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FY2020 National Defense Authorization Act: P.L. 116-92 (H.R. 2500, S. 1790)

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SUMMARY

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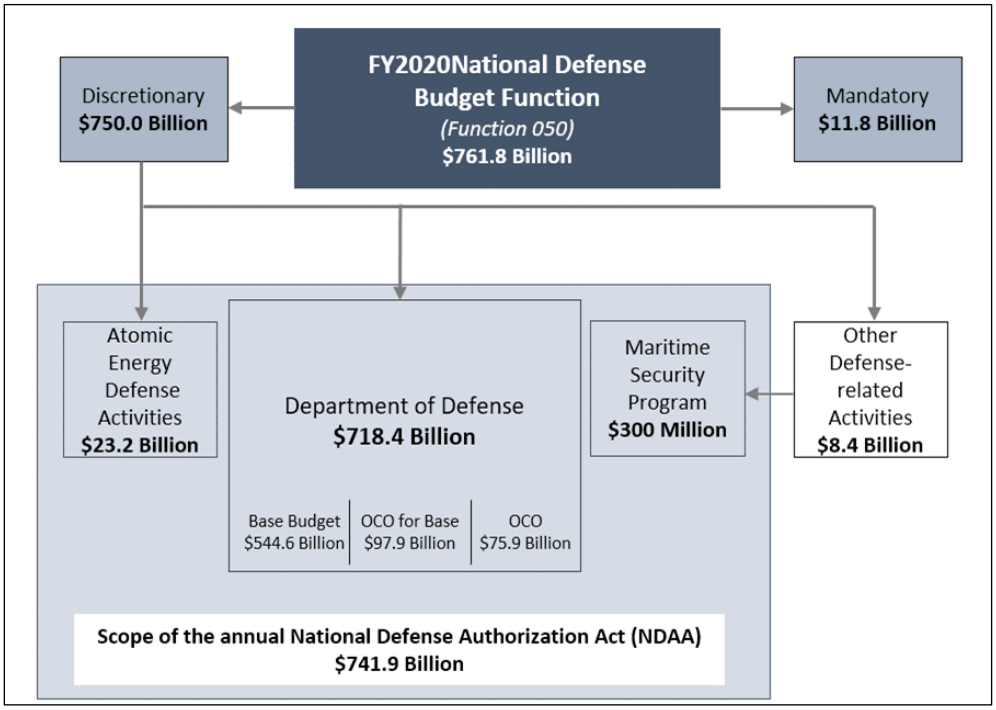
January 2, 2020

Pat Towell
Specialist in U.S. Defense Policy and Budget

FY2020 National Defense Authorization Act: P.L. 116-92 (H.R. 2500, S. 1790)

The Administration's FY2020 NDAA request would have authorized $568.1 billion designated as base budget funds to cover the routine, recurring costs to man, train, and operate U.S. forces. The request would have authorized an additional $173.8 billion designated as Overseas Contingency Operations (OCO) funds, of which $97.9 billion was requested for base programs. As enacted, the FY2020 NDAA authorizes a total of $729.9 billion for national defense-related activities, which is $12.0 billion (1.6%) less than the Administration requested.

Administration's FY2020 National Defense Authorization Act Request



FY2020 National Defense Authorization Act: Legislative History (H.R. 2500; S. 1790)

H.R. 2500		S. 1790			Conference Report Approval		
House Report	House Passage	Senate Report	Senate Passage	Conf. Report	House	Senate	Public Law
H.Rept. 116-120, Part I 6/19/2019	220-197 7/12/2019	S.Rept. 116-48 6/11/2019	86-8 6/12/2019	H.Rept. 116-333 12/9/2019	377-48 12/11/2019	86-8 12/17/2019	P.L. 116-92 12/20/2019

FY2020 National Defense Authorization Act: Authorization Totals (H.R. 2500; S. 1790)

($ in billions)

	FY2019 Enacted	FY2020 Administration Request	FY2020 Request (adjusted)	House-passed H.R. 2500	Senate-passed S. 1790	FY2020 Enacted P.L. 116-92
Base Budget	639.1	568.1	666.0	655.9	665.7	658.4
OCO	69.0	173.8	75.9	69.0	75.9	71.5
TOTAL	**708.1**	**741.9**	**741.9**	**724.9**	**741.6**	**729.9**

Note: The column labeled "FY2020 Request" displays the Administration's request as presented to Congress, which included $97.9 billion intended for base budget purposes but to be designated as OCO funding (in order to observe binding caps on base defense spending as passed in the Budget Control Act of 2011). The House and Senate Armed Services Committees each treated those amounts as part of the base budget request, as shown in the column labelled "FY2020 Request (adjusted)."

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Introduction

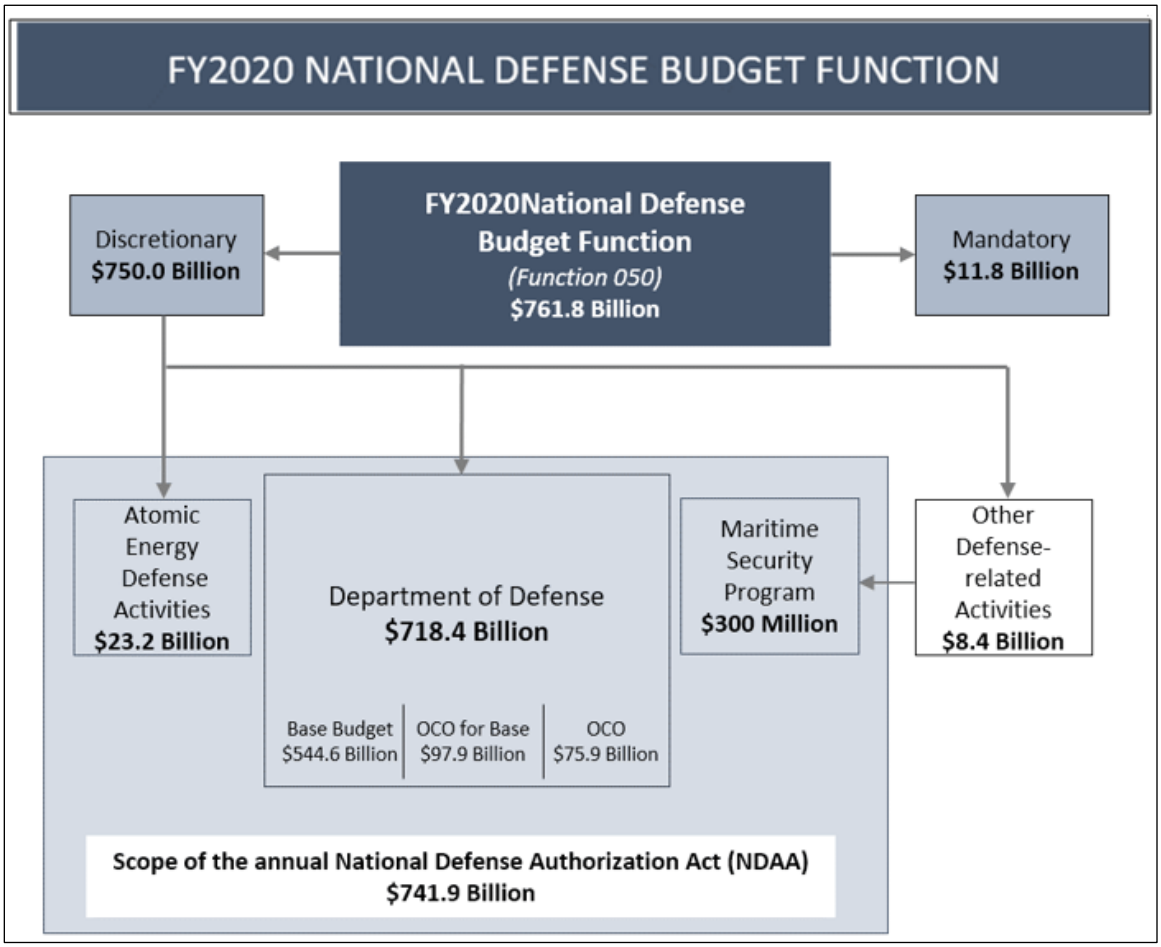
This report provides an overview of the FY2020 National Defense Authorization Act (H.R. 2500, S. 1790, P.L. 116-92) and serves as a portal to other CRS products providing additional context, detail, and analysis concerning particular aspects of that legislation.

Enacted annually to cover every defense budget since FY1962, the NDAA authorizes funding for the Department of Defense (DOD) activities at the same level of detail at which budget authority is provided by the corresponding defense, military construction, and other appropriations bills. While the NDAA does not provide budget authority, historically it has provided a fairly reliable indicator of congressional sentiment on funding for particular programs. The bill also incorporates provisions of law governing military compensation, the DOD acquisition process, and aspects of DOD policy toward other countries, among other subjects.

Of the $761.8 billion requested by the Trump Administration for National Defense-related activities in FY2020, $750.0 billion is discretionary spending, of which approximately $741.9 billion falls within the scope of the annual NDAA. This includes $718.4 billion for DOD operations and $23.2 billion for defense-related work by the Energy Department involving nuclear energy, mostly related to nuclear weapons and nuclear power plants for warships. Other funding for defense-related activities, such as counter-intelligence work of the Federal Bureau of Investigation (FBI), falls mostly under the jurisdiction of other congressional committees.[1] (See **Figure 1**.)

[1] The NDAA also authorizes funding the Maritime Security Program of the Department of Transportation, for which the Trump Administration requested $300 million in FY2020.

Figure 1. Relationship of the Administration's FY2020 Defense Budget Request to the FY2020 National Defense Authorization Act (NDAA)



Source: Department of Defense (DOD), *National Defense Budget Estimates for FY2020 [The Green Book]*, May 2019, Table 1-2, pp. 7-8.

Note: Amounts may not sum due to rounding.

The following overview reviews the strategic and budgetary context within which Congress debated the FY2020 NDAA. Subsequent sections of the report summarize the bill's treatment of major components of the Trump Administration's FY2020 budget request as well as provisions attached to the final bill that deal with other issues.

FY2020 NDAA Overview

As enacted, the FY2020 NDAA authorizes a total of $729.9 billion for national defense-related activities, which is $12.0 billion (1.6%) less than the Administration requested. The request included $568.1 billion to be designated as base budget funds to cover the routine, recurring costs to man, train, and operate U.S. forces. The request also included an additional $173.8 billion to be designated as Overseas Contingency Operations (OCO) funds to cover costs associated with the aftermath of the terrorist attacks of September 11, 2001, and other activities.

OCO-designated funds are exempt from the binding caps on defense spending set by the Budget Control Act of 2011 (P.L. 112-25) and the Administration's request included $97.7 billion to be designated as OCO funding but intended to pay base budget expenses. (**Table 1**.)

Table 1. FY2020 National Defense Authorization Act (H.R. 2500; S. 1790)

($ in billions)

	FY2019 Enacted	FY2020 Admin. Request	FY2020 Request (adjusted)	House-passed H.R. 2500	Senate-passed S. 1790	FY2020 Enacted P.L. 116-92
Base Budget						
Procurement	132.3	118.9	132.3	130.6	135.1	133.1
Research and Development	91.7	102.6	103.4	100.8	104.0	102.3
Operation and Maintenance	198.5	123.9	207.7	203.8	205.4	201.9
Military Personnel	147.1	151.3	151.3	150.1	150.4	150.5
Defense Health Program and Other DOD	37.0	36.6	36.6	37.2	36.6	36.3
Military Construction and Family Housing	10.3	11.2	11.2	10.5	11.5	10.9
Atomic Energy Defense Activities	22.2	23.2	23.2	22.7	23.2	23.1
Maritime Security Program	0.3	0.3	0.3	0.3	0.0	0.3
Base Budget, Sub-Total	**639.1**	**568.1**	**666.0**	**655.9**	**665.7**	**658.4**
OCO	69.0	173.8	75.9	69.0	75.9	71.5
GRAND TOTAL	**708.1**	**741.9**	**741.9**	**724.9**	**741.6**	**729.9**

Sources: Senate Armed Services Committee, S.Rept. 116-48, *Report to Accompany* S. 1790, *FY 2019 National Defense Authorization Act*; House Armed Services Committee, H.Rept. 116-120, *Report to Accompany* H.R. 2500, *FY 2019 National Defense Authorization Act*; and H.Rept. 116-333, *Conference Report to Accompany* S. 1790, *FY 2019 National Defense Authorization Act.*

Notes: The column labeled "FY2020 Request" displays the Administration's request as presented to Congress, which included $97.9 billion intended for base budget purposes but designated as OCO funding (in order to skirt binding caps on defense spending). The House and Senate Armed Services Committees each treated those amounts as part of the base budget request, as shown in the column labelled "FY2020 Request (adjusted)."

The Senate Armed Services Committee reported its version of the FY2020 NDAA (S. 1790, S.Rept. 116-48) on June 11, 2019 and the Senate passed the bill on June 27, 2019. The House Armed Services Committee (HASC) reported its version (H.R. 2500, H.Rept. 116-120) on June 19, 2019 and the House passed the bill on July 12, 2019.

On September 17, 2019, the House took up the Senate-passed S. 1790, amended it by eliminating the Senate-passed provisions and replacing them with the provisions of the House-passed H.R. 2500, and then passed the amended bill by voice vote. House and Senate conferees worked to produce a conference version of S. 1790. The conference report (H.Rept. 116-333) was agreed to by the House on December 11, 2019 by a vote of 377-48 and agreed to by the Senate on December 17, 2019 by a vote of 86-8. (**Table 2**.)

Table 2. FY2020 National Defense Authorization Act (H.R. 2500; S. 1790)

House Report H.R. 2500	House Passage H.R. 2500	Senate Report S. 1790	Senate Passage S. 1790	Conf. Report S. 1790	Conference Report Approval		Public Law
					House	Senate	
H.Rept. 116-120 6/19/2019	220-197 7/12/2019	S.Rept. 116-48 6/11/2019	86-8 6/27/2019	H.Rept. 116-333 12/9/2019	377-48 12/11/2019	86-8 12/17/2019	P.L. 116-92 12/20/2019

Note: On September 17, 2019, the House passed S. 1790 after amending it to replace the Senate-passed provisions with the provisions of the House-passed H.R. 2500. The final version of the bill agreed to by House and Senate conferees was an amended version S. 1790.

Strategic Context

According to the Administration, the FY2020 budget request for DOD reflects a shift in strategic emphasis based on the 2018 National Defense Strategy (NDS), which called for "increased and sustained investment" to counter evolving threats from China and Russia. This would mark a change from the focus of U.S. national security policy for nearly the past three decades and a renewed emphasis on competition between nuclear-armed superpowers, which had been the cornerstone of U.S. strategy for more than four decades after the end of World War II.

During the Cold War, U.S. national security policy and the design of the U.S. military establishment were strategically focused on competing with the Union of Soviet Socialist Republics and containing the global spread of communism. In the years following the collapse of the Soviet Union, U.S. policies were designed—and U.S. forces were trained and equipped—largely with a focus on dealing with potential regional aggressors such as Iraq, Iran, and North Korea and on recalibrating relations with China and Russia.

After the terrorist attacks of September 11, 2001, U.S. national security policy and DOD planning focused largely on countering terrorism and insurgencies in the Middle East while containing, if not reversing, North Korean and Iranian nuclear weapons programs. However, as a legacy of the Cold War, U.S. and allied military forces had overwhelming military superiority over these adversaries and, accordingly, operations were conducted in relatively permissive environments.

The 2014 Russian invasion of the Crimean peninsula and subsequent proxy war in eastern Ukraine fostered a renewed concern in the United States and Europe about an aggressive and revanchist regime in Moscow. Meanwhile, China began building and militarizing islands in the South China Sea in order to lay claim to key shipping lanes. Together, these events highlighted anew the salience in the U.S. national security agenda of dealing with other *great powers*, that is, states able and willing to use military force unilaterally to accomplish their objectives. At the same time, the challenges that had surfaced at the end of the Cold War—fragile states, genocide, terrorism, and nuclear proliferation, to name a few—remained serious threats to U.S. interests.

In some cases, adversaries appear to be collaborating to achieve shared or compatible objectives and to take advantage of social and economic tools to advance their agendas. Some states are also collaborating with non-state proxies (including, but not limited to, militias, criminal networks, corporations, and hackers) and deliberately blurring the lines between conventional and irregular conflict and between civilian and military activities. In this complex security environment, it is arguably more difficult than in past eras to manage these myriad problems.

The Trump Administration's December 2017 National Security Strategy (NSS),[2] the 11-page unclassified summary of the January 2018 National Defense Strategy (NDS),[3] and the 2019 National Intelligence Strategy[4] explicitly reorient U.S. national security strategy (including defense strategy) toward a primary focus on great power competition with China and Russia and on countering their military capabilities.

In addition to explicitly making the great power competition the primary U.S. national security concern, the NDS also argues for a focus on bolstering the competitive advantage of U.S. forces, which, the document contends, has eroded in recent decades vis-à-vis the Chinese and Russian threats. The NDS also maintains that, contrary to what was the case for most of the years since the end of the Cold War, U.S. forces now must assume that their ability to approach military objectives will be vigorously contested.

The Trump Administration's strategic orientation as laid out in the NSS and NDA is consistent with the strategy outlined in comparable documents issued by prior Administrations, in identifying five significant external threats to U.S. interests: China, Russia, North Korea, Iran, and terrorist groups with global reach. In a break from previous Administrations, however, the NDS views retaining the U.S. strategic competitive edge relative to China and Russia as a higher priority than countering violent extremist organizations. Accordingly, the new orientation for U.S. strategy is sometimes referred to a "2+3" strategy, meaning a strategy for countering two primary challenges (China and Russia) and three additional challenges (North Korea, Iran, and terrorist groups).

2018 National Defense Strategy: Focus on Great Power Competition

For additional background and analysis on the National Defense Strategy, see CRS Report R45349, *The 2018 National Defense Strategy: Fact Sheet*, by Kathleen J. McInnis.

For further background and analysis on DOD's heightened focus on great power military competition see CRS Report R43838, *Renewed Great Power Competition: Implications for Defense—Issues for Congress*, by Ronald O'Rourke, and CRS Report R44891, *U.S. Role in the World: Background and Issues for Congress*, by Ronald O'Rourke and Michael Moodie.

Budgetary Context

In the four decades since the end of U.S. military involvement in Vietnam, annual outlays by the federal government have increased by a factor of nine. The fastest growing segment of federal spending during that period has been mandatory spending for entitlement programs such as Social Security, Medicare, and Medicaid. (See **Figure** 2.)

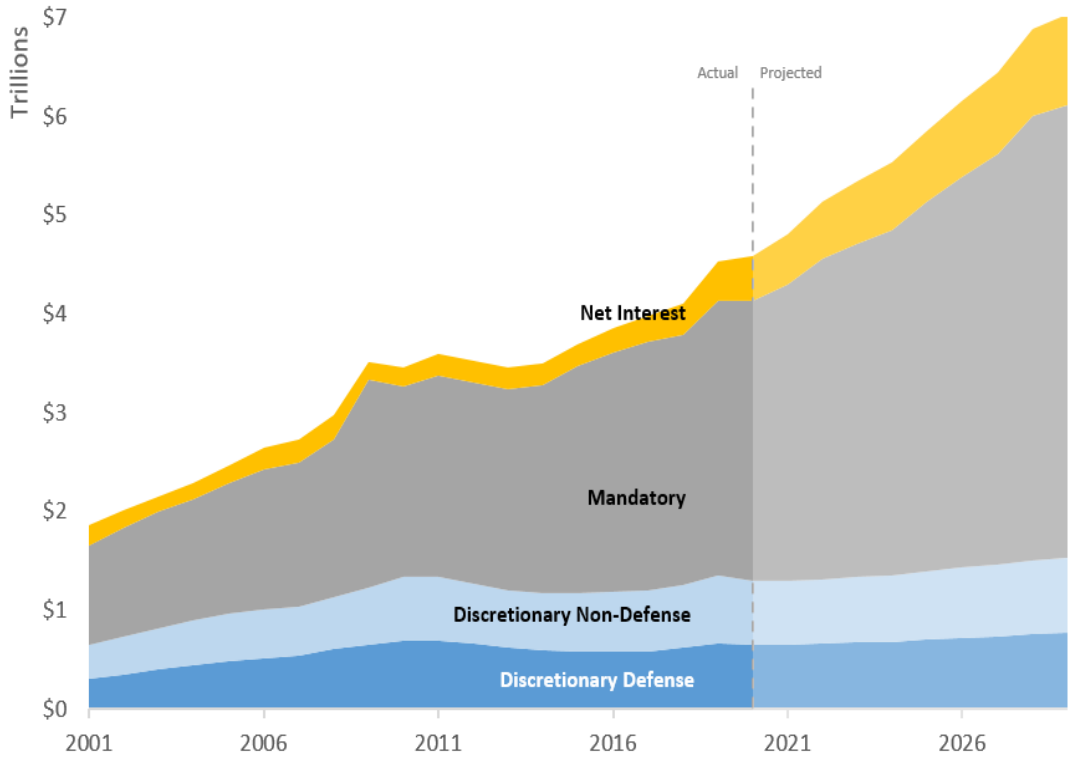
[2] Office of the President, *National Security Strategy of the United States*, December 2017. https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905-2.pdf.

[3] Department of Defense, *Summary of the 2018 National Defense Strategy of the United States of America*, January 2018, https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf.

[4] Office of the Director of National Intelligence, January 2019, https://www.dni.gov/files/ODNI/documents/National_Intelligence_Strategy_2019.pdf.

Figure 2. Outlays by Budget Enforcement Category, FY2001-FY2029

($ in trillions)



Source: Office of Management and Budget (OMB), Historical Tables, Table 8.1, Outlays by Budget Enforcement Act Category: 1962-2024; Congressional Budget Office (CBO), *The Budget and Economic Outlook: 2018 to 2028* and the data supplement *10-Year Budget Projections* from January 2019.

Notes: Data from FY2001 through FY2019 from OMB; projections from FY2020 through FY2029 from CBO.

The Budget Control Act (BCA) of 2011 (P.L. 112-25) was intended to reduce spending by $2.1 trillion over the period FY2012-FY2021, compared to projected spending over that period. One element of the act established binding annual limits (or caps) to reduce discretionary federal spending through FY2021 by $1.0 trillion. Separate annual caps on discretionary appropriations for defense-related activities and nondefense activities are enforced by a mechanism called *sequestration*.

Sequestration provides for the automatic cancellation of previous appropriations, to reduce discretionary spending to the BCA cap for the year in question. The caps on defense-related spending apply to discretionary funding for DOD and for defense-related activities of other agencies, comprising the *national defense* budget function which is designated *budget function 050*.

The Budget Control Act

For additional information on the BCA and its impact on the defense budget see CRS Report R44039, *The Defense Budget and the Budget Control Act: Frequently Asked Questions*, by Brendan W. McGarry; and CRS Report R42972, *Sequestration as a Budget Enforcement Process: Frequently Asked Questions*, by Megan S. Lynch.

Compliance with the BCA defense caps would have required DOD to reduce its planned spending by tens of billions of dollars per year through FY2021. Congress repeatedly has raised the annual

spending caps to reduce their impact on projected spending. Nevertheless, the defense cap in effect when the Trump Administration submitted its FY2020 budget request was $576 billion—$97.9 billion less than the Administration requested for base budget spending.

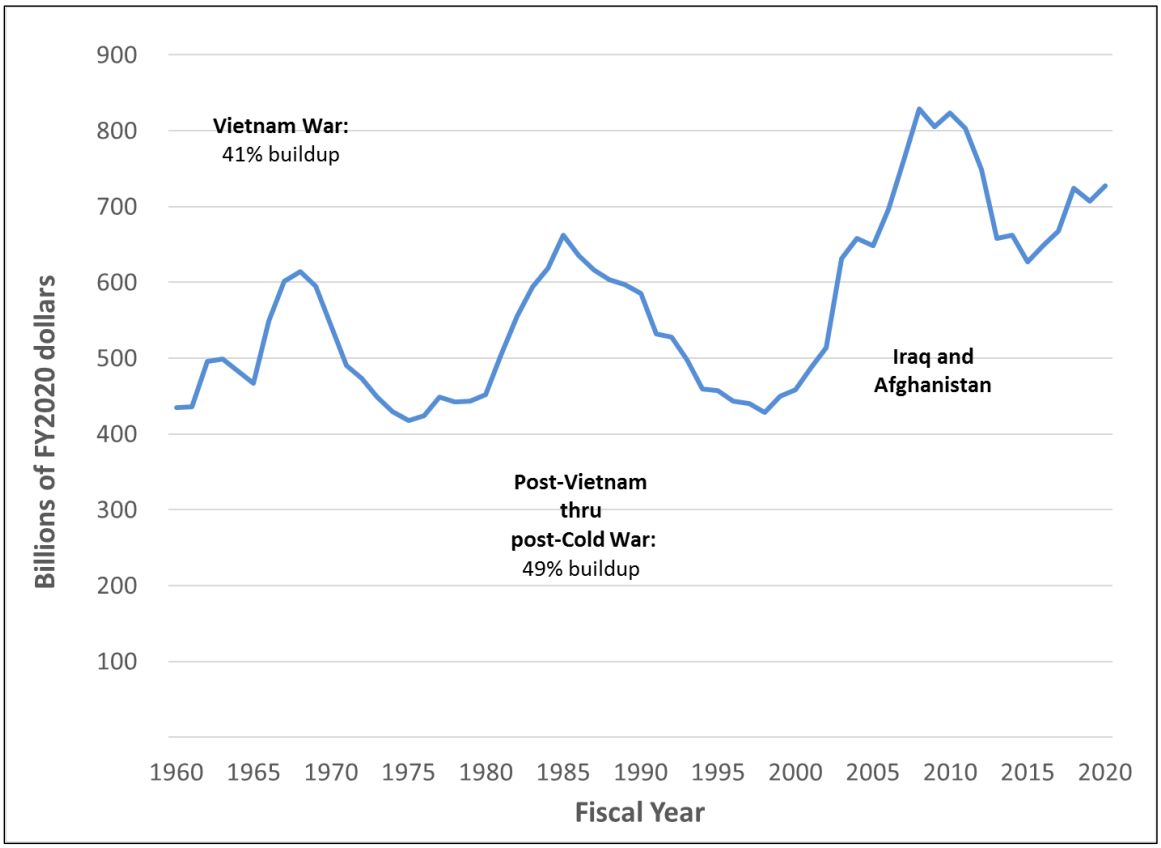
To avoid breaking that cap, the Administration designated as OCO funding a total of $97.9 billion to fund base budget activities. In marking up their respective versions of the FY2020 NDAA, the Armed Services Committees of the House and Senate each treated those funds as part of the base budget. The issue became moot after the defense spending cap was raised by the Bipartisan Budget Act of 2019 (P.L. 116-37), enacted on August 2, 2019.

Long-term Trends

The total FY2020 DOD request—including both base budget and OCO funding—continued an upswing that began with the FY2016 budget, which marked the end of a relatively steady decline in *real* (that is, inflation-adjusted) DOD purchasing power. Measured in constant dollars, DOD funding peaked in FY2010, after which the drawdown of U.S. troops in OCO operations drove a reduction in DOD spending. (**Figure 3**.)

Figure 3. **DOD Budget Authority, FY1960-FY2020**

(in constant FY2020 dollars)



Source: DOD Comptroller, *National Defense Budget Estimates for FY2020 [the Green Book]*, Table 6-10.

Notes: Includes all DOD budget authority, discretionary and mandatory, base budget and OCO.

Selected Authorization Issues

Military Personnel Issues

The enacted version of the FY2020 NDAA – like the House and Senate versions of the bill -- approves the Administration's proposal for a relatively modest net increase in the number of active-duty military personnel. It also authorizes the Administration's proposed reduction in the end-strength of the Selected Reserve—those members of the military reserve components and the National Guard who are organized into operational units that routinely drill, usually on a monthly basis. (**Table** 3.)

Military Personnel Issues

For information and additional analysis concerning military personnel issues dealt with in the FY2020 NDAA, see CRS Report R46107, *FY2020 National Defense Authorization Act: Selected Military Personnel Issues*, coordinated by Bryce H. P. Mendez.

Table 3. FY2020 Military End-Strength

	FY2019 Authorized	FY2020 Request	Change from FY2019 to FY2020 request	House-passed H.R. 2500	Senate-passed S. 1790	FY2020 Enacted P.L. 116-92
Active-duty						
Army	487,500	480,000	-7.500	480,000	480,000	480,000
Navy	335,400	340,500	+5,100	340,500	340,500	340,500
Marine Corps	186,100	186,200	+100	186,200	186,200	186,200
Air Force	329,100	332,800	+3,700	332,800	332,800	332,800
Total: Active-duty	**1,388,100**	**1,339,500**	**+1,400**	**1,339,500**	**1,339,500**	**1,339,500**
Selected Reserve	824,700	807,800	-16,900	807,800	807,800	807,800

Sources: CRS analysis of FY2020 DOD budget documentation and H.Rept. 116-120, HASC report to accompany H.R. 2500, National Defense Authorization Act for Fiscal Year 2020; S.Rept. 116-48, SASC report to accompany S. 1790, National Defense Authorization Act for Fiscal Year 2020; and H.Rept. 116-333, Conference report to accompany S. 1790, National Defense Authorization Act for Fiscal Year 2020.

Note: In addition to the National Guard and the reserve components of the armed forces, the Selected Reserve includes the 7,000 members of the Coast Guard Reserve.

Basic Pay Increase[5]

Section 609 of the enacted FY2020 NDAA authorizes a 3.1% increase in military basic pay, as was requested by the Administration. It is the same increase that would have occurred if neither Congress nor the President had taken any action on the subject. By law,[6] military personnel

[5] For additional background, see CRS In Focus IF10260, *Defense Primer: Military Pay Raise*, by Lawrence Kapp.

[6] 10 U.S.C. 1009.

receive an annual increase in basic pay that is indexed to the annual increase in the Labor Department's Employment Cost Index (ECI) unless either (1) Congress passes a law to provide otherwise; or (2) the President specifies an alternative pay adjustment.

The initial Senate version of the NDAA was silent regarding the pay raise.

The initial House version of the bill would have:

- Mandated a 3.1% raise (Section 606); and
- Authorized the same 3.1% raise, even if the President had specified a different increase (Section 607). This provision was not included in the final version of the bill.

"Widows' Tax"[7]

Following the death of a servicemember, certain beneficiaries may be eligible for survivor benefits from both DOD (under the Survivors Benefit Program or SBP) and the Department of Veterans Affairs (under the Dependency and Indemnity Compensation or DIC). However, by law, surviving spouses who receive both annuities must have their SBP payments reduced by the amount of DIC they receive.[8] Critics refer to this offset as a *widows' tax*.

Section 622 of the enacted version of the FY2020 NDAA phases out the DIC offset requirement over a period of three years. Section 630A of the initial House-passed version would have repealed the offset, outright. The initial Senate-passed version was silent on the issue.

Ban on Transgender Military Personnel

A DOD policy adopted on April 12, 2019, prohibits entry into military service of any person who identifies as transgender. The policy allows transgender individuals to apply for a waiver of that prohibition.

The enacted version of the bill does not challenge the Administration's policy. However, Section 596 of the NDAA conference report requires DOD to report on the number of requested waivers to the transgender ban that have been denied. Section 596 of the House-passed version of the bill would have established a similar reporting requirement.

Section 530B of the House-passed version of the bill, which was not included in the conference report, would have nullified the transgender ban, extending to gender identity the same legal protection against discrimination that current law provides for race and sex.

The Senate version of the NDAA contained no provisions relevant to this issue.

Military Medical Malpractice[9]

Section 731 of the NDAA conference report authorizes the Secretary of Defense to pay a claim for the death or personal injury of a servicemember resulting from medical malpractice by a DOD

[7] For additional background, see CRS Legal Sidebar LSB10316, *Eliminating the SBP-DIC Offset for Surviving Spouses of Military Servicemembers: Current Proposals and Related Issues*, by Mainon A. Schwartz.

[8] 10 U.S.C. §1450(c).

[9] For additional background, see CRS In Focus IF11102, *Military Medical Malpractice and the Feres Doctrine*, by Bryce H. P. Mendez and Kevin M. Lewis and CRS Legal Sidebar LSB10305, *The Feres Doctrine: Congress, the Courts, and Military Servicemember Lawsuits Against the United States*, by Kevin M. Lewis.

health care provider. This addresses a legal doctrine rooted in the Supreme Court's 1950 ruling, in the case of *Feres v. United States,* that the federal government is immunized from liability "for injuries to servicemen where the injuries arise out of or are in the course of activity incident to service."[10] Many lower federal courts have concluded that this principle, known as the *Feres* doctrine, generally prohibits military servicemembers from asserting malpractice claims against the United States based on the negligent actions of health care providers employed by the military.

Section 729 of the House version of the NDAA bill would have overturned the *Feres* doctrine by amending the Federal Tort Claims Act to allow servicemembers to pursue tort claims against the United States for medical malpractice committed by health care provider in a Military Treatment Facility (MTF).

The Senate bill had no provision covering this subject.

Strategic Nuclear-armed Systems

In general, the conference report on the FY2020 NDAA supported the Trump Administration's budget request for nuclear and other long-range strike weapons. This program continues an across the board modernization of the nuclear triad: ballistic missile-launching submarines, long-range bombers, and intercontinental ballistic missiles (ICBMs).

However, the Trump program also included proposals to diversify the arsenal of nuclear weapons that the triad might deliver. The conference report did not include provisions of the House version of the bill that would have limited some of those efforts.

Strategic Arms Modernization Program

For background and additional analysis, see CRS Report RL33640, *U.S. Strategic Nuclear Forces: Background, Developments, and Issues*, by Amy F. Woolf.

Table 4. Selected Strategic Offensive Systems

($ in millions)

Program *(relevant CRS Report)*	Approp. Type	FY2020 Request	House-passed H.R. 2500	Senate-passed S. 1790	FY2020 Enacted P.L. 116-92
Columbia-class Ballistic Missile Submarine *(R41129)*	Proc.	1,698.9	1,823.9	1,823.9	1,821.9
	R&D	533.1	533.1	548.1	548.1
D-5 Trident II Missile mods *(RL33640)*	Proc.	1,177.3	1,157.7	1,177.3	1,177.3
	R&D	157.7	157.7	157.7	113.5
B-21 Bomber *(R44463)*	R&D	3,003.9	3,003.9	3,003.9	3.003.9
Bomber Upgrades *(R43049)*	Proc.	101.3	101.3	101.3	92.3
	R&D	718.7	718.7	718.7	718.7
Long-Range Standoff Weapon (bomber-launched missile)	R&D	712.5	712.5	712.5	712.5

[10] *Feres v. United States*, 340 U.S. 146 (1950).

Program (relevant CRS Report)	Approp. Type	FY2020 Request	House-passed H.R. 2500	Senate-passed S. 1790	FY2020 Enacted P.L. 116-92
Ground-Based Strategic Deterrent (ICBM) and W 87-1 warhead	R&D	682.4	542.4	704.4	664.4

Sources: CRS analysis of FY2020 DOD budget documentation and H.Rept. 116-120, HASC report to accompany H.R. 2500, National Defense Authorization Act for Fiscal Year 2020; S.Rept. 116-48, SASC report to accompany S. 1790, National Defense Authorization Act for Fiscal Year 2020; and H.Rept. 116-333, Conference report to accompany S. 1790, National Defense Authorization Act for Fiscal Year 2020.

Notes: Under "Approp. Type," "Proc" means procurement and R&D means research and development. The **Appendix** lists the full citation of each CRS Report cited in this table by its ID number.

"Low-Yield" Nuclear Warhead

The NDAA conference report authorizes $29.6 million requested to deploy on some Trident II submarine-launched missiles nuclear warheads with significantly less explosive power than those now in service. According to unclassified sources,[11] each of the several W-76 warheads currently carried by a single Trident II currently has an explosive power (or yield) approximately equal to that of 100 thousand tons of TNT (100 kilotons). The intended yield of the new "low-yield" warhead is reported to be about 10 kilotons. The atomic weapons detonated at Hiroshima and Nagasaki were roughly 15 kilotons and 20 kilotons, respectively.[12]

As requested, the enacted NDAA authorizes $10 million in the Energy Department's national security budget to modify existing warheads and $19.6 million to install them in deployed missiles.

The Trump Administration contends that a low-yield warhead would discourage potential adversaries from thinking that, if they used relatively small nuclear weapons in a regional conflict, the United States would shrink from retaliating (or threatening to respond) if the only nuclear weapons at its disposal were the considerably more destructive warheads currently in the U.S. arsenal. Critics of the proposal contend that deployment of new, low-yield weapons could increase the risk of nuclear war by making it easier for U.S. officials to consider their use in a limited conflict.

Low-Yield Nuclear Warhead Debate

For background and additional analysis, see CRS In Focus IF11143, *A Low-Yield, Submarine-Launched Nuclear Warhead: Overview of the Expert Debate*, by Amy F. Woolf.

The House bill would have denied all funds requested for the program and included a provision (Section 1646) that would have barred the use of any funds for this purpose. A floor amendment to strike this provision was rejected by the House on a near-party-line vote of 201-221. The provision was not included in the enacted bill.

[11] Union of Concerned Scientists, Fact Sheet: The New, 'Low-Yield', Submarine-based Nuclear Warhead," accessed at https://www.ucsusa.org/sites/default/files/attach/2018/11/W76-2-fact-sheet.pdf.

[12] The actual yield of the W76-2 reportedly is lower than the World War II-era bombs, but the precise yield is classified.

ICBMs and Warheads

As enacted, the FY2020 NDAA authorizes more than 97% of the $682.4 million requested to develop a fleet of new ICBMs to replace the 400 Minuteman missiles currently deployed in silos located in Montana, North Dakota, and Wyoming. This total includes $552.4 million of the $570.4 million requested to continue development of the new missile, designated the Ground Based Strategic Defense (GBSD). It also includes, in the Energy Department's national security budget, $112.0 million – the entire amount requested -- to develop a new warhead (designated W87-1) to equip the new missile, in lieu of the W78 warhead carried by the Minuteman.

Section 1672 of the enacted bill prohibits any reduction in the number of deployed U.S. ICBMs, currently 400 missiles.

The Senate version of the bill would have authorized $22 million more than was requested for GBSD. Section 1664 of the Senate bill would have prohibited any reduction in the number of ICBMs

The House bill would have imposed a reduction of $140.0 million on the $682.4 million request for R&D related to a new ICBM—a cut of about 20%. This included a net reduction of $81.0 million for GBSD[13] and a reduction of $59.0 million for the warhead. The House rejected by a vote of 164-264 an amendment to the House version of the bill that would have delayed the GBSD program and required an independent study of options to extend the service life of the currently deployed Minuteman missiles.

Nuclear Warhead "Pits"[14]

The NDAA conference report authorizes $712.4 million as requested to continue expanding the Energy Department's capacity for manufacturing so-called plutonium *pits* – the nuclear triggers that initiate the explosion of a thermonuclear bomb or missile warhead. This includes $241.1 million to begin construction of a new pit production facility at the Energy Department's Savannah River Site, near Aiken, GA. The new facility would put the Energy Department on track to meet a goal of being able to produce 80 pits per year by 2030, a goal set the by Trump Administration in 2018.

The House bill would have denied authorization of the $241.1 million requested for the Savanah River facility. Section 3114 of the House bill would have repealed a provision of law that codifies the 80 pit per year goal.

Long-range, Precision Strike Weapons

In general, the NDAA conference report support's the Administration requests to expand the U.S. arsenal of guided missiles that could accurately strike targets at ranges of 100 miles and more with conventional (that is, nonnuclear) warheads. (**Table 5**.)

As U.S. strategy has focused more sharply on Russia and China as potential adversaries, DOD has placed increasing emphasis on developing such weapons, partly because those two countries are developing defenses intended to keep U.S. forces at a distance.

[13] This reflects a cut of $103.0 million to the missile development effort partly offset by an addition of $22.0 million for command and control improvements.

[14] For additional background, see CRS Report R44442, *Energy and Water Development Appropriations: Nuclear Weapons Activities*, by Amy F. Woolf.

Precision-guided Weapons

For additional background and analysis, see CRS In Focus IF11353, *Defense Primer: U.S. Precision-Guided Munitions*, by John R. Hoehn, or CRS Report R45996, *Precision-Guided Munitions: Background and Issues for Congress*, by John R. Hoehn.

Table 5. Selected Precision Strike Missiles

($ in millions)

Program	Funds Type	FY2020 Request		House-passed H.R. 2500		Senate-passed S. 1790		FY2020 Enacted P.L. 116-92	
		#	amt.	#	amt.	#	amt.	#	amt.
Mobile Medium-range Missile	R&D	n/a	20.0	n/a	0.0	n/a	20.0	n/a	10.0
Army Tactical Missile System (ATACMS)	Proc.	240	340.6	240	315.6	240	340.6	240	300.6
Tomahawk Cruise Missile	Proc.	90	386.7	90	386.7	90	330.4	90	344.6
	R&D	n/a	320.1	n/a	320.1	n/a	320.1	n/a	286.8
Long-Range Anti-Ship Missile (LRASM)	Proc.	48	143.2	48	168.2	48	143.2	48	143.2
	R&D	n/a	65.4	n/a	65.4	n/a	65.4	n/a	65.4
Joint Air-to-Surface Standoff Missile (JASSM)	Proc.	430	503.4	430	503.4	430	503.4	430	503.4
	R&D	n/a	78.5	n/a	78.5	n/a	78.5	n/a	78.5

Sources: CRS analysis of FY2020 DOD budget documentation and H.Rept. 116-120, HASC report to accompany H.R. 2500, National Defense Authorization Act for Fiscal Year 2020; S.Rept. 116-48, SASC report to accompany S. 1790, National Defense Authorization Act for Fiscal Year 2020; and H.Rept. 116-333, Conference report to accompany S. 1790, National Defense Authorization Act for Fiscal Year 2020.

Space Programs and Organization

The enacted version of the FY2020 NDAA authorizes the bulk of the Administration's $14.1 billion request for National Security Space operations, which includes funds for DOD's satellite acquisition, space launches, and other space-oriented activities.[15] The requested amount is 17% higher than the amount appropriated for these activities in FY2019—a rate of increase more than triple the Administration's proposed 4.9% increase in the overall DOD budget.[16]

FY2020 National Security Space Budget Request

[15] National Security Space is one of the twelve Major Force Programs (MFPs) into which DOD categorizes all of its activities. Creation of the National Security Space MFP (designated MFP 12) was mandated by the FY2016 NDAA (P.L. 114-92). In general, each MFP aggregates all the funding, manpower, and organizations associated with a particular set of missions. However—as of the submission of the FY2020 budget request—MFP 12 does not include funding for military personnel associated with DOD space activities nor funding for space activities associated with certain intelligence agencies including the National Geospatial Intelligence Agency and the National Reconnaissance Office.

[16] General John W. Raymond USAF, *Presentation to the Subcommittee on Strategic Forces*, House Armed Services Committee, April 3, 2019.

For additional information and analysis on the Administration's FY2020 budget request for DOD's National Security Space activities, see CRS In Focus IF11244, *FY2020 National Security Space Budget Request: An Overview*, by Stephen M. McCall and Brendan W. McGarry.

The final bill authorizes most of the funds requested for DOD's most expensive acquisition programs for space systems, as the House and Senate versions would have done. (See **Table 6**.)

Table 6. Selected Space Operations and Programs

($ in millions)

Program	Approp. Type	FY2020 Request		House-passed H.R. 2500		Senate-passed S. 1790		FY2020 Enacted P.L. 116-92	
		#	amt.	#	amt.	#	amt.	#	amt.
National Security Space Launch [formerly Evolved Expendable Launch Vehicle (EELV)]	Proc.	4	1,237.6	4	1,237.6	4	1,237.6	4	1,237.6
	R&D	n/a	432.0	n/a	432.0	n/a	432.0	n/a	432.0
SBIRS High [missile attack warning satellite]	Proc.	0	234.0	0	218.0	0	234.0	0	234.0
Next-Generation Overhead Persistent Infra-Red (OPIR) [SBIRS follow-on]	R&D	n/a	1,395.3	n/a	1,395.3	n/a	1,018.9	n/a	1,395.3
Global Positioning System (GPS III)	Proc.	1	446.1	1	446.1	1	446.1	1	446.1
	R&D	n/a	1,280.5	n/a	1,270.4	n/a	1,280.5	n/a	1,270.5

Sources: CRS analysis of FY2020 DOD budget documentation and H.Rept. 116-120, HASC report to accompany H.R. 2500, National Defense Authorization Act for Fiscal Year 2020; S.Rept. 116-48, SASC report to accompany S. 1790, National Defense Authorization Act for Fiscal Year 2020, and H.Rept. 116-333, Conference report to accompany S. 1790, National Defense Authorization Act for Fiscal Year 2020.

Space Force

As proposed by the Administration, the FY2020 NDAA establishes the U.S. Space Force as a separate armed service within the Department of the Air Force (a status analogous to that of the Marine Corps as a separate service within the Department of the Navy). The bill authorizes $72.4 million, as requested, to fund operation of the new organization.

The new organization is to be headed by a four-star general (designated Chief of Space Operations) who is to report directly to the Secretary of the Air Force. After one year, that officer is to become a member of the Joint Chiefs of Staff (JCS), in which capacity he or she may provide advice to the President, without going through the Air Force chain of command, after first informing the Secretary of Defense and the Chairman of the Joint Chiefs of Staff. Similarly, as a member of the JCS, the Chief of Space Operations may make recommendations to Congress, after informing the Secretary of Defense.

The enacted NDAA authorizes the Secretary of the Air Force to transfer into the new organization all military personnel currently assigned to the Air Force Space Command and other Air Force military personnel. The Administration had proposed transferring into the Space Force personnel currently assigned to all of DOD's space-oriented organizations.

The earlier House and Senate versions of the FY2020 NDAA each would have approved some elements of the proposed consolidation, though neither bill would have afforded the new space

organization the degree of bureaucratic independence that the Administration proposed. The Senate bill would have authorized the requested $72.4 million for a Space Force within the Air Force to be overseen by a less senior civilian political appointee (an assistant secretary rather than an undersecretary). The House bill would have authorized $15.0 million for the new organization, which would have been designated a Space Corps and which would have had no civilian political overseer.

Space Force

For additional information and analysis, see CRS In Focus IF11326, *Military Space Reform: FY2020 NDAA Legislative Proposals*, by Stephen M. McCall, and CRS In Focus IF11203, *Proposed Civilian Personnel System Supporting "Space Force,"* by Alan Ott.

Ballistic Missile Defense

The enacted FY2020 NDAA approves the broad thrusts – and most of the details— of the Administration's FY2020 anti-missile defense budget request. The request reflected the results of the Administration's Missile Defense Review, published in January 2019. That study reaffirmed ongoing DOD efforts to (1) expand and improve a network of interceptor missiles that could protect U.S. territory against a relatively small number of intercontinental ballistic missiles (ICBMs) and (2) deploy systems to defense U.S. allies and U.S. forces stationed abroad against attack by missiles of shorter range.[17](**Table 7**.)

Many of the enacted bill's differences with the budget request were linked to delays in the development of a more reliable warhead, designated the Redesigned Kill Vehicle (RKV), to be carried by the homeland defense system's interceptor missiles. On August 21, 2019, after the House and Senate each had passed their respective versions of the FY2020 NDAA, DOD cancelled the RKV project.

Ballistic Missile Defense

For additional background, see CRS In Focus IF10541, *Defense Primer: Ballistic Missile Defense*, by Stephen M. McCall.

Table 7. Selected Ballistic Missile Defense Programs

($ in millions)

Program	Approp. Type	FY2020 Request		House-passed H.R. 2500		Senate-passed S. 1790		FY2020 Enacted P.L. 116-92	
		#	amt.	#	amt.	#	amt.	#	amt.
Currently deployed U.S. Homeland Defense *(GMD)*, new interceptor missile, and additional radars	Proc. *(GMD)*	0	9.5	0	9.5	0	9.5	0	9.5
	R&D *(GMD)*	n/a	1,254.6	n/a	1,056.9	n/a	1,254.6	n/a	1,335.7
	R&D *(new interceptor missile and additional radars)*	n/a	843.8	n/a	693.8	n/a	843.8	n/a	602.7

[17] Office of the Secretary of Defense, *2019 Missile Defense Review*, January 2019, https://www.defense.gov/Portals/1/Interactive/2018/11-2019-Missile-Defense-Review/The%202019%20MDR_Executive%20Summary.pdf.

Program	Approp. Type	FY2020 Request		House-passed H.R. 2500		Senate-passed S. 1790		FY2020 Enacted P.L. 116-92	
		#	amt.	#	amt.	#	amt.	#	amt.
Aegis BMD *(missiles and support equipment for ship-based and Aegis Ashore)*	Proc.	n/a	848.4	n/a	848.4	n/a	848.4	n/a	813.0
	R&D	n/a	935.7	n/a	889.6	n/a	935.7	n/a	907.7
Terminal (short-range) Defense *(THAAD and Patriot)*	Proc. *(Patriot)*	147	1,129.9	147	1,129.9	147	1,129.9	147	1,129.9
	Proc. *(THAAD)*	37	425.9	37	425.9	37	425.9	37	388.5
	R&D	n/a	424.3	n/a	424.3	n/a	424.3	n/a	391.5
Israeli Co-operative Defense	Proc.	n/a	200.0	n/a	200.0	n/a	200.0	n/a	200.0
	R&D	n/a	300.0	n/a	300.0	n/a	300.0	n/a	300.0

Sources: CRS analysis of FY2020 DOD budget documentation and H.Rept. 116-120, HASC report to accompany H.R. 2500, National Defense Authorization Act for Fiscal Year 2020; S.Rept. 116-48, SASC report to accompany S. 1790, National Defense Authorization Act for Fiscal Year 2020; and H.Rept. 116-333, Conference report to accompany S. 1790, National Defense Authorization Act for Fiscal Year 2020.

New Interceptor Missile and Additional Radars

The enacted bill authorizes a total of $602.7 million of the $843.8 million requested to develop an improved missile defense for U.S. territory that would include a new interceptor missile carrying the planned new warhead (RKV). The largest component of the net reduction from the request is a transfer of $140.0 million, associated with the RKV project, to develop improvements to the currently deployed homeland defense system. The bill also authorizes $173.4 million ($101.0 less than requested) for development work on a new radar to be located in Hawaii.

The House bill would have authorized $150.0 million less than requested for development of the new interceptor. The Senate bill would have authorized the amount requested.

Aegis vs. ICBM[18]

The enacted bill authorizes a total of $53.8 million, distributed over several funding lines, to test the Navy's Standard missile against an ICBM. The Standard, which is part of the Navy's Aegis anti-missile system, was designed to intercept missiles of shorter range than ICBMs. However, new versions of the Standard theoretically would be capable of ICBM intercepts. Section 1680 of the FY2018 NDAA (P.L. 115-91) directed DOD to conduct a test of Aegis against an ICBM-range target.

The House version of the bill would have eliminated the planned ICBM intercept test of Aegis, authorizing $12.1 million of the amount requested.

[18] For background, and analysis, see CRS Report RL33745, *Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress*, by Ronald O'Rourke.

Ground Combat Systems

The Army presented its FY2020 budget request for weapons acquisition as "a bold shift"[19] intended to place greater emphasis on shaping the force to deal with potential threats from Russia and China, as called for by the Administration's FY2018 National Defense Strategy. Compared with the five-year defense plan (FYDP) that had accompanied the Army's FY2019 budget request, the FY2020 FYDP would reduce previously planned spending for many systems currently in production to make funds available for accelerated development of successor weapons, better adapted to the newly emphasized "peer competitors."[20]

The enacted version of the FY2020 NDAA largely supported the Army's revised spending plans for ground combat vehicles, anti-aircraft defenses, and long-range precision strike weapons. The versions passed initially by the House and Senate would have done likewise.[21] (See **Table 8**.)

Army Modernization Plans

For additional background on the Army's modernization plans, see CRS Report R45519, *The Army's Optionally Manned Fighting Vehicle (OMFV) Program: Background and Issues for Congress*, by Andrew Feickert.

Table 8. Selected Ground Combat Systems

($ in millions)

		FY2020 Request		House-passed H.R. 2500		Senate-passed S. 1790		FY2020 Enacted P.L. 116-92	
Program (relevant CRS report)	**Approp. Type**	**#**	**amt.**	**#**	**amt.**	**#**	**amt.**	**#**	**amt.**
Current Ground Combat Vehicles									
M-1 Abrams tank upgrades	Proc.	165	1,752.8	165	1,752.8	165	1,717.8	165	1,752.8
Bradley Fighting Vehicles mods.	Proc.	n/a	638.8	n/a	573.8	n/a	598.8	n/a	573.8
Stryker mods and upgrades	Proc.	n/a	698.5	n/a	943.6	n/a	943.6	n/a	920.7
Next Generation Ground Combat Vehicles									
Armored Multi-Purpose Vehicle (AMPV) *(R43240)*	Proc.	131	451.9	131	451.9	131	451.9	131	451.9
	R&D	n/a	96.7	n/a	96.7	n/a	96.7	n/a	92.1
Mobile Protected Firepower (tank) *(R44968)*	R&D	n/a	310.2	n/a	295.2	n/a	310.2	n/a	294.0

[19] Maj. Gen. Paul A. Chamberlain, David S. Welch, "Army FY2020 Budget Overview" briefing, March 2019, https://www.asafm.army.mil/Portals/72/Documents/BudgetMaterial/2020/Roll%20Out/Overview%20and%20Highlights/Army%20FY%202020%20Budget%20Overview.pdf.

[20] Many of these proposed reductions would occur in years subsequent to FY2020.

[21] One exception was the Senate bill's authorization of additional funds to continue rebuilding Chinook medium-lift helicopters, one of the programs the Army's new plan would terminate.

		FY2020 Request		House-passed H.R. 2500		Senate-passed S. 1790		FY2020 Enacted P.L. 116-92	
Optionally-Manned Fighting Vehicle (Bradley Fighting Vehicle replacement)	R&D	n/a	378.4	n/a	378.4	n/a	418.4	n/a	228.4
Anti-aircraft and Counter-UAV Systems									
Mobile-Short Range Air Defense (M-SHORAD) *(IN10931)*	Proc.	44	262.1	27	215.1	44	262.1	44	230.1
Indirect Fire Protection Capability (IFPC)	R&D	n/a	243.2	n/a	243.2	n/a	149.6	n/a	236.4

Sources: CRS analysis of FY2020 DOD budget documentation and H.Rept. 116-120, HASC report to accompany H.R. 2500, National Defense Authorization Act for Fiscal Year 2020; S.Rept. 116-48, SASC report to accompany S. 1790, National Defense Authorization Act for Fiscal Year 2020; and H.Rept. 116-333, Conference report to accompany S. 1790, National Defense Authorization Act for Fiscal Year 2020.

Notes: The **Appendix** lists the full citation of each CRS Report cited in this table by its ID number.

Anti-Aircraft Defense

The Army's modernization plan would reconstitute the service's short-range anti-aircraft defenses which had atrophied after the Soviet Union collapsed and DOD focused on counter-terrorism and related missions in the aftermath of 9/11. In this period, the Patriot missile—designed in the 1970s to intercept aircraft—was adapted to intercept long-range ballistic missiles as the shortest-range component of a layered defense.

Since the turn of the century, DOD has focused more attention on other types of aerial threats which (because of their relatively short range or for other reasons) would challenge or thwart existing U.S. anti-missile/anti-aircraft defenses. These threats include unguided, short-range rockets and mortar shells used by insurgents; swarms of relatively small, armed drone aircraft; and technologically sophisticated cruise missiles, such as are deployed by Russia and China.

The conference report on the bill – like the House and Senate versions – generally support this renewed focus on anti-aircraft defense, which includes:

- M-SHORAD (Maneuver-Short Range Air Defense), a variant of the Stryker combat vehicle equipped with and array of guns and guided missiles to protect maneuvering combat units against aerial threats; and
- IFPC (Indirect Fire Protection Capability), an array of sensors, missile launchers and various types of missiles to protect fixed sites.

Naval Forces

The Navy's $23.8 billion shipbuilding budget request for FY2020 reflects a 2016 plan to increase the size of the fleet to 355 ships, a target some 15% higher than the force goal set by the previous Navy plan. The enacted version of the FY2020 NDAA – like the versions of the bill passed by the House and the Senate – generally supports the Navy program. The House-passed bill would have cut a total of $1.6 billion from the shipbuilding request, most of which the House Armed Services Committee justified as reflecting "excess cost growth." (See **Table 9**.)

Navy Shipbuilding Plans

For additional background, see CRS Report RL32665, *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress*, by Ronald O'Rourke.

Table 9. Selected Shipbuilding Programs

($ in millions)

Program (relevant CRS report)	FY2020 Request		House-passed H.R. 2500		Senate-passed S. 1790		FY2020 Enacted P.L. 116-92	
	#	amt.	#	amt.	#	amt.	#	amt.
(Procurement funding only)								
Ford-class Nuclear-powered Aircraft Carrier *(RS20643)*	1	2,347.0	n/a	1,952.0	n/a	2,347.0	n/a	2,327.0
Nuclear-powered Carrier Refueling and Modernization *(RS20643)*	1	647.9	1	453.9	1	597.9	1	$632.8
Virginia-class Attack Submarine *(RL32418)*	3	9,925.4	3	9,375.4	2	8,961.5	2	8,415.5
DDG-51-class Aegis Destroyer *(RL32109)*	3	5,323.3	3	5,237.3	3	5,563.3	3	5,518.3
Frigate (FFX) *(R44972)*	1	1,281.2	1	1,266.2	1	1,281.2	1	1,281.2
LHA (helicopter carrier) *(R43543)*	n/a	0.0	n/a	0.0	1	650.0	1	650.0
LPD (Amphibious assault transport) *(R43543)*	n/a	247.1	1	247.1	1	525.0	1	535.0
Fleet Oiler (refueling tanker) *(R43546)*	2	1,054.2	2	607.2	2	1,054.2	2	1,054.2
(R&D funding only)								
Large Unmanned Surface and Undersea Vehicles *(R45757)*	n/a	628.8	n/a	426.4	n/a	256.3	n/a	432.3

Sources: CRS analysis of FY2020 DOD budget documentation and H.Rept. 116-120, HASC report to accompany H.R. 2500, National Defense Authorization Act for Fiscal Year 2020; S.Rept. 116-48, SASC report to accompany S. 1790, National Defense Authorization Act for Fiscal Year 2020; and H.Rept. 116-333, Conference report to accompany S. 1790, National Defense Authorization Act for Fiscal Year 2020.

Notes: The **Appendix** lists the full citation of each CRS Report cited in this table by its ID number.

Aircraft Carrier Funding

As enacted, the NDAA authorized the $2.35 billion requested for construction of two nuclear-powered aircraft carriers. The funding will be split between two carriers—costing roughly $12 billion apiece—for which a contract was signed in January 2019. One of the ships is slated for delivery to the Navy in 2028 and the other in 2032.

As a general rule, Congress requires DOD to budget for the entire cost of any weapon in a single year, with limited exceptions. However, in the case of certain high-priced items, such as carriers, Congress allows DOD to use *incremental funding*—spreading the cost of a ship or other item across the budgets of several fiscal years.[22]

Unmanned Surface and Undersea Vessels[23]

The enacted FY2020 NDAA would rein in spending on the Navy's plan to speed development of several types of relatively large, unmanned surface ships and submarines that could supplement the current force by distributing its firepower and sensor network across a larger number of platforms.

The FY2020 budget request includes a total of $628.8 million to develop these items, of which more than half—$372.5 million—is to jump-start the acquisition of Large Unmanned Surface Vehicles (LUSVs), based on commercial ship designs and able to carry modular payloads including various types of anti-ship and land attack missiles. Reportedly, the Navy envisions LUSVs as being as long as 300 feet in length and displacing 2,000 tons, in which case they would be roughly half the size of the *Perry*-class missile frigates the Navy used in the 1980s and 1990s.[24]

The conference report on the FY2020 NDAA authorizes the full amounts requested to develop a smaller unmanned surface vessel (designated MUSV) and a relatively large robot submarine with a payload volume of up to 2,000 cubic feet. However, it authorizes $196.5 million—slightly more than half the request—for the LUSV project, funding one of the two vessels requested. The joint explanatory statement accompanying the conference report on the bill did not discuss conferees' rationale for the cut. The Senate Armed Services Committee, in its report on the original, Senate-passed version of the bill had questioned the Navy's plan to develop and procure these ships on an accelerated schedule, given their technological and operational novelty.

Military Aircraft Procurement

The FY2020 budget request sought to fund the procurement of 385 aircraft across the military services; this is 71 aircraft more than the total included in the projected FY2020 budget request published in early 2018. Generally speaking, the enacted version of the bill, like the versions passed earlier by the House and Senate -- authorizes the Administration's requests, subject to relatively minor additions and reductions reflecting routine congressional oversight.

One major departure from the request is an increase in the number of F-35 Joint Strike Fighters authorized.

Aircraft Procurement Plans

For additional background, see CRS In Focus IF10999, *Defense's 30-Year Aircraft Plan Reveals New Details*, by Jeremiah Gertler.

[22] For additional background, see CRS Report R41909, *Multiyear Procurement (MYP) and Block Buy Contracting in Defense Acquisition: Background and Issues for Congress*, by Ronald O'Rourke.

[23] For additional background, see CRS Report R45757, *Navy Large Unmanned Surface and Undersea Vehicles: Background and Issues for Congress*, by Ronald O'Rourke.

[24] See, for example, Joseph Trevithick, "Navy's Budget Requests Two Huge Missile-Laden Drone Ships That Displace 2,000 Tons," The Drive, March 12, 2019.

Table 10. Selected Military Aircraft Programs

($ in millions)

Program (relevant CRS report)	FY2020 Request		House-passed H.R. 2500		Senate-passed S. 1790		FY2020 Enacted P.L. 116-92	
	#	amt.	#	amt.	#	amt.	#	amt.
Procurement only								
F-35 (all versions) *(RL30563)*	78	9,175.1	90	9,831.1	94	10,885.2	90	10,492.9
F-15	8	1,050.0	8	941.0	8	888.0	8	985.5
F/A-18 E/F	24	1,804.0	24	1,782.0	24	1,804.0	24	1,781.6
KC-46 tanker	12	2,234.5	12	2,199.7	15	2,705.5	12	2,198.5
MQ-9 Reaper UAV	12	361.4	24	485.2	12	361.4	12	347.4
UH-60 Blackhawk troop-carrying helo.	73	1,411.5	73	1,411.5	66	1,271.5	73	1,397.7
AH-64 Apache attack helo. (new and remanufactured)	48	997.7	48	961.0	51	1,102.7	48	989.7
CH-47 Chinook cargo-carrying helo. (including advance procurement)	9	183.5	9	202.5	9	183.5	9	202.5
R&D funding only								
Army Future Vertical Lift (FVL) (next generation helicopters) *(IF11367)*	n/a	459.3	n/a	443.3	n/a	534.9	n/a	534.9
MQ-25 Stingray UAV (aircraft carrier-borne)	n/a	671.3	n/a	671.3	n/a	671.3	n/a	651.7

Sources: CRS analysis of FY2020 DOD budget documentation and H.Rept. 116-120, HASC report to accompany H.R. 2500, National Defense Authorization Act for Fiscal Year 2020; S.Rept. 116-48, SASC report to accompany S. 1790, National Defense Authorization Act for Fiscal Year 2020; and H.Rept. 116-333, Conference report to accompany S. 1790, National Defense Authorization Act for Fiscal Year 2020.

Notes: The **Appendix** lists the full citation of each CRS Report cited in this table by its ID number.

Other Issues

Border Wall Construction

To construct a barrier along the U.S.-Mexican border, which Congress has not explicitly authorized as military construction, the Trump Administration used various budget transfer and reprogramming authorities to make available a total of $6.1 billion comprising DOD program savings and unobligated funds from prior fiscal years. In addition, its FY2020 budget request sought $7.2 billion in barrier-related military construction funding, of which $3.6 billion would replenish prior year funds that were transferred to barrier construction and $3.6 billion that would fund new barrier construction in FY2020.

The enacted version of the FY2020 NDAA reduces from $8.0 billion (in FY2019) to $5.5 billion the total amount of DOD funding that could be transferred. It authorizes none of the $7.2 billion request in connection with the border barrier project.

The Senate bill would have reduced transfer authority by a smaller amount, the House bill by a larger amount. In addition, Sections 1046 and 2801 of the House bill would have prohibited the use of defense funds appropriated between FY2015 and FY2020 for barrier construction. (**Table 11**.)

Table 11. Border Wall-related Actions in FY2020 NDAA

($ in billions)

issue	House-passed H.R. 2500	Senate-passed S. 1790	FY2020 Enacted P.L. 116-92
Total transfer authority—Base Budget *(current law = $4.5 billion)*	1.0	4.0	3.5
Total Transfer Authority—OCO Budget *(current law = $3.5 billion)*	0.5	2.5	2.0
FY2020 authorization to replenish transferred funds *($3.6 billion requested)*	0.0	3.6	0.0
FY2020 authorization for new barrier construction *($3.6 billion requested)*	0.0	0.0	0.0

Source: CRS analysis of FY2020 DOD budget documentation and H.Rept. 116-120, HASC report to accompany H.R. 2500, National Defense Authorization Act for Fiscal Year 2020; S.Rept. 116-48, SASC report to accompany S. 1790, National Defense Authorization Act for Fiscal Year 2020; and H.Rept. 116-333, Conference report to accompany S. 1790, National Defense Authorization Act for Fiscal Year 2020.

DOD Funding and Border Wall Construction

For background and analysis on this issue, see: CRS Report R45937, *Military Funding for Southwest Border Barriers*, by Christopher T. Mann; CRS Report R46002, *Military Funding for Border Barriers: Catalogue of Interagency Decisionmaking*, by Christopher T. Mann and Sofia Plagakis; CRS Insight IN11052, *The Defense Department and 10 U.S.C. 284: Legislative Origins and Funding Questions*, by Liana W. Rosen; and CRS Legal Sidebar LSB10242, *Can the Department of Defense Build the Border Wall?*, by Jennifer K. Elsea, Edward C. Liu, and Jay B. Sykes.

PFAS Contaminants

PFAS (per- and polyfluoroalkyl substances) are a large, diverse group of fluorinated compounds that have been used for several decades in numerous commercial, industrial, and U.S. military applications including use as an ingredient in aqueous film forming foam (AFFF) for extinguishing petroleum-based liquid fuel fires. Releases of certain PFAS have been detected in drinking water sources, other environmental media, and dairy milk at various locations, some of which have been associated with the use of AFFF at U.S. military installations. The House and Senate versions of the FY2020 NDAA each contained multiple provisions related to PFAS that would require DOD, the U.S. Environmental Protection Agency, and other agencies to address potential risks of these chemicals under existing laws or new authorities.

The conference agreement includes PFAS provisions related to drinking water and agricultural water sources, reporting of releases on the Toxics Release Inventory, data calls and significant new use notices under the Toxic Substances Control Act, environmental remediation at active and decommissioned U.S. military installations and National Guard facilities, DOD use and disposal of AFFF, and other purposes. The conference agreement does not include provisions regarding PFAS standards under the Clean Water Act or Safe Drinking Water Act, or liability for PFAS releases under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA often referred to as "Superfund").

PFAS Contaminants

For additional background, see CRS Report R45986, *Federal Role in Responding to Potential Risks of Per- and Polyfluoroalkyl Substances (PFAS)*, coordinated by David M. Bearden; CRS In Focus IF11219, *Regulating Drinking Water Contaminants: EPA PFAS Actions*, by Mary Tiemann and Elena H. Humphreys; CRS Report R45793, *PFAS and Drinking Water: Selected EPA and Congressional Actions*, by Elena H. Humphreys and Mary Tiemann; and CRS Report R45998, *Contaminants of Emerging Concern under the Clean Water Act*, by Laura Gatz.

Paid Parental Leave for Federal Employees

Sections 1121-1126 of the initial House-passed bill would have provided 12 weeks of paid leave to federal government employees covered by Title V, Chapter 63 of the U.S. Code for reasons covered by the Family and Medical Leave Act of 1993 (FMLA), as amended (P.L. 103-3). That legislation provides entitlement for such leave in the event of the employee's own serious health condition and certain family-related situations including the birth, adoption, or fostering of a child; the serious illness of certain family members; and military family needs. The bill would have permitted the Office of Personnel Management to increase the amount of such paid leave to a total of 16 weeks. The same paid leave entitlement would have been provided to Legislative Branch employees covered by the Congressional Accountability Act (CAA) of 1995. Conforming amendments would have been included to extend benefits to Government Accountability Office (GAO) employees and certain TSA employees.

The initial Senate-passed bill included no provision related to this subject.

Sections 7601-7606 of the enacted version of the bill entitle federal employees (as described above) to 12 weeks of paid parental leave in connection with the birth, adoption, or fostering of a child. Federal civil service employees must meet the FMLA 12-months-of-service requirements before becoming eligible for the paid parental leave benefit; by contrast the FMLA eligibility requirements for Legislative Branch employees covered by the CAA and for GAO employees do not apply to the paid parental leave benefit. In addition, use of the paid parental leave benefit by federal civil service employees is conditioned upon an agreement from the employee that he or she will return to work for the employing agency for 12 workweeks following the conclusion of that leave. Should an employee fail to do so and if certain conditions enumerated in the bill do not apply, the employing agency may recoup its contributions to the employee's health care premiums made during the period of leave. No such requirement is provided for Legislative Branch employees covered by the CAA nor for GAO employees.

Paid Family Leave

For additional background, see: CRS Report R44274, *The Family and Medical Leave Act: An Overview of Title I*, by Sarah A. Donovan; and CRS Report R44835, *Paid Family Leave in the United States*, by Sarah A. Donovan.

Appendix.

Following, in numerical order, are CRS products cited in this report, including those cited in tables by only their reference number:

CRS Reports

CRS Report RS20643, *Navy Ford (CVN-78) Class Aircraft Carrier Program: Background and Issues for Congress*, by Ronald O'Rourke

CRS Report RL30563, *F-35 Joint Strike Fighter (JSF) Program*, by Jeremiah Gertler

CRS Report RL32109, *Navy DDG-51 and DDG-1000 Destroyer Programs: Background and Issues for Congress*, by Ronald O'Rourke

CRS Report RL32418, *Navy Virginia (SSN-774) Class Attack Submarine Procurement: Background and Issues for Congress*, by Ronald O'Rourke

CRS Report RL32665, *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress*, by Ronald O'Rourke

CRS Report RL33640, *U.S. Strategic Nuclear Forces: Background, Developments, and Issues*, by Amy F. Woolf

CRS Report RL33745, *Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress*, by Ronald O'Rourke

CRS Report R41129, *Navy Columbia (SSBN-826) Class Ballistic Missile Submarine Program: Background and Issues for Congress*, by Ronald O'Rourke

CRS Report R41909, *Multiyear Procurement (MYP) and Block Buy Contracting in Defense Acquisition: Background and Issues for Congress*, by Ronald O'Rourke

CRS Report R42972, *Sequestration as a Budget Enforcement Process: Frequently Asked Questions*, by Megan S. Lynch

CRS Report R43049, *U.S. Air Force Bomber Sustainment and Modernization: Background and Issues for Congress*, by Jeremiah Gertler

CRS Report R43240, *The Army's Armored Multi-Purpose Vehicle (AMPV): Background and Issues for Congress*, by Andrew Feickert

CRS Report R43543, *Navy LPD-17 Flight II and LHA Amphibious Ship Programs: Background and Issues for Congress*, by Ronald O'Rourke

CRS Report R43546, *Navy John Lewis (TAO-205) Class Oiler Shipbuilding Program: Background and Issues for Congress*, by Ronald O'Rourke

CRS Report R43838, *Renewed Great Power Competition: Implications for Defense—Issues for Congress*, by Ronald O'Rourke

CRS Report R44039, *The Defense Budget and the Budget Control Act: Frequently Asked Questions*, by Brendan W. McGarry

CRS Report R44274, *The Family and Medical Leave Act: An Overview of Title I*, by Sarah A. Donovan

CRS Report R44442, *Energy and Water Development Appropriations: Nuclear Weapons Activities*, by Amy F. Woolf

CRS Report R44463, *Air Force B-21 Raider Long-Range Strike Bomber*, by Jeremiah Gertler

CRS Report R44835, *Paid Family Leave in the United States*, by Sarah A. Donovan

CRS Report R44891, *U.S. Role in the World: Background and Issues for Congress*, by Ronald O'Rourke and Michael Moodie

CRS Report R44968, *Infantry Brigade Combat Team (IBCT) Mobility, Reconnaissance, and Firepower Programs*, by Andrew Feickert

CRS Report R44972, *Navy Frigate (FFG[X]) Program: Background and Issues for Congress*, by Ronald O'Rourke

CRS Report R45349, *The 2018 National Defense Strategy: Fact Sheet*, by Kathleen J. McInnis

CRS Report R45519, *The Army's Optionally Manned Fighting Vehicle (OMFV) Program: Background and Issues for Congress*, by Andrew Feickert

CRS Report R45757, *Navy Large Unmanned Surface and Undersea Vehicles: Background and Issues for Congress*, by Ronald O'Rourke

CRS Report R45793, *PFAS and Drinking Water: Selected EPA and Congressional Actions*, by Elena H. Humphreys and Mary Tiemann

CRS Report R45937, *Military Funding for Southwest Border Barriers*, by Christopher T. Mann

CRS Report R45986, *Federal Role in Responding to Potential Risks of Per- and Polyfluoroalkyl Substances (PFAS)*, coordinated by David M. Bearden

CRS Report R45996, *Precision-Guided Munitions: Background and Issues for Congress*, by John R. Hoehn

CRS Report R45998, *Contaminants of Emerging Concern under the Clean Water Act*, by Laura Gatz

CRS Report R46107, *FY2020 National Defense Authorization Act: Selected Military Personnel Issues*, coordinated by Bryce H. P. Mendez

CRS In Focus

CRS In Focus IF10541, *Defense Primer: Ballistic Missile Defense*, by Stephen M. McCall

CRS In Focus IF10999, *Defense's 30-Year Aircraft Plan Reveals New Details*, by Jeremiah Gertler

CRS In Focus IF11102, *Military Medical Malpractice and the Feres Doctrine*, by Bryce H. P. Mendez and Kevin M. Lewis

CRS In Focus IF11143, *A Low-Yield, Submarine-Launched Nuclear Warhead: Overview of the Expert Debate*, by Amy F. Woolf

CRS In Focus IF11203, *Proposed Civilian Personnel System Supporting "Space Force,"* by Alan Ott

CRS In Focus IF11219, *Regulating Drinking Water Contaminants: EPA PFAS Actions*, by Mary Tiemann and Elena H. Humphreys

CRS In Focus IF11244, *FY2020 National Security Space Budget Request: An Overview*, by Stephen M. McCall and Brendan W. McGarry

CRS In Focus IF11326, *Military Space Reform: FY2020 NDAA Legislative Proposals*, by Stephen M. McCall

CRS In Focus IF11353, *Defense Primer: U.S. Precision-Guided Munitions*, by John R. Hoehn

CRS In Focus IF11367, *Army Future Vertical Lift (FVL) Program*, by Jeremiah Gertler

Congressional Insight

CRS Insight IN10931, *U.S. Army's Initial Maneuver, Short-Range Air Defense (IM-SHORAD) System*, by Andrew Feickert

CRS Insight IN11052, *The Defense Department and 10 U.S.C. 284: Legislative Origins and Funding Questions*, by Liana W. Rosen

Legal Side Bar

CRS Legal Sidebar LSB10242, *Can the Department of Defense Build the Border Wall?*, by Jennifer K. Elsea, Edward C. Liu, and Jay B. Sykes

CRS Legal Sidebar LSB10305, *The Feres Doctrine: Congress, the Courts, and Military Servicemember Lawsuits Against the United States*, by Kevin M. Lewis

CRS Legal Sidebar LSB10316, *Eliminating the SBP-DIC Offset for Surviving Spouses of Military Servicemembers: Current Proposals and Related Issues*, by Mainon A. Schwartz

Author Information

Pat Towell
Specialist in U.S. Defense Policy and Budget

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