U.S. Army

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The U.S. Army is America's primary land warfare component. Although it addresses all types of operations across the range of ground force employment, its chief value to the nation is its ability to defeat and destroy enemy land forces in battle. Operationally, as of March 3, 2020, the Army had "over 190,000 soldiers deployed in 140 countries all around the world."[1]

The summer of 2020 finds the Army, like the rest of the U.S. Department of Defense (DOD), dealing with and supporting national efforts to mitigate the effects of the SARS-CoV-2 virus. Thus far, the impacts have been moderate and manageable. As of July 1, 2020, DOD reported a total of 12,521 "cumulative cases" of coronavirus,[2] and this number can certainly be expected to grow. Army recruiting has shifted to virtual, basic training and has been modified to allow for greater social distancing, and normal permanent change of station moves for Army personnel, like the rest of DOD, were paused until at least the end of June 2020. The largest impact on the Army thus far has been forced cancellation of major training exercises and collective training opportunities. DEFENDER-Europe 20, "which was supposed to be the Army's largest exercise in Europe in 25 years," had to be truncated, although there still was some deployment training.[3]

Social distancing is not a true option for the U.S. Army. Realistic training involves manning combat vehicles and platforms where distancing is not possible. Command posts of all sizes bring soldiers into close proximity. If the COVID-19 pandemic continues past the summer, greater impacts on readiness should be expected.

To understand the Army of 2020 requires knowledge of what has transpired in the past two decades. Starting in 2001, the Army's focus became consumed by counterinsurgency (CI) operations in Iraq and Afghanistan. By 2016, however, the Army had begun to reorient toward great-power conflict. Publication of the National Security Strategy in December 2017[4] and the National Defense Strategy (NDS) in January 2018[5] gave further impetus to the need to reorient Army modernization programs, training, and doctrine to address near-peer conflict, especially conflict involving China and Russia. The 2018 National Defense Strategy captured the situation:

> Today, we are emerging from a period of strategic atrophy, aware that our competitive military advantage has been eroding. We are facing increased global disorder, characterized by decline in the long-standing rules-based international order—creating a security environment more complex and volatile than any we have experienced in recent memory. Inter-state strategic competition, not terrorism, is now the primary concern in U.S. national security.[6]

Two factors have placed the Army at a relative disadvantage compared to near-peer competitors in the past 10 years: years of relentless

counterinsurgency commitments and budget constraints imposed by the Budget Control Act (BCA) of 2011.[7] A narrow focus on CI slowed or stopped most Army modernization programs except those designed specifically for CI-type operations. Development of next-generation capabilities in air and missile defense, electronic warfare, precision fires, and ground combat vehicles was curtailed in favor of CI capabilities. Training centers prepared forces exclusively for counterinsurgency. The BCA reinforced the damage by removing billions of dollars of expected funding at the very time the Army was again beginning to concentrate on great-power competition. As a result of the BCA, Army end strength was shrinking to meet lower expected resources, remaining equipment programs were terminated, and funding for operations and maintenance was constrained.

The situation was aptly summarized in 2018 by former Defense Secretary James Mattis:

> Let me be clear: As hard as the last 16 years of war have been on our military, no enemy in the field has done as much to harm the readiness of U.S. military than the combined impact of the BCA's [Budget Control Act] defense spending caps, worsened by operating for 10 of the last 11 years under continuing resolutions of varied and unpredictable duration.[8]

The Army has since responded admirably, shifting its focus to concentrate on great-power competition. Combat Training Center (CTC) scenarios now focus nearly exclusively on high-end decisive action scenarios, new materiel programs like longer-range artillery and precision missiles with utility in near-peer competitor situations are underway, and organizational structures are being designed and in some cases implemented. Warfighting concepts and doctrine are also shifting to this new construct.

This is all appropriate, but unlike the aftermath of the Vietnam War, when the 1976 version of the Army's primary doctrinal manual omitted any mention of counterinsurgency operations, the Army thus far has also seen fit to maintain some capabilities like Security Force Assistance Brigades, counter-drone equipment, and robust Special Operations capabilities that have utility in operations at a lower level of intensity. As it moves into the future, the Army should continue to guard against the pendulum swinging too far in the new direction of great-power competition and maintain critical capabilities for CI and stability operations, as well as support for their intellectual underpinnings.

Beginning with supplemental appropriations in the summer of 2016, increased defense budgets initiated by the Trump Administration and approved by Congress have begun to bear fruit. Readiness levels have improved among Army Brigade Combat Teams (BCTs); numerous modernization programs have been initiated; and end strength has grown, albeit modestly.

Both former Secretary of Defense James Mattis and current Secretary of Defense Mark Esper have stated that DOD needs 3 percent–5 percent real growth in its budget from 2017 to 2023.[9] Starting with the 2018 budget request, however, the Army's funding levels first plateaued and then declined. The Army received a total of $179 billion in fiscal year (FY) 2018 and has requested $178 billion for FY 2021. Because of the inexorable march of inflation, the flat line in the budget for the three consecutive fiscal years of 2019, 2020, and 2021 represents a net loss of about 6 percent in buying power.[10] Secretary of the Army Ryan McCarthy has testified that with the prospect of a flat budget, the Army is faced with "either flattening [e]nd strength or tiering the modernization strategy," which means, "within the portfolios, choos[ing] divisions that you would scale first." This leaves the Army with "nothing but really, very difficult challenges, without an increased top line."[11]

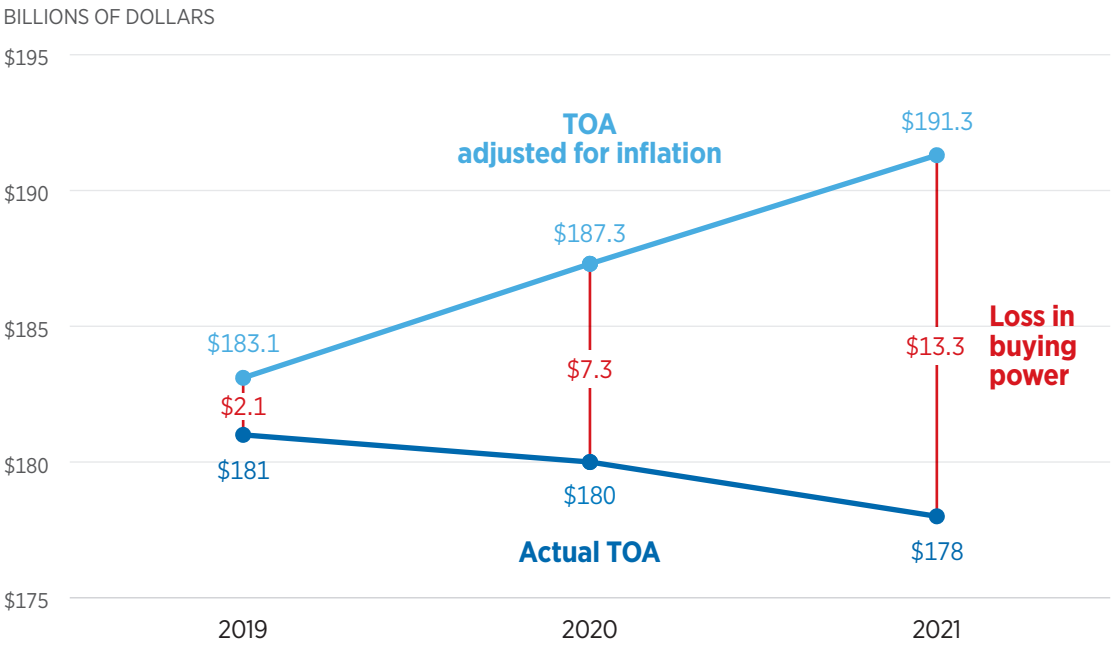
Capacity

Capacity refers to sufficiency of capabilities needed to execute the strategy. Among

CHART 5

Army Spending Takes Additional Hit Due to Inflation

The Army's total obligation authority (TOA) is declining in actual dollars, but because of inflation, those declines also result in an additional loss in buying power. From 2019 to 2021, those losses have totaled $22.7 billion.



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the ways the Army quantifies its warfighting capacity is in numbers of Brigade Combat Teams, which are the basic building blocks for employment of Army combat forces. BCTs are usually employed within a larger framework of U.S. land operations but are equipped and organized so that they can conduct independent operations as circumstances demand.[12] According to the DOD Inspector General, an Armored BCT "has an approximate personnel strength of 4,700 soldiers," an Infantry BCT "has an approximate personnel strength of 4,400 soldiers," and a Stryker BCT "has an approximate personnel strength of 4,500 soldiers."[13]

However, the number of BCTs is a more telling measure of actual hard Army power. End strength reductions forced by the BCA and the priorities of the Obama Administration caused the Regular Army to decrease from 45 BCTs in FY 2013 to the 31 BCTs that remain in FY 2020.[14] Then, when the President and Congress reversed the drawdown in end strength and

authorized growth starting in 2017, instead of "re-growing" the numbers of BCTs, the Army chose primarily to "thicken" the force and raise the manning levels within the individual BCTs to increase unit readiness. The Army's goal is to fill operational units to 105 percent of their authorized manning by the end of 2020.[15]

The Army also has a separate air component organized into Combat Aviation Brigades (CABs), which can operate independently. CABs are made up of Army rotorcraft, such as the AH-64 Apache, and perform various roles including attack, reconnaissance, and lift. The number of Army aviation units has also experienced a reduction. In May 2015, the Army deactivated one of its 12 CABs, leaving only 11 in the Regular Army.

CABs and Stryker, Infantry, and Armored BCTs make up the Army's main combat forces, but they obviously do not make up the entirety of the Army. About 90,000 Regular Army troops form the Generating Force and provide such types of support as preparing and training troops for deployments, carrying out key logistics tasks, and overseeing military schools and Army educational institutions. The troops constituting the Generating Force cannot be reduced at the same ratio as BCTs or CABs, and the Army endeavors to insulate these soldiers from drawdown and restructuring proposals in order to "retain a slightly more senior force in the Active Army to allow growth if needed."[16]

In addition to the institutional Army, a great number of functional or multifunctional support brigades (amounting to approximately 42 percent of the active component force based on historical averages[17]) provide air defense; engineering; explosive ordnance disposal (EOD); chemical, biological, radiological, and nuclear protection; military police; military intelligence; and medical support among other types of battlefield support. Many of these units are proving valuable in responding to the COVID-19 crisis. Special operations forces such as the 75th Ranger Regiment, Special Forces Groups, and the 160th Special Operations Aviation Regiment are also included in these numbers.

The Army has begun the process of adapting its force structure to meet the anticipated new demands of near-peer competition. The foundations for these changes are contained in the Army's 2018 concept for multi-domain operations (MDO), which outlines how the Army views the future.[18] In April 2020, the Army announced that it is bundling its efforts to modify force structure for MDO under the designation "AimPoint Initiative." As part of this initiative, the Army intends to reactivate the V Corps Headquarters in the fall of 2020 and create three Multi-Domain Task Forces (MDTFs). The first MDTF already exists under U.S. Army Pacific Command as a pilot program and is intended to "focus on penetrating an enemy environment, employing assets that can counter enemy A2/AD [anti-access/aerial denial] capabilities and enemy network-focused targeting of U.S. units." The second MDTF is scheduled to be activated in Europe in 2021, and the third is scheduled to be activated in the Pacific in 2022.[19]

In 2017, to relieve the stress on the use of BCTs, the Army activated the first of six Security Force Assistance Brigades (SFABs). These units, composed of about 800 soldiers per unit, are designed specifically to train, advise, and mentor other partner-nation military units.[20] The Army had been using BCTs for this mission, but because train-and-assist missions typically require senior officers and noncommissioned officers, a BCT comprised predominantly of junior soldiers is a poor fit. Since 2018, SFABs have deployed to assist foreign partners in Afghanistan, Iraq, and Africa. The last SFAB to activate, the 5th SFAB, was scheduled to activate in the summer of 2020 at Joint Base Lewis–McChord, Washington.[21] Of the six SFABs, one is in the National Guard, and the other five are in the Regular Army.

In FY 2020, the Army was authorized a total end strength of 1,005,500 soldiers: 480,000 in the Regular Army, 189,500 in the Army Reserve, and 336,000 in the Army National Guard (ARNG).[22] Although these numbers admittedly sound impressive, Army leaders have consistently stated that the Army is too small to

execute the National Defense Strategy at less than significant risk. In 2017, in perhaps the clearest of these statements, General Mark Milley, then Chief of Staff of the Army, testified that in his judgment, the numbers should be 540,000–550,000 for the Regular Army, 350,000–355,000 for the National Guard, and 205,000–209,000 for the Army Reserve.[23] Since then, with the publishing of the 2018 NDS and its emphasis on great-power competition, the requirements placed on the Army have increased.

More recently, responding to written "Advance Policy Questions" from the Senate Armed Services Committee in conjunction with his nomination, Secretary of the Army Ryan McCarthy has stated that he believes the Army's "end strength levels are insufficient to meet national defense objectives" and that "I am concerned about the Army's ability to defeat a near-peer adversary while nearly simultaneously denying the objectives of another, defending the homeland, and sustaining counter terrorism efforts."[24] Current Army Chief of Staff General James McConville echoed this statement: "The total Army needs to be larger and fully resourced with timely, adequate, predictable, and sustainable funding to reduce the risk."[25]

Secretary McCarthy has said the nation needs a Regular Army of at least 500,000, but under current plans, the Army is many years from achieving that goal.[26] On March 31, 2020, the Regular Army stood at 479,233 soldiers—20,767 less than the minimum that Army leaders have testified is necessary.[27] The Army's FY 2021 budget request specifies an end strength of 485,900 for FY 2021 and projects an end strength of 490,500 by the end of FY 2025, which represents an average growth of 1,150 soldiers per year.[28] At that rate, the service will not reach its minimum stated goal of 500,000 until 2034, 14 years from now. The slowdown in planned growth is being driven first and foremost by a lack of funding, although recruiting has also emerged as a challenge.

Most outside experts agree that the U.S. Army is too small. In 2017, Congress established the bipartisan National Defense Strategy Commission to provide an "independent, non-partisan review of the 2018 National Defense Strategy." Among its findings, the commission noted that the NDS now charges the military with facing "five credible challengers, including two major-power competitors and three distinctly different geographic and operational environments." The commission assessed that "this being the case, a two-war force sizing construct makes more strategic sense today than at any previous point in the post-Cold War era." In other words, "*[s]imply put, the United States needs a larger force than it has today if it is to meet the objectives of the strategy.*"[29]

The Army also has transitioned from a force with a third of its strength typically stationed overseas, as it was during the Cold War, to a force that is based in the continental United States. In 1985, 31 percent of the active-duty Army was stationed overseas; by 2015, that figure had declined to 9 percent.[30] The desire to find a peace dividend following the dissolution of the Soviet Union, combined with a reluctance to close bases in the United States, led to large-scale base closures and force reductions overseas. Lack of a substantial overseas presence makes prompt response more difficult and lessens deterrence.

In addition to the increased strategic risk of not being able to execute the NDS within the desired time frame, the result of an insufficient number of BCTs and a diminished Army end strength has been a higher than desired level of operational tempo (OPTEMPO). Despite a reduction in large unit deployments, particularly to Iraq and Afghanistan, Army units continue to experience sustained demand. In March 2020, the Army was experiencing deployment-to-dwell ratios as high as 1 to 1, which is much higher than desired.[31]

Included in these deployments are the rotations of Armored BCTs to and from Europe and Korea. Rather than relying on forward-stationed BCTs, the Army rotates Armored BCTs to Europe and Korea on a "heel-to-toe" basis. There is disagreement as to which

represents the best option. Proponents of rotational BCTs argue that they arrive fully trained and remain at a high state of readiness throughout their typically nine-month overseas rotation; those who favor forward-stationed forces point to a lower cost, forces that typically are more familiar with the operating environment, and a more reassuring presence for our allies.[32] In reality, both are needed not only for the reasons mentioned, but also because the mechanisms by which a unit is deployed, received into theater, and integrated with the force stationed abroad must be practiced on a regular basis.

In an effort to mitigate risk, the Army is resourcing select Army National Guard BCTs with additional training days, moving from the standard number of 39 training days to as many as 63 per year to increase readiness levels. To apply these resources, the National Guard has implemented a multi-year training cycle to build readiness over time. As part of this concept, the Army increased the number of National Guard BCTs participating in a Combat Training Center (CTC) rotation from two to four starting in FY 2019. This continues in the fiscal year 2021 budget request.[33]

As a result of this change in strategy and the increased investment in the National Guard, the 2021 *Index of U.S. Military Strength* counts four ARNG BCTs in the overall Army BCT capacity count, reflecting their ability to be employed on a dramatically shortened timeline as a result of their training at a Combat Training Center and the increased number of resourced training days.

Capability

Capability in this context refers to the quality, performance, suitability, and age of the Army's various types of combat equipment. As a general rule, the Army is primarily using equipment developed in the 1970s, fielded in the 1980s, and incrementally upgraded since then. This modernization gap was caused by several factors: the predominant focus on the wars in Iraq and Afghanistan since 9/11; pressures caused by budget cuts, especially those associated with the Budget Control Act of 2011; and failures in major modernization programs like the Future Combat System, Ground Combat Vehicle, and Crusader artillery system.

Army leaders today clearly view this situation as a serious challenge. Secretary of the Army Ryan McCarthy has testified that "the most significant challenge" the Army faces "is being able [to] execute our aggressive modernization strategy while maintaining a sustainable level of readiness to meet current operational requirements."[34] Through 2022 and later, most of the Army's proposed programs will still be in development and sensitive to changes in funding or priorities. Even once the programs enter procurement, funding constraints will drive fielding into the 2030s, delaying the arrival of new capability.

As an example, the M109 series howitzer was first introduced in the early 1960s and has been upgraded multiple times since then. An important part of an artillery system is its range. Today, most modern countries have artillery systems that can outrange the Paladin 109A7, the Army's current self-propelled howitzer. The Paladin can fire an artillery shell about 22 kilometers–30 kilometers. The Russian 2S33 Msta-SM2 reportedly can hit targets at 40 kilometers.[35] Similarly, the German PzH 2000, Chinese PLZ-05, South Korean K9, and French CAESAR systems all outrange the Paladin.[36] The Army has an extended-range cannon in development that can fire to 70 kilometers, but it is not yet available and is not expected until at least 2023.[37]

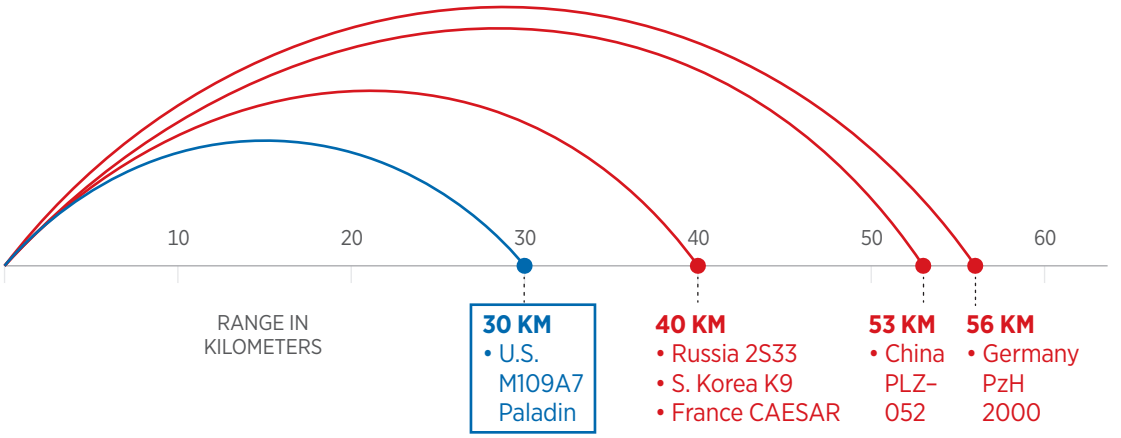
Within the Army's inventory of equipment are hundreds of combat systems, including small arms, trucks, aircraft, soldier-carried weapons, radios, tracked vehicles, artillery systems, missiles, and drones. The following paragraphs provide an update on some of the major systems as they pertain to Armored, Stryker, and Infantry BCTs and Combat Aviation Brigades, but it is by no means exhaustive.

Armored Brigade Combat Team (ABCT). The Armored BCT's "role is to close with the enemy using fire and movement to destroy or capture enemy forces, to repel enemy attacks

FIGURE 1

U.S. Artillery Falls Short—Literally—Compared to Rivals

The U.S. M109A7 Paladin artillery system, in the U.S. Army's arsenal since 2015, has a maximum range of only 30 kilometers—10 kilometers less than the range of Russia's 2S33 system and 23 kilometers short of China's PLZ–052.



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by fire, to engage in close combat, and to counterattack to control land areas, including populations and resources."[38] The Abrams Main Battle Tank (latest version: M1A2 SEPv3, service entry date 2017) and Bradley Fighting Vehicle (latest version: M2A4) are the primary combat platforms in Armored BCTs. The M-1 tank and Bradley first entered service in 1980 and 1981, respectively. Today, there are 87 M-1 Abrams tanks and 152 Bradley Fighting Vehicle variants in an ABCT.[39] Despite upgrades, the M-1 tank and the Bradley are now 40 years old, and their replacements will likely not arrive until the platforms are at least 50 years old.

The Army's replacement program for the Bradley, the Optionally Manned Fighting Vehicle, was formerly on an aggressive timeline, but the Army cancelled the request for proposals on January 16, 2020, and is now reworking the requirements in conjunction with industry.

"The Army now plans for the first unit to be equipped in the fourth quarter of FY2028."[40] A potential replacement for the M-1 tank is even further down the road; the Army does not intend to decide "what direction we want to go for decisive lethality and survivability on the battlefield" until at least 2023.[41]

Also in Armored BCTs, the venerable M113 multi-purpose personnel carrier, which fills multiple roles like mortar carrier and ambulance, entered service in 1960 and is scheduled to be replaced by the new Armored Multi-Purpose Vehicle (AMPV), which passed acquisition milestone C on January 25, 2019, and was scheduled to begin low-rate initial production in the first half of FY 2020. In a signal of budget pressure, program problems, or both, the Army reduced its planned procurement of the AMPV in its FY 2021 budget request.[42] At the new projected average procurement rate of about 190 vehicles per year starting in 2022, the Army will not reach its stated objective of 2,897 AMPVs until around 2037.[43]

Stryker Brigade Combat Team (SBCT). The Stryker BCT "is an expeditionary combined arms force organized around mounted infantry" and able to "operate effectively in most terrain and weather conditions due to their rapid strategic deployment and mobility."[44] Stryker BCTs are equipped with approximately 321 eight-wheeled Stryker vehicles. These vehicles are among the Army's newest combat platforms, having entered service in 2001. In response to an Operational Needs Statement, the Stryker BCT in Europe received Strykers fitted with a 30mm cannon to provide an improved anti-armor capability.[45] Based on the success of that effort, the Army decided to outfit at least three of its SBCTs—the ones equipped with the Double V-hull, which affords better underbody protection against such threats as improvised explosive devices (IEDs)—with the XM813 30mm autocannon, although the competition to integrate those weapons is currently delayed because of the COVID-19 pandemic.[46] The Army is also integrating Javelin missiles on the Stryker platform.

Infantry Brigade Combat Team (IBCT). The Infantry BCT "is an expeditionary, combined arms formation optimized for dismounted operations in *complex terrain*—a geographical area consisting of an urban center larger than a village and/or of two or more types of restrictive terrain or environmental conditions occupying the same space."[47] Infantry BCTs have fewer vehicles and rely on lighter platforms such as trucks and High Mobility Multipurpose Wheeled Vehicles (HMMWVs) for mobility.

The Joint Lightweight Tactical Vehicle (JLTV) is designed to combine the protection offered by Mine Resistant Ambush Protected Vehicles (MRAPs) with the mobility of the original unarmored HMMWV. The vehicle features design improvements that increase its survivability against anti-armor weapons and IEDs. The Army plans to procure 49,099 JLTVs over the life of the program, replacing about 50 percent of the current HMMWV fleet. Requested FY 2021 funding of $894.4 million would procure 1,920 JLTVs and 1,334 trailers.[48] This is a reduction of $202 million from the amount planned just a year ago and reflects the budget pressures the Army is facing. Taking into account the 5,162 JLTVs the Army has already procured, and procuring at a rate of 1,920 vehicles per year starting in 2021, the Army will not reach its acquisition objective for the JLTV until 2043, forcing continued reliance on aging HMMWVs, which began fielding in 1983.

The Army is developing a system called Mobile Protected Firepower to provide IBCTs with the firepower to engage enemy armored vehicles and fortifications. In FY 2020, the Army is scheduled to receive 24 prototypes (12 each) from General Dynamics Land Systems and BAE for testing and evaluation.[49] A full-rate production decision is planned for the third quarter of FY 2025.[50]

Airborne BCTs are the first IBCTs to receive a new platform, the Ground Mobility Vehicle (GMV), to increase their speed and mobility. The GMV provides enhanced tactical mobility for an IBCT nine-soldier infantry squad with their associated equipment. The first GMVs

were delivered in September 2018.[51] The Army has approved "a procurement objective of 11 IBCT sets at 59 vehicles per IBCT (649 vehicles) to be completed by FY 2024."[52]

Combat Aviation Brigade. Combat Aviation Brigades are composed of AH-64 Apache attack, UH-60 Black Hawk medium-lift, and CH-47 heavy-lift Chinook helicopters. The Army has been methodically upgrading these fleets for decades.

The H-60 medium-lift helicopter acquisition objective is 2,135, which is planned to be filled by 1,375 H-60M and 760 recapitalized 60-A/L/V aircraft. The FY 2021 procurement request for the UH-60M is approximately $830.4 million, which will procure 36 aircraft (38 less than the 74 requested in FY 2020). With the FY 2021 procurement quantities, the Army will have procured 1,159 UH/HH-60Ms, or 54.2 percent of its acquisition objective of 2,135 for that aircraft.[53]

The CH-47F Chinook, a rebuilt variant of the Army's CH-47D heavy-lift helicopter, has an acquisition objective of 550 aircraft and is expected to remain the Army's heavy-lift helicopter for the next several decades, as there is no replacement on the horizon. The FY 2021 budget request of $229.6 million supports the procurement of seven aircraft, of which six will be MH-47G and one a CH-47F. With the FY 2021 procurement, the Army will have purchased 382 CH-47Fs, or 69 percent of its acquisition objective of 550.[54]

The AH-64E heavy attack helicopter has an acquisition objective of 812 aircraft, which is being satisfied by building new aircraft remanufacturing older AH-64 models. The FY 2021 procurement request of $961.5 million for remanufacturing and $69.2 million for new builds will buy 52 AH-64E aircraft. This means that the Army will have procured a total of 562 aircraft, or 69 percent of its acquisition objective of 812.[55]

Overall, the Army's equipment inventory, while increasingly dated, is well maintained. Despite high usage in Afghanistan and Iraq, because the Army deliberately undertook a "reset" plan that Congress supported with supplemental funding, most Army vehicles are relatively "young" because recent remanufacture programs for the Abrams and Bradley vehicles have extended the service lives of both vehicles beyond FY 2028.[56]

In addition to the viability of today's equipment, the military must look to the health of future equipment programs. Although future modernization programs are not current hard-power capabilities that can be applied against an enemy force today, they are a leading indicator of a service's overall fitness for future sustained combat operations. In future years, the service may be able to engage an enemy but be forced to do so with aging equipment and no program in place to maintain viability or endurance in sustained operations.

The U.S. military services are continually assessing how best to stay a step ahead of competitors: whether to modernize the force today with currently available technology or wait to see what investments in research and development produce years down the road. Technologies mature and proliferate, becoming more accessible to a wider array of actors over time.

After years of a singular focus on counterinsurgency due to the wars in Iraq and Afghanistan, followed by a concentration on the readiness of the force, the Army is now playing catch-up in the area of equipment modernization. Former Chairman of the Joint Chiefs of Staff General Joseph Dunford has stated that "[t]he U.S. military advantage over near-peer competitors is eroding,"[57] and nowhere is that more apparent than when examining U.S. Army equipment.

When the M-1 Abrams was introduced in 1980, for example, it was indisputably the world's best tank. Now, in 2020, Russia is beginning the process to export their T-14 Armata tank, which has an unmanned turret, reinforced frontal armor, an information management system that controls all elements of the tank, a circular Doppler radar, an option for a 155mm gun, and 360-degree ultraviolet high-definition cameras. The M-1 remains a great tank, but the decisive advantage that the U.S. once enjoyed has disappeared.[58]

The Army established a new four-star headquarters, Army Futures Command, to manage modernization, achieving full operational capability in July 2019.[59] Additionally, the Army established eight cross-functional teams (CFTs) to improvement the management of its top modernization priorities.[60] Army leadership—in particular the Under Secretary and Vice Chief of Staff of the Army—are devoting an extraordinary amount of time to issues of equipment modernization, but only time will tell whether the new structures, commands, and emphasis will result in long-term improvement in modernization posture. The Army aspires to develop and procure an entire new generation of equipment based on its six new modernization priorities: long-range precision fires, a next-generation combat vehicle, future vertical lift, the network, air and missile defense, and soldier lethality.

Although the Army has put in place new organizations, plans, and strategies to manage modernization, the future is uncertain. The Army has shown great willingness to make tough choices and reallocate funding toward its modernization programs. For the program years FY 2020–FY 2024, the service moved $33 billion around to fund its six modernization priorities.[61] Some are predicting that the COVID-19 pandemic, along with accompanying concerns about the federal debt, might create conditions that restrain future DOD budget growth. Still others point to the impending November 2020 election and predict that a change in Administrations could also portend a budget downturn. Formidable DOD budget challenges in the next five years include bills for nuclear deterrence programs, rising personnel costs, health care, and the need to invest in programs to respond to China's increasingly aggressive activities. The Army desperately needs time and funding to modernize its inventory of equipment.

The Army's principal modernization programs are not currently encumbered by any major problems, but there is justifiable concern about past difficulties and current status. Cancellation of the OMFV program in January 2020 was an ominous sign that the Army has not shaken off past acquisition management issues. It also probably resulted in the loss of hundreds of millions of dollars of Army buying power. Many new research and development programs have been initiated with an extraordinary amount of publicity, excitement, and oversight. Only time will tell whether this enthusiasm is well-founded.

Readiness

The Army has made considerable progress in increasing the readiness of its forces. Its goal is to have 66 percent of the Regular Army and 33 percent of National Guard BCTs at the highest levels of readiness. In March 2020, Secretary McCarthy and General McConville reported that "74 percent of Active Component Brigade Combat Teams have been at the highest levels of tactical readiness."[62] This means that 23 of the Army's 31 active BCTs were at either C1 or C2, the two highest levels of tactical readiness, and ready to perform all or most of their wartime missions immediately.[63] This is double the number of ready active BCTs compared to 2017. Army leaders have also said that "nearly half" of the Army's 58 BCTs "are at the highest levels of readiness."[64] Since we know that 23 active component BCTs are at the highest levels of readiness, we can infer that four to five of the 27 National Guard BCTs probably are as well.

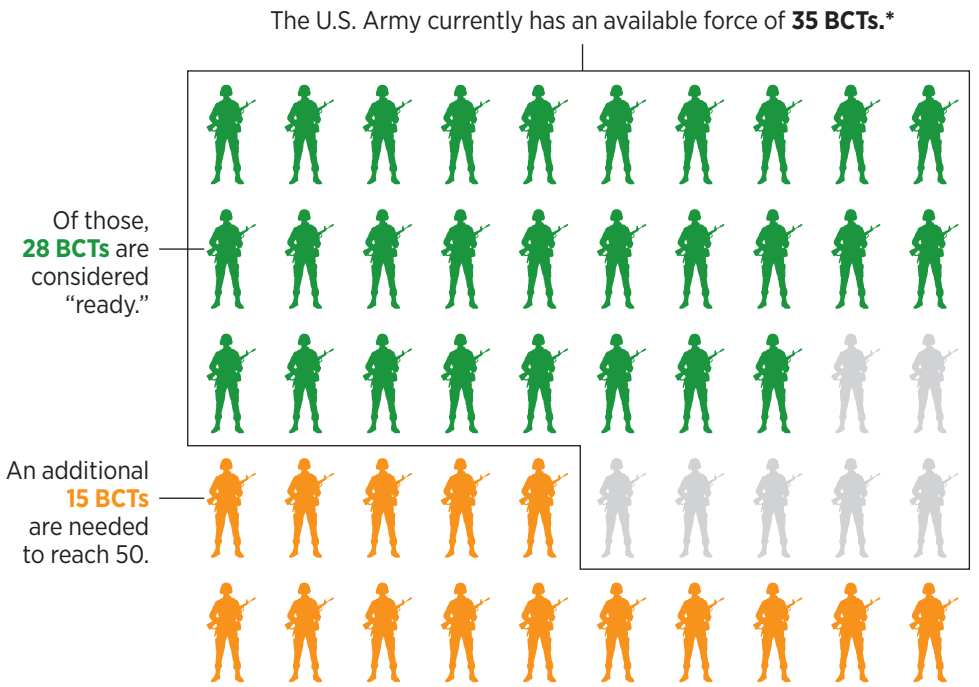
As part of the $712.6 billion provided for defense overall in the FY 2020 defense appropriations bill, Congress provided much-needed relief to the Army by appropriating approximately $180 billion. This influx of resources, combined with on-time funding, has had a very positive effect on the rebuilding of readiness.[65]

In the FY 2021 budget request, training activities are relatively well resourced. When measuring training resourcing, the Army uses operating tempo full-spectrum training miles and flying hours, which reflect the number of miles that formations are resourced to drive their primary vehicles on an annual basis and the number of hours that aviators can fly their helicopters per month.[66] According to the

FIGURE 2

Army Readiness: Brigade Combat Teams

Based on historical force requirements, The Heritage Foundation assesses that the Army needs a total of 50 Brigade Combat Teams (BCTs). In addition to active-duty forces, the Army National Guard has four BCTs that operate at a high level of readiness.



* Includes four Army National Guard BCTs.

SOURCES: The Honorable Ryan D. McCarthy, Secretary of the Army, and General James P. McConville, Chief of Staff, United States Army, statement "On the Posture of the United States Army" before the Committee on Armed Services, U.S. Senate, March 26, 2020, p. 4, https://www.armed-services.senate.gov/imo/media/doc/McCarthy--McConville_03-26-20.pdf (accessed August 19, 2020), and *Congressional Quarterly*, "House Armed Services Committee Holds Hearing on the Fiscal 2021 Budget Request for the Army," March 3, 2020, p. 7, https://plus.cq.com/alertmatch/434900672?0&deliveryId=57664418&uid=congressionaltranscripts-5851233&utm_medium=alertemail&utm_source=%E2%80%A6 (accessed August 19, 2020).

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Army's budget justification exhibits, "[t]he FY 2021 budget funds 1,598 Operating Tempo Full Spectrum Training Miles (OTFSTM) and 10.8 flying hours per crew, per month" to meet "required training readiness levels."[67] The OTFSTM is higher than resourced levels of 1,549 miles and lower than the 11.6 flying hours enacted in the FY 2020 budget.[68]

The Army reports broadly increasing readiness across all units. Part of this improvement is due to the Army's success in reducing the percentage of soldiers who are nondeployable. Nonetheless, structural readiness problems evidenced by too small a force attempting to satisfy too many global presence requirements and Operations Plan (OPLAN)

warfighting requirements will continue to challenge the Army.

As part of its Sustainable Readiness Model (SRM),[69] the Army uses Combat Training Centers (CTCs) to train its forces to desired levels of proficiency. The CTC program's mission is to "provide realistic joint and combined arms training...approximating actual combat" and increase "unit readiness for deployment and warfighting."[70] The Army requested resources for 24 CTC rotations in FY 2021, including four for the Army National Guard.[71]

Scoring the U.S. Army

Capacity Score: Weak

Historical evidence shows that, on average, the Army needs 21 Brigade Combat Teams to fight one major regional conflict (MRC). Based on a conversion of roughly 3.5 BCTs per division, the Army deployed 21 BCTs in Korea, 25 in Vietnam, 14 in the Persian Gulf War, and around four in Operation Iraqi Freedom—an average of 16 BCTs (or 21 if the much smaller Operation Iraqi Freedom initial invasion operation is excluded). In the 2010 Quadrennial Defense Review, the Obama Administration recommended a force capable of deploying 45 Active BCTs. Previous government force-sizing documents discuss Army force structure in terms of divisions and consistently advocate for 10–11 divisions, which equates to roughly 37 Active BCTs.

Considering the varying recommendations of 35–45 BCTs and the actual experience of nearly 21 BCTs deployed per major engagement, our assessment is that 42 BCTs would be needed to fight two MRCs.[72] Taking into account the need for a strategic reserve, the Army force should also include an additional 20 percent of the 42 BCTs.

Because of the investment the Army has made in National Guard readiness with the provision of extra training days and four CTC rotations, this *Index* counts four additional ARNG BCTs in the Army's overall BCT count, giving the service 35 (31 Regular Army plus four ARNG), but 35 is still not enough to meet the two-MRC construct. The Army's overall capacity score therefore remains unchanged from 2020.

- **Two-MRC Benchmark:** 50 Brigade Combat Teams.
- **Actual Projected 2020 Level:** 35 (31 Regular Army plus four ARNG) Brigade Combat Teams.

The Army's current BCT capacity meets 70 percent of the two-MRC benchmark and thus is scored as "weak."

Capability Score: Marginal

The Army's aggregate capability score remains "marginal." This aggregate score is a result of "marginal" scores for "Age of Equipment," "Size of Modernization Programs," and "Health of Modernization Programs." More detail on these programs can be found in the equipment appendix following this section. The Army scored "weak" for "Capability of Equipment."

In spite of modest progress with the JLTV and AMPV, and in spite of such promising developments as creation of Army Futures Command, CFTs, and the initiation of new Research, Development, Testing and Evaluation (RDTE) funded programs, new Army equipment programs remain in the development phase and in most cases are two to three years from entering procurement phases. Thus, they are not yet replacing legacy platforms and cannot contribute to warfighting capability today—which is what this *Index* measures. These planned procurements are highly sensitive to any turbulence or reduction in funding.

Readiness Score: Very Strong

As noted, the Army has said that "nearly half" of its 58 BCTs "are at the highest levels of readiness."[73] Four to five of those BCTs are

National Guard Brigades that have benefited from the Army's efforts to focus personnel, equipment, and training on those units, and 23 are Regular Army BCTs out of 31 that are ready (74 percent). The Army's internal requirement for Active BCT readiness is 66 percent, or 20.5 BCTs ready. Using the assessment methods of this *Index*, this results in a percentage of service requirement of 100 percent, or "very strong."

Overall U.S. Army Score: Marginal

The Army's overall score is calculated based on an unweighted average of its capacity, capability, and readiness scores. The unweighted average is 3.33; thus, the overall Army score is "marginal." This was derived from the aggregate score for capacity ("weak"); capability ("marginal"); and readiness ("very strong"). This score is the same as the assessment of the 2020 *Index*, which also rated the Army as "marginal."

U.S. Military Power: Army

	VERY WEAK	WEAK	MARGINAL	STRONG	VERY STRONG
Capacity		✓			
Capability			✓		
Readiness					✓
OVERALL			✓		

ARMY SCORES

1 2 3 4 5
Weakest ⟷ Strongest

Procurement and Spending ■ Through FY 2020 ■ Pending

Main Battle Tank

PLATFORM	Age Score	Capability Score	REPLACEMENT PROGRAM	Size Score	Health Score
M1A1/2 Abrams Inventory: **678/1619** Fleet age: **30.5/13.5** Date: **1980/1993** The Abrams is the main battle tank used by the Army in its armored brigade combat teams (BCTs). Its main benefits are lethality, protection, and mobility. The Abrams went through a remanufacture program to extend its life to 2045.	3	4	**Decisive Lethality Platform (DLP)** The DLP program is intended to replace the Abrams tank. This program is part of the Next Generation Combat Vehicle (NGCV) program, which is number two among the Army's "Big Six" modernization priorities. The soonest a replacement for the Abrams tank could be introduced is 2030.		

Infantry Fighting Vehicle

PLATFORM	Age Score	Capability Score	REPLACEMENT PROGRAM	Size Score	Health Score
M2 Bradley Inventory: **4,006** Fleet age: **20** Date: **1981** The Bradley is a tracked vehicle meant to transport infantry and provide covering fire. The Bradley complements the Abrams tank in armored BCTs. The Bradley underwent a remanufacture program to extend its life to 2045.	3	3	**Optionally Manned Fighting Vehicle (OMFV)** In March 2019, the Army issued a request for proposals to competitively build prototypes of the OMFV, but then did an about-face and cancelled the solicitation in January 2020. The Army is now redefining the requirements and intends to seek digital designs from companies in mid/late 2020. The program has likely slipped to first fieldings in 2028. This program is part of the Next Generation Combat Vehicle (NGCV) program, which is number two among the Army's "Big Six" modernization priorities.		

Armored Fighting Vehicle

PLATFORM	Age Score	Capability Score	REPLACEMENT PROGRAM	Size Score	Health Score
Stryker Inventory: **4,859** Fleet age: **10** Date: **2001** The Stryker is a wheeled vehicle that is the main platform in Stryker BCTs. The program was considered an interim vehicle to serve until the arrival of the Future Combat System (FCS), but that program was cancelled due to technology and cost hurdles. The original Stryker is being replaced with a double-V hull configuration (DVH) to increase survivability and a 30mm gun to increase lethality. Its components allow for rapid acquisition and fielding. The Stryker is expected to remain in service for 30 years.	4	4	None		

NOTE: See page 374 for details on fleet ages, dates, and procurement spending.

ARMY SCORES

1 2 3 4 5
Weakest ⟷ Strongest

Procurement and Spending ■ Through FY 2020 ■ Pending

Armored Personnel Carrier

PLATFORM	Age Score	Capability Score	REPLACEMENT PROGRAM	Size Score	Health Score
M113 Armored Personnel Carrier Inventory: **4,339** Fleet age: **36** Date: **1960** The tracked M113 serves in a supporting role for armored BCTs and in units above brigade level. The APC is being slowly replaced by the Armored Multi Purpose Vehicle (AMPV). Plans are to use the platform until 2045.	1	2	**Armored Multi-Purpose Vehicle (AMPV)** Timeline: **2018–TBD** The AMPV has been adapted from the Bradley Fighting Vehicle which largely allowed the program to bypass the technology development phase. The fleet will consist of five variants. The first unit is set to be equipped at the end of 2021. **PROCUREMENT** 474 2,391 **SPENDING** *($ millions)* $2,666 $11,126	2	3

Light Wheeled Vehicle

PLATFORM	Age Score	Capability Score	REPLACEMENT PROGRAM	Size Score	Health Score
HMMWV Inventory: **99,800** Fleet age: **18** Date: **1985** The HMMWV is used to transport troops and for a variety of other purposes, such as serving as ambulances. The expected life span of the HMMWV is 15 years. A portion of the HMMWV fleet will be replaced by the Joint Light Tactical Vehicle (JLTV).	2	1	**Joint Light Tactical Vehicle (JLTV)** Timeline: **2015–2036** The JLTV vehicle program replaces some of the Army's HMMWVs and provides improved protection, reliability, and survivability of vehicles. This is a joint program with USMC. In June 2019, the Army approved the JLTV for full-rate production. Production is underway. The Army has been forced to reduce procurement quantities due to current budget shortfalls. **PROCUREMENT** 13,438 35,661 **SPENDING** *($ millions)* $6,492 $19,219	3	3

NOTE: See page 374 for details on fleet ages, dates, and procurement spending.

Attack Helicopter

PLATFORM	Age Score	Capability Score	REPLACEMENT PROGRAM	Size Score	Health Score
AH-64 D Apache Inventory: **381** Fleet age: **14.5** Date: **1997** The Apache is used in Combat Aviation Brigades and is the Army's attack helicopter. It can destroy armor, personnel, and material targets. The expected life cycle is about 20 years.	2	3	**AH-64E Reman** Timeline: **2010–TBD** The AH-64E Reman (short for remanufactured) is a program to remanufacture older Apache helicopters into the more advanced AH-64E version. The AH-64E will have more modern and interoperable systems and be able to carry modern munitions, including the JAGM missile. **PROCUREMENT***: 431 / 189 **SPENDING*** *($ millions)*: $10,639 / $3,986	3	5
AH-64E Inventory: **351** Fleet age: **4** Date: **2012** The AH-64E variant is a remanufactured version with substantial upgrades in powerplant, avionics, communications, and weapons capabilities. The expected life cycle is about 20 years.	5	5	**AH-64E New Build** Timeline: **2010-2027** The AH-64E New Build program produces new-build, not re-built, Apaches. The program is meant to modernize and sustain the current Apache inventory. The AH-64E has more modern and interoperable systems and is able to carry modern munitions, including the JAGM missile. **PROCUREMENT***: 79 / 2 **SPENDING*** *($ millions)*: $2,404	3	5

* Additional procurement expected.
NOTE: See page 374 for details on fleet ages, dates, and procurement spending.

Medium Lift

PLATFORM	Age Score	Capability Score	REPLACEMENT PROGRAM	Size Score	Health Score
UH-60A Black Hawk Inventory: **157** Fleet age: **35.5** Date: **1978** The UH-60A is a utility helicopter that provides air assault, aeromedical evacuation, and supports special operations. The expected life span is about 25 years. This variant of the Black Hawk is now being replaced by the newer UH-60M variant.	1	2	**UH-60M Black Hawk** Timeline: **2004–TBD** The UH-60M, currently in production, is intended to modernize and replace current Black Hawk inventories. The newer M-variant will improve the Black Hawk's range and lift by upgrading the rotor blades, engine, and computers. The UH-60M will replace both the UH-60A and the UH-60L. **PROCUREMENT*** 1,123 / 145 **SPENDING*** *($ millions)* $21,175 / $6,650	3	5
UH-60L Black Hawk Inventory: **958** Fleet age: **14.5** Date: **1989** The UH-60L is the follow-on helicopter to the UH-60A. As the UH-60A is retired, the M-variant will be the main medium-lift rotorcraft used by the Army. They are expected to remain in service until at least 2030.	3	3	**UH-60V Black Hawk** Timeline: **2021–TBD** The Army plans to upgrade older model UH-60L to the UH-60V configuration which incorporates a digital cockpit, like one on the UH-60M. This is an Army cost-savings measure as it is cheaper to make a UH-60V from a UH-60L, than to buy a new UH-60M. The UH-60V will only replace the UH-60L.	1	4
UH-60M Black Hawk Inventory: **1,070** Fleet age: **7.5** Date: **2005** The UH-60M, currently in production, is intended to modernize and replace current Black Hawk inventories. The newer M-variant will improve the Black Hawk's range and lift by upgrading the rotor blades, engine, and computers.	5	4			

NOTE: See page 374 for details on fleet ages, dates, and procurement spending.

ARMY SCORES

1 2 3 4 5
Weakest ⟷ Strongest

Procurement and Spending ■ Through FY 2020 ■ Pending

Heavy Lift

PLATFORM	Age Score	Capability Score	REPLACEMENT PROGRAM	Size Score	Health Score
CH-47F Chinook Inventory: **439** Fleet age: **9** Date: **2002** The F-variant includes a new digital cockpit and monolithic airframe to reduce vibrations. It transports forces and equipment while providing other functions such as parachute drops and aircraft recovery. The expected life span is 35 years. The Army plans to use the CH-47F until the late 2030s.	5	5	**CH-47F** Timeline: **2001–TBD** Currently in production, the CH-47F program is intended to keep the fleet of heavy-lift rotorcraft healthy as older variants of the CH-47, notably the CH-47D, are retired. The program includes both remanufactured and new builds of CH-47s. The F-variant has engine and airframe upgrades to lower the maintenance requirements. Total procurement numbers include the MH-47G configuration for U.S. Special Operations Command. **PROCUREMENT*** 1,183 / 172 **SPENDING*** *($ millions)* $1,369 / $25,517	3	5
MH-47G Inventory: **67** Fleet age: **9** Date: **2014** MH-47G is a special operations variant of the CH-47 Chinook multi-role helicopter used in heavy-lift missions such as the transportation of troops, ammunition, vehicles, equipment, fuel and supplies, as well as civil and humanitarian relief missions. The helicopter can conduct long-range missions at low levels and in adverse weather conditions, both during the day and at night.	5	5			

Intelligence, Surveillance, and Reconnaissance (ISR)

PLATFORM	Age Score	Capability Score	REPLACEMENT PROGRAM	Size Score	Health Score
MQ-1C Gray Eagle Inventory: **158** Fleet age: **4.5** Date: **2011** The Gray Eagle is a medium-altitude long-endurance (MALE) unmanned aerial vehicle (UAV) used to conduct ISR missions. The use of MALE UAVs is a new capability for the Army. The Gray Eagle is currently in production.	4	4	**MQ-1C Gray Eagle** Timeline: **2010–2022** The MQ-1C UAV provides Army reconnaissance, surveillance, and target acquisition capabilities. The Army is continuing to procure MQ-1Cs to replace combat losses. **PROCUREMENT** 277 **SPENDING** *($ millions)* $6,140 / $1	3	5

* Additional procurement expected.
NOTES: See Methodology for descriptions of scores. Fleet age is the average between the first and last year of delivery. The date is the year of first delivery. The timeline is from the first year of procurement to the last year of delivery/procurement. Spending does not include advanced procurement or research, development, test, and evaluation (RDT&E).

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