 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 calculated in billions of 2009 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 descriptions and explanations that accompany the charts in this Web document assume that the reader is familiar with DoD programs and their content.

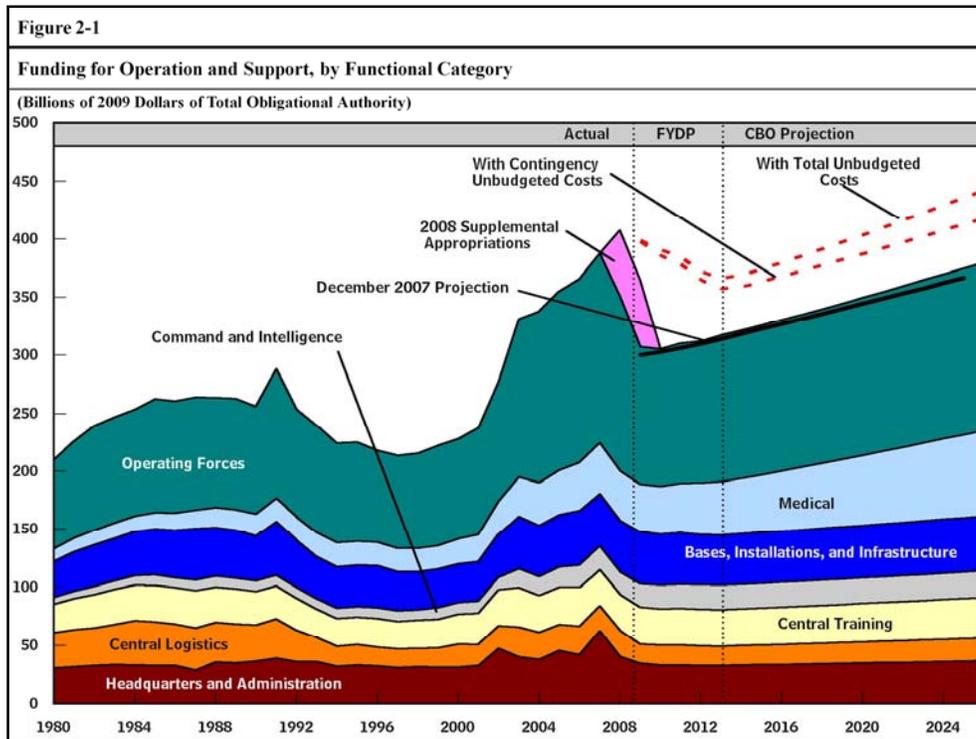


- This chart shows total obligational authority (TOA) for the Department of Defense for the 1980–2026 period. TOA for defense grew rapidly between the early and mid-1980s, reaching a peak of \$485 billion in 1985. TOA then generally declined during the late 1980s and into the 1990s, reaching a low point of about \$327 billion in 1997. DoD’s TOA began to rise thereafter, reaching \$373 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 2008, DoD’s TOA reached \$683 billion, including \$190 billion to fund those operations.
- The President requested \$517 billion for DoD in 2009. (A regular appropriations act for DoD for fiscal year 2009 has already become law —Public Law 110-329—which provides \$515 billion in funding. This presentation is based on the fiscal year 2009 FYDP, which incorporates the President’s budget request of \$517 billion for DoD, and not on those appropriations. P.L. 110-329 includes \$102 billion for procurement; \$80 billion for research, development, testing, and evaluation; \$125 billion for military personnel; \$179 billion for operation and maintenance; and \$28 billion in other funding. Those amounts do not add to \$515 billion because of rounding.) The President’s budget anticipated a total of \$142 billion in fiscal year 2009 supplemental funding for operations in Iraq and Afghanistan (\$66 billion was provided by P.L. 110-252, which was enacted in June 2008 and is displayed on the chart, and \$76 billion in additional funding that was anticipated later). With the enactment of P.L. 111-32 in June 2009, the Congress provided an additional \$80 billion of funding for those operations for fiscal year 2009, for a total of \$146 billion. The 2009 FYDP included none of that anticipated emergency and supplemental funding.
- The 2009 FYDP anticipated that defense resources (excluding supplemental appropriations) would fall from \$517 billion for 2009 to \$508 billion for 2013. If the plans contained in the 2009 FYDP were carried out as currently envisioned, the demand for defense resources, excluding funding for contingencies, would average \$549 billion a year between 2014 and 2026, CBO projects—or about 6 percent more than was specified in the 2009 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 would average about \$644 billion a year through 2013 and about \$656 billion annually between 2014 and 2026. Those values are about 23 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 continue to exceed program estimates at the same rate as they have since the Vietnam War; and
  - The United States continues to conduct overseas contingency operations (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.

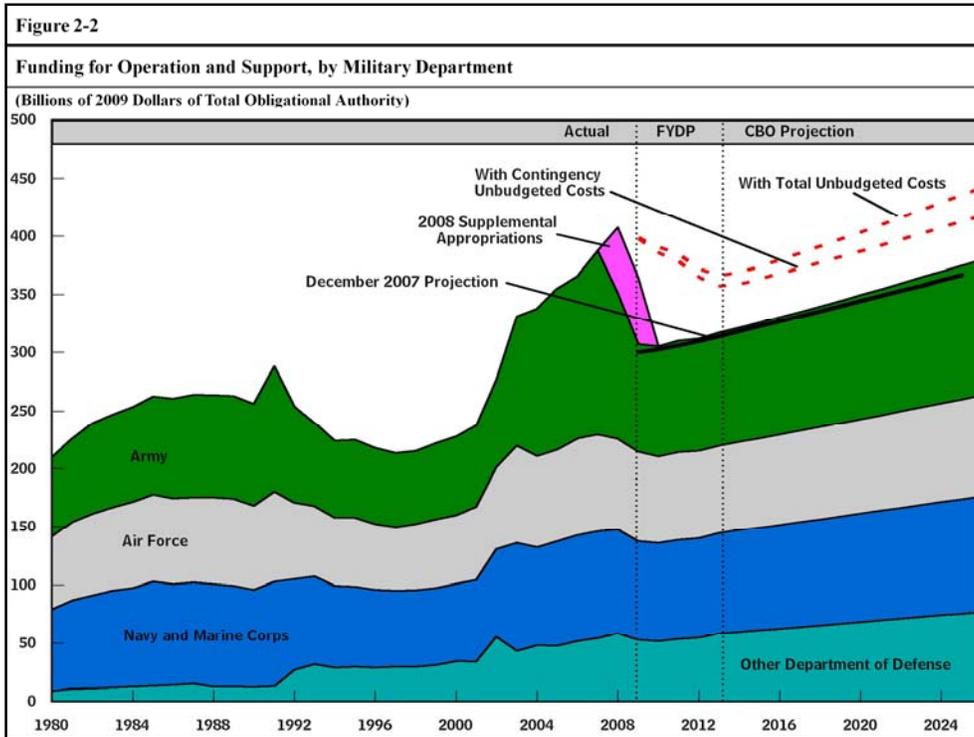


This chart displays historical and projected spending for the Department of Defense (budget subfunction 051). Defense spending peaked at about 6 percent of gross domestic product (GDP) in the mid-1980s and declined steadily thereafter through the late 1990s, when it reached a low point of 2.9 percent of GDP. After 2001, the costs of operations in Iraq and Afghanistan caused defense spending to increase as a share of GDP; it currently makes up somewhat more than 4 percent of GDP.

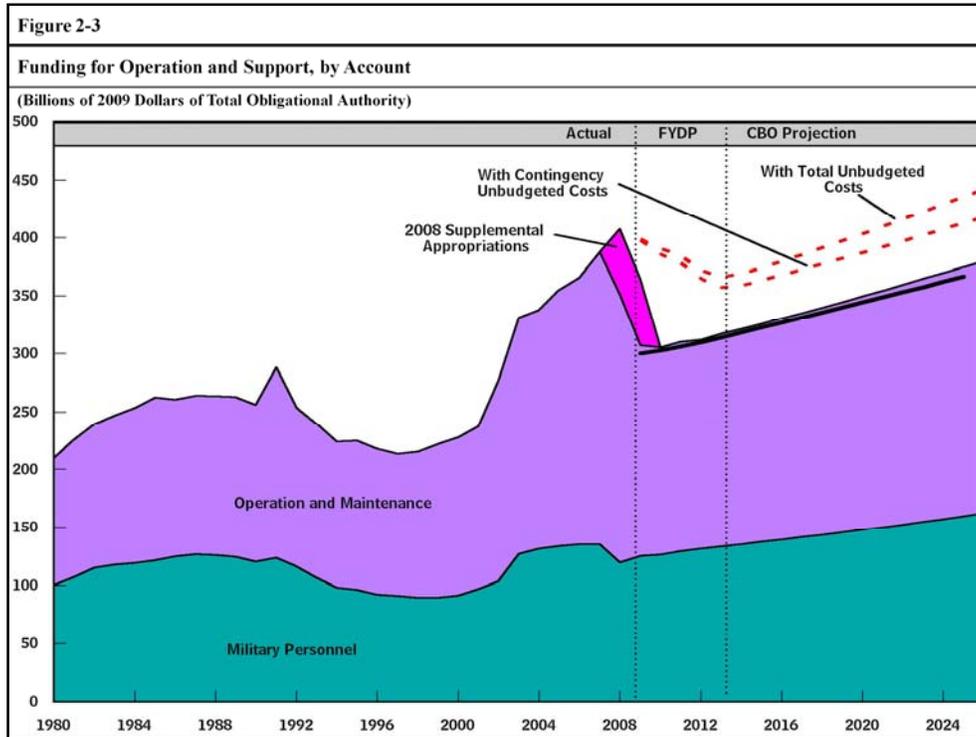
Under CBO's projections of the implications of the 2009 FYDP, defense spending would decline steadily, reaching about 2.5 percent to 3.0 percent of GDP by 2026 (depending upon whether unbudgeted costs are excluded or included).



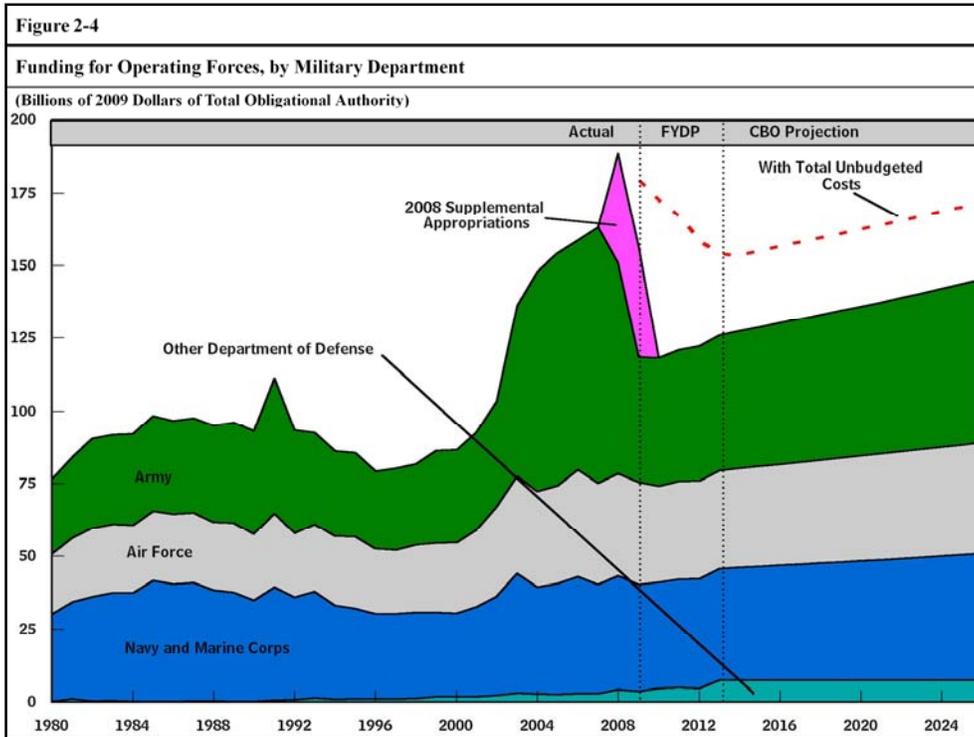
- This chart shows funding for operation and support (O&S), which accounts for about 60 percent of defense funding and pays for DoD's day-to-day operations as well as for military and civilian payrolls. CBO created subcategories of O&S funding based on the force and infrastructure codes used within DoD. According to CBO's projections, O&S funding would reach \$380 billion in 2026 not including potential unbudgeted costs.
- 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 \$443 billion in 2026. The largest potential unbudgeted costs are for the following:
  - Continued involvement in overseas contingency operations, such as those in Afghanistan, Iraq, and elsewhere. (Under the assumption that U.S. forces—comprising about 75,000 personnel— would continue to be deployed to overseas contingency operations, those unbudgeted costs would decrease to about \$38 billion in 2026.); and
  - Faster-than-expected growth in DoD's health care costs (\$19 billion of unbudgeted costs in 2026).
- 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 would grow at the same rate as the employment cost index (ECI), a measure of the average pay level in the U.S. civilian economy.



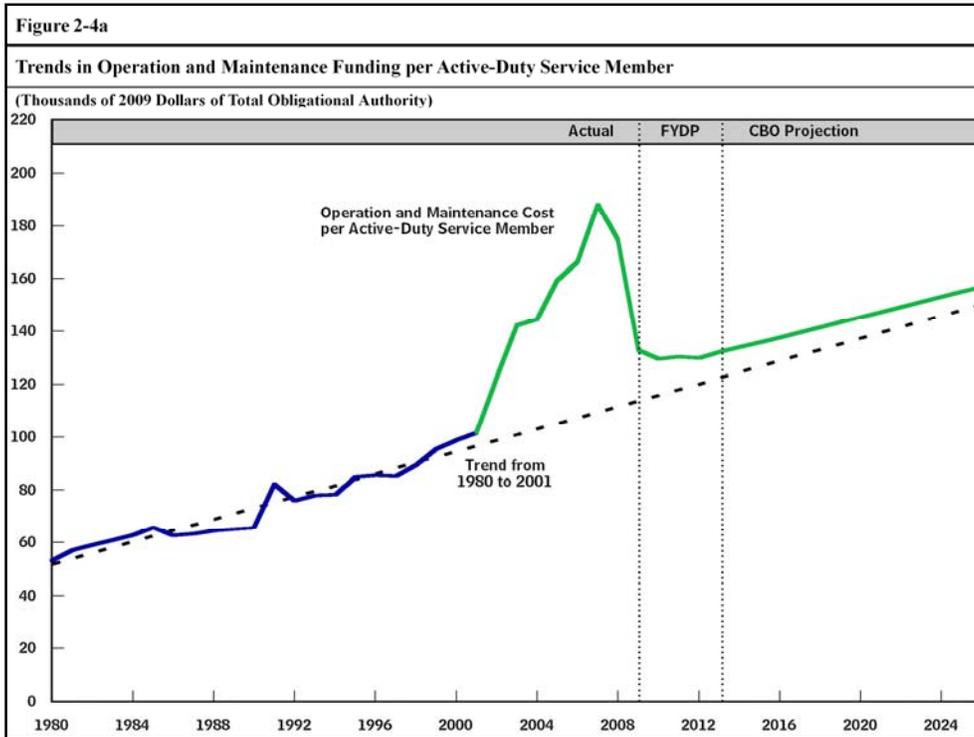
- Under DoD's plans, between 2009 and 2013, the Departments of the Army, Navy, and Air Force would receive approximately 31 percent, 27 percent, and 24 percent of the O&S budget, respectively. Defense-wide activities (labeled "Other Department of Defense" in the figure), including the Defense Health Program, make up the rest of the O&S budget.
- CBO projects that for every military department, average annual O&S funding would grow at a real (inflation-adjusted) rate of between 1.1 percent and 1.4 percent from 2013 to 2026.
- The Army has received the largest portion of supplemental contingency funding for operations in Iraq and Afghanistan.



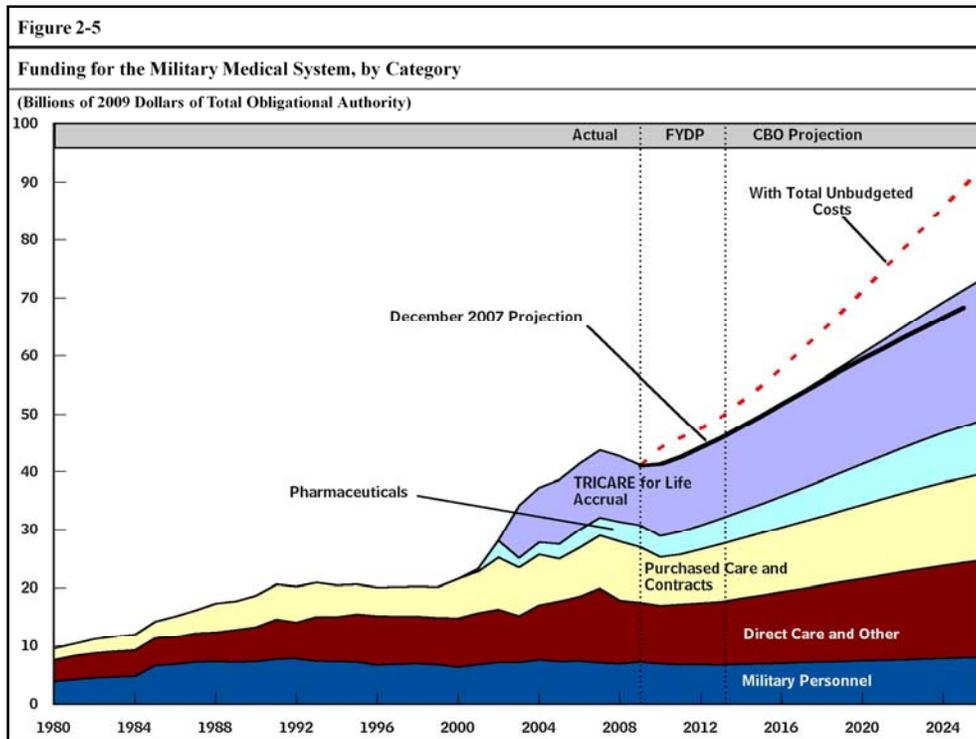
- CBO projects that funding for military personnel would increase from \$133 billion in 2013 to \$162 billion in 2026, an average annual growth rate of 1.5 percent. That growth is attributable to two factors:
  - CBO's assumption that military pay raises would keep pace with the ECI (which has historically grown faster than inflation); and
  - CBO's assumption, which is consistent with that of DoD's actuaries, that medical accrual costs would 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 dependents) after they retire from the military and become eligible for Medicare.
- In CBO's projection, operation and maintenance (O&M) funding increases from \$183 billion in 2013 to \$218 billion in 2026, an average annual growth rate of 1.3 percent. Most of that growth stems from the following assumptions:
  - That DoD civilian employee pay raises, like military pay raises, would also keep pace with the ECI; and
  - That medical costs associated with the Defense Health Program, which provides medical care to active-duty military personnel and their dependents and to military retirees and dependents not yet eligible for Medicare would continue to rise. The Defense Health Program is not funded on an accrual basis.
- About 85 percent of emergency and supplemental funding for O&S is allocated to O&M in 2009; about 15 percent is allocated to paying for military personnel, including special pays and compensation for activating reserve component personnel.



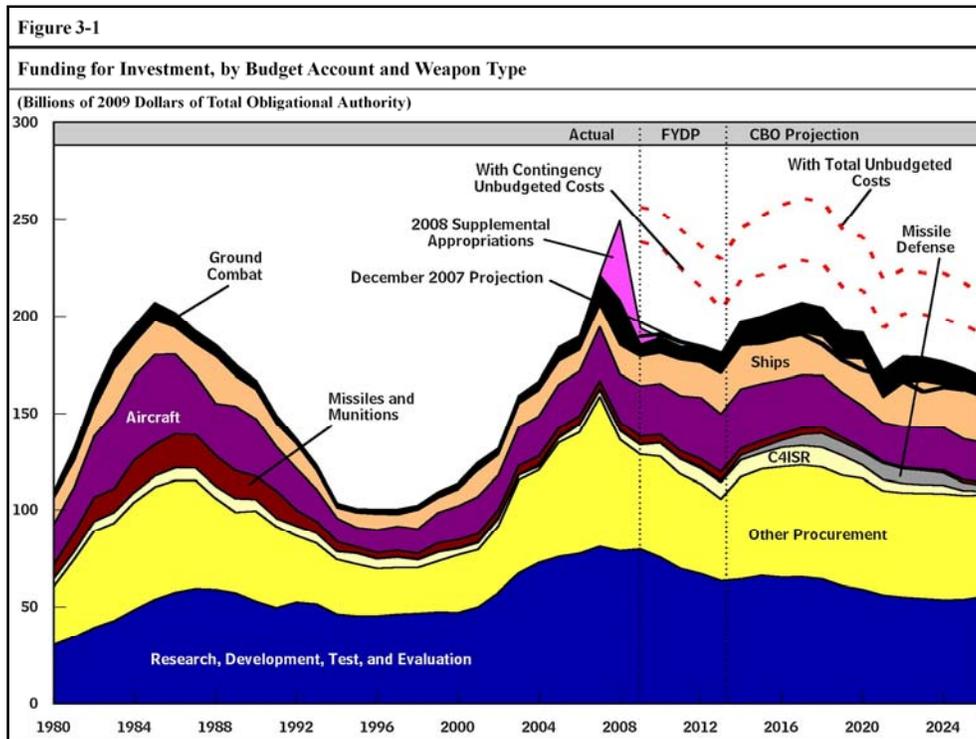
- The O&S subcategory “Operating Forces” pays for combat and support units assigned to Combatant Commands.
- In CBO’s projection, the Operating Forces category experiences \$6 billion of funding growth between 2013 and 2026, in addition to pay increases. That extra growth is attributable to the following 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.
- 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.



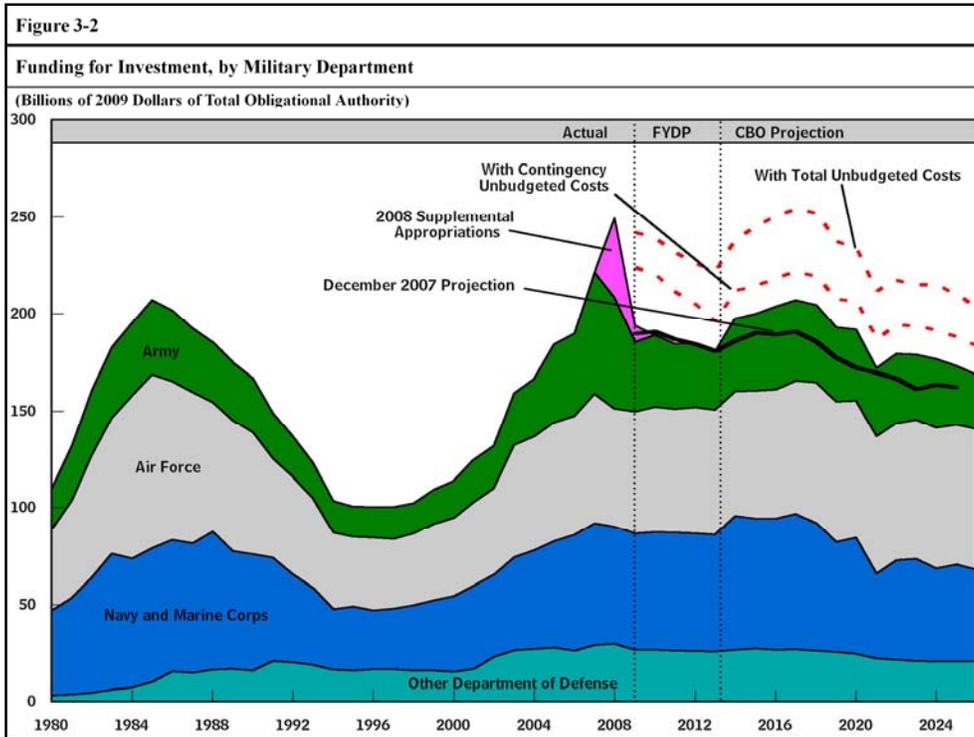
- From 1980 to 2001, operation and maintenance costs grew steadily by an average of about \$2,100 per active-duty service member per year. Excluding potential unbudgeted costs, CBO projects a similar rate of O&M cost growth in the future. However, consistent with DoD's 2009 FYDP, CBO projects that O&M per active-duty service member would not return to its prewar level, but rather would begin at about \$9,700 above the trend line in 2013.
- 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 excluding unbudgeted costs do not include future funding for those operations.



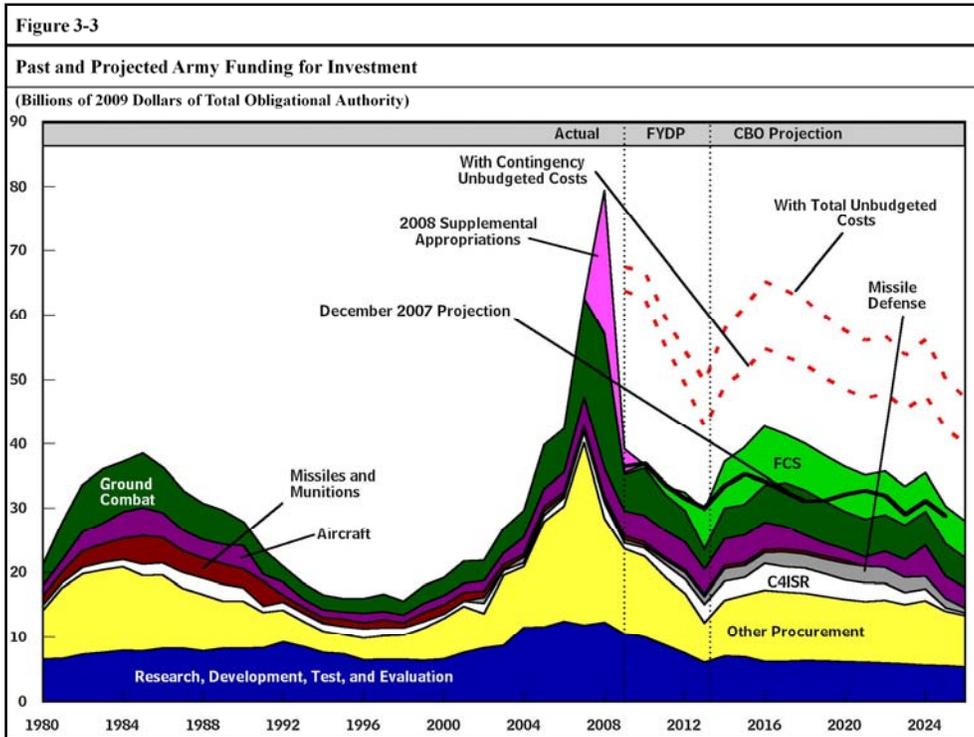
- CBO estimates that total real medical funding would increase by 79 percent, from \$41 billion in 2009 to \$74 billion by 2026. Real medical funding including potential unbudgeted costs could more than double, reaching \$93 billion by 2026, CBO projects.
- Accrual payments for beneficiaries who are over age 65 or otherwise eligible for Medicare would increase by about 137 percent by 2026, reaching a total of \$24 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 \$4 billion in 2009 to \$9 billion in 2026; with cost risk included, real drug expenditures would more than triple, reaching \$14 billion in 2026.
- Purchased care and private-sector contracts are projected to grow by 57 percent in real terms, from \$10 billion in 2009 to \$15 billion in 2026. Funding for that category including cost risk could increase by 124 percent in real terms, reaching \$21 billion in 2026.
- The category that comprises the military's direct-care system and other medical funding is projected to grow by 62 percent in real terms, from somewhat more than \$10 billion in 2009 to somewhat less than \$17 billion in 2026. If costs were to grow more quickly than DoD has anticipated, funding in that category could rise by 122 percent in real terms, reaching \$23 billion in 2026 and contributing (along with other factors) to the dashed line labeled "With Total Unbudgeted Costs" in the figure.
- CBO anticipates that appropriations for uniformed medical personnel funded through the Defense Health Program would grow by 12 percent in real terms by 2026 as a result of pay increases that outpace inflation. CBO expects real funding in the military personnel category to grow from \$7 billion in 2009 to \$8 billion in 2026.



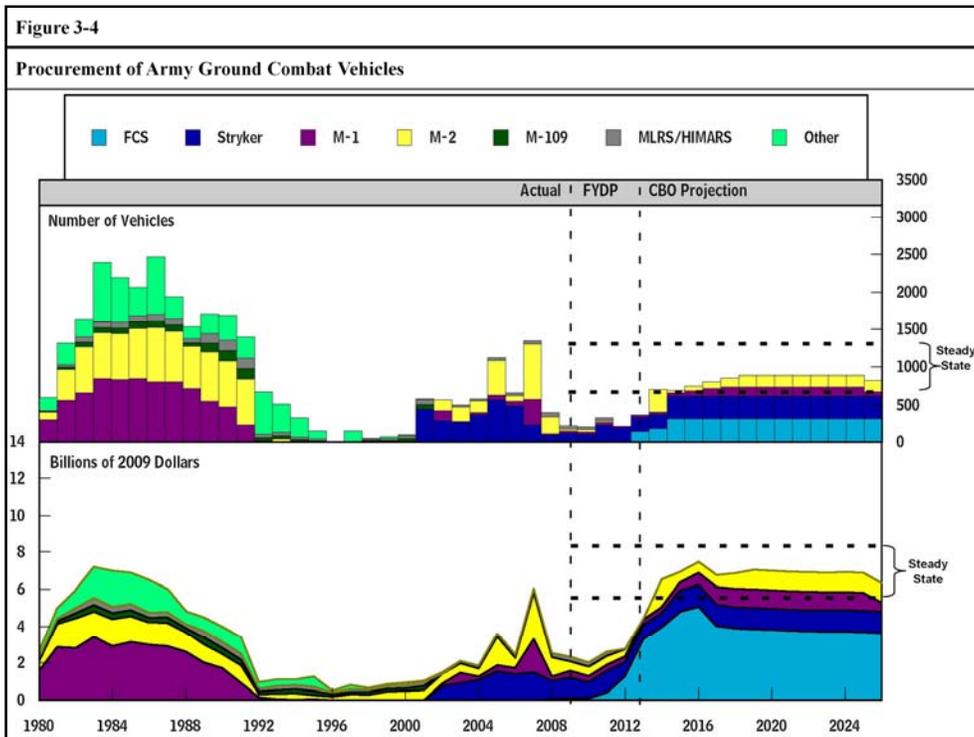
- This chart provides a breakout of the more than one-third of DoD's budget allocated to investment, which funds development and procurement of DoD's weapon systems.
- The 2009 FYDP anticipated that investment funding would be \$180 billion by 2013—about 13 percent less than the Administration's request in 2009 excluding emergency supplemental funding. On the basis of that plan, CBO projects that investment funding would reach about \$207 billion by 2017 and then decline. Over the 2014–2026 period, that funding would average about \$188 billion a year.
- If the costs of weapons were to 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 \$206 billion, or about 11 percent more than without unbudgeted costs. In that case, funding during the 2014–2026 period could average almost \$215 billion a year. Including both growth in the costs of weapon systems and potential unbudgeted costs for contingency operations, investment funding would average \$238 billion annually over the 2014–2026 period, CBO projects.
- The increase in this year's projection beyond 2013 relative to CBO's 2008 projection arises from including in this year's projection a number of new programs such as upgrades for the Army's Abrams tanks and Bradley fighting vehicles, as well as increases in the costs of ongoing programs such as the Joint Strike Fighter.



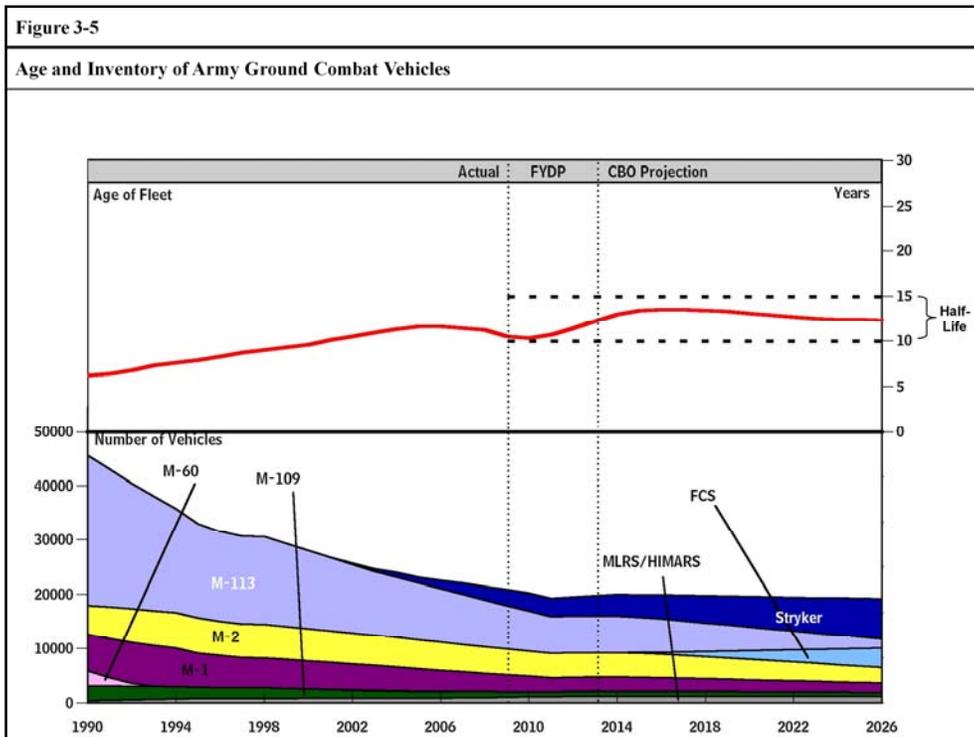
- During the period from 1980 to 2008, DoD's investment funding was distributed as follows:
  - Army investment averaged \$29 billion, or 19 percent of total DoD investment;
  - Navy and Marine Corps investment averaged \$51 billion, or 34 percent of the total;
  - Air Force investment averaged \$56 billion, or 37 percent of the total; and
  - Investment in other DoD activities averaged \$17 billion, or 11 percent of the total.
- During the period from 2009 to 2013, DoD anticipates allocating its investment resources as follows:
  - Army investment would average \$34 billion, or 18 percent of total DoD investment;
  - Navy and Marine Corps investment would average \$61 billion, or 33 percent of the total;
  - Air Force investment would average \$64 billion, or 35 percent of the total; and
  - Investment in other DoD activities would average \$26 billion, or 14 percent of the total.
- During the period covered by CBO's projection (2014 to 2026), DoD's investment resources would be distributed as follows:
  - Army investment would average \$36 billion, or 19 percent of total DoD investment;
  - Navy and Marine Corps investment would average \$58 billion, or 31 percent of the total;
  - Air Force investment would average \$70 billion, or 37 percent of the total; and
  - Investment in other DoD activities would average \$24 billion, or 13 percent of the total.



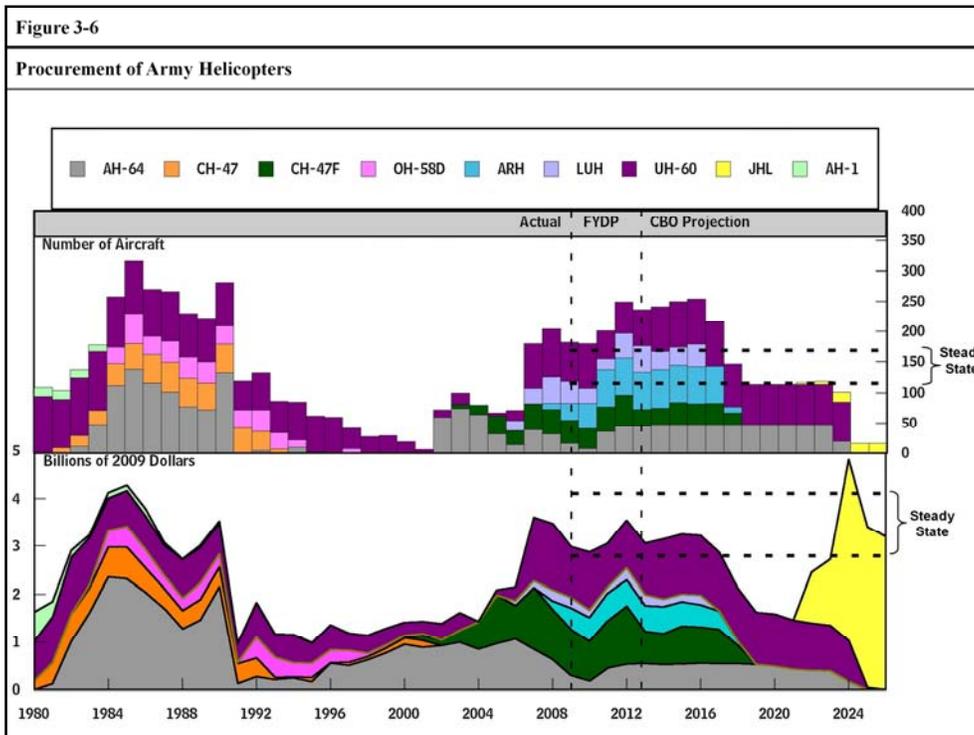
- This chart depicts the Army's past overall level of investment and future investment plans.
- On the basis of those plans, CBO projects that after 2013, the demand for Army investment funding would reach a peak of \$43 billion in 2016 and then decline to about \$28 billion by 2026, averaging about \$36 billion a year between 2014 and 2026.
- If overseas contingency operations continue to require additional Army investment, funding after 2013 could rise to a peak of about \$55 billion in 2016, average \$49 billion a year between 2014 and 2026, and then fall back to about \$42 billion by the end of the period, as depicted by the line labeled "With Contingency Unbudgeted Costs".
- If costs for weapon systems were to grow as they have in the past, however, the Army's total annual investment funding—including unbudgeted contingency costs—could rise to a peak of \$65 billion in 2016, average \$58 billion between 2014 and 2026, and then decline to about \$49 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 as contained in the 2009 FYDP to procure a maximum of 1 brigade set per year of its Future Combat Systems (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 2009 dollars invested (the bottom part of the chart). CBO's projection is based on the 2009 FYDP; therefore, it does not incorporate the termination of the manned vehicle and selected unmanned vehicle components of the FCS program proposed by DoD in the spring of 2009.
- 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 upgrades of M-1 Abrams tanks and M-2 Bradley infantry fighting vehicles (restoring those vehicles to like-new condition).
- Annual purchases of ground combat vehicles from 1993 to 1999 averaged about 180, or 16 percent of the upper end of the range of steady-state purchases needed to sustain the currently planned fleet indefinitely.
- Under DoD's 2009 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. However, CBO's projection includes upgrades to the Army's Abrams tanks and Bradley fighting vehicles that, in conjunction with planned procurement of FCS vehicles, would be sufficient to maintain the vehicle fleet in steady state.
- CBO's estimate of steady-state procurement costs for the Army's ground combat vehicles assumes the Army's brigades would 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.



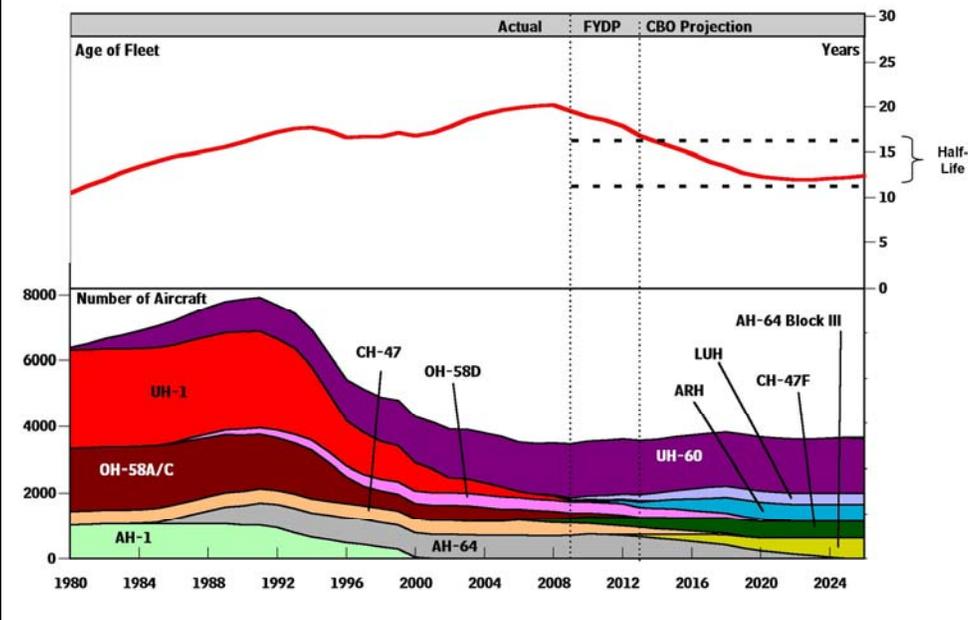
- This chart shows the average age of the Army's fleet of ground combat vehicles (the top part of the chart) and inventories of the various vehicle types (the bottom part of the chart). The inventories include only those vehicles needed to equip and support the Army's forces that are planned through 2026. (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 2009 in new Stryker vehicles and upgrades for the Army's existing M-1 Abrams tanks and M-2/3 Bradley fighting vehicles has resulted in an infusion of "younger" vehicles into a shrinking fleet. Those 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.
- Between 2010 and 2015, however, deliveries of new vehicles would be insufficient to prevent the fleet's aging. But, after 2015, when deliveries of both FCS vehicles and upgraded M-1s and M-2s are projected to occur, the fleet's average age would stabilize and gradually decline.



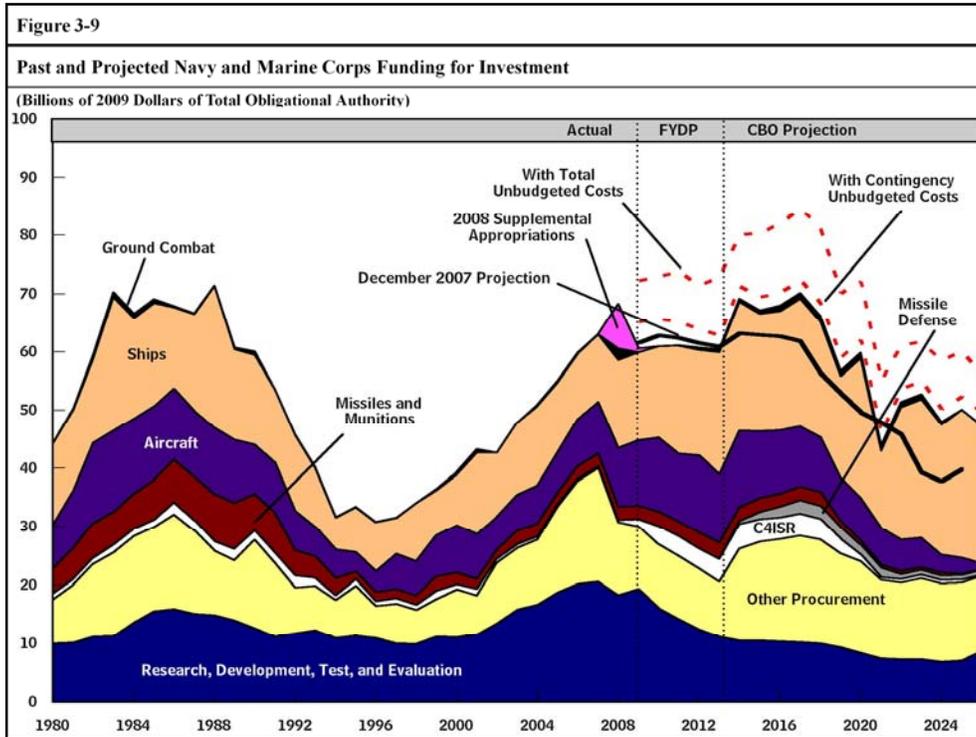
- This chart shows past and projected purchases of helicopters for the Army as measured by the number of helicopters (the top part of the chart) and by billions of 2009 dollars invested (the bottom part of the chart).
- Consistent with the 2009 FYDP, CBO's projection of Army investment includes the Armed Reconnaissance Helicopter (ARH). The Defense Department announced in the spring of 2009 its intention to terminate that program.
- 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 fiscal year 2009 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.

Figure 3-7

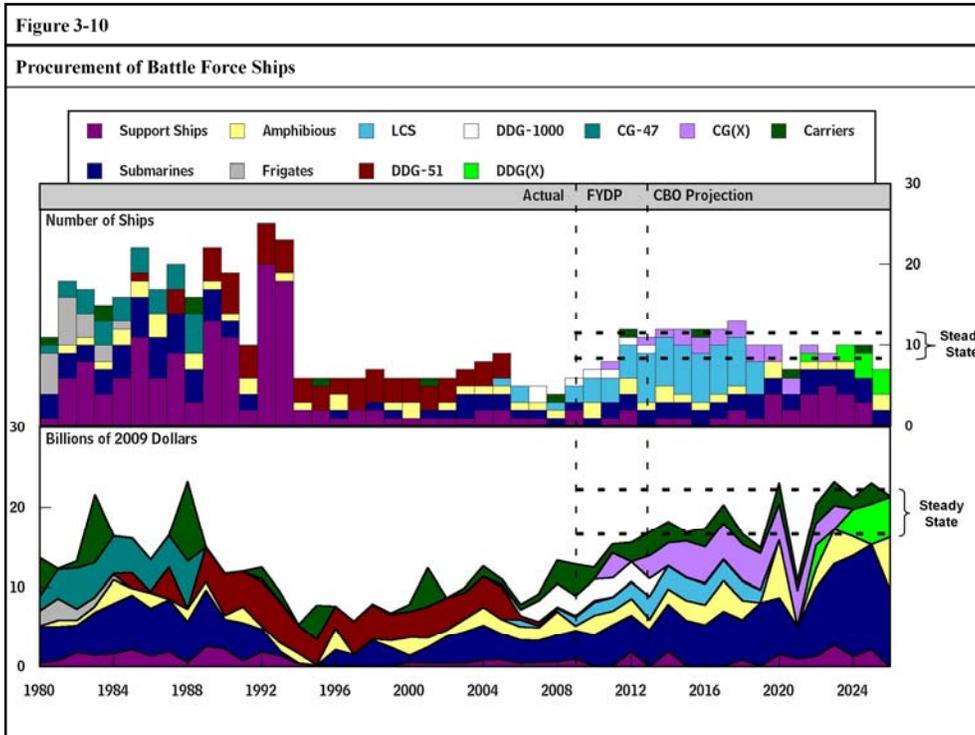
Age and Inventory of Army Helicopters



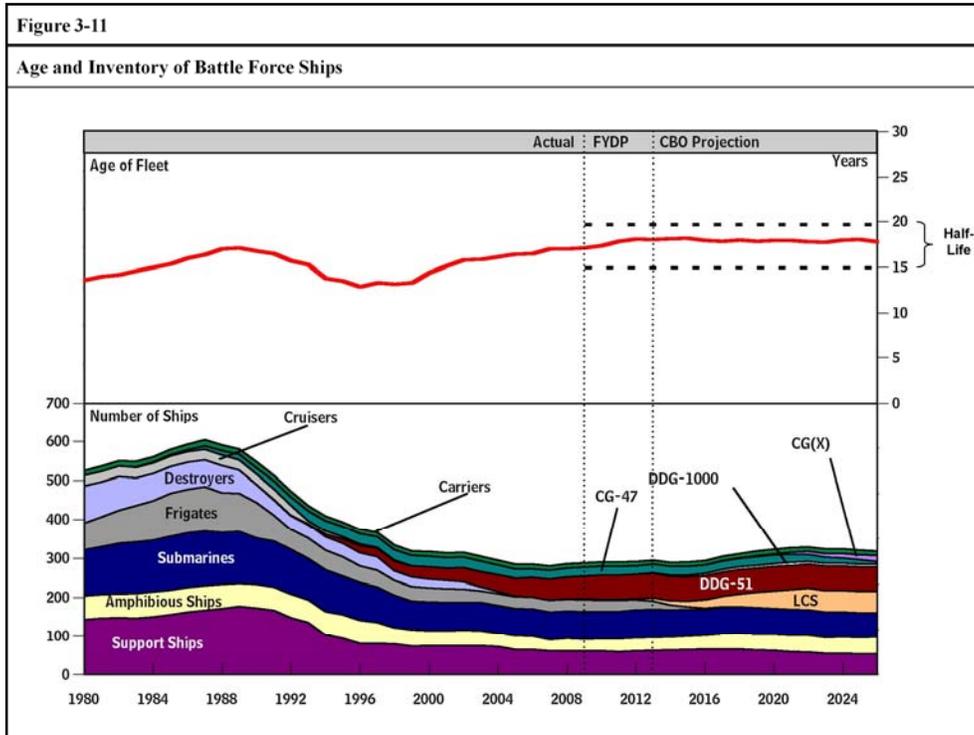
- This chart shows the average age of the Army's fleet of helicopters (the top part of the chart) and inventories of the various helicopter types (the bottom part of the chart).
- Although the Army bought few new helicopters between 1990 and 2006, it retired a large number of older aircraft, reducing 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 just above the half-life range of 11 to 16 years.
- Beginning in about 2009, projected deliveries of new helicopters would cause the average age of the fleet to decline and then stabilize at the lower end of the half-life range.
- CBO projects that the JHL inventory would reach 32 aircraft by 2026, a number too small to be displayed visibly on the chart.



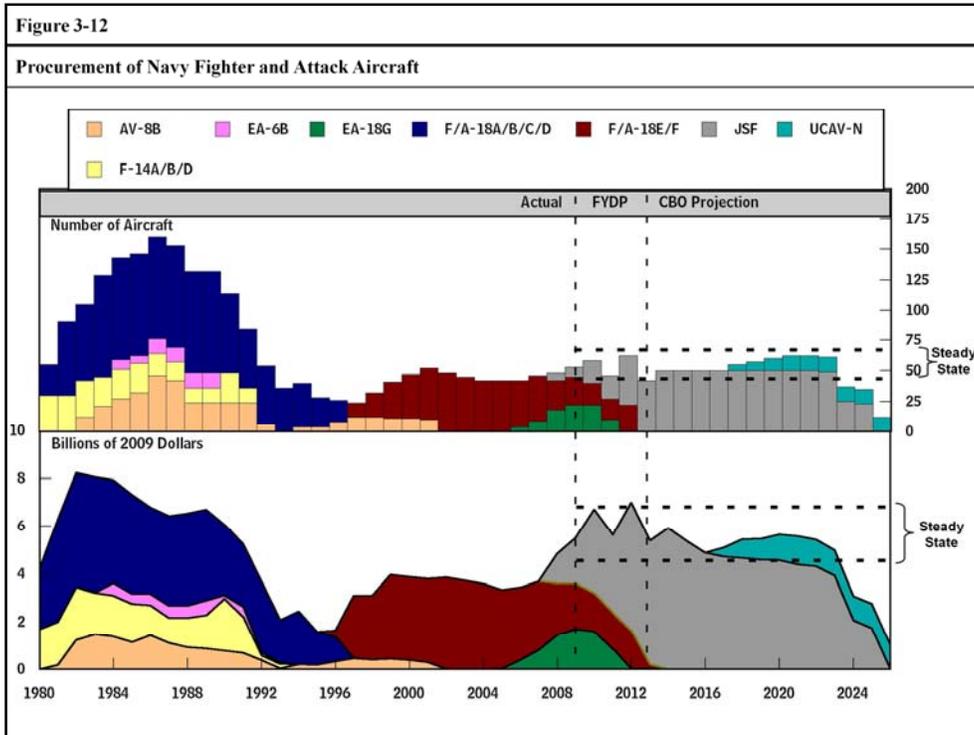
- This chart depicts the Navy's past overall level of investment and future investment plans.
- Under DoD's fiscal year 2009 FYDP, Navy investment would average about \$61 billion a year between 2009 and 2013. After that, CBO projects annual demand for investment resources would increase by about 16 percent through 2017 and then decline—to \$47 billion by 2026—averaging about \$58 billion a year between 2014 and 2026.
- If costs were to grow as they have in the past, however, the Navy's investment funding—including unbudgeted contingency costs—could rise to a peak of about \$82 billion in 2017, averaging \$67 billion a year between 2014 and 2026, and then falling to about \$54 billion by the end of the period.



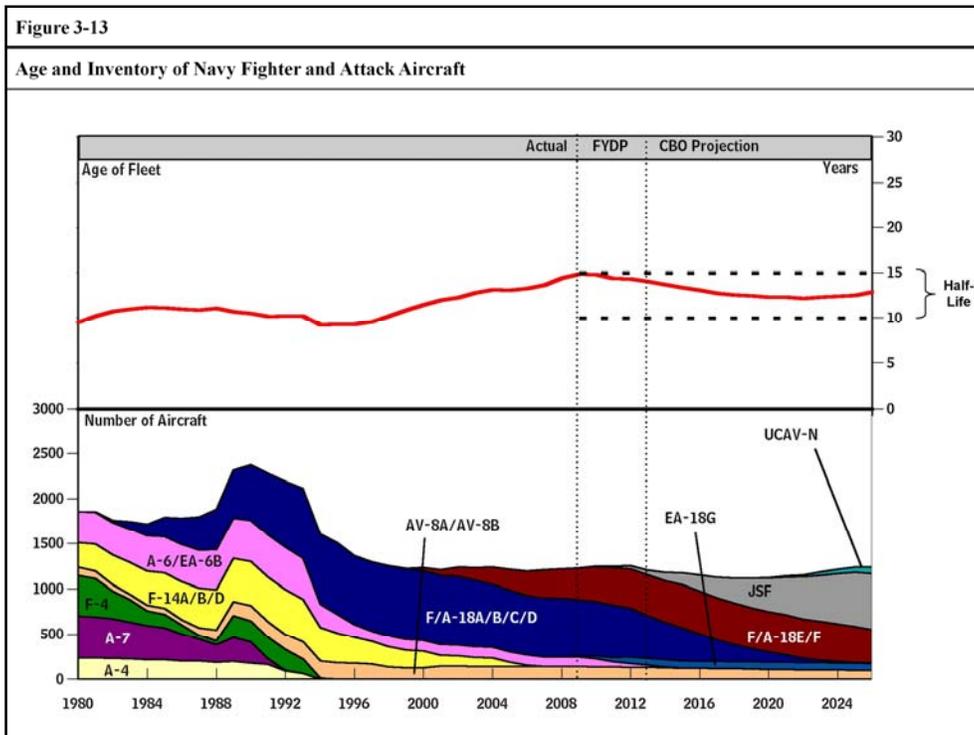
- This chart shows past and projected purchases of battle force ships for the Navy as measured by the number of ships (the top part of the chart) and by billions of 2009 dollars invested (the bottom part of the chart).
- The 2009 FYDP and CBO's projection anticipate an increase in annual ship purchases because of the Navy's plan to enlarge the fleet from about 280 ships today to 313 ships by 2020. Most of the planned expansion would occur in the surface combatant force, with the purchase of 55 littoral combat ships (LCSs).



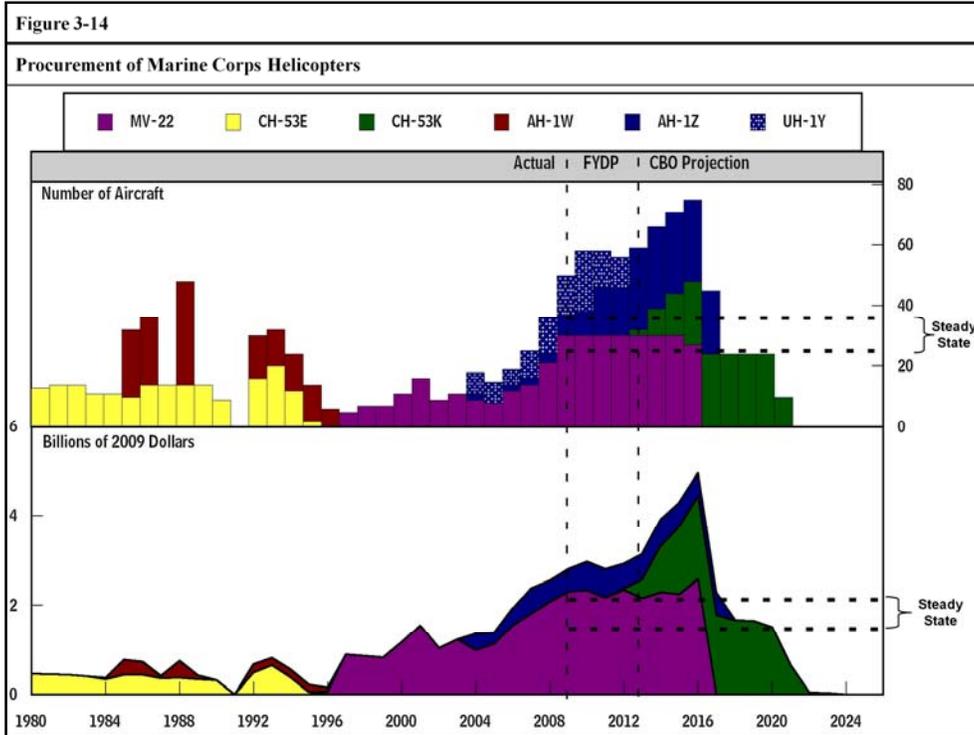
- This chart shows the average age (the top part of the chart) and inventories (the bottom part of the chart) of the Navy's battle force ships.
- Between 2008 and 2012, the average age of the Navy's fleet increases slightly from about 17 to 18 years. Thereafter, as older ships are retired and new ships are delivered at annual rates within steady-state levels, the average age of the fleet stabilizes at about 18 years.
- Because ship deliveries occur several years after the ships are procured, no inventory for the DDG(X)—the prospective replacement purchased beginning in 2022 for the existing DDG-51 destroyers—is displayed on the chart.



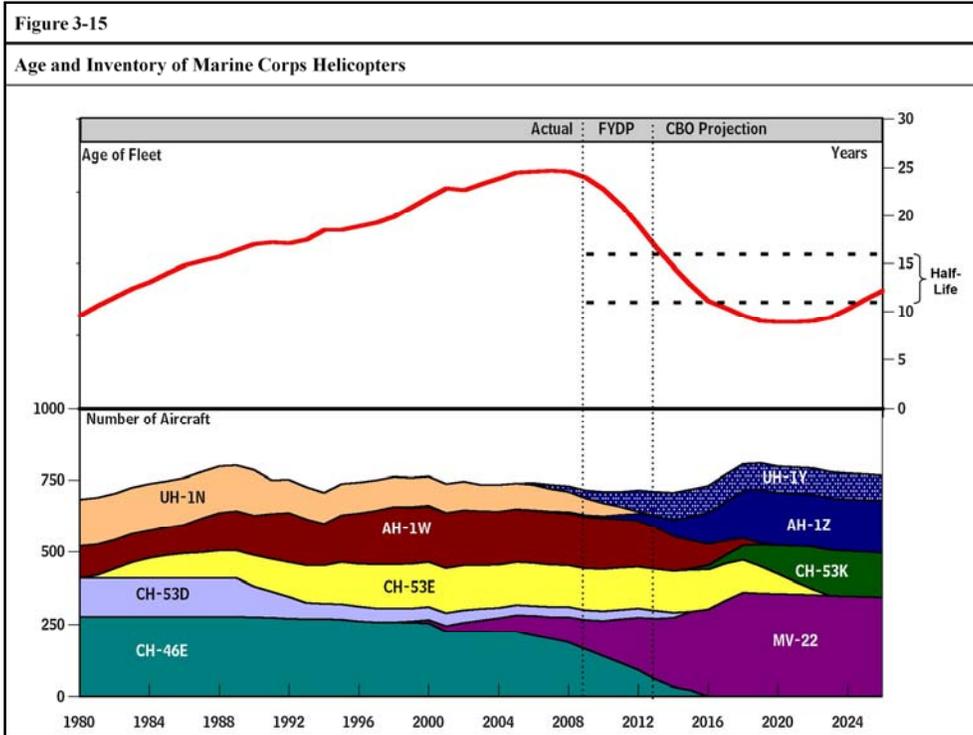
- This chart shows past and projected purchases of fighter and attack aircraft for the Navy and Marine Corps as measured by the number of aircraft (the top part of the chart) and by billions of 2009 dollars invested (the bottom part of the chart).
- Funding for procurement of tactical fighters would average about \$5 billion a year (without cost risk) over the 2009–2026 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 overlap of F/A-18E/F, EA-18G, and F-35 Joint Strike Fighter purchases. (During the period spanning 2010 to 2013, procurement of the F/A-18E/F and EA-18G would decline, while procurement of the JSF would increase.)
- Purchases of tactical aircraft would average about 50 per year during the period spanning 2014 to 2026, a quantity sufficient to maintain steady-state levels for the Navy’s and Marine Corps’s tactical fighter fleets.
- CBO’s projection assumes the Navy would develop an unmanned combat air vehicle (UCAV-N) and procure it in quantities similar to the EA-18G to provide a contingent in each carrier air wing for use in specialized roles. The Navy is currently funding the UCAS-D, a demonstrator program to investigate the feasibility of operating such aircraft on board aircraft carriers.
- Under the service’s fiscal year 2009 plans, the last Navy JSF aircraft would be purchased in 2025. At that time, the first F/A-18E/F aircraft would be nearing 30 years of age and would probably require retirement. Those aircraft could be replaced with additional JSFs, with UCAV-Ns, or with a new aircraft design. CBO’s projections do not include the RDT&E funding that would be needed before 2026 for a new aircraft designed to replace the F/A-18E/F.



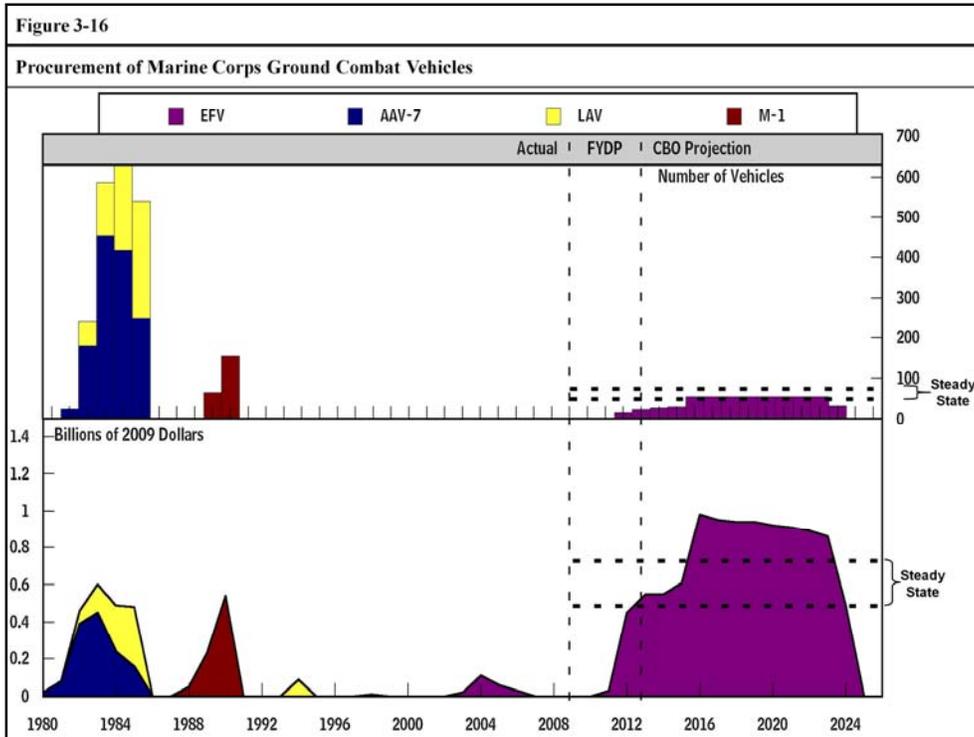
- This chart shows the average age (the top part of the chart) and inventories (the bottom part of the chart) of the Navy's and Marine Corps's fighter and attack aircraft.
- If DoD's fiscal year 2009 FYDP were carried out, CBO projects that the average age of the Navy's fighter and attack aircraft fleet would remain within the target half-life range of 10 to 15 years throughout the 2009–2026 projection period. The fleet's average age declines beginning in 2009 and extending through 2022 because of deliveries of Joint Strike Fighters and UCAVs, as well as because of the retirement of older F/A-18 A/B/C/D aircraft.
- Procurement of new aircraft falls below steady-state levels beginning in 2023. The average age of the Navy's tactical aircraft fleet begins to increase after that time as those fewer purchases result in fewer deliveries and retirement of older F/A-18 aircraft slows and ends.



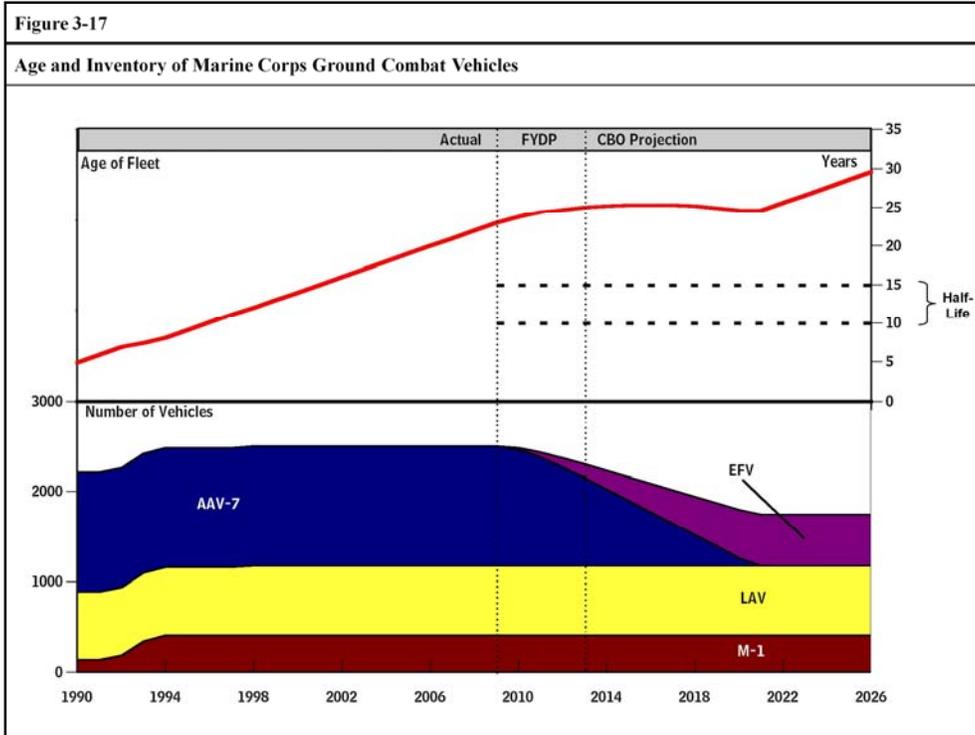
- This chart shows past and projected purchases of helicopters and tilt-rotor aircraft for the Marine Corps as measured by the number of helicopters (the top part of the chart) and by billions of 2009 dollars invested (the bottom part of the chart).
- Procurement of the MV-22 tilt-rotor transport (to replace the existing CH-46 fleet) and of the CH-53K (to replace the CH-53E fleet) accounts for about 78 percent of the funding projected for purchases of Marine Corps helicopters during the period spanning 2009 to 2026.
- The bottom panel of the chart displays the combined total funding for the AH-1Z attack helicopter and UH-1Y utility helicopter programs.



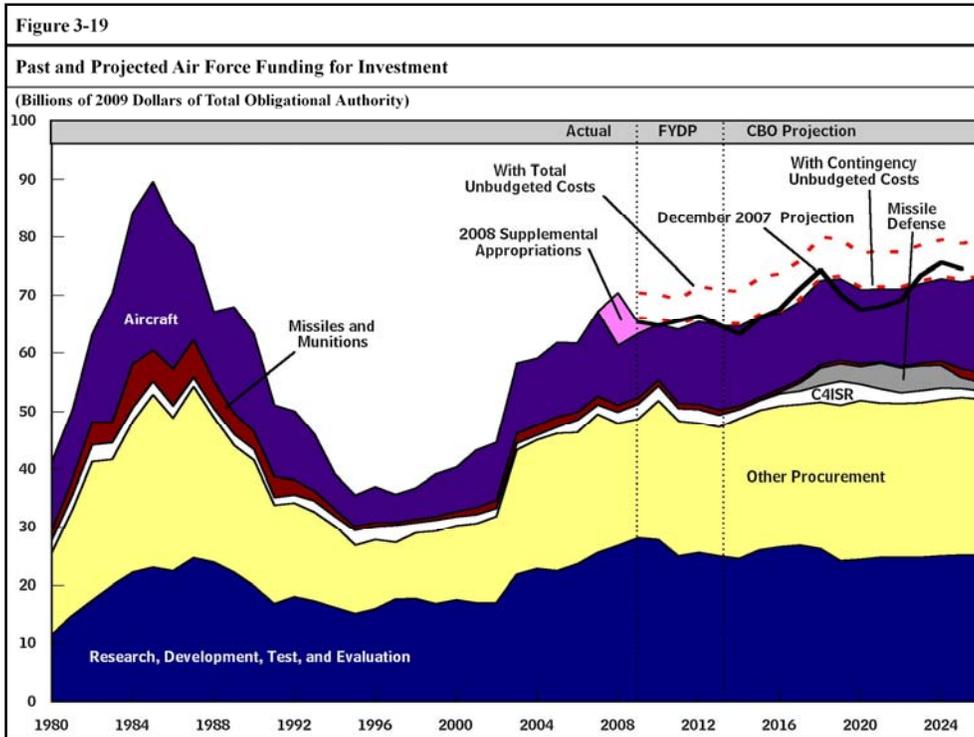
- This chart shows the average age (the top part of the chart) and inventories (the bottom part of the chart) of helicopters and tilt-rotor aircraft for the Marine Corps.
- Under DoD's 2009 FYDP, the average age of the Marine Corps's helicopter fleet would begin to decline rapidly through the 2009–2013 period spanned by the 2009 FYDP as a result of deliveries of rebuilt and upgraded utility and attack helicopters and deliveries of the MV-22 tilt-rotor aircraft. When deliveries of new aircraft fall below steady-state levels in 2022 and retirement of older helicopters slows and ends, the average age of the Marine Corps's fleet of helicopters begins to increase.



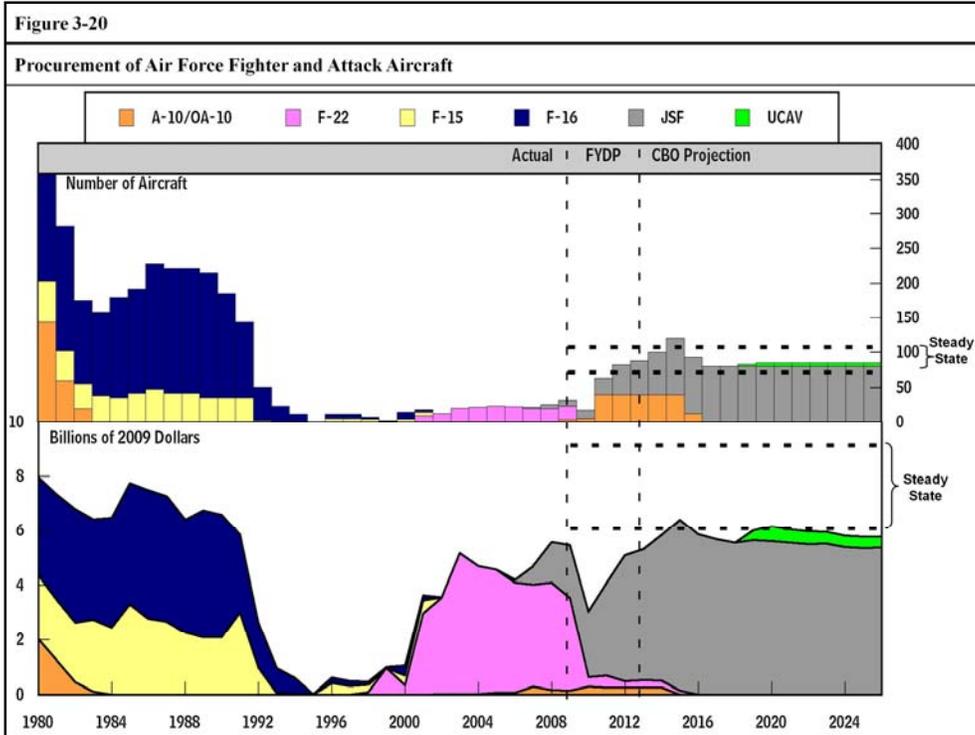
- This chart shows past and projected purchases of ground combat vehicles for the Marine Corps as measured by the number of vehicles (the top part of the chart) and by billions of 2009 dollars invested (the bottom part of the chart).
- Purchases of the new Expeditionary Fighting Vehicle (EFV), which would replace the existing fleet of amphibious assault vehicles (AAVs), account for all of the procurement funding for new ground combat vehicles for the Marine Corps in CBO's projection.
- CBO's projection contains no replacement for the light armored vehicles (LAVs) the Marine Corps purchased during the 1980s.



- 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 would stabilize for the duration of planned purchases of those vehicles, remaining at about 25 years of age. Once EFV deliveries end, the retirement of the current fleet of AAVs would be complete, and the average age of the fleet of Marine Corps combat vehicles would begin to increase steadily.



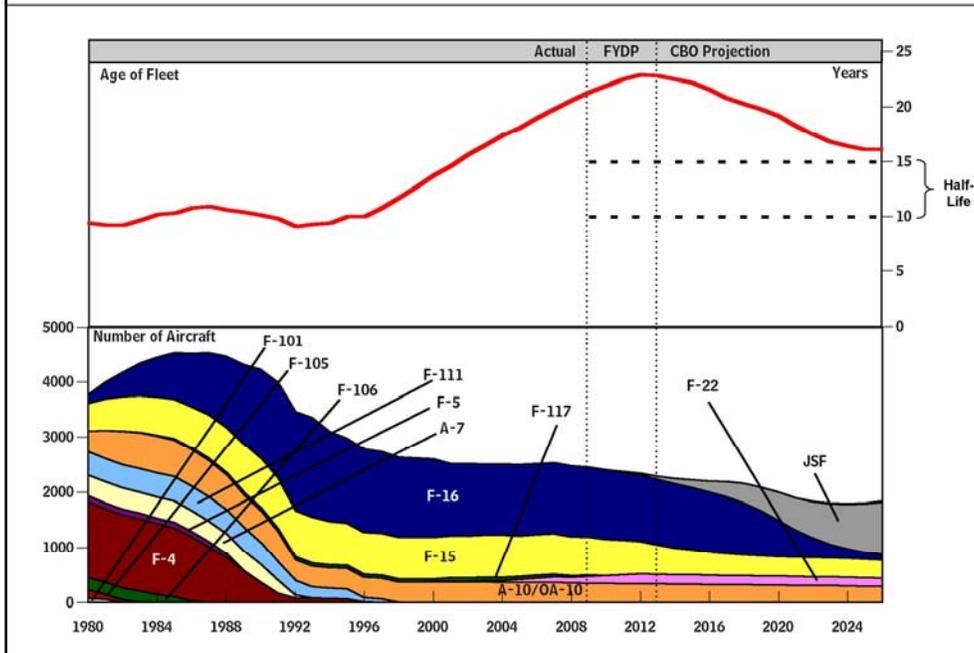
- This chart depicts the Air Force's past overall level of investment and future investment plans.
- The 2009 FYDP anticipates that Air Force investment would increase from \$63 billion in 2009 to \$65 billion in 2013. Under DoD's 2009 FYDP, CBO projects that investment funding would average about \$70 billion a year between 2014 and 2026.
- If costs were to grow as they have in the past, however, the Air Force's investment funding could average \$77 billion a year between 2014 and 2026.



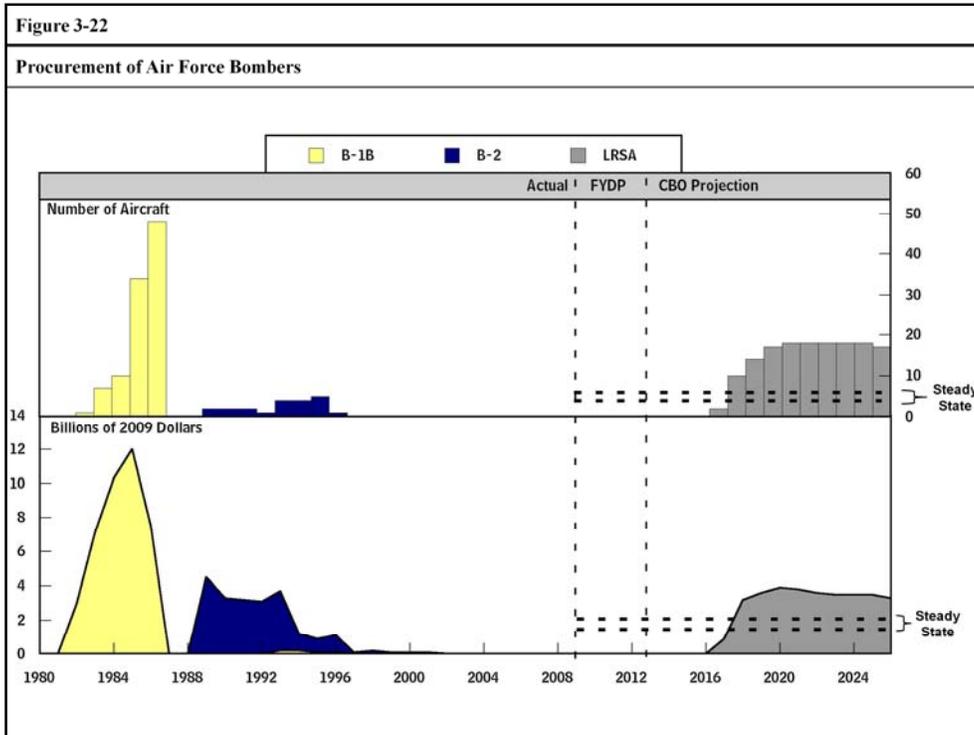
- This chart shows past and projected purchases of fighter and attack aircraft for the Air Force as measured by the number of aircraft (the top part of the chart) and by billions of 2009 dollars invested (the bottom part of the chart).
- CBO projects that purchases of new and upgraded tactical aircraft by the Air Force would be within the steady-state range beginning in 2011 and extending through 2026. Those new aircraft would cost, on average, about 2.5 times more than the aircraft they replace.

Figure 3-21

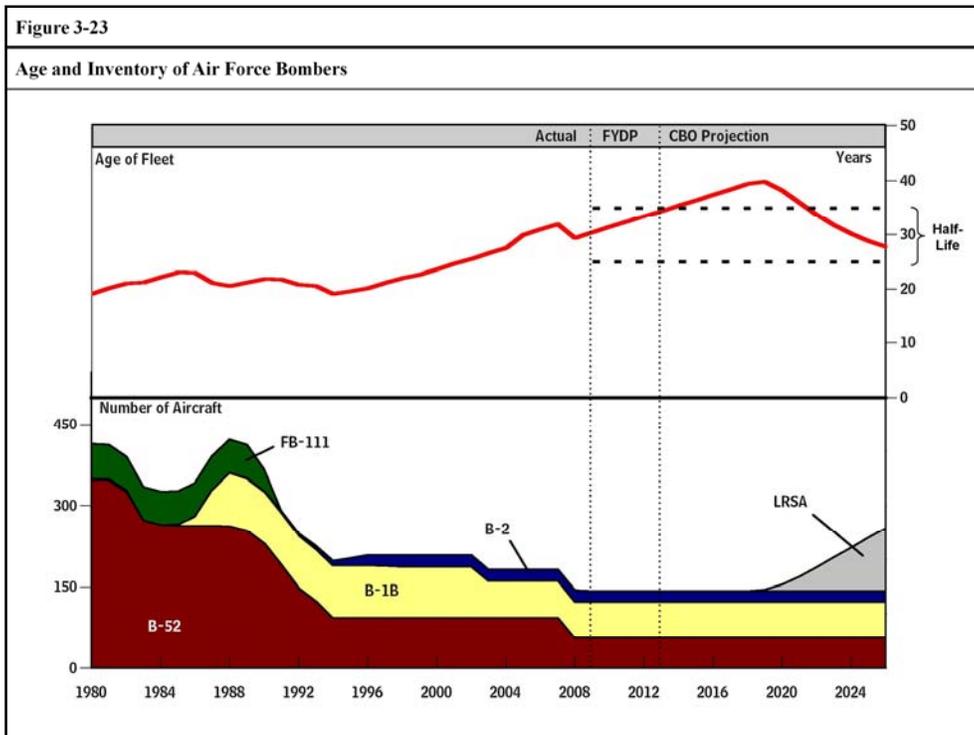
Age and Inventory of Air Force Fighter and Attack Aircraft



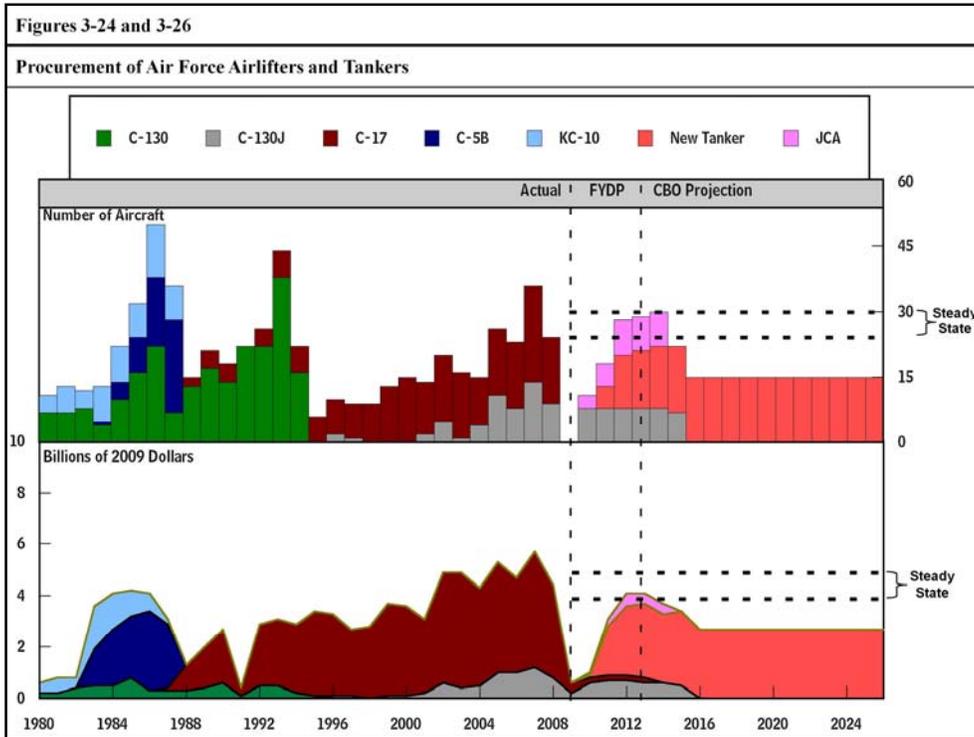
- This chart shows the average age (the top part of the chart) and inventories (the bottom part of the chart) of the Air Force's fighter and attack aircraft.
- The fleet's average age would increase steadily to a peak of about 23 years in 2012. After that, deliveries of Joint Strike Fighters would cause the fleet's average age to decline, but purchases would be insufficient to bring the average age within the half-life range of 10 to 15 years by 2026.
- CBO projects that the inventory of Air Force UCAVs would reach 28 in 2026, a number that is too small to display visibly on the chart.



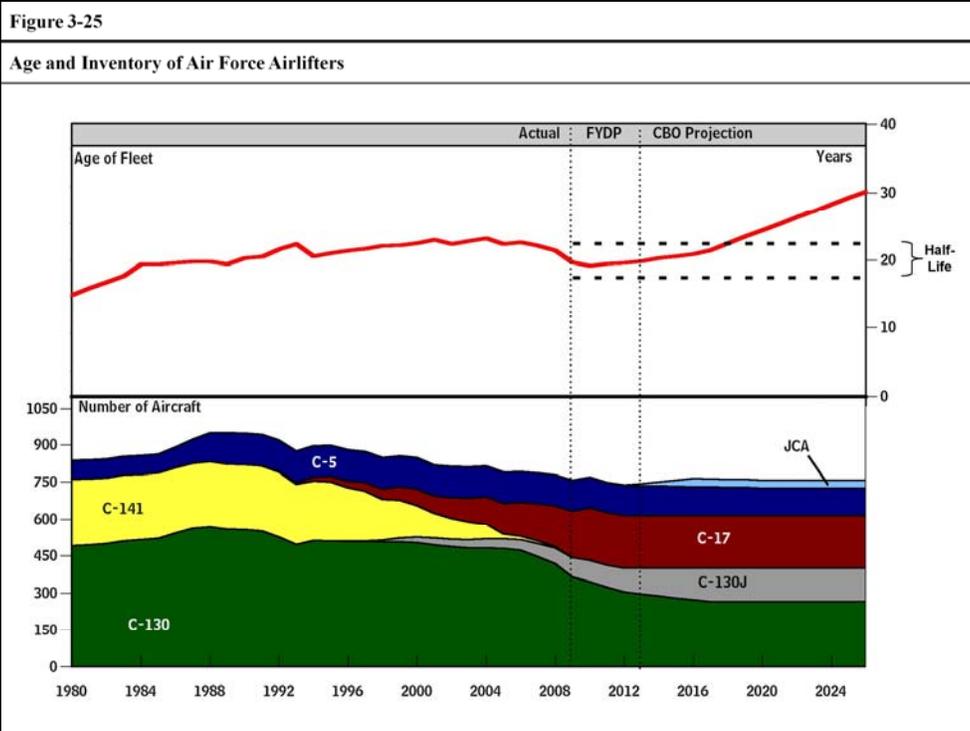
- This chart shows past and projected purchases of bombers for the Air Force as measured by the number of aircraft (the top part of the chart) and by billions of 2009 dollars invested (the bottom part of the chart).
- CBO's projection of the implications of the 2009 FYDP includes procurement of a new bomber—or long-range strike aircraft (LRSA)—the Air Force plans to begin fielding in about 2018. Those plans were changed in the spring of 2009, however, when the Department of Defense announced its intention to delay development and production of a new bomber indefinitely.



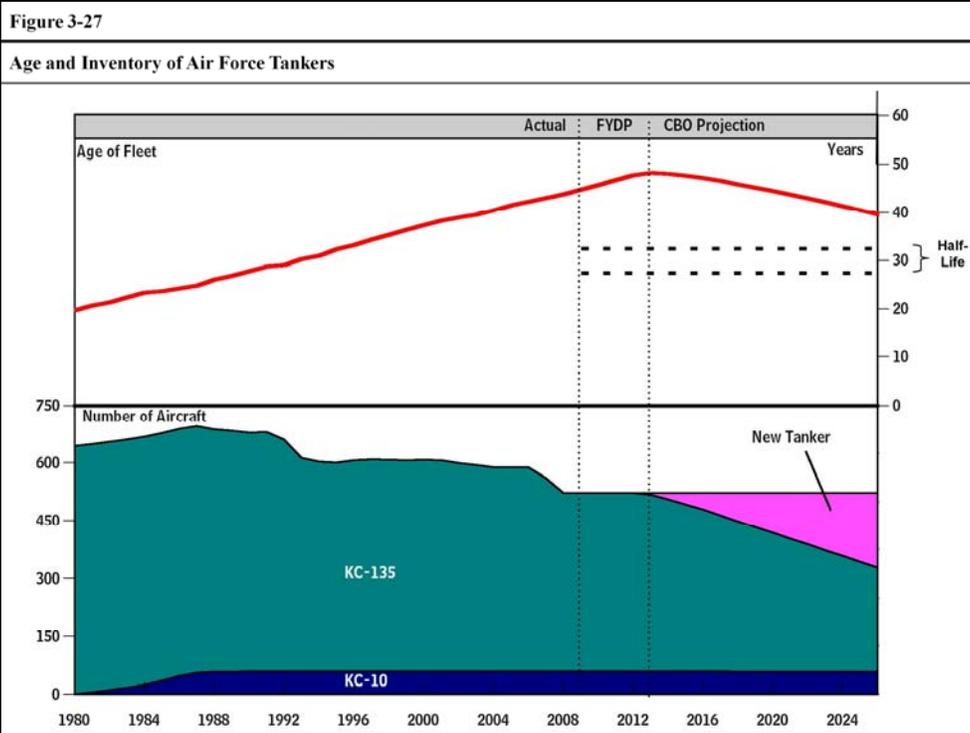
- This chart shows the average age (the top part of the chart) and inventories (the bottom part of the chart) of bombers for the Air Force.
- After deliveries of the LRSA begin in 2019, the average age of the bomber fleet would steadily decline. The LRSA may either augment or replace portions of the existing fleet of B-52, B-1, and B-2 long-range bombers. (In the projection displayed in the chart, CBO assumes that the LRSA augments the existing fleet.) As noted on the previous page, however, the Department of Defense has announced its intention to delay development and production of a new bomber (presented as the LRSA in this chart) indefinitely.



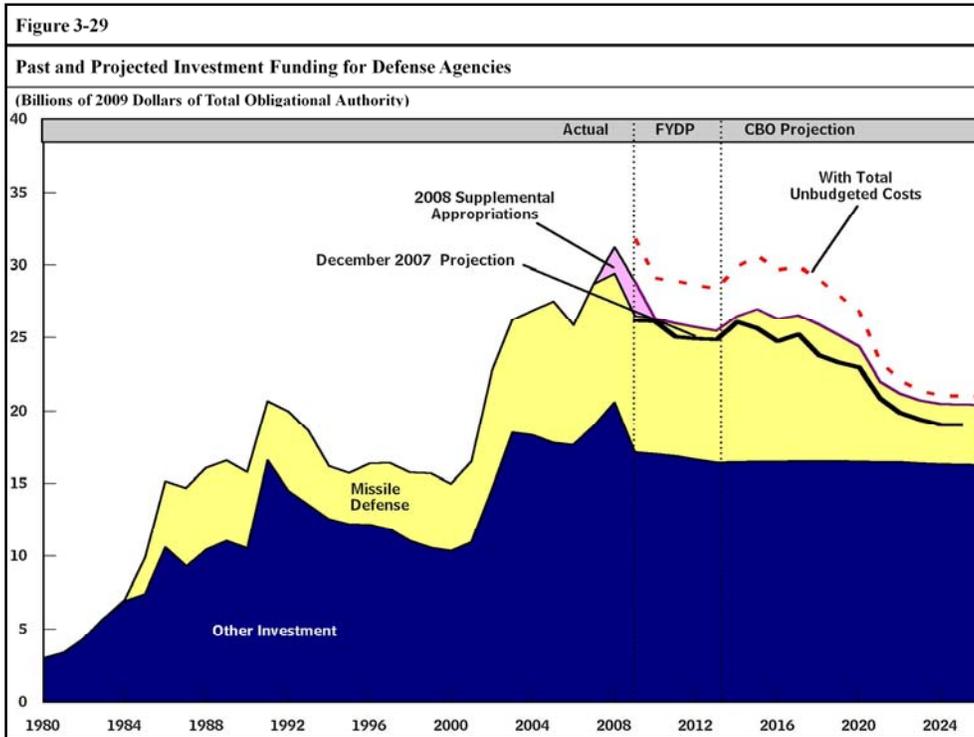
- This chart shows past and projected purchases of airlifters and tankers for the Air Force as measured by the number of aircraft (the top part of the chart) and by billions of 2009 dollars invested (the bottom part of the chart).
- For strategic airlift, CBO projects a C-17 fleet consisting of 205 aircraft and a C-5 fleet comprising 111 aircraft as indicated in the 2009 FYDP. (Funds to purchase an additional 8 C-17s—for a total of 213—were provided later as part of fiscal year 2009 supplemental appropriations.) The quantities and funding for the C-5 Reliability Enhancement and Re-engining Program (RERP)—about \$9 billion through 2009 to upgrade the entire C-5A/B fleet to the C-5M configuration—are not displayed on this chart because that program does not restore those aircraft to like-new condition. (As a result of cost growth, the number of C-5s planned for modification under the RERP has since been reduced to approximately 50 aircraft.)
- For tactical airlift, the projection assumes the Air Force would procure 47 C-130Js during the period spanning 2009 to 2026. 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. CBO's projection also includes the Joint Cargo Aircraft (JCA), an intratheater airlifter that the Air Force has been assigned responsibility for purchasing and operating but which will be used primarily to transport Army equipment and forces.
- For this projection, CBO assumed that DoD would purchase new tankers at a rate that would rise to 15 aircraft a year by 2015, a delay of two years relative to last year's projection. That delay reflects Boeing's successful protest of the proposed award of the tanker contract to Northrop Grumman and the resulting re-competition that has yet to be conducted. 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. By the end of CBO's projection, 224 new tankers would be procured, somewhat less than half the number in today's KC-135 fleet.



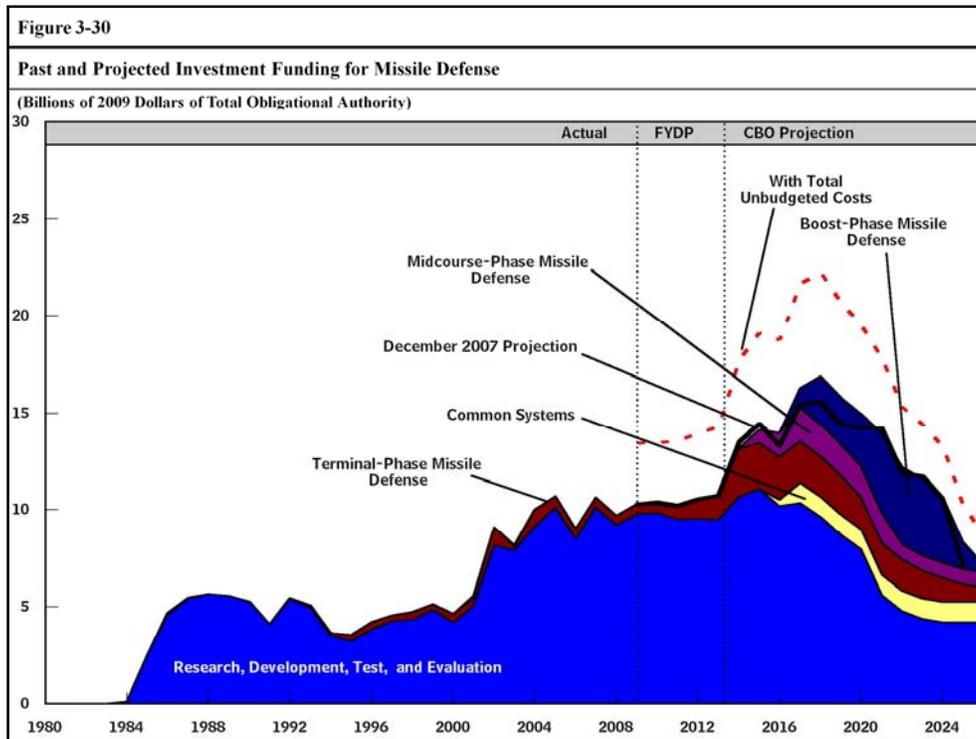
- This chart shows the average age (the top part of the chart) and inventories (the bottom part of the chart) of the Air Force's airlifters.
- In CBO's projection, after deliveries of the JCA end in 2016, the age of the fleet increases each year as no new airlifters are delivered and no older aircraft are retired.



- 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 2013, average age would decline steadily, although it would not reach the half-life range until beyond the end of CBO's projection period in 2026.



- 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 2009 FYDP averages about \$26 billion a year over the period from 2009 to 2013 and would average about \$24 billion a year in CBO's projection spanning the years from 2014 to 2026.



- This chart depicts past and projected investment for missile defense that is consistent with the plans contained in the 2009 FYDP. In CBO's projection, total investment in missile defense peaks in 2018 at about \$17 billion and then decreases as procurement of systems ends and those systems 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 \$22 billion in 2018. CBO's projection does not include the changes to missile defense programs proposed by DoD in the spring of 2009, such as termination of the Multiple Kill Vehicle and limiting the Airborne Laser (ABL) to a single test aircraft.
- 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 would 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.
- DoD is reviewing options for deploying the Space Tracking and Surveillance System. Consistent with the 2009 FYDP, CBO's projection includes the launch of a six-satellite operational constellation beginning in 2018.
- The ABL boost-phase system consists of a high-energy chemical laser mounted on a Boeing 747 aircraft. Consistent with the 2009 FYDP, CBO's projection incorporates the procurement of an operational fleet of seven ABL aircraft in addition to the two test aircraft.
- CBO's projection also assumes that the Kinetic Energy Interceptor would be fielded as a next-generation replacement for the existing midcourse interceptors deployed in Alaska and California.
- 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 fiscal year 2009 plans incorporates the assumption that an operational space-based interceptor would be developed and would be available for initial fielding in about 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 would 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 the Half-Life of Fleets**

To provide measures for 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 span of those weapons, and the cost 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 a service life spanning 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 would 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 \$6 billion to about \$9 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>LRSA:</b> long-range strike aircraft
<b>CVN:</b> Aircraft Carrier, Nuclear-powered	<b>LUH:</b> Light Utility Helicopter
<b>DoD:</b> Department of Defense	<b>MDA:</b> Missile Defense Agency
<b>ECI:</b> employment cost index	<b>MILPERS:</b> military personnel
<b>EFV:</b> Expeditionary Fighting Vehicle	<b>MLRS:</b> Multiple-Launch Rocket System
<b>FCS:</b> Future Combat Systems	<b>MPF(F):</b> Maritime Prepositioning Force (Future)
<b>FUR:</b> Future Utility Rotorcraft	<b>O&amp;M:</b> operation and maintenance
<b>FYDP:</b> Future Years Defense Program	<b>O&amp;S:</b> operation and support
<b>GDP:</b> gross domestic product	<b>STSS:</b> Space Tracking and Surveillance System
<b>GMD:</b> Ground-Based Midcourse Defense System	<b>TOA:</b> total obligational authority
<b>HIMARS:</b> High-Mobility Artillery Rocket System	<b>UCAV:</b> unmanned combat air vehicle
<b>JCA:</b> Joint Cargo Aircraft	
<b>JHL:</b> Joint Heavy Lift	
<b>JSF:</b> Joint Strike Fighter	
<b>KEI:</b> Kinetic Energy Interceptor	