

CBO

Long-Term Implications of the 2020 Future Years Defense Program



AUGUST 2019

At a Glance

As part of the President's budget request, the Department of Defense (DoD) develops a plan called the Future Years Defense Program (FYDP) that reflects DoD's expectations about its programs and costs over the next five years. For this report, which is based on the 2020 FYDP, the Congressional Budget Office analyzed DoD's plans for 2020 through 2024 and projected how those plans would affect defense costs through 2034.

- In his proposed budget, the President requested a total of \$718 billion for DoD in fiscal year 2020—2 percent more than was appropriated in 2019, after removing the effects of inflation. Of that total, \$545 billion is designated for the base budget, which is intended to fund normal, peacetime activities. The remaining \$173 billion is designated for emergency activities and overseas contingency operations, or OCO (temporary, war-related activities, such as operations in Afghanistan and elsewhere). According to estimates provided in the 2020 FYDP, total funding would be relatively flat through 2024, averaging about \$700 billion per year in 2020 dollars.
- About 85 percent of OCO funding for 2020 and 2021 is designated for base-budget and “enduring” activities (for example, regular maintenance activities that support overseas operations and are likely to continue regardless of the size of the deployed force). Designating appropriations in that way would have avoided the limits on discretionary funding that were in place when the 2020 FYDP was prepared—specifically, the caps in effect under the Budget Control Act of 2011 (Public Law 112-25). (Those caps were later increased by the Bipartisan Budget Act of 2019, P.L. 116-37.)
- Using DoD's cost assumptions, CBO projects that the cost of DoD's plans would increase by 13 percent from 2024 to 2034, after adjusting for inflation. Using costs that reflect historical experience, CBO projects that the cost of implementing DoD's plans over the FYDP period could be about 2 percent higher than DoD estimates and about 4 percent higher from 2020 to 2034.



Contents

Summary	1
What Are DoD’s Budget Plans Under the 2020 FYDP?	1
What Is the Potential Cost of DoD’s Plans for 2025 Through 2034?	2
What Are Uncertainties in the Cost of DoD’s Plans?	2
Costs of the 2020 Future Years Defense Program Through 2034	2
How CBO Projected the Costs of DoD’s Plans Beyond the FYDP Period	3
BOX 1. WHY CBO FOCUSED ON DOD’S TOTAL BUDGETS	5
DoD’s Estimates of Costs in the 2020 FYDP	7
CBO’s Projections of DoD’s Costs From 2024 Through 2034	7
CBO’s Estimates of DoD’s Costs Under Alternative Assumptions	7
BOX 2. STRATEGY, THE BUDGET, AND GROWTH IN DEFENSE SPENDING	8
Projected Costs of Operation and Support	8
O&S Costs in the 2020 FYDP	10
Projection of O&S Costs for 2025 Through 2034	12
Uncertainty in Projections of O&S Costs	13
Differences Between DoD’s O&S Estimates and Historical Experience	13
Projected Costs of Acquisition	14
Acquisition Costs in the 2020 FYDP	15
Projection of Acquisition Costs for 2025 Through 2034	15
Uncertainty in Projections of Acquisition Costs	17
Differences Between DoD’s Acquisition Estimates and Historical Experience	18
Projected Costs of Infrastructure	18
Infrastructure Costs in the 2020 FYDP	19
Projections of Infrastructure Costs for 2025 Through 2034	19
Uncertainty in Projections of Infrastructure Costs	19
Appendix: Base-Budget and Nonbase-Budget Designations—Overseas Contingency Operations in the 2020 Future Years Defense Program	21
List of Tables and Figures	23
About This Document	24

Notes

Unless otherwise indicated, all years referred to in this report are federal fiscal years, which run from October 1 to September 30 and are designated by the calendar year in which they end.

Dollar amounts are expressed in 2020 dollars, adjusted for inflation using the Congressional Budget Office's projection of the gross domestic product price index.

In this report, "cost" refers to total obligational authority (TOA), a financial measure used by the Department of Defense (DoD) to identify the funding available for its programs. TOA differs from budget authority most notably in its adjustment for the timing of rescissions and lapses of prior-year budget authority. In recent years, the difference between TOA and discretionary budget authority in DoD's budget request for the coming year has generally been \$1 billion or less.

The numbers in the text and tables may not add up to totals because of rounding.

This report is an annual publication of CBO. Previous editions are available at <https://go.usa.gov/xEnE6>.

The photographs on the cover show the following (clockwise from top left): the USS *Carney* in the Bosphorus (Petty Officer First Class Ryan U. Kledzik, courtesy of the U.S. Navy); a Marine firing an FGM-148 Javelin antitank missile at a target during a live-fire demonstration (Corporal Carlos Lopez, courtesy of the U.S. Marine Corps); a sling load being attached to a UH-60 Black Hawk helicopter (Technical Sergeant Lealan Buehrer, courtesy of the U.S. Army); and a B-2 Spirit bomber returning to Joint Base Pearl Harbor–Hickam, Hawaii, following a routine training mission (Staff Sergeant Danielle Quilla, courtesy of the U.S. Air Force).



Long-Term Implications of the 2020 Future Years Defense Program

Summary

In most years, the Department of Defense (DoD) produces a five-year plan, called the Future Years Defense Program (FYDP), that is associated with the budget it submits to the Congress. This report describes the Congressional Budget Office's analysis of the 2020 FYDP, which was issued in March 2019, and summarizes DoD's expectations about the costs of its plans from 2020 through 2024. Because decisions made in the near term can have consequences for the defense budget in the longer term, CBO projected the costs of the 2020 plan through 2034.

In previous assessments of the long-term implications of DoD's plans, CBO focused on the department's base budget, which is intended to fund normal, peacetime activities, such as day-to-day military and civilian operations and the development and procurement of weapon systems. However, this year, CBO has changed its approach to also include all funding designated for overseas contingency operations (OCO)—a funding category intended for temporary, war-related activities, such as operations in Afghanistan and elsewhere. CBO modified its approach because about 85 percent of OCO funding requested by DoD for 2020 and 2021 supports base-budget and other “enduring” activities (for example, military missions that are now part of the United States' long-term global presence).

What Are DoD's Budget Plans Under the 2020 FYDP?

The 2020 FYDP comprises DoD's request for appropriations in 2020 and a series of planned budgets for 2021 through 2024. Total funding for each year in the request is relatively constant across all five years of the FYDP period, averaging about \$700 billion per year in real terms—that is, after adjusting for the effects of inflation. Total funding in the 2020 FYDP is about 3 percent less than in the 2019 FYDP.

The proposed budget for 2020 totals \$718 billion, the largest annual amount requested over the five-year

period. Of that total, \$545 billion is designated for the base budget. At the time the 2020 FYDP was prepared, that base-budget amount was consistent with the caps on discretionary spending set by the Budget Control Act of 2011 (BCA, Public Law 112-25); those caps were increased when the Bipartisan Budget Act of 2019 was enacted.¹ In the FYDP, DoD further requested that the remaining \$173 billion be designated as nonbase funding—that is, either funding for overseas contingency operations (\$164 billion) or emergency funding to cover unanticipated costs caused by crisis, natural disaster, or rapid changes in the price of commodities (about \$9 billion). Because appropriations designated as OCO or emergency are not subject to spending limits set by the BCA, designating appropriations in that way would have allowed DoD to reach a budget of \$718 billion without exceeding the caps in effect before enactment of the Bipartisan Budget Act.

As outlined in the FYDP, DoD planned to request a total of \$699 billion for 2021. That request, like the one for 2020, was structured so that all funding over the BCA's prior cap of \$546 billion (about \$153 billion) would have been designated as OCO. Total funding in 2021 would be about 3 percent less than in 2020, in part because no emergency funding was included in the 2021 budget.

The Bipartisan Budget Act of 2019 increased base-budget caps for defense spending in 2020 and 2021 and set targets for the amount of OCO funding in those years. Funding appropriated at those levels would be about 1 percent less per year, in 2020 and 2021, than the amounts DoD indicated in the 2020 FYDP. Because those changes are small, they would not necessarily affect the costs of DoD's plans after 2021. Therefore, CBO's projections through 2034 would change little if funding for 2020 and 2021 were reduced by that small percentage.

1. Bipartisan Budget Act of 2019, P.L. 116-37, 133 Stat. 1049.

For the remaining three years of the FYDP, when the BCA's limits on discretionary funding no longer apply (because they are set to expire in 2021), DoD indicated it would request about the same amount of total funding. However, much less funding would be designated for OCO, increasing DoD's base-budget request by about 24 percent, from \$546 billion in 2021 to \$679 billion in 2022. Along with an estimated \$19 billion in OCO funding, DoD anticipated that total funding in 2022 would be \$698 billion, slightly less than the \$699 billion requested for 2021. Planned requests for funding would remain nearly constant until 2024, the last year of the FYDP, when DoD anticipated that OCO funding would decrease to \$9 billion; consequently, total funding planned in that year would drop from \$698 billion to \$688 billion.

What Is the Potential Cost of DoD's Plans for 2025 Through 2034?

Unlike DoD's estimates for the cost of its plans over the FYDP period, CBO's projections indicate that costs after 2024 would increase faster than inflation. In CBO's estimation, those costs would reach \$776 billion (in 2020 dollars) by 2034, an increase of 13 percent in real terms over the 10 years following 2024 (see Figure 1). The key factors that would lead to increases in DoD's costs are as follows:

- The costs of *compensation for military personnel* would continue to increase at historical rates, growing faster than inflation;
- The costs of *operation and maintenance (O&M)* would continue to increase at historical rates, growing faster than inflation; and
- The costs for the *acquisition of weapon systems* would meet the department's modernization objectives and maintain the current size of the force.

Of the increase in annual costs that CBO projects from 2024 through 2034 (\$88 billion), about 18 percent (\$16 billion) is for the cost of military personnel; 43 percent (\$37 billion) is for O&M costs; and 38 percent (\$33 billion) is for costs to develop and purchase weapon systems.

In each of those areas of DoD's budget, costs have historically grown more rapidly than they are projected to grow in the 2020 FYDP. For example, DoD projects

that the costs of military and civilian compensation will grow more slowly over the FYDP period than CBO's economic forecast of the cost of labor would indicate. Similarly, DoD has frequently underestimated costs for O&M and the acquisition of weapon systems. To assess the possible effects of such factors, CBO prepared an alternative projection of the costs of implementing DoD's 2020 plans under a set of estimates that better reflect the patterns of growth in DoD's costs over the past several decades. According to those estimates, total costs from 2020 through 2024 would be about \$78 billion (2 percent) higher than indicated in the 2020 FYDP, and total costs from 2020 through 2034 would be \$472 billion (4 percent) higher (see Table 1).

What Are Uncertainties in the Cost of DoD's Plans?

DoD's projections of costs in the FYDP and CBO's projections through 2034 are estimates of the long-term costs of executing the plans that DoD articulated in its 2020 budget and supporting documents. However, international events, Congressional decisions, and other factors could change those plans. Furthermore, even if DoD's plans generally remained unchanged, many program-level policies that underlie DoD's projections of its costs might not come to pass. For those reasons, CBO's projections should not be viewed as predictions of future funding for DoD; rather, the projections are estimates of the costs of executing the department's 2020 plans under the assumption that those plans would not change.

Costs for contingency operations are even more uncertain than costs in the base budget because they depend on how ongoing conflicts evolve and whether new conflicts will arise. As outlined in the 2020 FYDP, DoD plans for operations in the Middle East to subside, reducing its projected OCO costs in 2024 by half. CBO used DoD's projection for that year (\$9 billion) for the cost of OCO in each year between 2025 and 2034.

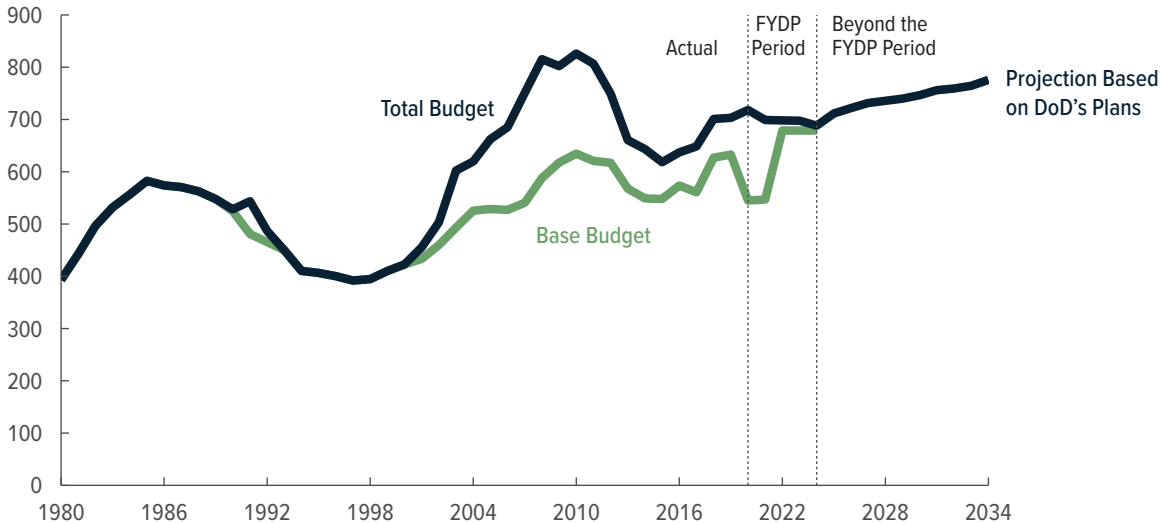
Costs of the 2020 Future Years Defense Program Through 2034

CBO analyzed the costs of DoD's plans over the FYDP period—2020 through 2024—and projected the costs of those plans over an additional 10 years, through 2034. CBO's analysis focused on DoD's total funding because, in the agency's estimation, it better represents the cost of the department's plans than the funding requested for the base budget. In principle, the base budget funds normal—predictable—peacetime activities, but in recent years it has funded only a portion of those activities.

Figure 1.

Funding for the Department of Defense

Billions of 2020 Dollars



Source: Congressional Budget Office.

Before 2025, funding for the total budget (which includes funding designated as either OCO or emergency) and funding for the base budget are shown individually. DoD indicated that about 60 percent of the amount it designated as OCO in 2020 and 2021 would have been used for base-budget costs to avoid the spending limits that were in place at the time the FYDP was prepared—specifically, the caps in effect under the Budget Control Act of 2011. Those caps were later increased by the Bipartisan Budget Act of 2019. DoD characterized the small amounts designated as OCO from 2022 through 2024 as “placeholders” because actual costs will depend on how overseas operations change over time.

DoD = Department of Defense; FYDP = Future Years Defense Program; FYDP period = 2020 through 2024, the period for which DoD has estimated its total costs; OCO = overseas contingency operations.

Increasingly, many base-budget activities have been funded through appropriations designated as OCO, in part to avoid the caps on base-budget funding. The OCO designation, like the emergency designation, was originally intended to fund temporary operations, which have costs that are often difficult to predict when the budget request is formulated (see Box 1).

How CBO Projected the Costs of DoD’s Plans Beyond the FYDP Period

CBO’s analysis of the long-term costs of DoD’s plans is based on the estimates DoD provided in the 2020 FYDP for the years 2020 through 2024. Using DoD’s estimates as a starting point, CBO projected the costs of DoD’s plans for the subsequent 10 years, 2025 through 2034. CBO incorporated its estimates of how the economy will change in the future in its projections of DoD’s costs.²

To align DoD’s funding with estimates of economic activity, CBO divided DoD’s funding into three categories (which are described below in the section titled “Categories of Funding” and discussed in greater detail later in the report).

Projection Methods. CBO’s projections for 2025 through 2034 are based as much as possible on policies underlying DoD’s estimate of costs in the 2020 FYDP, current laws regarding the compensation of military personnel, and the longer-term acquisition plans that DoD publishes in Selected Acquisition Reports and other official documents, such as the Navy’s 30-year shipbuilding

(January 2019). The file, which is listed under the heading “10-Year Economic Projections” (January 2019), is available at www.cbo.gov/about/products/budget-economic-data#4. Data are arranged by fiscal year in Table 3 in that file. In this report, constant growth was assumed after 2029 to extend those economic projections by five years, to 2034.

2. See the supplemental data that accompany Congressional Budget Office, *The Budget and Economic Outlook: 2019 to 2029*

Table 1.

Increases in DoD's Costs Under Alternative Policies and Projection Methods

	Total Increase (Billions of 2020 dollars)	
	2020–2024	2020–2034
Areas in Which Different Policies Could Be Adopted		
Military pay increases at the rate of the ECI starting in 2020	9.1	50.5
Civilian pay increases at the rate of the ECI starting in 2020	23.6	97.6
Areas in Which CBO Used Different Projection Methods		
MHS costs grow at the projected rate of health care costs in the general economy starting in 2020	3.8	18.6
Other O&M costs (adjusted for the size of the force) experience cost growth consistent with cost growth since 1980 starting in 2020 ^a	15.7	132.7
Major acquisition programs experience cost growth consistent with cost growth since 1970	25.6	172.9
Total	77.8	472.3
Memorandum:		
Projected total cost of DoD's plans using DoD's estimates for 2020 through 2024	3,501	10,944
Projected total cost of DoD's plans using CBO's alternative policies and methods	3,579	11,416

Source: Congressional Budget Office.

DoD = Department of Defense; ECI = employment cost index for wages and salaries of workers in the private sector, as defined by the Bureau of Labor Statistics; MHS = Military Health System; O&M = operation and maintenance.

a. "Other O&M" is the sum of the O&M and revolving and management fund appropriation titles minus costs for civilian compensation and the MHS.

plan.³ For the areas of DoD's budget in which such policies and cost estimates have not been specified, CBO generally based its projections on trends in prices and compensation anticipated for the broader economy (see Table 2 for details).⁴ CBO's projections also incorporate the assumption that the size and composition of the

military and the number of civilian personnel would remain unchanged after 2024, unless DoD has specified otherwise. For example, because DoD plans to increase the number of Navy ships over the coming decades, CBO's projections incorporate an increase in personnel to support that larger fleet. Similarly, if a weapon system is expected to reach the end of its service life before 2034 and DoD has not yet announced plans for a replacement system, CBO assumed that the department would develop and purchase a generally similar but more modern system to replace the aging one.

3. Because DoD has not published plans for many minor programs extending beyond the FYDP period, CBO estimated costs for those programs on the basis of historical correlations between funding for major and minor programs.
4. For a more detailed discussion of CBO's methods of projecting costs for the individual components of DoD's budget, see Congressional Budget Office, *An Analysis of the Obama Administration's Final Future Years Defense Program* (April 2017), www.cbo.gov/publication/52450.

Categories of Funding. Nearly all of DoD's funding is provided in appropriations under seven appropriation titles: military personnel; operation and maintenance; procurement; research, development, test, and evaluation

Box 1.**Why CBO Focused on DoD's Total Budgets**

In previous years, the Congressional Budget Office focused on the Department of Defense's (DoD's) base budget in its annual assessments of the long-term implications of DoD's plans because the base budget is supposed to reflect the recurring costs of all of DoD's activities during peacetime. Such costs tend to be predictable. DoD requested that appropriations for the conflicts in Afghanistan, Iraq, and Syria be designated as funding for overseas contingency operations (OCO). Because contingency operations can be unpredictable and because contingency costs were not expected to be part of DoD's regular recurring costs, DoD usually omitted the costs of those conflicts from estimates for funding beyond the first year of the Future Years Defense Program (FYDP). The scope of activities funded with OCO-designated appropriations has grown to include predictable costs for operations in the Middle East and regularly recurring base-budget activities in part because appropriations designated for OCO are exempt from the budget caps set by the Budget Control Act of 2011 (BCA, Public Law 112-25).

CBO changed its approach this year. It now makes its projections using DoD's entire budget request, including the OCO requested to fund combat operations overseas as well as requests for OCO to directly fund enduring activities and base-budget activities. In CBO's estimation, using base-budget and OCO funding for its projections (and omitting emergency funding) allows the agency to better analyze the long-term costs of implementing DoD's plans.¹

1. Emergency funding, such as the costs of DoD's participation in relief efforts after natural disasters, for responding to public health crises, or for covering unexpected costs caused by rapid changes in the price of commodities or labor, generally represents a one-year adjustment to a base-budget request and typically does not affect spending beyond the budget year.

CBO made that change for three reasons. First, in a recent report, CBO found that, on average since 2006, more than \$50 billion in OCO funding per year (in 2019 dollars) has gone toward the costs of enduring activities rather than the temporary costs of overseas operations.² Enduring activities are likely to continue even after the current conflicts end because they are regularly recurring base-budget activities (for example, ship maintenance) or they are missions that are now a part of the United States' long-term global posture (such as the change in global posture that occurred after the Korean War and that ultimately resulted in the United States keeping forces on the Korean peninsula for the past six decades). Second, DoD has adopted a similar approach: In its 2019 budget request, the Administration planned to move all but about \$19 billion of OCO funding into the base budget starting in 2020. In its 2020 budget request, the transition has been shifted to 2022 but is still part of DoD's plans. Third, the base budget in the Administration's request for 2020 and 2021 accounts for even less of DoD's planned base-budget activities than in previous years because the base-budget request for those two years was lowered to match the caps that were in place under the BCA at the time the 2020 FYDP was prepared.³ To remain below those caps, DoD requested funding in the OCO budget that is explicitly for base-budget activities. It denotes those funds as "OCO-to-Base" (see the appendix for more information about the base-budget and OCO designations in DoD's request).

2. See Congressional Budget Office, *Funding for Overseas Contingency Operations and Its Impact on Defense Spending* (October 2018), www.cbo.gov/publication/54219.

3. Those caps were later increased by the Bipartisan Budget Act of 2019 (P.L. 116-37).

(RDT&E); military construction; family housing; and revolving and management funds. For simplicity, CBO organized DoD's funding into three broad categories according to the types of activities they fund:

- *Operation and support (O&S)*, which includes operation and maintenance, military personnel, and revolving and management funds;

- *Acquisition*, which includes procurement and RDT&E; and
- *Infrastructure*, which includes military construction and family housing.

CBO's estimates of the costs of O&S and infrastructure are based primarily on the size of the force, historical spending rates, and economic factors such as the employment cost index (ECI) and gross domestic product

Table 2.

Methods Used by CBO to Project the Cost of DoD's Plans Beyond the FYDP Period

Area of DoD's Budget	CBO's Methods
Military Pay	After 2024, the rate of growth matches CBO's projection of the growth rate for the ECI
Civilian Pay	After 2024, the rate of growth matches CBO's projection of the growth rate for the ECI
Military Health System	After 2024, projected costs track with CBO's projection of the growth rate for health care spending in the broader economy
Operation and Maintenance (Excluding civilian pay and the MHS)	After 2024, projected costs grow at the historical average rate for operation and maintenance
Acquisition	Projected costs are estimated on a program-by-program basis using information from DoD or CBO's estimates, which are based on previous programs
Military Construction	In 2025, projected costs equal the historical average and thereafter grow at CBO's projection of the growth rate for construction costs in the broader economy

Source: Congressional Budget Office.

This table does not show the methods that CBO used to produce alternative cost estimates. Those alternatives are based on historical trends that CBO used to estimate how DoD's costs might differ from the estimates provided in the 2020 FYDP.

DoD = Department of Defense; ECI = employment cost index for wages and salaries of workers in the private sector, as defined by the Bureau of Labor Statistics; FYDP = Future Years Defense Program; FYDP period = 2020 through 2024, the period for which DoD has estimated its total costs; MHS = Military Health System.

(GDP) inflation. CBO's estimates of the costs of acquisition are based primarily on how spending in a number of separate DoD acquisition programs is expected to change over the projection period. About two-thirds of CBO's projection of acquisition costs is based on either DoD's long-term program plans or the agency's expectations about the way other major components of DoD's acquisition portfolio might unfold over the coming years. The projections of the other third of acquisition costs—primarily for smaller programs—are based on historical relationships between major acquisition efforts and the total acquisition budget.

Because of DoD's and the Congress's expansive use of the OCO designation and the enduring nature of the contingency operations in the Middle East, CBO includes both base-budget and OCO funding in its projections

of DoD's future costs (see Box 1 on page 5). DoD's 2020 FYDP includes estimates of OCO costs for 2022 through 2024 that are not allocated by appropriation title. For this analysis, CBO allocated the costs of OCO to individual titles in 2022 and ensuing years using the same proportions by appropriation title that DoD used for 2020 and 2021 in its OCO request for 2020.⁵

Although CBO used DoD's projection for 2024—\$9 billion—for the cost of OCO in each year between 2025 and 2034, the agency omitted emergency funding in its projections of the cost of DoD's plans. Such funding

5. For a more detailed discussion of CBO's methods for distributing OCO funding across the appropriation titles in DoD's budget, see Congressional Budget Office, *Long-Term Implications of the 2019 Future Years Defense Program* (February 2019), Box 1, p. 4, www.cbo.gov/publication/54948.

represents a one-year adjustment to a base-budget request and typically does not affect spending beyond the budget year.

DoD's Estimates of Costs in the 2020 FYDP

Under the 2020 FYDP, total costs would average about \$700 billion per year over the five-year period, showing a small decrease in 2024 as DoD's estimate of OCO costs drops from \$19 billion to \$9 billion. Although DoD's total funding request would remain roughly constant in the FYDP, funding designated for the base budget would increase by about 24 percent between 2021 to 2022 once the BCA's limits on discretionary funding expire. That sharp increase is the result of DoD's plans to request that funds for certain base-budget and enduring OCO activities—which in the past had been included in the OCO budget—be incorporated in the base budget starting in 2022.⁶ (For more details about the designation of funding in DoD's budgets, see the appendix.)

Under DoD's assumptions, the costs of operation and support, which account for slightly less than two-thirds of DoD's budget, and costs for acquisition, which account for about one-third, would change little over the FYDP period (after factoring in DoD's planned OCO-to-base shift).⁷ Funding for infrastructure costs makes up about 3 percent of total funding in 2020. As outlined in the FYDP, DoD plans for infrastructure funding to decrease by half, to an average of about 1 percent of the department's funding in the remaining years of the FYDP period. Most of that decrease occurs because the 2020 request includes \$9.2 billion in funding for emergency construction that is not included in later years.

CBO's Projections of DoD's Costs From 2024 Through 2034

On the basis of DoD's estimates in the FYDP, CBO projects that the costs of the department's plans over the 10 years following 2024 would increase at an average

annual rate of 1 percent (in real terms), rising from DoD's estimate of \$688 billion in 2024—at the end of the FYDP period—to \$776 billion in 2034 (see Figure 1 on page 3). Not including the emergency funding and OCO funding for direct war costs that the Administration requested for 2020, the average annual increase over the next 15 years, from 2020 through 2034, would be 0.8 percent. Although those rates would lead to substantial increases over the long term, they are lower than estimates that others have put forth as necessary to support the Administration's defense strategy (see Box 2).

Costs for O&S and acquisition would both contribute to the increase in the cost of DoD's plans after 2024 (see Figure 2 on page 10). Costs for O&S would increase steadily, from DoD's estimate of \$449 billion in 2024 to \$502 billion in 2034. Likewise, costs for acquisition would generally increase over that period—from DoD's estimate of \$230 billion in 2024 to \$263 billion in 2034—but would exhibit more year-to-year variation. Most of the increase in acquisition costs would occur in the first few years beyond the FYDP period. In CBO's projections, costs for infrastructure increase steadily after the FYDP period, from DoD's estimate of \$9.4 billion in 2024 to \$10.5 billion in 2034.

CBO's Estimates of DoD's Costs Under Alternative Assumptions

DoD's estimates through 2024 incorporate some assumptions that yield lower costs than would be anticipated based on an analysis of historical trends. For example, the Congress has often provided a larger military pay raise than DoD requested, and weapon systems have often cost more than DoD estimated. To assess the effect of such factors, CBO estimated how DoD's costs would change if the assumptions CBO used for O&S for 2025 through 2034 were also applied to the FYDP period, and if costs to acquire weapon systems were to grow as they have in the past.

Using those alternative policies and projection methods increased the estimated cost of DoD's plans by about 2 percent (\$78 billion) over the FYDP period and by about 4 percent (\$472 billion) over the full 15-year period, 2020 through 2034 (see Table 1 on page 4). About 36 percent of the increase over the 15-year period was for acquisition.

6. CBO classifies OCO spending as “enduring” if it supports operations or activities that would occur whether or not the United States was at war; if it is used to procure facilities or equipment that would continue to need funding whether or not the United States was at war; or if it would be appropriated expressly to support base-budget activities despite its OCO designation.

7. For a discussion of the OCO-to-base shift, see Congressional Budget Office, *Long-Term Implications of the 2019 Future Years Defense Program* (February 2019), p. 1, www.cbo.gov/publication/54948.

Box 2.

Strategy, the Budget, and Growth in Defense Spending

New administrations often change national security policies and strategies. In 2017, the Trump Administration indicated that military readiness was a priority and immediately requested an increase in defense spending. The Administration communicated its new national security policies in the National Security Strategy (NSS), which was released in December 2017.¹ That document provided the starting point for the Department of Defense (DoD) to develop its national defense strategy in support of the President's NSS. The subsequent National Defense Strategy (NDS) was released in January 2018.² DoD uses the NDS to identify changes in military objectives and priorities and, in turn, uses those changes to guide how it allocates resources among programs and budgets. The NDS did not indicate how much it might cost to implement DoD's goals.

One interpretation of the resource implications of the new strategy comes from the National Defense Strategy Commission, a Congressionally mandated panel charged with examining and making recommendations on defense strategy. The Commission's report, released in November 2018, called for continued growth in defense spending of 3 percent to 5 percent above inflation.³ The consequences of sustained growth in defense spending of 3 percent to 5 percent, starting from

the 2017 budget request, would result in a defense budget of between \$822 billion and \$958 billion (in 2020 dollars) by 2025, and between \$1.1 trillion and \$1.5 trillion (in 2020 dollars) by 2034, CBO estimates (see the figure).

Another interpretation of the cost of implementing DoD's strategy is the budget that the Administration has proposed. Since the start of the Trump Administration, DoD's total spending has grown from \$649 billion in 2017 to a request for \$718 billion in 2020; that is an average annual growth rate of 3.5 percent in real (inflation-adjusted) terms. That growth reflects the Administration's efforts to align spending with its strategy. DoD justified the rapid increase in spending for 2017 and 2018 as a short-term effort to focus on replenishing depleted stocks of munitions and addressing concerns about readiness that DoD's leadership contended were the result of constraints placed on discretionary spending by the Budget Control Act of 2011. DoD's leadership has indicated that, while the spending in the 2019 budget was heavily influenced by the new NDS, it wasn't until the 2020 budget request that the budget and strategy were aligned, indicating that funding in the 2020 Future Years Defense Program (FYDP) was sufficient to support the NDS.⁴

In developing its budget, DoD takes a different approach from the one recommended by the Commission. After the large increases in spending from 2017 to 2020, the 2020 FYDP shows a 4 percent decrease overall from 2020 to 2024, or a 1 percent average annual decline. To achieve such a reduction in funding over the five-year period that the FYDP

1. See President of the United States, *National Security Strategy of the United States of America* (December 2017), <http://nssarchive.us/national-security-strategy-2017/>.

2. See Department of Defense, *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge* (January 2018), <http://nssarchive.us/national-defense-strategy-2018/>.

3. See National Defense Strategy Commission, *Providing for the Common Defense: The Assessments and Recommendations of the National Defense Strategy Commission* (November 2018), p. xii, <https://tinyurl.com/y8o4zb4m>.

4. See Office of the Under Secretary of Defense, (Comptroller) Chief Financial Officer, *Defense Budget Overview: United States Department of Defense Fiscal Year 2020 Budget Request* (March 2019), pp. 1–3, <https://go.usa.gov/xybxJ> (PDF, 4 MB).

Continued

Projected Costs of Operation and Support

Funding for O&S is the sum of the appropriations for the appropriation titles military personnel, O&M, and revolving and management funds. (In its analysis, CBO includes the relatively small amount that DoD requested for revolving and management funds with the O&M appropriation because those two titles involve similar activities.) O&S funding can be separated into three general types of costs:

- *Compensation*, which consists of pay and cash benefits for military personnel and DoD's civilian employees and the costs of retirement benefits. Those costs fall under the appropriations for military personnel and O&M (for civilian employees).
- The *Military Health System (MHS)*, which provides medical care for military personnel, military retirees,

Box 2.

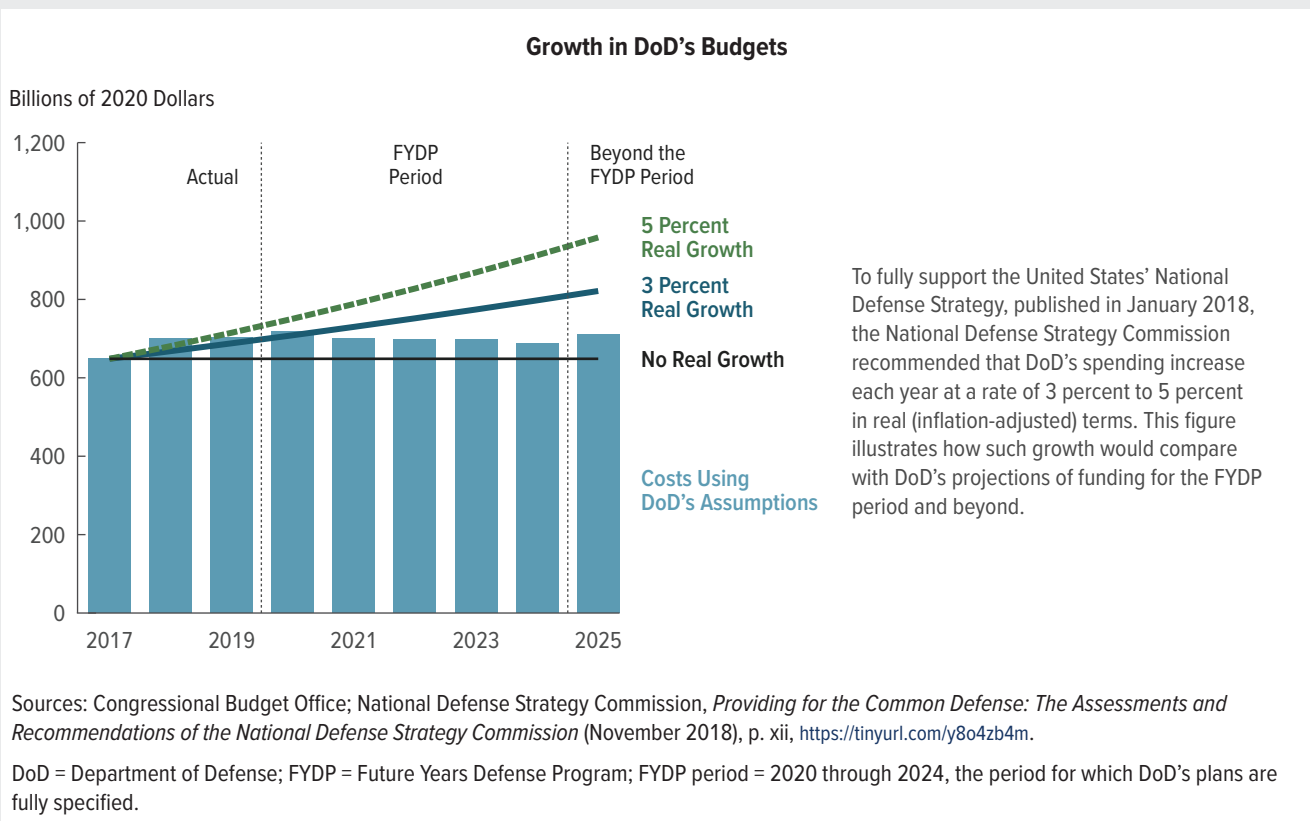
Continued

Strategy, the Budget, and Growth in Defense Spending

encompasses, DoD is undertaking a series of performance improvement initiatives in business processes, systems, and policies that it expects will increase effectiveness and performance and plans to apply savings to high-priority activities

in support of the NDS.⁵ Under those initiatives, DoD says it achieved about \$5 billion in programmed savings for 2017 and has set a target of \$46 billion for the years from 2018 to 2022.

5. See Acting Chief Management Officer, *Fiscal Year (FY) 2020 Annual Performance Plan & FY 2018 Annual Performance Report* (Department of Defense, February 2019), <https://go.usa.gov/xmSJa> (PDF, 10 MB).



and their families. Those costs also fall under the appropriations for military personnel and O&M.

- *Other O&M*, which covers costs such as those for base operations, fuel, depot maintenance, and spare parts. Those costs fall entirely under the appropriation for O&M.

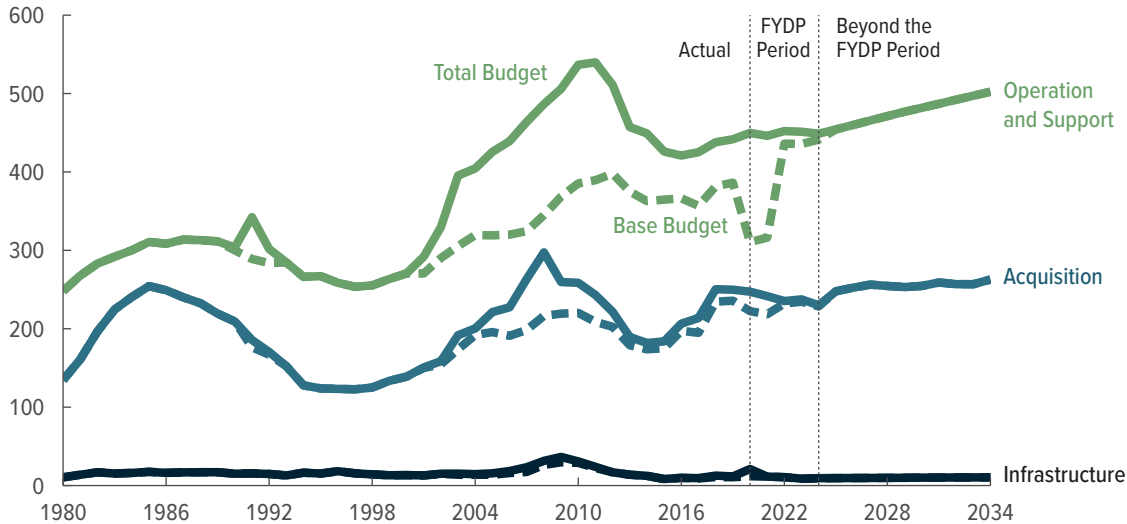
The relationship and relative size of each category in the 2020 budget request is shown in Figure 3.⁸ CBO based

8. A simple sum of the costs in CBO's three categories would exceed total O&S funding because the cost of compensation for military and civilian personnel who work in the military health system would be counted twice: once in the compensation category and again in the MHS category. When discussing the categories in isolation, CBO included those costs in both categories to present a more complete picture of each category's costs, but CBO corrected for that double counting in its presentation of overall O&S costs.

Figure 2.

Funding for the Department of Defense, as Categorized by CBO

Billions of 2020 Dollars



Source: Congressional Budget Office.

Funding for operation and support is the sum of the appropriations for military personnel, operation and maintenance, and revolving and management funds. Acquisition funding is the sum of the appropriations for procurement and for research, development, test, and evaluation. Infrastructure funding is the sum of the appropriations for military construction and family housing.

Before 2025, funding for the total budget (which includes funding designated as either OCO or emergency) and funding for the base budget are shown individually.

FYDP = Future Years Defense Program; FYDP period = 2020 through 2024, the period for which the Department of Defense has estimated its total costs.

its projection of DoD's O&S costs on the anticipated growth in those three categories of costs.

O&S Costs in the 2020 FYDP

In DoD's budget request for 2020, \$450 billion—nearly two-thirds of its total budget request—was for O&S: \$156 billion for military personnel and \$294 billion for O&M. Adjusted for inflation, the amount requested for O&S in 2020 is \$8 billion more than the amount enacted for 2019—an increase of about 2 percent. (O&S costs in CBO's analysis are expressed in terms of the total budget, including both base-budget funding and funding designated as OCO.)

For 2021, O&S costs in DoD's budget would total \$446 billion—\$4 billion less than the amount requested for 2020. O&S costs would decline slightly over the next three years, averaging about \$450 billion per year over the five-year period.

Although DoD plans to keep O&S funding relatively constant over the FYDP period, it also plans to increase the number of military personnel funded in that category by about one-quarter of one percent (an increase of about 25,000 service members, accompanied by a small decrease of 3,000 civilians). That would mark a departure from a decades-long trend of real growth in per capita O&S costs.

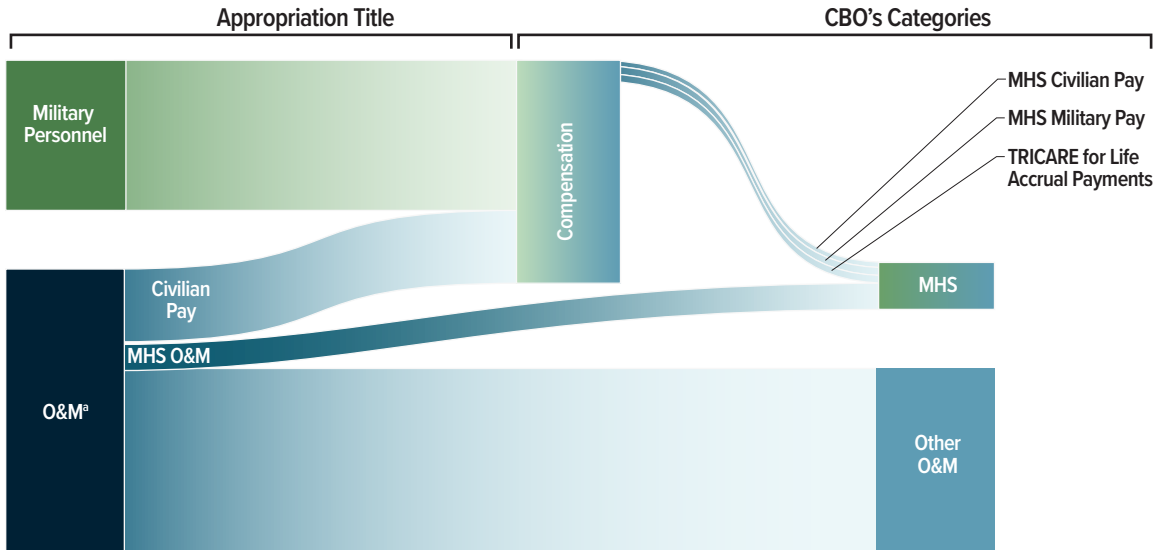
Within the O&S category, total funding for compensation would increase by about 3 percent over the FYDP period, resulting from planned increases in both the number of military personnel and military pay raises. The cost of civilian personnel would remain roughly flat over the FYDP period (see Table 3). DoD expects the number of civilian personnel to decrease and that pay raises will remain below economywide wage growth.

In its 2020 budget, DoD is requesting a 3.1 percent pay raise for military personnel, which equals the projected

Figure 3.

Funding for Operation and Support, by Appropriation Title and as Categorized by CBO

Height of Bars Scaled Relative to Proportion of Funding in Each Category



Source: Congressional Budget Office, using data from the Department of Defense.

Funding for operation and support is the sum of the appropriations for military personnel, operation and maintenance, and revolving and management funds.

MHS = Military Health System; O&M = operation and maintenance.

a. CBO included the relatively small amount in the Department of Defense’s budget for revolving and management funds with the O&M appropriation because those two titles involve similar activities.

increase in the ECI (a measure of the cost of compensating workers that is reported by the Bureau of Labor Statistics). DoD did not request a pay raise for civilian employees in 2020, which, in real terms, would result in a decline in civilian pay for that year.

DoD’s estimates reflect the assumption that, from 2021 through 2024, pay for military personnel would increase by about 2.6 percent per year and pay for civilian personnel would increase by about 2.1 percent per year. Both of those amounts are below the average annual ECI of about 3 percent projected by CBO.⁹

Costs for the MHS would increase by about 2 percent during the FYDP period, or less than 1 percent annually. That growth is slightly lower than expected given the increase in military personnel that DoD plans and the

expected growth in medical costs in the economy over that period.

DoD estimated that total O&M spending would decrease by about 3 percent over the FYDP period. The O&M portion of MHS funding would increase by about 4 percent and civilian compensation would decrease by about 1 percent. The remainder of O&M spending, which CBO categorizes as “Other O&M,” would shrink by about 5 percent over the FYDP period.

That proposed cost reduction by DoD might rely on an assumption that it will be able to achieve some improvements in efficiency and be able to eliminate some programs, as specified in a plan that it has developed.¹⁰ It could also reflect another factor: Since 2017, DoD has

9. See Congressional Budget Office, “10-Year Economic Projections” (January 2019), www.cbo.gov/about/products/budget-economic-data#4.

10. See Chief Management Officer, Department of Defense, *Fiscal Year (FY) 2020 Annual Performance Plan and FY 2018 Annual Performance Report* (February 2019), <https://go.usa.gov/xmSnZ> (PDF, 10 MB).

Table 3.

DoD's Operation and Support Costs, by Appropriation Title and as Categorized by CBO

Billions of 2020 Dollars

	2020	2024	2034
Appropriation Title			
Military Personnel			
Military compensation	148	155	169
TRICARE for Life accrual payments	8	9	11
Total	156	164	180
Operation and Maintenance ^a			
Civilian compensation	76	75	83
Operation and maintenance in the MHS	27	28	33
Other operation and maintenance	191	182	207
Total	294	285	323
Total Appropriations for Operation and Support	450	449	502
CBO's Categories			
Compensation ^b			
Military Personnel	156	164	180
Civilian Personnel ^c	76	75	83
Total	232	239	263
Military Health System ^d			
Military Pay in the MHS	8	7	8
Civilian Pay in the MHS	6	6	8
Operation and maintenance in the MHS	27	28	33
TRICARE for Life accrual payments	8	9	11
Total	49	50	60
Other Operation and Maintenance	191	182	207

Source: Congressional Budget Office.

Funding for operation and support is the sum of the appropriations for military personnel, operation and maintenance, and revolving and management funds.

DoD = Department of Defense; MHS = Military Health System.

- CBO included the relatively small amount in DoD's budget for revolving and management funds with the operation and maintenance appropriation because those two titles involve similar activities.
- Compensation consists of pay, cash benefits, and accrual payments for retirement benefits. For civilians, it also includes DoD's contributions for health insurance.
- These amounts do not include compensation for civilian personnel funded from accounts other than operation and maintenance.
- These amounts do not include MHS spending from accounts other than operation and support.

received extra funding for Other O&M activities such as training and maintenance of equipment in an effort to improve military readiness, which DoD asserts had declined in earlier years (despite steady growth in spending in this category during those earlier years). DoD might anticipate that, as readiness is restored, costs will

decrease by an amount that is greater than the annual cost growth that is usually observed for Other O&M.

Projection of O&S Costs for 2025 Through 2034

In CBO's projection beyond the 2020 FYDP period, O&S costs would rise steadily after 2024, from DoD's estimate of \$449 billion in 2024 to \$502 billion for

2034, at an average annual rate of 1 percent above inflation (see Figure 2 on page 10). Compensation, MHS, and Other O&M costs would increase.

With respect to compensation, CBO based its projection beyond 2024 on current law, which sets military pay raises equal to the growth in the ECI unless the Congress or the President acts to provide different amounts. According to CBO's long-term economic projections, the ECI would increase at an average annual rate of 1 percentage point above economywide inflation. Other elements of military compensation, including housing allowances and subsistence allowances, would also increase more than inflation, resulting in an overall real increase of \$14 billion in military compensation by 2034. Increases in accrual charges for retiree health care would add an additional \$2 billion to military personnel costs by 2034. CBO projects that civilian pay would also rise with the ECI, maintaining parity with military pay increases and resulting in an increase of \$8 billion in real terms by 2034. In total, compensation would increase by 10 percent after 2024, from \$239 billion to \$263 billion (see the lower panel of Table 3).

In its projection for the Military Health System, CBO incorporated costs that would grow at the same rate as the costs of health care in the general economy, except for the portion of MHS costs designated for the compensation of military personnel and federal civilians (which CBO assumed would grow at the rate of the ECI, as discussed above). Combined, those changes would yield an average annual increase in MHS costs of about 2 percent above economywide inflation. At that rate, starting at the end of the FYDP period in 2024, costs for the MHS would grow 20 percent by 2034, from \$50 billion to about \$60 billion (see Figure 4).

In its projection for Other O&M, CBO estimated that costs would increase faster than inflation, consistent with long-standing trends.¹¹ Between 1980 and 2018, DoD's Other O&M costs have more than doubled in real terms after adjusting for changes in the size of the military, increasing annually by about \$1,600 per active-duty service member. Because it is not practical to make individual estimates of the costs of the thousands of activities

that comprise Other O&M, CBO's projections reflect overall growth in those costs that is consistent with that historical trend. That results in an average annual increase of 1.3 percent in real terms after 2024, which would cause annual costs for Other O&M to increase by \$25 billion (or 14 percent) by 2034.

Uncertainty in Projections of O&S Costs

CBO's projections are not meant to predict future budgets. They are extrapolations of DoD's estimates in the FYDP, made under the assumption that the primary aspects of the current defense plan would remain unchanged. But, as described above, DoD's plans could change for many reasons. Moreover, projections of economic factors that affect DoD's costs—such as changes in the ECI or health care costs—are rarely perfect, which could also cause DoD's actual costs to differ from CBO's projections.

Differences Between DoD's O&S Estimates and Historical Experience

DoD's actual costs could differ from its estimated costs not only because of the previously described uncertainties but also because several of DoD's estimates about O&S costs over the FYDP period appear to counter recent trends. Those estimates result in lower projected rates of growth over the FYDP period in all three categories of O&S costs when compared with CBO's estimates for 2025 through 2034. Specifically:

- In DoD's plans, military pay increases more slowly than projected growth in the ECI from 2020 through 2024, even though pay raises have matched or exceeded growth in the ECI in 20 of the past 30 years;
- DoD planned for no pay raise for its civilian workers in 2020, but civilian raises have usually been slightly smaller than or equal to those for military personnel;¹²
- DoD projected that O&M costs for the MHS would increase at less than half the rate that CBO projects for health care costs in the economy as a whole;

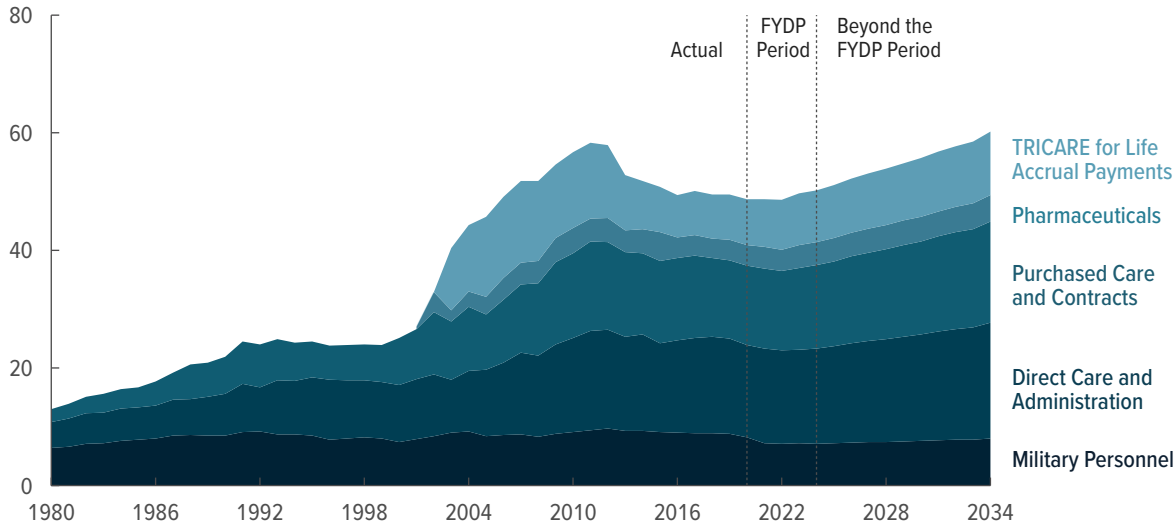
11. For a more detailed discussion of CBO's approach to analyzing "Other O&M" costs, see Congressional Budget Office, *An Analysis of the Obama Administration's Final Future Years Defense Program* (April 2017), www.cbo.gov/publication/52450.

12. For example, although the 2019 budget request included no pay raise for civilians, an overall average pay increase of 1.9 percent for civilian federal employees was appropriated in 2019. Military personnel received a 2.6 percent pay increase in 2019. Both amounts are below the estimated ECI of 2.7 percent.

Figure 4.

Funding for the Military Health System

Billions of 2020 Dollars



Source: Congressional Budget Office.

Before 2001, pharmaceutical costs were not identified separately but were embedded in the costs of two categories: “Purchased Care and Contracts” and “Direct Care and Administration.” In 2001 and later years, most pharmaceutical costs are identified separately, but some are embedded in the category “TRICARE for Life Accrual Payments.”

FYDP = Future Years Defense Program; FYDP period = 2020 through 2024, the period for which the Department of Defense’s plans are fully specified.

- DoD planned for Other O&M costs to fall by about 5 percent over the FYDP period despite the decades-long trend of increases in those costs, even with many efforts over the years to improve efficiency and eliminate unnecessary activities; and
- DoD assumed that the level of effort in overseas contingencies supported by Other O&M would decrease by half in the last year of the FYDP.

If growth rates over the FYDP period matched the growth rates CBO used in its projections of defense costs beyond the FYDP period, instead of those incorporated in DoD’s plan, DoD’s costs in each of those areas would be higher. Cumulative O&S costs would be \$52 billion (about 2 percent) higher than DoD’s plan from 2020 to 2024 and \$299 billion (about 4 percent) higher than CBO’s extension of the FYDP from 2020 to 2034 (see Table 1 on page 4). CBO estimates that 49 percent of the difference in the cumulative costs for 2020 through 2034 would be attributable to compensation, 6 percent to the MHS, and 44 percent to Other O&M.

Projected Costs of Acquisition

Acquisition funding comprises appropriations for the procurement and RDT&E appropriation titles. That funding is used to develop and buy new weapon systems and other major equipment, to upgrade the capabilities or extend the service life of existing weapon systems, and to support research on future weapon systems.

CBO used two approaches to project acquisition costs. For major programs involving the acquisition of new weapon systems or upgrades to existing systems, CBO projected costs and schedules on a program-by-program basis. For smaller programs and general research-and-development activities, CBO made aggregate projections based on policies either stated or implied in DoD’s planning documents or on historical relationships between total acquisition funding and the funding for major programs. (CBO’s projections for programs did not account for growth in the costs above DoD’s estimates; the agency explored the effect that historical cost growth in acquisition programs could have in an alternative projection discussed below.)

CBO based its program-by-program projections not only on the 2020 FYDP but on detailed plans, such as Selected Acquisition Reports, that the services have issued for some major systems (for example, the Air Force's new trainer aircraft). For other major systems (for example, a new armed reconnaissance aircraft for the Army), CBO based its estimates on more general descriptions the services have provided about schedules and costs for development and procurement. For still other systems (for instance, future fighters that the Navy and Air Force are considering putting into service in the 2030s), there are no detailed schedules or cost estimates, but their acquisition can be anticipated if DoD is to maintain the current size of the force when today's weapons reach the end of their service lives. In those cases, CBO based its cost estimates on the assumption that the services would replace retiring weapon systems with similar but more technologically advanced ones.

Acquisition Costs in the 2020 FYDP

In DoD's budget request for 2020, \$247 billion (about one-third of its budget request) was for acquisition: \$143 billion for procurement and \$104 billion for RDT&E. The amount requested in the budget for acquisition in 2020 is about 1 percent less than the amount appropriated for 2019 (after adjusting for inflation).¹³ For the years 2021 through 2024, acquisition costs under the 2020 FYDP would trend downward to \$230 billion after adjusting for inflation, a decrease of about 7 percent. Costs for procurement would be almost unchanged, averaging \$144 billion over the FYDP period, an amount that is 9 percent higher than the inflation-adjusted average over the past 20 years (see Figure 5). Costs for RDT&E would decrease by 18 percent over the FYDP period, to \$86 billion in 2024. Despite that decrease, costs for RDT&E would still be substantial compared with the past: Annual funding for RDT&E has averaged about \$71 billion since 1980, after adjusting for inflation. Costs for RDT&E in the 2020 FYDP would also be higher than average funding over the past 20 years (\$83 billion).

Acquisition costs for all three military departments would be lower in 2024 than in 2020. The Army's acquisition costs would decrease by 10 percent over the

FYDP period. Procurement would drop by 6 percent as the Army completes replenishment of munitions expended in recent conflicts and reduces purchases of existing weapon systems in anticipation of gradually fielding new generations of more advanced weapons. Despite the focus on new weapons, the Army's costs for RDT&E would decrease by 18 percent over the FYDP period. Acquisition costs for the Navy and the Air Force would decrease by a smaller percentage—about 5 percent each—than for the Army. Navy procurement would remain nearly unchanged over the FYDP period, averaging \$61 billion, but RDT&E would decrease from more than \$20 billion in 2020 to \$16 billion in 2024. The Air Force's procurement costs would increase from \$28 billion to \$31 billion (or 11 percent) from 2020 to 2024, but its RDT&E costs would decrease from \$35 billion to \$31 billion (or 13 percent).¹⁴

DoD's budget also includes defensewide acquisition funding, which is allocated to defense agencies other than the three military departments. Those agencies carry out activities in conjunction with the services—for example, performing advanced research, developing missile defenses, overseeing special operations, and managing financial and information systems. Under the 2020 FYDP, acquisition costs for defensewide programs would decrease from \$31 billion in 2020 to \$26 billion in 2024.

Projection of Acquisition Costs for 2025 Through 2034

In CBO's projections, DoD's acquisition costs rise sharply in the years immediately after the FYDP period, from \$230 billion in 2024 to \$256 billion in 2027 (see Figure 2 on page 10). Costs would generally increase thereafter, but at a slower rate, growing to \$263 billion in 2034. Both procurement and RDT&E would contribute to higher acquisition costs: Procurement would be \$27 billion (or 18 percent) higher in 2034 than in 2024, and RDT&E would be about \$6 billion (or 7 percent) higher.

For the Army, acquisition costs would increase steadily over the 2024–2034 period, growing from \$35 billion to \$44 billion by 2034 (see Figure 6). Most of that increase

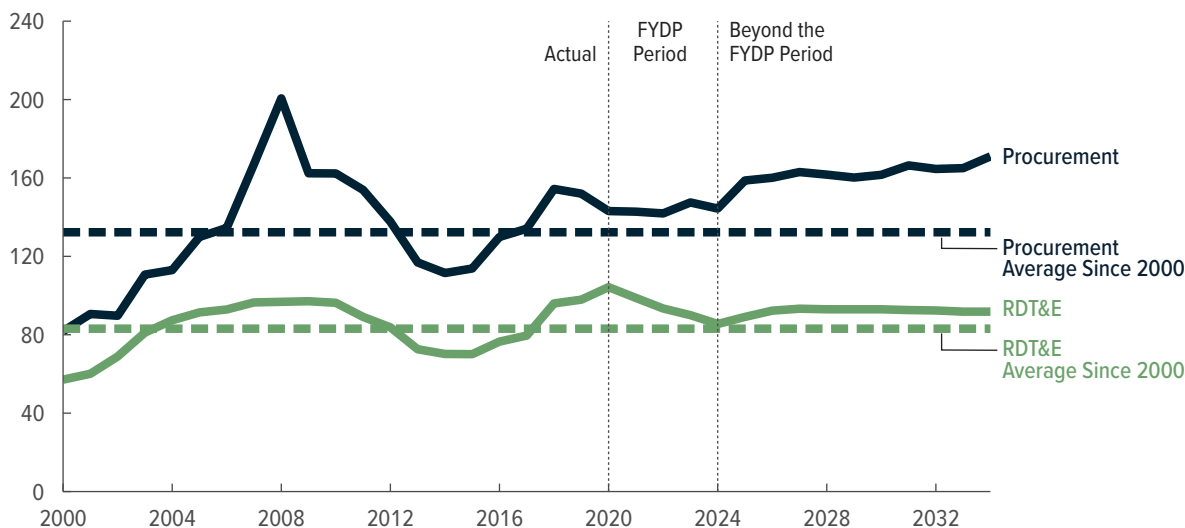
13. DoD categorized \$25 billion of its 2020 request for acquisition as OCO funding. About 60 percent of that amount was for base-budget requirements and 40 percent for direct war or enduring contingency costs.

14. The Air Force acquisition costs cited here do not include costs for classified activities outside of the Air Force that are funded through that service's procurement and RDT&E accounts. Those costs totaled \$33 billion in the 2020 budget request.

Figure 5.

DoD's Acquisition Funding, by Appropriation Title

Billions of 2020 Dollars



Source: Congressional Budget Office.

Acquisition funding is the sum of the appropriations for procurement and RDT&E.

DoD = Department of Defense; FYDP = Future Years Defense Program; FYDP period = 2020 through 2024, the period for which DoD has estimated its total costs; RDT&E = research, development, test, and evaluation.

would be attributable to procurement costs, which would rise from \$25 billion to \$34 billion over that period. RDT&E costs would remain nearly unchanged, averaging about \$10 billion per year. The Army has defined six broad acquisition priorities that encompass nearly all of its weapon systems. Those objectives are to acquire new long-range precision weapons, a new armored combat vehicle, a new vertical-lift aircraft, an improved communications network for combat units, improved air-and-missile defense systems, and improved weapons and other equipment for soldiers. Although the Army has not defined the specific systems that would be acquired through those objectives, CBO's projections beyond the FYDP period include notional programs for a new reconnaissance aircraft in the mid-2020s, replacements for both the Bradley infantry fighting vehicle and a long-range surface-to-surface missile in the late 2020s, and a new transport aircraft in the early 2030s. Most of the increase in projected procurement costs after 2024 would be for new armored vehicles, aircraft, and long-range missiles. The projections also reflect the Army's plans to continue improvements to its air-and-missile defense systems and digital network systems.

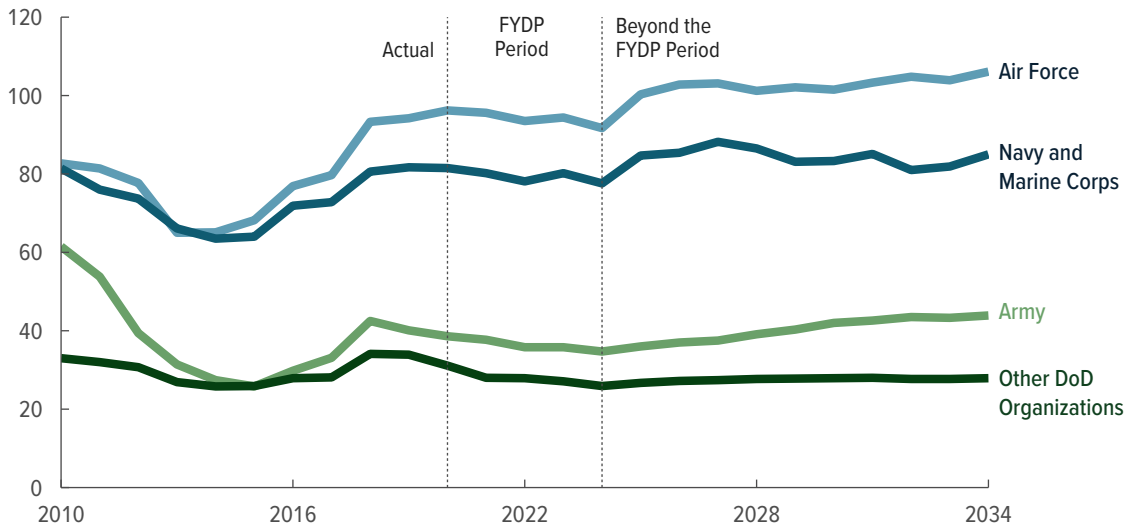
For the Navy, CBO estimates that acquisition costs would increase by 9 percent in the first year beyond the FYDP period, from \$78 billion in 2024 to \$85 billion in 2025. The Navy's acquisition costs would peak at \$88 billion in 2027 and then range from \$81 billion to \$87 billion through 2034 (see Figure 6). Costs for shipbuilding would account for most of the increase as the Navy attempts to reach its goal of a 355-ship fleet and to replace two of its most expensive classes of ships: aircraft carriers and ballistic missile submarines.¹⁵ By contrast, aircraft-related costs would generally decrease as programs to acquire new aircraft (such as the F-35 Joint Strike Fighter and the Marine Corps' CH-53K helicopter) and modify existing aircraft are completed. The cost of the Navy's RDT&E, which would drop by 22 percent over the FYDP period, would return to its 2020 amount (\$20 billion) by 2027 and average about \$22 billion over the last eight years of the projection period.

15. See Congressional Budget Office, *An Analysis of the Navy's Fiscal Year 2019 Shipbuilding Plan* (October 2018), www.cbo.gov/publication/54564, and *How CBO Estimates the Cost of New Ships* (April 2018), www.cbo.gov/publication/53785.

Figure 6.

DoD's Acquisition Funding, by Military Service

Billions of 2020 Dollars



Source: Congressional Budget Office.

Acquisition funding is the sum of the appropriations for procurement and RDT&E.

DoD = Department of Defense; FYDP = Future Years Defense Program; FYDP period = 2020 through 2024, the period for which DoD has estimated its total costs; RDT&E = research, development, test, and evaluation.

For the Air Force, CBO projects that acquisition costs would also increase by 9 percent in the first year beyond the FYDP period, from \$92 billion in 2024 to \$100 billion in 2025. The Air Force's acquisition costs would remain fairly steady thereafter, averaging about \$103 billion a year through 2034 (see Figure 6). (Those amounts include CBO's projection for classified activities funded through the Air Force's budget but not carried out by the service.) The growth would result primarily from the procurement of several new weapon systems—including fighters (the F-35A), bombers (the B-21), supersonic trainers (the Advanced Pilot Training aircraft), nuclear cruise missiles (the Long-Range Standoff Weapon), and intercontinental ballistic missiles (the Ground-Based Strategic Deterrent)—and from costs to develop a new air-superiority aircraft that would be fielded in the 2030s.

In CBO's projections, defensewide acquisition costs increase by about 8 percent in real terms from 2024 through 2034. That increase would result from similar increases in missile defense costs and other defensewide costs over that period. Missile defense costs could be higher if the findings of the Missile Defense Review that

the Administration released in January 2019 led DoD to pursue a more expansive missile defense program than the one reflected in the 2020 FYDP. For example, the Administration might request funding for new constellations of satellites for missile defense that are not yet reflected in the 2020 FYDP or in CBO's projections.

Uncertainty in Projections of Acquisition Costs

Like the projections of O&S costs, the projections of DoD's acquisition costs are subject to considerable uncertainty. One major source of uncertainty is the possibility that DoD's plans and their associated costs would change. Changes in acquisition plans, sometimes substantial, can result from a variety of factors. For example, the funding constraints imposed by the Budget Control Act led DoD to curtail the acquisition spending it had planned in earlier FYDPs. Changes in the military capability of perceived adversaries can also motivate changes in DoD's acquisition plans. For example, DoD had no plans to purchase thousands of mine-resistant vehicles until they became necessary in the face of roadside bombs in Iraq. DoD also had no programs to counter hypersonic weapons until China began testing such weapons several years ago.

Uncertainty about the 2020 FYDP is heightened because DoD is in the early stages of shifting its emphasis from counterinsurgency operations to more technologically advanced warfare. For example, the Army has yet to define detailed acquisition plans (such as might be found in a Selected Acquisition Report) for any of its six acquisition priorities, which focus on combat against modern adversaries. The shift in DoD's emphasis is also reflected in the relatively high levels of funding requested for RDT&E throughout the 2020 FYDP period and in the Administration's announcements about nascent plans to field highly advanced (but not yet well-defined) systems, such as hypersonic weapons and integrated networks of independent sensors for battlefield reconnaissance.

Differences Between DoD's Acquisition Estimates and Historical Experience

Growth in the costs of weapons programs could also cause acquisition costs to differ from the projections discussed above. According to analyses by the RAND Corporation and the Institute for Defense Analyses (IDA), DoD has tended to underestimate the costs of its major weapons programs.¹⁶ Actual costs can be higher than early estimates for many reasons, including:

- Underestimates of costs in DoD's initial plans;
- Changes in economic factors, such as the costs of labor and raw materials;
- Changes in performance requirements, which can result in the need for costly design changes during development;
- Lower-than-anticipated annual funding, which can increase total costs by disrupting established plans and schedules and by stretching programs (and their associated overhead costs) over longer periods; and

- Unanticipated technological challenges posed by new systems.

CBO's projection of long-term acquisition costs is based on DoD's estimates of development and procurement costs and on the number of units to be purchased per year and in total, as specified in DoD's long-range plans. To illustrate how growth in the costs of acquisition programs might affect the total costs of DoD's 2020 plans, however, CBO prepared an alternative estimate using historical patterns of growth in DoD's costs. In that estimate, CBO applied cost-growth factors derived from RAND's and IDA's research to the portfolio of large weapons programs, excluding those for Navy ships, in the 2020 FYDP.¹⁷ For Navy ships, CBO used detailed estimates prepared for its annual analysis of the Navy's shipbuilding plans. Using the resulting cost estimates instead of DoD's cost estimates raises total projected acquisition costs by 2.6 percent over the FYDP period and by 7.2 percent over the 2025–2034 period. That equates to an additional \$5 billion per year, on average, over the 2020–2024 period and an additional \$15 billion per year, on average, for 2025 through 2034 (see Table 1 on page 4). Because uncertainty about costs is greater in the more distant future, the potential increases are larger for the years beyond the FYDP period.

Projected Costs of Infrastructure

The budget for infrastructure comprises appropriations for the military construction and family housing appropriation titles, which provide funds for building and renovating DoD's facilities. Appropriations for military construction cover facilities such as buildings, runways, and piers used by the military. Appropriations for family housing cover a portion of the housing on military installations.¹⁸

16. See Mark V. Arena and others, *Historical Cost Growth of Completed Weapon System Programs*, TR-343-AF (RAND Corporation, 2006), www.rand.org/pubs/technical_reports/TR343.html; David L. McNicol and Linda Wu, *Evidence on the Effect of DoD Acquisition Policy and Process on Cost Growth of Major Defense Acquisition Programs*, IDA Paper P-5126 (Institute for Defense Analyses, 2014), <https://apps.dtic.mil/dtic/tr/fulltext/u2/a609472.pdf> (826 KB); and Obaid Younossi and others, *Is Weapon System Cost Growth Increasing? A Quantitative Assessment of Completed and Ongoing Programs*, MG-588-AF (RAND Corporation, 2007), www.rand.org/pubs/monographs/MG588.html.

17. For details about how CBO applies those cost-growth factors, see Congressional Budget Office, *An Analysis of the Obama Administration's Final Future Years Defense Program* (April 2017), pp. 47–50, www.cbo.gov/publication/52450.

18. Since the enactment of the Military Housing Privatization Initiative in 1996, the costs to operate and maintain most military housing have been transferred to private companies. In the budget, costs for that housing have been shifted to the military personnel appropriation. See the Office of the Assistant Secretary of Defense for Sustainment, "Facilities Management—Military Housing Privatization Initiative" (1996), www.acq.osd.mil/eie/FIM/Housing/Housing_index.html.

Infrastructure Costs in the 2020 FYDP

DoD requested a total of \$21 billion for infrastructure in 2020, which is double the amount appropriated in 2019 because it includes \$9.2 billion in emergency funding for military construction to build border barriers, restore funding reallocated in 2019 to build border barriers, and rebuild facilities damaged by Hurricanes Florence and Michael. Requested infrastructure funding makes up about 3 percent of DoD's total request in 2020. The base-budget portion of DoD's request for infrastructure totaled \$11.9 billion—\$10.6 billion for military construction and \$1.3 billion for family housing—which is about 11 percent more (after adjusting for inflation) than the amount enacted for 2019 (\$10.7 billion).

Under the 2020 FYDP, annual infrastructure costs for 2021 through 2024 would decrease markedly over the FYDP period. Military construction costs, excluding the request for emergency supplemental funding, would fall by 25 percent, dropping from \$10.6 billion in 2020 to \$7.9 billion in 2024, for an average of about \$9.1 billion per year over the FYDP period. In contrast, family housing would rise by about 10 percent, growing from

\$1.3 billion in 2020 to \$1.5 billion in 2024, averaging \$1.4 billion per year over the FYDP period.

Projections of Infrastructure Costs for 2025 Through 2034

In CBO's projections, infrastructure costs in DoD's base budget would increase steadily by 1 percent per year after the FYDP period, reaching \$10.5 billion in 2034. Those increases are based on CBO's projection of real growth in the cost of construction projects in the general economy.

Uncertainty in Projections of Infrastructure Costs

The primary source of uncertainty in current projections of infrastructure costs is whether the Congress will authorize a new round of Base Realignment and Closure (BRAC)—a process in which DoD closes and consolidates bases in order to streamline its allocation of resources and cut costs. The last round of BRAC began in 2005, but the Congress has not supported DoD's efforts to implement a new round since then.¹⁹ Infrastructure costs would change if a new round of BRAC is authorized, but the magnitude and timing of those changes cannot be estimated with confidence.

19. The Congress expressly prohibited spending on an additional round of BRAC in the National Defense Authorization Act of 2019 (NDAA, P.L. 115–232, August 2018). As of July 2019, language in the Senate version of the 2020 NDAA bill (S. 1790) prohibits spending on an additional round of BRAC funding.



Appendix: Base-Budget and Nonbase-Budget Designations—Overseas Contingency Operations in the 2020 Future Years Defense Program

The Budget Control Act of 2011 (BCA, Public Law 112-25) established caps that limit discretionary appropriations for the Department of Defense’s (DoD’s) base budget through 2021. (The base budget is intended to fund normal, peacetime activities, such as day-to-day military and civilian operations and the development and procurement of weapon systems.) Those caps do not limit appropriations designated for emergencies or for overseas contingency operations (OCO), which CBO categorizes as “nonbase” funding. Consequently, starting in 2016, the Congress began explicitly funding some of DoD’s base-budget activities with OCO appropriations to increase base-budget funding without exceeding the BCA’s caps. The discussion that follows is based on the BCA caps that were in place at the time the 2020 FYDP was prepared. It does not reflect the increase in the caps that occurred later under the Bipartisan Budget Act of 2019 (P.L. 116-37).

DoD’s Future Years Defense Program (FYDP) for 2020 goes much further than earlier budget requests in shifting base-budget funding into OCO. Total funding in the 2020 budget request would have exceeded the BCA’s caps in 2020 and 2021 by \$173 billion and \$153 billion, respectively. In its request for 2020, the Administration divided DoD’s total budget into four categories: Base Budget (\$545 billion), Emergency (\$9 billion), OCO for Base (\$98 billion), and OCO (\$66 billion).¹ DoD structured its request for total funding in 2020 and 2021 so that the base budget would remain below the BCA’s caps, requesting that the remainder be designated as either emergency funding or

OCO funding. To clarify how OCO-designated funding was intended to be used, DoD divided its request for OCO into five categories: Operation Inherent Resolve (OIR, \$7 billion); Operation Freedom’s Sentinel (OFS, \$19 billion); Enduring Requirements (\$35 billion); European Defense Initiative (EDI)/Non-war (\$6 billion); and OCO for Base Requirements (\$98 billion).²

For this report, CBO divided OCO into three categories: OCO for Base (\$98 billion); Enduring Costs, which includes funding for EDI/Non-war (\$41 billion); and OCO, which combines funding for OIR in Iraq and Syria and OFS in Afghanistan (\$26 billion).

DoD adopted a somewhat different approach in the 2020 FYDP than it did in the 2019 FYDP. In the 2019 FYDP, DoD introduced plans to reduce or eliminate its reliance on OCO to pay for activities that the department has determined will probably endure. Based on CBO’s previous analysis of funding appropriated for OCO and DoD’s level of overseas activity (measured by factors such as the number of service members deployed), increasing base-budget funding while reducing the OCO budget as DoD planned to do in its 2019 FYDP would better represent the long-term costs of DoD’s plans.³

In the 2020 FYDP, DoD delayed those plans by two years: The costs of enduring activities would move from the OCO budget to the base budget starting in 2022, rather than in 2020 (see Figure A-1). The shift in costs after 2021 would increase base-budget funding by about

1. See Office of the Under Secretary of Defense (Comptroller)/Chief Financial Officer, *Defense Budget Overview* (March 2019), Figure 2, <https://go.usa.gov/xybxj> (PDF, 4 MB).

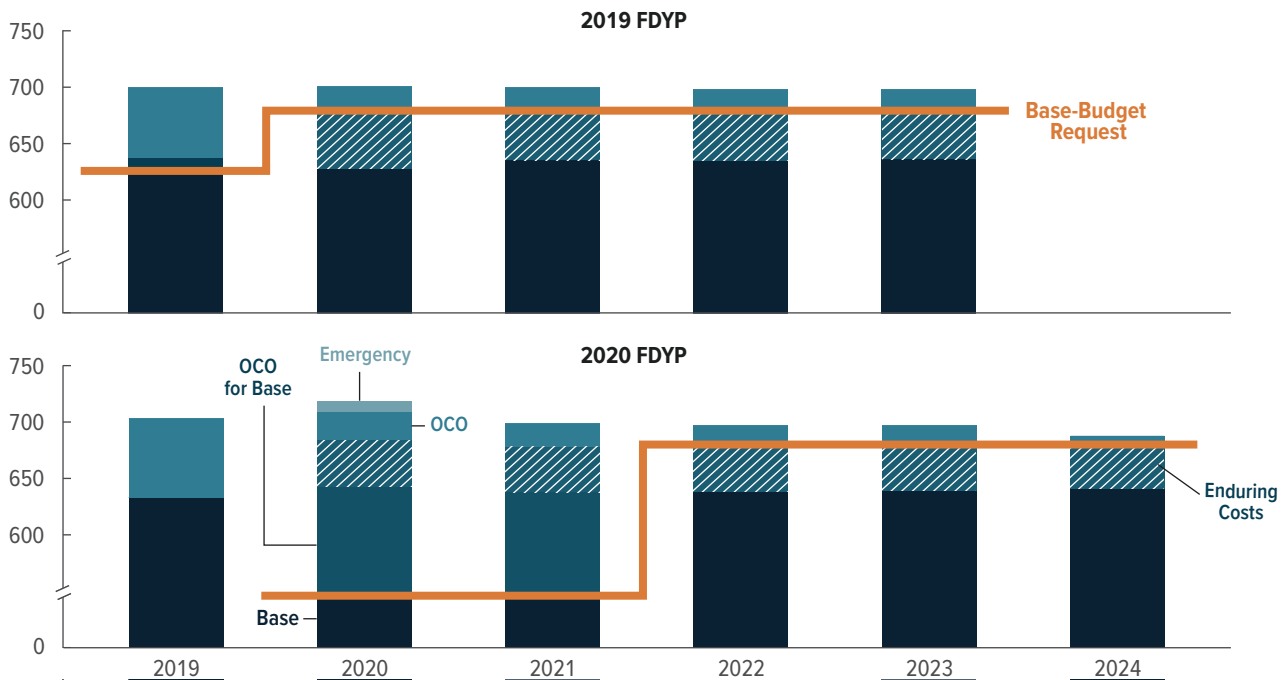
2. *Ibid.*, Figure 6.3.

3. See Congressional Budget Office, *Funding for Overseas Contingency Operations and Its Impact on Defense Spending* (October 2018), www.cbo.gov/publication/54219.

Figure A-1.

Overseas Contingency Operations, Enduring Costs, and the Base Budget

Billions of 2020 Dollars



Source: Congressional Budget Office, using data from the Department of Defense.

In the 2020 FYDP, the Department of Defense’s budget request can be divided into five categories: “Base,” “OCO for Base,” “Enduring Costs,” “OCO,” and “Emergency.”

FYDP = Future Years Defense Program; OCO = overseas contingency operations.

\$137 billion, on average, over the 2022–2024 period. Such a change would reduce OCO funding by about 80 percent relative to the 2020 request.

As part of its total budget, DoD also identified an OCO placeholder for the years 2022 through 2024, but it did not specify how that amount would be allocated among DoD’s appropriation titles. To project DoD’s total costs

by budget categories beyond 2021, CBO had to estimate how DoD would apportion funding in the OCO placeholder. To do so, CBO allocated those costs among DoD’s appropriation titles in the same proportion that DoD allocated them in its original OCO request for 2020. Most of the OCO costs that CBO allocated were in the appropriation titles for operation and maintenance and military personnel.



List of Tables and Figures

Tables

1.	Increases in DoD's Costs Under Alternative Policies and Projection Methods	4
2.	Methods Used by CBO to Project the Cost of DoD's Plans Beyond the FYDP Period	6
3.	DoD's Operation and Support Costs, by Appropriation Title and as Categorized by CBO	12

Figures

1.	Funding for the Department of Defense	3
2.	Funding for the Department of Defense, as Categorized by CBO	10
3.	Funding for Operation and Support, by Appropriation Title and as Categorized by CBO	11
4.	Funding for the Military Health System	14
5.	DoD's Acquisition Funding, by Appropriation Title	16
6.	DoD's Acquisition Funding, by Military Service	17
A-1.	Overseas Contingency Operations, Enduring Costs, and the Base Budget	22



About This Document

This Congressional Budget Office report was prepared at the request of the Chairman and Ranking Member of the Senate Committee on the Budget. In keeping with CBO's mandate to provide objective, impartial analysis, the report makes no recommendations.

F. Matthew Woodward and David Arthur coordinated the preparation of this report with guidance from David Mosher and Edward G. Keating. Elizabeth Bass, Michael Bennett, Eric Labs, and Adam Talaber contributed to the analysis. Zhuang Hao provided helpful comments, and Edward G. Keating fact-checked the manuscript.

Mackenzie Eaglen of the American Enterprise Institute and Michael E. O'Hanlon of the Brookings Institution also provided helpful comments. (The assistance of external reviewers implies no responsibility for the final product, which rests solely with CBO.)

Mark Hadley and Jeffrey Kling reviewed the report, Loretta Lettner edited it, and Jorge Salazar prepared it for publication. An electronic version of the report and supplemental data are available on CBO's website (www.cbo.gov/publication/55500).

CBO continually seeks feedback to make its work as useful as possible. Please send any comments to communications@cbo.gov.

Phillip L. Swagel
Director
August 2019