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117TH CONGRESS *1st Session*	SENATE	REPORT 117–39

NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2022

R E P O R T

[TO ACCOMPANY S. 2792]

ON

TO AUTHORIZE APPROPRIATIONS FOR FISCAL YEAR 2022 FOR MILITARY ACTIVITIES OF THE DEPARTMENT OF DEFENSE, FOR MILITARY CONSTRUCTION, AND FOR DEFENSE ACTIVITIES OF THE DEPARTMENT OF ENERGY, TO PRESCRIBE MILITARY PERSONNEL STRENGTHS FOR SUCH FISCAL YEAR, AND FOR OTHER PURPOSES

COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE



SEPTEMBER 22 (legislative day, September 21), 2021.—Ordered to be printed

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Calendar No. 129

117TH CONGRESS *1st Session* | SENATE | REPORT 117–39

TO AUTHORIZE APPROPRIATIONS FOR FISCAL YEAR 2022 FOR MILITARY ACTIVITIES OF THE DEPARTMENT OF DEFENSE, FOR MILITARY CONSTRUCTION, AND FOR DEFENSE ACTIVITIES OF THE DEPARTMENT OF ENERGY, TO PRESCRIBE MILITARY PERSONNEL STRENGTHS FOR SUCH FISCAL YEAR, AND FOR OTHER PURPOSES

SEPTEMBER 22 (legislative day, September 21), 2021.—Ordered to be printed

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Mr. REED, from the Committee on Armed Services, submitted the following

R E P O R T

[To accompany S. 2792]

The Committee on Armed Services reports favorably an original bill (S. 2792) to authorize appropriations for fiscal year 2022 for military activities of the Department of Defense, for military construction, and for defense activities of the Department of Energy, to prescribe military personnel strengths for such fiscal year, and for other purposes, and recommends that the bill do pass.

PURPOSE OF THE BILL

This bill would:

(1) Authorize appropriations for (a) procurement, (b) research, development, test and evaluation, (c) operation and maintenance and the revolving and management funds of the Department of Defense for fiscal year 2022;

(2) Authorize the personnel end strengths for each military active duty component of the Armed Forces for fiscal year 2022;

(3) Authorize the personnel end strengths for the Selected Reserve of each of the reserve components of the Armed Forces for fiscal year 2022;

(4) Impose certain reporting requirements;

(5) Impose certain limitations with regard to specific procurement and research, development, test and evaluation actions and manpower strengths; provide certain additional legislative authority, and make certain changes to existing law;

(6) Authorize appropriations for military construction programs of the Department of Defense for fiscal year 2022; and

(7) Authorize appropriations for national security programs of the Department of Energy for fiscal year 2022.

COMMITTEE OVERVIEW

Each year, the National Defense Authorization Act (NDAA) authorizes funding levels and provides authorities for the U.S. military and other critical defense priorities, ensuring our troops have the training, equipment, and resources they need to carry out their missions. On July 21, 2021, the Senate Armed Services Committee voted in bipartisan fashion, 23–3, to advance the NDAA for fiscal year 2022 to the Senate floor.

The United States is engaged in a strategic competition with China and Russia, near-peer rivals that do not accept U.S. global leadership or the international norms that have helped keep the peace for the better part of a century. This strategic competition is likely to intensify due to shifts in the military balance of power and diverging visions of governance models between China and Russia and the West. At the same time, threats from other aggressors—rogue states like Iran and North Korea, which seek to destabilize and antagonize, and terrorist organizations, which threaten to re-emerge or expand not just in the Middle East but in Africa and other parts of the world—persist. These challenges are unfolding amidst a global pandemic, environmental degradation, and the evolution of disruptive technologies. The interconnected nature of these threats will drive how the United States resources and transforms its tools of national power to respond to these complex security challenges.

To that end, the National Defense Authorization Act for Fiscal Year 2022:

(1) Strengthens the All-Volunteer Force and improves the quality of life of the men and women of the total force (Active Duty, National Guard, and Reserves), their families, and Department of Defense civilian personnel, while reinforcing the principles of a strong, diverse, inclusive force; that force cohesion requires a command climate that does not tolerate extremism, sexual misconduct or sexual harassment; and that quality health care is a fundamental necessity for servicemembers and their families;

(2) Supports the Department of Defense and provides the resources needed by the combatant commands to carry out the National Defense Strategy and ensure the United States can out-compete, deter, and prevail against near-peer rivals, with a focus on strengthening our posture in the Indo-Pacific region;

(3) Enhances deterrence by recapitalizing and modernizing the U.S. nuclear triad; ensuring the safety, security, and reliability of our nuclear stockpile, delivery systems, and infrastructure; increasing capacity in theater and homeland missile defense; and strengthening nonproliferation programs;

(4) Accelerates the modernization of the Department across all domains and operational capabilities by investing in research and development of cutting-edge technologies and delivering them in a timely manner to the force;

(5) Improves the ability of our Armed Forces to counter threats and promote U.S. freedom of action in the information environment including by countering information warfare, for-

eign malign influence, competition below the level of direct conflict, and hybrid warfare;

(6) Improves efficiencies in resource allocation within the Department through transformations of the planning and budgeting process, acquisition process, and management structure and culture;

(7) Protects and strengthens our national security industrial base by prioritizing supply chain security; improving technology security; and investing in next-generation technologies that will ensure U.S. military competitiveness; and

(8) Strengthens existing U.S. alliances and partnerships, builds mutually beneficial new partnerships, and leverages opportunities in international cooperation to ensure U.S. success in competition against other great powers.

Meeting the challenges before the United States will require bold and far-sighted national security decisions. The fiscal year 2022 NDAA ensures that we have the policies and resources to deter America's adversaries, reassure our allies, and provide our forces with the tools and capabilities to overcome threats around the globe.

BUDGETARY EFFECTS OF THIS ACT (SEC. 4)

The committee recommends a provision that would require that the budgetary effects of this Act be determined in accordance with the procedures established in the Statutory Pay-As-You-Go Act of 2010 (title I of Public Law 111–139).

SUMMARY OF DISCRETIONARY AUTHORIZATIONS AND BUDGET AUTHORITY IMPLICATION

The administration's budget request for national defense discretionary programs within the jurisdiction of the Senate Committee on Armed Services for fiscal year 2022 was $752.9 billion. Of this amount, $715 billion was requested for base Department of Defense (DOD) programs and $27.9 billion was requested for national security programs in the Department of Energy (DOE).

The committee recommends an overall discretionary authorization of $777.9 billion in fiscal year 2022 including $740.3 billion for base DOD programs, $27.7 billion for national security programs in the DOE, and $9.9 billion for defense-related activities outside the jurisdiction of the NDAA.

The table preceding the detailed program adjustments in Division D of this bill summarizes the direct discretionary authorizations in the committee recommendation and the equivalent budget authority levels for fiscal year 2022 defense programs. The table summarizes the committee's recommended discretionary authorizations by appropriation account for fiscal year 2022 and compares these amounts to the request.

DIVISION A—DEPARTMENT OF DEFENSE AUTHORIZATIONS

TITLE I—PROCUREMENT

Subtitle A—Authorization of Appropriations

Authorization of appropriations (sec. 101)

The committee recommends a provision that would authorize the appropriations for procurement activities at the levels identified in section 4101 of division D of this Act.

Subtitle B—Army Programs

Multiyear procurement authority for AH–64E Apache helicopters (sec. 121)

The committee recommends a provision that would allow the Secretary of the Army to enter into a multiyear contract for AH–64E Apache helicopters beginning in fiscal year 2022 and extending through fiscal year 2025, subject to the availability of appropriations, with the potential for an additional fifth year subject to need. Based on current estimates, the proposed multiyear procurement (MYP) would provide cost saving opportunities of $234.0 million as compared to annual contracts and would facilitate industrial stability.

The AH–64E is a core aviation program and is approved for full-rate production through the current future years defense program (fiscal years 2021–2025). The minimum need for the AH–64E is not expected to decrease during the contemplated MYP period.

The committee expects the Secretary to have an approved future years defense program prior to certification of any multiyear contract in accordance with requirements in section 2306b of title 10, United States Code.

Multiyear procurement authority for UH–60M and HH–60M Black Hawk helicopters (sec. 122)

The committee recommends a provision that would allow the Secretary of the Army to enter into a multiyear contract for UH/HH–60M Black Hawk helicopters beginning in fiscal year 2022 with an anticipated end in fiscal year 2026, subject to the availability of appropriations. The proposed multiyear procurement (MYP) would produce significant savings and facilitate industrial stability. The proposed MYP would likely result in a cost avoidance of $405.4 million or 16.0 percent when compared to using five annual contracts. Additionally, this proposal would stabilize the workforce and reduce administrative burden for both the Army and contractor, resulting in a greater efficiency in acquisition operations.

The committee expects the Secretary to have an approved future years defense program prior to certification of any multiyear contract in accordance with requirements in section 2306b of title 10, United States Code.

Report and limitations on acquisition of Integrated Visual Augmentation System (sec. 123)

The committee recommends a provision that would require the Secretary of the Army to submit a report to the congressional defense committees not later than January 31, 2022, to supplement a related reporting requirement included in the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283). The report would require validation of system reliability, network adequacy, power duration, terrain data sufficiency, operational basis-of-issue, and plans for iterative improvements to the system over the acquisition period. The provision would prohibit the obligation of expenditure of more than 50 percent of fiscal year 2022 funds authorized for the Integrated Visual Augmentation System (IVAS) procurement until the required report is submitted.

The committee believes that soldier-wearable technologies such as the IVAS are essential for U.S. close-combat warriors to maintain combat overmatch against future adversaries. The committee commends the Army for utilizing a soldier-centric approach and leveraging non-traditional industry partners in development of the IVAS. The committee notes the Army's plans for operational testing of the system at scope and scale to ensure operational suitability and soldier acceptability, and commends the Army for its soldier-centric acquisition approach. Furthermore, the committee believes that continuous iterative improvement of high-tech capabilities such as the IVAS is essential for maintaining technological advantage and combat overmatch of systems such as the IVAS.

Modification of deployment by the Army of interim cruise missile defense capability (sec. 124)

The committee recommends a provision that would modify the requirement for deployment of an interim cruise missile defense capability required by section 112(b) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115–232), as amended by section 111 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–239). The provision would eliminate the requirement to procure the second two batteries of interim capability for the purpose of prioritizing resources to the enduring capability. The provision would not eliminate the requirement for the Army to deploy or forward station interim cruise missile defense capabilities.

Subtitle C—Navy Programs

Extension of prohibition on availability of funds for Navy port waterborne security barriers (sec. 131)

The committee recommends a provision that would extend the prohibition on availability of funds for Navy waterborne security barriers.

The Navy has informed the committee of its intent to transfer management of the waterborne security barriers program to the Naval Sea Systems Command (NAVSEA) and to establish a single program office within NAVSEA to manage acquisition of all waterborne security barriers for the Navy. The committee commends the Navy for taking positive steps to implement a proper acquisition structure for this important effort.

Analysis of certain radar investment options (sec. 132)

The committee recommends a provision that would require the Director of the Office of Cost Assessment and Program Evaluation (CAPE) to conduct an independent review of the three radar systems supporting current Aegis combat systems of the Navy and the Missile Defense Agency in the fiscal year 2022 through fiscal year 2027 timeframe. The Director would be required to submit a report on the results of that analysis not later than March 1, 2022, to the congressional defense committees.

The committee recognizes that the rapid deployment of next-generation maritime radar systems will be required to address existing and emerging gaps in integrated air and missile defense. To that end, the Navy intends to equip all new DDG–51 destroyers and the DDG–X Large Surface Combatant with the AN/SPY–6 Air and Missile Defense Radar. The AN/SPY–7 was chosen by the Missile Defense Agency to be the radar for Aegis Ashore applications.

The committee supports efforts to leverage commonality among weapons systems and believes additional opportunities may be available to employ this approach in modernizing Aegis weapons systems aboard existing surface ships as well as in Aegis Ashore applications. Employing common radar systems could reduce risk and lower life cycle costs for the Department of Defense.

To clarify the options, the provision would require CAPE to analyze the costs and capabilities of the current radars supporting Aegis combat systems.

Extension of report on Littoral Combat Ship mission packages (sec. 133)

The committee recommends a provision that would extend an annual report on Littoral Combat Ship mission packages through the fiscal year 2027 budget request.

Extension of procurement authorities for certain amphibious shipbuilding programs (sec. 134)

The committee recommends a provision that would extend procurement authorities for certain amphibious shipbuilding programs to include fiscal year 2022.

Limitation on decommissioning or inactivating a battle force ship before the end of expected service life (sec. 135)

The committee recommends a provision that would prohibit the decommissioning or inactivation of a battle force ship before the end of such ship's expected service. The provision would allow the Secretary of the Navy to waive this prohibition if certain conditions are met.

Acquisition, modernization, and sustainment plan for carrier air wings (sec. 136)

The committee recommends a provision that would require the Navy to develop a 15-year acquisition, modernization, and sustainment plan for the entire carrier air wing (CVW), building off the requirement in the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) to produce a fighter force structure acquisition strategy. The provision would require the Secretary of the Navy to provide the plan to the congressional defense committees not later than February 1, 2022.

In order to meet the challenges of great power competition, the Navy's carrier air wings must have the right capabilities and sufficient aircraft inventories. Although smaller scale efforts have looked at components of the CVW, such as fighter force structure, a comprehensive plan based on current and projected requirements is necessary to maintain U.S. naval air superiority. The plan should:

(1) Assess how well CVW capabilities and composition meet National Defense Strategy requirements, and plan to address known shortfalls such as tanker capacity and strike fighter range;

(2) Identify the role of autonomous aircraft in future CVWs, to include the MQ–25 but also consider other potential future capabilities and platforms;

(3) Assess whether nine CVWs is the correct force structure;

(4) Consider whether the current composition of aircraft and squadrons within a CVW is adequate;

(5) Consider whether 10 CVWs, the current legal requirement to be achieved by October 1, 2025, under section 8062 of title 10, United States Code, is adequate; and

(6) Identify the appropriate modernization plan to maximize operational use of current platforms, particularly the EA–18G and E–2D, by leveraging available technologies such as the Next Generation Jammer.

Improving oversight of Navy contracts for shipbuilding, conversion, and repair (sec. 137)

The committee recommends a provision that would require the establishment of the position of Deputy Commander of the Naval Sea Systems Command for the Supervision of Shipbuilding, Conversion, and Repair. The provision would also specify the duties of the Deputy Commander.

Subtitle D—Air Force Programs

Required minimum inventory of tactical airlift aircraft (sec. 141)

The committee recommends a provision that would require the Secretary of the Air Force to maintain a total active aircraft inventory of 292 C–130 aircraft.

Extension of inventory requirement for Air Force fighter aircraft (sec. 142)

The committee recommends a provision that would extend the requirement to maintain a minimum capacity of Air Force fighter aircraft.

Prohibition on use of funds for retirement of A–10 aircraft (sec. 143)

The committee recommends a provision that would prevent the Secretary of the Air Force from retiring A–10 aircraft during fiscal year 2022, and would add specific information that would be required in the report on the comparison of A–10 and F–35 aircraft in the close air support mission.

The provision would also require the Secretary of the Air Force, not later than 90 days after the date of the enactment of this Act, to provide a report to the congressional defense committees on plans to review and maintain the current fleet of A–10 aircraft at sufficient levels of readiness.

Furthermore, the provision would modify an existing required report on close air support capabilities to include the design of the test plan and metrics, along with details of execution including scenarios examined, number of sorties, time on station, and how the impact to ground forces was assessed.

The committee is concerned that the Air Force may seek to proceed with divestment of additional A–10 aircraft before congressionally-directed, statutorily-required analyses have been completed or provided to the congressional defense committees. In fact, the budget request included a proposal to retire 42 A–10 aircraft in fiscal year 2022. Due to delays in the operational testing of the F–35 aircraft, a required comparative analysis of the A–10 and the F–35 for the close air support mission has not been conducted. As a result, the Congress has had to rely on third party reports that have raised concerns that required elements of the test may not be carried out as directed.

The committee also believes that the Air Force should communicate plans for anticipated basing decisions that would follow retirement of any A–10 aircraft following the comparative test on close air support, including the anticipated timeline for adoption of any supplemental missions.

Requirements relating to reports on fighter aircraft (sec. 144)

The committee recommends a provision that would remove the prohibition on submitting a report comparing, among other things, close air support capabilities of A–10 and F–35 aircraft. Section 134 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) required that the capabilities comparison be submitted with the report on initial operational test and evaluation (IOT&E) of the F–35. However, IOT&E for the F–35 has been delayed for reasons unrelated to the comparison of capabilities, and the committee wants the Department to release the report sooner than the F–35 IOT&E report would be available.

Prohibition on additional F–35 aircraft for the Air National Guard (sec. 145)

The committee recommends a provision that would prohibit further equipping of Air National Guard (ANG) units with the F–35 until the ratio of combat-coded F–35 aircraft of the Regular Air Force to combat-coded F–35 aircraft of the Air National Guard is greater than four to one.

The committee supports the total force approach of the U.S. Air Force, but is concerned that the current mobility dwell times for the ANG potentially restrict availability of F–35 aircraft for deployments to support combatant commander requirements. The ANG plays an extremely important role as a force in readiness and as a reserve. However, as F–35s have been fielded, a disproportionate share have been fielded to the Air reserve components, and mobility dwell limits for such units create an imbalance in force generation capability.

Prohibition on availability of funds for reducing the number of KC–135 aircraft of the Air National Guard designated as primary mission aircraft inventory (sec. 146)

The committee recommends a provision that would prevent the Air Force from reducing the number of KC–135 Air National Guard aircraft designated as primary mission aircraft inventory in fiscal year 2022. With the KC–46 behind schedule and unable to perform the full range of refueling missions, the committee believes that it would be unwise to place any additional Air National Guard KC–135 aerial refueling assets in backup status.

Authority to divest 18 KC–135 aircraft (sec. 147)

The committee recommends a provision that would allow the Secretary of the Air Force to divest 18 KC–135 tankers during fiscal year 2022.

Prohibition on use of funds for a follow-on tanker aircraft to the KC–46 aircraft (sec. 148)

The committee recommends a provision that would prohibit the Air Force from spending any funds for a follow-on tanker to the KC–46, the so-called Bridge Tanker, until the Remote Vision System version 2.0 has begun operational testing.

Maintenance of B–1 bomber aircraft squadrons (sec. 149)

The committee recommends a provision that would prohibit further reductions in B–1 bombers until such time as the B–21 aircraft begins fielding.

Subtitle E—Defense—Wide, Joint, and Multiservice Matters

Prohibition on duplication of efforts to provide air- and space-based ground moving target indicator capability (sec. 161)

The committee recommends a provision that would prohibit the duplication of effort across multiple programs to provide air- and space-based ground moving target indicator capability across multiple services and agencies until the Vice Chairman of the Joint

Chiefs of Staff, in consultation with the Secretaries of the military departments and applicable agency heads, provides to congressional defense committees a list of all procurement and research and development efforts funded with Department of Defense or other executive agency resources, as well as how those efforts will provide real-time information to the warfighter through the Joint All Domain Command and Control efforts of the Department.

Limitation on funds for Armed Overwatch aircraft (sec. 162)

The committee recommends a provision that would prohibit the obligation or expenditure of funds authorized by this Act for the procurement of Armed Overwatch aircraft by U.S. Special Operations Command (SOCOM) in Procurement, Defense-wide, until 15 days after the submission of the airborne intelligence, surveillance, and reconnaissance acquisition roadmap required by section 165(a) of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283).

Additionally, the committee directs the Director, Cost Assessment and Program Evaluation, to review SOCOM's Armed Overwatch program and submit an independent assessment to the congressional defense committees at the same time as the submission of the President's budget request for fiscal year 2023. At a minimum, the independent assessment shall evaluate the total number of Armed Overwatch aircraft necessary to fulfill the requirements of special operations forces in light of changes to global force posture and increasing threats to manned aircraft since the requirement for such aircraft was validated by the SOCOM Commander.

Transition of F–35 program sustainment from Joint Program Office to Air Force and Navy (sec. 163)

The committee recommends a provision that would require a transition over five years from the Joint Program Office-managed sustainment effort to a service-led effort with the U.S. Air Force as the executive agent for F–35As and the U.S. Navy as the executive agent for F–35Bs and F–35Cs. The provision would require the Under Secretary of Defense for Acquisition and Sustainment, in consultation with the Secretaries of the Air Force and the Navy, to provide a transition plan to the congressional defense committees not later than February 1, 2022, that would fully transition sustainment responsibilities to the respective services not later than October 1, 2027.

Budget Items

Army

Army unfunded requirements

In accordance with section 222a of title 10, United States Code, the Chief of Staff of the Army submitted a list of unfunded requirements. The committee recommends an additional increase of $1.4 billion for items on this unfunded requirements list.

CH–47 Cargo Aircraft modifications

The budget request included $9.9 million in line number 20 of Aircraft Procurement, Army (APA) for CH–47 Cargo Helicopter Mods.

The committee recognizes that retrofit of already fielded CH–47 cargo aircraft with Improved Vibration Control System (IVCS) improves mission performance and endurance by reducing vibration wear and crew fatigue. IVCS is installed in new CH–47 at the aircraft manufacturing plant.

The committee recommends an increase of $3.0 million in line number 20 of APA to facilitate IVCS retrofit in already fielded CH–47 aircraft.

Paladin Integrated Management

The budget request included $446.4 million in line number 8 of Procurement of Weapons and Tracked Combat Vehicles (WTCV) for Paladin Integrated Management (PIM).

The committee recognizes the critical importance of modernizing the Paladin as the Army's only armored self-propelled howitzer within Armored Brigade Combat Teams. Returning to a higher programmed production rate and quantity permits the Army to stay on schedule to field two battalions per year, avoiding a 17 percent per-unit cost increase that imposes a penalty of nearly $50.0 million due to the reduced fiscal year 2022 budget request quantities. The PIM is also on the Chief of Staff of the Army's unfunded requirements list.

Accordingly, the committee recommends an increase of $199.5 million in line number 8 of WTCV for Paladin Integrated Management.

Multi-Domain Task Force All-Domain Operations Center cloud pilot

The budget request included $140.0 million in line number 22 of Other Procurement, Army (OPA), for the Signal Modernization Program.

The committee supports rapid establishment of the Army Multi-Domain Task Force (MDTF) and recognizes the importance of secure, deployable computing resources to enable multi-domain operations. The Chief of Staff of the Army submitted an unfunded requirement of $2.5 million for an MDTF All-Domain Operations Center (ADOC) cloud pilot.

Therefore, the committee recommends an increase of $2.5 million in line number 22 of OPA for an MDTF ADOC cloud pilot.

Integrated Visual Augmentation System

The budget request included $1.1 billion in line number 83 of Other Procurement, Army (OPA) for Night Vision Devices, including the Integrated Visual Augmentation System (IVAS).

The committee recognizes the importance of IVAS and supports expeditious initial fielding of this advanced capability to close combat soldiers but is concerned about the projected level of system development and ensuring iterative improvements between initial and full fielding. The committee believes that completion of robust operational testing and implementation of iterative improvements

are warranted before proceeding to the production rate the Army is seeking in fiscal 2022.

Accordingly, the committee recommends a decrease of $269.8 million in line number 83 of OPA for the Integrated Visual Augmentation System Heads Up Display.

Man-portable radiation detection systems

The budget request included $55.6 million in line number 120 of Other Procurement, Army (OPA) for CBRN [chemical, biological, radiological and nuclear] Defense.

The committee notes that the Army National Guard is requesting an additional 15 man-portable radiation detection systems for use by the Army National Guard Civil Support Teams as an unfunded requirement.

Accordingly, the committee recommends an increase of $11.3 million in line number 120 of OPA for CBRN Defense.

Expeditionary Solid Waste Disposal System

The budget request included $32.4 million in line number 176 of Other Procurement, Army (OPA), for Other Support Equipment for modification of in-service equipment (OPA–3).

The committee concurs with the Army's budget justification documents, which stated that the Expeditionary Solid Waste Disposal System (ESWDS) "will reduce the use of burn pits by providing an environmentally responsible solution for onsite disposal of 1,000 pounds of solid waste per day. The ESWDS will also reduce Soldier, civilian, and local population exposure to pollutants from open air burn pits; reduce the amount of trash that must be backhauled, reducing Soldiers' exposure and attacks during convoy operations; reduce the waste held onsite [which] also deters potential vermin that could spread disease and disrupt mission[;] and eliminate the security risk from uncontrolled access to trash." However, despite this justification, the Army requested no funds for ESWDS. The committee notes that ESWDS could also provide a capability during pandemics to rapidly incinerate contaminated personal protective equipment, thereby decreasing exposure to servicemembers.

Accordingly, the committee recommends an increase of $15.9 million in line number 176 of OPA for ESWDS in OPA–3.

Infantry Squad Vehicle

The budget request included $29.8 million in line number 5 of Other Procurement, Army (OPA), for Infantry Squad Vehicles (ISV).

The committee recommends an increase of $5.0 million in line number 5 of OPA for ISV.

Navy

Navy and Marine Corps unfunded requirements

In accordance with section 222a of title 10, United States Code, the Chief of Naval Operations and the Commandant of the Marine Corps each submitted a list of unfunded requirements. The committee recommends an additional increase of about $32.6 million for items on these unfunded requirements lists.

CH–53K

The budget request included $1.3 billion in line number 7 of Aircraft Procurement, Navy (APN), for procurement of CH–53K helicopters.

The Marine Corps' CH–53K King Stallion helicopter will replace the CH–53E. The CH–53K has been designed to improve aircraft, aircrew, and passenger survivability; increase reliability and maintainability; and significantly reduce operating and support costs. The committee believes that the CH–53K will play an important role in supporting expeditionary advanced base operations in a high-end, maritime fight in the Pacific.

After a restructuring of the development program to allow time to correct problems identified in development testing, the CH–53K has demonstrated the potential to meet or exceed all Key Performance Parameters. The program achieved Milestone C in April 2017 and is in low rate initial production (LRIP), with 27 aircraft in various stages of production. Initial Operational Test and Evaluation (IOT&E) should begin soon, to support the first deployment expected in 2023–2024.

Decades of sustained combat operations and high operational tempo have left the legacy fleet of CH–53Es at alarmingly low readiness levels, which compromises the Marine Corps' ability to meet the demands of the National Defense Strategy. The committee recognizes that acceleration in the CH–53K production ramp would be necessary to decrease flyaway cost and stabilize the industrial base.

The committee looks forward to successful completion of IOT&E and encourages the Marine Corps to maintain a dedicated test capability that will allow for meeting the current Initial Operational Capability schedule as well as consider an increase in yearly production rates for future years.

The Marine Corps reduced the planned buy for fiscal year 2022 from 11 to 9. Maintaining a predictable, stable, and growing production ramp is critical to ensuring suppliers are incentivized to reduce costs and keep parts production timely with the single biggest driver to reduce cost being aircraft volume. In addition, readiness rates, which are currently about 65 percent for the legacy CH–53E fleet, will improve dramatically with the deployment of CH–53K aircraft. The Marine Corps needs this heavy lift capability delivered to the warfighter sooner rather than later.

In the meantime, anticipating a successful result from IOT&E, the committee recommends an increase of $250.0 million to purchase two additional CH–53K helicopters.

MQ–4 Triton

The budget request included $160.2 million in line number 21 of Aircraft Procurement, Navy (APN), for procurement of MQ–4 Triton.

This reflects a production pause in fiscal year 2022 of the MQ–4C Triton unmanned air system (UAS) and re-starting procurement of multi-intelligence-configured aircraft in fiscal year 2023. The MQ–4C Triton UAS is integral to recapitalizing the Navy's maritime patrol and reconnaissance force, providing a persistent

maritime and littoral intelligence, surveillance, and reconnaissance data collection and dissemination capability to the fleet.

The committee believes that a production pause in the Triton program risks breaking the production line and incurring significant cost increases in the program.

Therefore, the committee recommends an increase of $323.0 million to purchase two MQ–4 Triton UAS.

Submarine industrial base development

The budget request included $1.6 billion in line number 2 of Shipbuilding and Conversion, Navy (SCN), for advance procurement for the *Columbia*-class submarine program.

The nuclear shipbuilding industrial base continues to struggle to support the increased demand associated with the Navy's future shipbuilding plan. This presents significant risk to the *Columbia*-class submarine, the *Virginia*-class submarine with Virginia Payload Module, and aircraft carrier programs. It is critical to further develop existing industrial capacity and qualify new suppliers now, in advance of the increased demand.

The committee believes additional funding is needed to increase capacity, qualify new suppliers, add resiliency and create competition for critical components, and identify points in the supply chain where shortfalls exist.

Therefore, the committee recommends an increase of $130.0 million in line number 2 of SCN for submarine industrial base supplier development efforts.

***Arleigh Burke*-class destroyers**

The budget request included $2.0 billion in line number 10 of Shipbuilding and Conversion, Navy (SCN) for procurement of *Arleigh Burke*-class destroyers.

The committee notes that funding a second *Arleigh Burke*-class destroyer in fiscal year 2022 is the Chief of Naval Operations' top unfunded priority, supports completing a multi-ship procurement contract, and increases Flight III destroyer multi-mission capability and capacity in the most demanding warfighting scenario.

Therefore, the committee recommends an increase of $1.7 billion for an additional *Arleigh Burke*-class destroyer in line number 10 of SCN.

***Arleigh Burke*-class advance procurement**

The budget request did not include funding in line number 11 of Shipbuilding and Conversion, Navy (SCN) for advance procurement of *Arleigh Burke*-class destroyers.

The committee notes the Navy intends to negotiate another *Arleigh Burke*-class multiyear procurement contract that would support *Arleigh Burke*-class procurement in future years. The committee believes procuring a third *Arleigh Burke*-class destroyer in fiscal year 2023 would provide additional warfighting capacity as well as greater stability in the shipbuilding industrial base.

Therefore, the committee recommends an increase of $125.0 million in line number 11 of SCN for advance procurement of *Arleigh Burke*-class destroyers.

Surface combatant supplier development

The budget request did not include funding in line number 11 of Shipbuilding and Conversion, Navy (SCN) for advance procurement for the DDG–51 destroyer program.

The committee notes that elements of the surface combatant industrial base continue to struggle to support the demands of the Navy's future shipbuilding plan.

Therefore, the committee recommends an increase of $50.0 million in line number 11 of SCN for surface combatant supplier development efforts.

LPD Flight II advance procurement

The budget request included no funding in line number 16 of Shipbuilding and Conversion, Navy (SCN) for LPD Flight II advance procurement.

The committee notes that additional funding could be used to maximize the benefit of amphibious multi-ship procurement authorities or procure long lead time material for LPD–32.

Therefore, the committee recommends an increase of $250.0 million in line number 16 of SCN.

LHA replacement

The budget request included $68.6 million in line number 19 of Shipbuilding and Conversion, Navy (SCN) for the LHA replacement amphibious assault ship.

The committee notes that efficiencies could be gained by accelerating the construction of LHA–9, including steadier workflow with an improved learning curve, more predictable delivery contracts for material and equipment suppliers, and a more effective continuous improvement schedule.

Therefore, the committee recommends an increase of $350.0 million in line number 19 of SCN for the LHA replacement.

Expeditionary fast transport vessels

The budget request included no funding in line number 20 of Shipbuilding and Conversion, Navy (SCN), for expeditionary fast transport (EPF) vessels.

The committee notes that EPF vessels are built with an inherent cargo handling capability and ability to deliver troops and equipment together in a manner that provides greater flexibility in how combatant commanders employ these and other naval vessels in theater.

Therefore, the committee recommends an increase of $270.0 million in line number 20 of SCN.

Used sealift ships

The budget request included $299.9 million in line number 30 of Shipbuilding and Conversion, Navy (SCN) to purchase five used vessels to recapitalize the Ready Reserve Force (RRF).

The committee notes that the Congress provided funding for two vessels in fiscal year 2021 and that the Navy has been unable to successfully contract for those ships. The committee will need to see the Navy execute the fiscal year 2021 funds and the vessels in

question inducted into the RRF before it can recommend additional funding for this program.

Therefore, the committee recommends a decrease of $299.9 million in line number 30 of SCN.

Sonobuoys

The budget request included $249.1 million in line number 94 of Other Procurement, Navy (OPN) for the procurement of sonobuoys.

The committee notes that the Chief of Naval Operations requested the procurement of additional sonobuoys as a fiscal year 2022 unfunded priority.

Therefore, the committee recommends an increase of $54.4 million in line number 94 of OPN.

Ground-launched anti-ship missiles

The budget request included $67.5 million in line number 5 of Procurement, Marine Corps (PMC) Artillery Weapons System.

The committee recognizes the need to build the missile inventory in support of Marine Corps ground-launched anti-ship capability requirements and notes that the Commandant of the Marine Corps listed this ground-based anti-ship requirement as his top unfunded priority.

Therefore, the committee recommends an increase of $57.8 million in line number 5 of PMC for ground-launched anti-ship missiles.

Ground-launched long range fires

The budget request included $67.5 million in line number 5 of Procurement, Marine Corps (PMC) for Artillery Weapons System.

The committee recognizes the need to build missile inventory in support of Marine Corps ground-launched long-range fires requirements and notes that the Commandant of the Marine Corps submitted this long-range fires capability as a top requirement on his unfunded priority list.

Therefore, the committee recommends an increase of $96.0 million in line number 5 of PMC for Long Range Fires.

Air Force

Air Force and Space Force unfunded requirements

In accordance with section 222a of title 10, United States Code, the Chief of Staff of the Air Force and the Chief of Space Operations each submitted a list of unfunded requirements. The committee recommends an additional increase of about $1.2 billion for items on this unfunded requirements list.

F–35 power modules

The budget request included $4.2 billion in line number 2 of Aircraft Procurement, Air Force (APAF), for F–35A procurement.

The committee agrees with the Air Force request for additional power modules for the F135 engine as requested on the unfunded priorities list submitted by the Chief of Staff of the Air Force.

Therefore, the committee recommends an increase of $175 million in line number 2 of APAF for the purchase 20 F135 power modules.

F–35A

The budget request included $4.2 billion in line number 2 of Aircraft Procurement, Air Force (APAF) for F–35A procurement.

The committee is concerned that, after repeated congressional plus-ups and support for increased production, the Air Force still budgets for a quantity below the stated production objectives of the F–35 program. Further, the committee is concerned that the Air Force has squandered an opportunity to capitalize on advanced procurement appropriations by only budgeting for 48 aircraft this year instead of the 60 aircraft that were planned and that the advanced procurement was previously provided for by the Congress. The committee expects the Department to execute proper forecasting and propose appropriate budget requests rather than to continue to rely on congressional plus-ups.

Therefore, the committee recommends an increase of $85.0 million in line number 2 of APAF for the purchase of an additional F–35A.

MH–139A

The budget request did not include funding in Aircraft Procurement, Air Force (APAF), for the MH–139 utility helicopter program. The MH–139A program will replace the Air Force fleet of 63 UH–1N aircraft that have significant capability gaps in the areas of speed, range, endurance, payload capacity, and aircraft self-protection. This program is an element of the Air Force's nuclear enterprise reform initiatives.

The Air Force is not requesting to buy any helicopters in fiscal year 2022 since the MH–139A has not completed operational testing or Federal Aviation Administration certifications. However, the committee believes that there may be ways of accelerating the program, and, given the critical nature of the program, believes additional resources should be made available to the Air Force for this purpose.

Therefore, the committee recommends an increase of $75.0 million in line 12 of APAF for the MH–139A program.

MQ–9

The budget request included $3.3 million in line number 21 of Aircraft Procurement, Air Force (APAF), for procurement of MQ–9 Reapers.

The MQ–9 Reaper is a critical component of efforts to fill current intelligence, surveillance, and reconnaissance (ISR) requirements. Last year, the Commander, U.S. Central Command, included additional MQ–9 funding at the top of his unfunded priorities list. In April 2021, the commander told the committee of the importance of the MQ–9 and his need for more of them. The Air Force today still lacks the ISR capacity to meet combatant commanders' requirements contained in the 2018 National Defense Strategy. Despite this, the Department of Defense has proposed stopping production of this platform, without a program of record to replace it.

In fiscal year 2022, both the Commander, U.S. Southern Command, and Commander, U.S. Africa Command, included additional ISR capabilities in their unfunded priorities list.

Therefore, the committee recommends an increase of $100.0 million to buy up to 5 MQ–9 Reapers in fiscal year 2022.

B–52 training system

The budget request included $75.0 million in line number 25 of Aircraft Procurement, Air Force (APAF) for B–52 modernization.

The committee recognizes the importance of the Air Force's efforts to modernize its bomber fleet and keep training systems compatible with operational aircraft.

Therefore, the committee recommends an increase of $4.0 million in line number 25 of APAF for the procurement of updated training equipment.

F–35 modifications

The budget request included $304.1 million in line number 33 of Aircraft Procurement, Air Force (APAF), for F–35 modifications.

The committee believes that the 338 F–35 aircraft purchased by the Air Force in Lots 1–13 need to be upgraded expeditiously to the Block 4 configuration with the technology refresh 3 hardware.

Therefore, the committee recommends an increase of $1.7 billion in line number 33 of APAF for F–35 modifications.

F–16 AESA radars

The budget request included $613.2 million in line number 31 of Aircraft Procurement, Air Force (APAF) for F–16 modernization.

The committee recognizes the importance of the Air Force's efforts to modernize its fourth generation fighter fleet and equip itself with the most advanced and capable radars in support of the National Defense Strategy. The committee is concerned about the quantity and timing of procurement of advanced radars for the entire F–16 fleet.

Therefore, the committee recommends an increase of $25.0 million in line number 31 of APAF for the procurement of additional radar sets across the entire F–16 fleet.

Intercontinental Ballistic Missile fuze realignment of funds

The budget request included $47.8 million in line number 16 of Missile Procurement, Air Force (MPAF), for Intercontinental Ballistic Missile (ICBM) Fuze Modernization Advance Procurement.

The committee has been informed that updated program estimates require regular procurement instead of advance procurement.

Therefore, the committee recommends a decrease of $12.3 million in line number 16 of MPAF and an increase of $12.3 million in line number 15 of MPAF, for ICBM Fuze Modernization.

Long Duration Propulsive National Security Space Launch Secondary Payload Adapter Demonstration

The budget request included $3.3 million in line number 5 of Procurement, Space Force (PSF), for General Information Tech—Space.

The committee notes the critical importance of a second geostationary earth orbit antenna for Long Duration Propulsive National Security Space Launch Secondary Payload Adapter mission Tetra and follow on Rapid On-Orbit Space Technology and Evaluation Ring missions; this is also a Space Force unfunded requirement.

Therefore, the committee recommends an increase of $8.0 million in line number 5 of PSF for a secondary payload adapter demonstration.

Radio equipment

The budget request included $14.2 million in line number 49 of Other Procurement, Air Force (OPAF), for Radio Equipment.

The committee recognizes the importance of the Department of the Air Force's modernization efforts with respect to communications and supports the Space Force's unfunded requirement for additional funding of this capability.

Therefore, the committee recommends an increase of $1.5 million in line number 49 of OPAF for Radio Equipment.

Defense Wide

Defense-wide Procurement unfunded requirements

In accordance with section 222a of title 10, United States Code, the service chiefs and combatant commanders each submitted a list of unfunded requirements. The committee recommends an additional increase of $298.1 million for Defense-wide Procurement items on these unfunded requirements lists.

Combat diving advanced equipment acceleration

The budget request included $17.2 million in line number 66 of Procurement, Defense-wide (PDW), for U.S. Special Operations Command (SOCOM) Underwater Systems.

The committee supports prioritization of resources to address capability gaps, particularly those that ensure U.S. Special Operations Forces maintain superiority relative to near peer competitors and notes that the SOCOM Commander has identified the acceleration of combat diving advanced equipment as an unfunded requirement.

Therefore, the committee recommends an increase of $5.2 million in line 66 of PDW, to accelerate fielding of combat diving advanced equipment.

Modernized forward-look sonar

The budget request included $17.2 million in line number 66 of Procurement, Defense-wide (PDW), for U.S. Special Operations Command (SOCOM) Underwater Systems.

The committee supports prioritization of resources to address capability gaps, particularly those that ensure U.S. Special Operations Forces maintain superiority relative to near peer competitors, and notes that the SOCOM Commander has identified modernized forward look sonar as an unfunded requirement.

Therefore, the committee recommends an increase of $900,000 in line number 66 of PDW for the fielding of modernized forward-look sonar.

Fused panoramic night vision goggles acceleration

The budget request included $328.6 million in line number 78 of Procurement, Defense-Wide (PDW) for U.S. Special Operations Command (SOCOM) Operational Enhancements.

The committee supports prioritization of resources to address capability gaps, particularly those that ensure U.S. Special Operations Forces maintain superiority relative to near-peer competitors, and notes that the SOCOM Commander has identified the accelerated fielding of fused panoramic night vision goggles as an unfunded requirement.

Therefore, the committee recommends an increase of $28.0 million in line number 78 of PDW for the accelerated fielding of fused panoramic night vision goggles by SOCOM.

Items of Special Interest

***Constellation*-class frigate program**

The committee expects that the new *Constellation*-class guided missile frigate (FFG–62) will have an important role in the Navy battle force. While the Navy required that offerors base their proposals on an existing hull design and mature technologies, concerns about this new ship class remain, including typical first-in-class design and production challenges. These concerns contributed to the enactment of section 125 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) that required the Navy to implement a land-based testing program to reduce the technical risk of key engineering and electrical systems. Given the historical performance of the Navy and industry with the construction of early ships in new ship classes, the committee believes that the FFG–62 program could benefit from additional risk reduction efforts for other critical subsystems to further reduce technical risk prior to the delivery of FFG–62.

Accordingly, the committee directs the Secretary of the Navy to submit a report to the congressional defense committees with the submission of the fiscal year 2023 budget request on how the Navy will expand risk reduction efforts to other aspects of the frigate program to address first-in-class construction challenges and increase confidence that ships in the class after FFG–62 will achieve the required capability upon delivery, on budget, and on schedule.

***San Antonio*-class lethality and survivability upgrades**

The committee understands the Navy and Marine Corps are reviewing lethality and survivability upgrades for *San Antonio*-class amphibious ships to support Expeditionary Advanced Base Operations and Distributed Maritime Operations.

The committee directs the Secretary of the Navy to submit, not later than February 1, 2022, a report to the congressional defense committees that describes courses of action to upgrade the sensors, weapons, and combat systems on current and future *San Antonio*-class ships.

This report shall, at a minimum, evaluate the cost, schedule, and operational benefits of:

(1) Upgrading the SPY–6(V)2 Enterprise Air Surveillance Radar (EASR) rotating radar to the SPY–6(V)3 fixed-face EASR to better support: (a) air traffic control; (b) air and missile defense-in-depth for forces operating at sea; (c) air and missile defense for forces operating ashore within radar range; and (d) other offensive and defensive engagements;

(2) Integrating at least a 16-cell Mark–41 Vertical Launch System (VLS); and

(3) Integrating the EASR and Mark–41 VLS options identified in (1) and (2) with versions of the Tomahawk Weapon Control System, Ship Self-Defense System, Cooperative Engagement Capability including the variant currently fielded on *San Antonio*-class ships, and Aegis Combat System.

Based on the courses of action evaluated, the Secretary shall identify the optimal approach in terms of cost, schedule, and operational benefits for upgrading the sensors, weapons, and combat system on current and future *San Antonio*-class ships.

"Digital Engineering" capabilities

The committee supports the Air Force's continued development of its advanced manufacturing techniques and processes to reduce the cost and time needed to develop and sustain new weapon systems. The committee is aware of the positive impact of Air Force use of e-Design "digital engineering" initiatives utilized on the T–7A, the B–21, the Next-Generation Air Dominance (NGAD) program and Ground Based Strategic Deterrence (GBSD) program. The committee believes e-Design and advanced manufacturing processes and techniques could allow the Air Force to test and innovate using the digital environment, increasing speed and agility.

Accordingly, the committee directs the Secretary of the Air Force to provide a report not later than February 15, 2022, to the congressional defense committees on the Air Force's ability to expand digital engineering capabilities to a wide range of aircraft programs, high-cost structural parts, systems, and subsystems, as well as how the Air Force plans to securely and effectively interchange data with operating locations to enable the local implementation of advanced manufacturing and sustainment operations. The committee also directs the Secretary of the Air Force to address how the Air Force plans to acquire, manage, and perform configuration control on intellectual property and data rights needed to fully capitalize on the benefits of digital engineering while driving down total life cycle costs.

Additional applications of unmanned technology

The National Defense Strategy identified modernization of the current fleet of vehicles and aircraft as a major priority for the United States to gain the technological edge over near-peer adversaries. As the Department of Defense continues to identify areas of cost-savings throughout its budget, evaluating and expanding existing programs that have proven to be successful would reduce the costs and risks associated with developing and fielding new technologies. Focusing on one specific avenue of modernization efforts,

it will be imperative for the Department to evaluate domestic, proven technologies currently being fielded to modernize and expand vehicle and aircraft capabilities. The Department should consider the potential for upgrading existing vehicles and aircraft with autonomous capability. Fielding such capability could have operational advantages and yield potential savings in personnel costs. However, the committee is aware that such advantages are not present in every case, and notes that the Air Force is proposing to shift from unmanned capability in the Battlefield Airborne Communications Node (BACN) program to manned aircraft.

The committee believes that the Department of Defense should develop a template for engaging with the private sector, including with small businesses, for collaborating on potential upgrades for existing platforms with autonomous capability. Such collaboration could yield savings, while reducing burdensome requirements in expanding and modernizing overall capabilities. Applying unmanned capability could also extend the life cycle of current airframes.

Therefore, the committee directs the Secretary of Defense to develop criteria and a template for evaluating potential use of commercial autonomous capability with existing vehicles and aircraft and to provide a report on the development of the same to the congressional defense committees with the budget request for fiscal year 2023. Such a template shall address potential costs and benefits of fielding such capabilities, and consider potential limitations of commercial systems to include: (1) Military requirements to operate outside of normal flight corridors for unmanned aerial vehicles or off-road for unmanned ground vehicles; and (2) Requirements relating to the safe conduct of aviation operations within the National Airspace System.

Air Force airborne electronic attack systems

Section 128 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) required the Secretary of the Navy, in consultation with the Vice Chairman of the Joint Chiefs of Staff, to provide a "strategy to ensure full spectrum electromagnetic superiority using the ALQ–249 Next Generation Jammer."

With renewed interest in offensive electronic attack capability by the Air Force, and in an effort to minimize duplicative efforts, the committee directs the Secretary of the Air Force to provide a briefing to the congressional defense committees not later than December 15, 2021, that addresses the following: (1) The capability requirements and existing capacity gaps of operational Air Force airborne electronic attack systems; (2) A plan for how the Air Force will respond to threats or shortfalls identified in (1); (3) An assessment of the ability of the ALQ–249 Next Generation Jammer to meet current and projected enemy threats; and (4) An evaluation of the compatibility of the ALQ–249 Next Generation Jammer with Air Force aircraft.

Airborne advanced training

The committee has been monitoring closely U.S. Air Force (USAF) pilot manning shortfalls for the past several years but re-

mains concerned that little progress has been made addressing the issue, especially in increasing the number of highly skilled fighter pilots. Although initiatives such as Air Education and Training Command's Pilot Training Next and Undergraduate Pilot Training 2.5/3.0 leverage innovative technologies designed to train pilots faster and to a higher standard, they have not yet optimized innovative technologies for inflight training operations.

The committee understands that airborne augmented reality technology currently under evaluation by the Air Force Research Laboratory, Air Combat Command, and Air Education and Training Command is demonstrating great promise at addressing this aspect of training. Further, the committee encourages the USAF to move more rapidly in developing and adopting airborne augmented reality technologies that contribute to improved training outcomes, reduce net training costs, and increase environmental sustainability.

Amphibious ship acquisition strategy

The committee believes that a block buy, multi-ship, or multiyear procurement approach for LPD–17 Flight II-class amphibious transport ships and LHA 10 would provide substantial cost savings as well as needed stability and predictability for the shipbuilder and its vendor base.

The committee notes section 124 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) authorized multi-ship procurement authority for amphibious ships, which the Navy estimated would save 8 to 12 percent, or roughly $1.0 billion, for the multi-ship procurement of these four ships as compared to four separate ship procurement contracts. The committee also notes that the Navy estimates that $4.0 billion will be saved using a block buy acquisition strategy for the procurement of CVN–80 and CVN–81.

While the committee supports the execution of the section 124 authority as soon as possible and prefers this course of action, the committee directs the Secretary of the Navy to submit a report to the congressional defense committees, not later than October 1, 2021, on the merits of pursuing a block buy, multi-ship, or multiyear procurement acquisition strategy for LPD–17 Flight II-class ships and LHA–10.

This report shall include a business case analysis comparing the cost and schedule of single ship contracts with a multiple ship contract for the following groupings: (1) LPD–32, LPD–33, and LHA–10; (2) LPD–32, LPD–33, LPD–34, and LHA–10; and (3) Any other groupings identified by the Secretary. This report shall also include a description of other key considerations that the Secretary deems appropriate.

If the business case analysis shows that pursuing a block buy, multi-ship, or multiyear procurement strategy for LPD–17 Flight II–class ships and LHA–10 has merit, the committee strongly encourages the Secretary to include such a proposal in the Navy's budget request for fiscal year 2023.

Army National Guard Airborne Tactical Extraction Platform

The committee is aware that multiple State units of the National Guard have a demonstrated need to purchase airborne tactical rescue equipment. One such device is the Airborne Tactical Extraction Platform (AirTEP). The committee is aware that the Alabama Army National Guard has indicated its intent to purchase the AirTEP with the sole purpose of performing quicker, safer, and more efficient helicopter rescues during natural disasters such as floods and hurricanes. The committee also understands that the Alabama, Mississippi, Arkansas, Georgia, and Kentucky Army National Guard units have submitted the AirTEP as their number three priority in capturing National Guard and Reserve Equipment Account funding for fiscal year 2022.

The committee has become aware of an obstacle to the further deployment of this device due to a delay in the U.S. Army PM–Utility Helicopter Office (Redstone Arsenal) publishing an Airworthiness Release (AWR). The committee understands that the AWR process is currently going through evaluation and is near completion but approval and publication are still pending based on the final evaluation by System Readiness Directorate (SRD).

The committee requests that SRD and Redstone Arsenal issue a report to the Senate Armed Services Committee not later than January 15, 2022, as to the anticipated timeframe for completing the AWR process, and any technical, logistical, or funding challenges associated with completing the AWR.

Army National Guard capabilities

The Army has chosen to accept differences between Active-Duty unit force structure and that of the Army National Guard (ARNG). For example, the Army has chosen to omit MQ–1C units from ARNG combat aviation brigades (CABs). The committee needs to understand the impact of such differences on the ability of ARNG division headquarters to execute assigned missions and the ability to conduct multi-domain operations.

The committee therefore directs the Secretary of the Army to provide a report to the congressional defense committees not later than January 1, 2022, on how ARNG divisions will execute multi-domain operations, and how having capabilities not organic to the divisions will impact their ability to conduct multi-domain operations.

Assessment of Armored Brigade Combat Team modernization

The committee notes with concern the substantially reduced investment proposed in the budget request for fiscal year 2022 for the modernization of armored combat vehicles (ACV) that comprise the Army's Armored Brigade Combat Teams (ABCT). The committee is concerned about these reductions and that similar reduced procurement quantities in future years will further slow modernization of enduring ACVs, reduce the readiness of ABCTs as the current vehicles age, and damage the ACV industrial base.

Therefore, the committee directs the Secretary of the Army to conduct an assessment of the investment strategy for modernization of ACVs and the impact of that strategy on modernization and

readiness of ABCTs. The Secretary shall provide a briefing of the assessment to the Senate Armed Services Committee not later than 30 days after submission of the President's budget request for fiscal year 2023.

The assessment and briefing shall include: (1) Procurement quantities and funding through the future years defense program; (2) Fielding plans through the future years defense program; (3) A comparison to fielding plans associated with the fiscal year 2021 budget request and future years defense program; (4) Projected age of ACV vehicle fleets for 20 years based on planned and projected investment and replacement; (5) Impact of the planned procurement quantities on the ability to meet the minimum sustainment rates of the ACV industrial base; and (6) Any other matters the Secretary believes appropriate.

Assessment on Air National Guard F–16 self-protection capabilities

Potential adversaries around the world are proliferating anti-access/area denial (A2/AD) capabilities, with the prospect that they could soon exceed current F–16 capabilities to deal with them. The Air National Guard's F–16s currently rely on legacy expendable dispenser systems that have limited capabilities, including an inadequate expendable decoy capacity. This situation poses significant survivability challenges to F–16 aircrews and the aircraft's current and long-term combat effectiveness.

Therefore, the committee directs the Secretary of the Air Force to provide a report to the congressional defense committees, not later than February 15, 2022, on the Air National Guard's F–16 self-protection capabilities against existing and projected surface-to-air and air-to-air weapons. The report shall cover existing F–16 defensive systems capabilities; self-protection system requirements to defeat or mitigate current and future threats; and a schedule of planned testing and fielding of potential advanced expendable dispenser systems that could be easily integrated into Air National Guard F–16s with no impact on aircraft performance or weapons payload capacity.

Auxiliary power units for Army ground vehicles

The committee understands that the Army is currently exploring innovative small form factor auxiliary power units (APUs) for use on Army ground vehicles. The committee understands that the APUs under development present significant improvements in size, weight, and fuel efficiency compared to other APU and power generation solutions currently available to the Department.

The committee commends the Army for pursuing this capability, particularly given the growing power demands associated with the systems, sensors, and weapons being introduced to the ground vehicle fleet. The committee understands that many ground vehicles have difficulty generating the power necessary to support installed payloads. For example, according to a June 8, 2021, report from the Congressional Research Service, titled "The Army's Optionally Manned Fighting Vehicle (OMFV) Program: Background and Issues for Congress" (R45519), M2 Bradley vehicles deployed in Iraq routinely had to turn off certain electronic systems to gain

enough power to employ their anti-roadside-bomb jammers. The committee strongly encourages the Army to continue to pursue new APUs to supplement existing on board vehicle power.

Accordingly, the committee directs the Secretary of the Army to provide a briefing to the Senate Armed Services Committee by January 31, 2022, on efforts to develop and field small form factor APUs for use on ground vehicles. This report shall include, at a minimum: an overview of current research and development efforts relating to small form factor auxiliary power units for Army ground vehicles; an assessment of which vehicle platforms stand to benefit the most from APUs currently in development; and any plans to field new APUs on Army ground vehicles.

Aviation defense equipment report

The committee remains supportive of the procurement of longer range firearms for inclusion in the survival kits for combat aviators. However, the committee is concerned that, given the speed with which the Air Force pursued this program, cheaper and potentially more effective options may have been overlooked. Therefore the committee directs the Chief of Staff of the Air Force, not later than February 1, 2022, to provide a report to the congressional defense committees on the various commercial firearms that might meet the requirements of the current GAU–5A at a lower cost.

Brief on mixed-oxidant electrolytic disinfectant generator water purification

The committee notes the effective deployment of mixed-oxidant electrolytic disinfectant generator water purification (MEDG) to replace bromination for water purification on U.S. Navy large-deck ship classes for nearly 20 years.

The committee is interested in understanding whether broad application of MEDG technology would be worth the investment. Accordingly, the committee directs the Secretary of the Navy to provide a briefing, not later than April 15, 2022, to the congressional defense committees on the Navy's assessment of the costs and benefits of using MEDG technology on small- and medium-sized ships. The briefing shall also include an assessment of the water purification strategy for the *Constitution*–class frigate (FFG–62) program.

Briefing on munitions procurement, stockage and industrial base

The committee directs the Secretary of the Army, as the Department of Defense executive agent for ammunition and explosives, to provide a briefing to the Senate Armed Services Committee not later than 30 days after submission of the President's budget request for fiscal year 2023. The committee notes with concern the significant reduction in munitions procurement quantities proposed in the President's budget request for fiscal year 2022. The committee is concerned about these reductions and that similar reduced procurement quantities in future years will further negatively impact ammunition wartime stocks, reduce the availability of ammunition for training, and damage the ammunition industrial base.

The briefing shall contain an assessment of the impact of proposed munitions quantities requested in the fiscal year 2023 budget request on required wartime stocks, availability of ammunition to conduct required training, and health of the defense organic ammunition industrial base. For purposes of the assessment and briefing, "munitions" shall include ammunition and missiles procured by the Department of the Army for itself or other entities within the Department of Defense.

CH–47F Block II funding restoration

The committee is concerned by significant reductions to funding for procurement of enduring Army aircraft in the fiscal year 2022 budget request, and the impact that these reductions will have on Army aviation readiness, modernization, pilot and crew safety, and the helicopter industrial base. The committee appreciates that difficult choices were required of the Office of the Secretary of Defense (OSD) and Department of the Army due to budget priorities and constraints, but notes that the request for the CH–47F Block II Chinook helicopter program is inconsistent with the Consolidated Appropriations Act, 2021 (Public Law 116–260) and Consolidated Appropriations Act, 2020 (Public Law 116–93) with respect to expectations for the program.

The Chief of Staff of the Army has previously certified the need for this capability and identified CH–47F Block II funding on the Army's unfunded priorities list for fiscal year 2022. Given the importance of the Chinook as the Army's only medium-lift capability, the committee expects OSD to fund the CH–47F Block II program in the fiscal year 2023 budget request and future years defense program.

DDG(X) acquisition strategy

The committee urges the Secretary of the Navy to implement an acquisition strategy for the next Large Surface Combatant, known as DDG(X), based on a collaborative design, development, and production approach between the Government and industry.

The committee notes many recent Navy shipbuilding programs, including the DDG 1000 and Littoral Combat Ship programs, experienced significant cost increases, program delays, and reliability issues due to flaws in the earliest acquisition strategies.

Accordingly, the committee believes it is critical that the Navy work closely with industry to ensure appropriate design and technical maturity in developing lead ship acquisition strategies. The committee further believes that the DDG(X) acquisition strategy should be modeled on and leverage the best practices of the *Columbia*–class Integrated Product and Process Development (IPPD) contract with integrated lines of effort in design, technology maturation, and construction. Furthermore, the committee views the technology maturation initiatives contained in section 124 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92) as key elements in the DDG(X) acquisition strategy.

The committee directs the Secretary of the Navy to submit a report to the congressional defense committees with the fiscal year 2023 budget request that describes the extent to which the Navy will utilize an IPPD-type acquisition strategy for the DDG(X) pro-

gram. This report shall describe the following lines of effort and how they will be integrated from fiscal year 2023 through fiscal year 2040: (1) Ship design, including concept, preliminary, and detailed; (2) Hull form design and selection; (3) Combat systems, including lessons learned from DDG–125 Combat Systems Ship's Qualification Trials; (4) Hull, mechanical and electrical systems, including the land-based testing required under section 131 of the National Defense Authorization Act for Fiscal Year 2020; and (5) Construction, including the transition from production of the Flight III DDG–51 program to the DDG(X) program.

DDG–51 destroyer multi-year procurement

The committee continues to support the national policy of achieving at least a 355-ship fleet, as codified in the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91), which is integral to the National Defense Strategy and its emphasis on near-peer competition with Russia and China.

The committee views DDG–51 destroyers as the backbone of the surface fleet, providing multi-mission flexibility and increasing capability with introduction of Flight III and the AN/SPY–6 radar. With plans for construction of a new class of Large Surface Combatants (LSCs) toward the end of this decade and the current multi-year procurement of DDG–51s ending in fiscal year 2022, the committee believes that it is imperative that the Navy award another DDG–51 multi-year contract beginning in fiscal year 2023. This contract is critical to ensuring that Flight III capability continues to be delivered to the fleet and the industrial base is maintained to support the LSC acquisition strategy.

Accordingly, the committee urges the Secretary of Defense and the Secretary of the Navy to make all necessary plans to award another multi-year contract for DDG–51 Flight III destroyers in fiscal year 2023 and include the optimal associated funding profile for economic order quantity material, long lead time material, and full funding in the Department of Defense's fiscal year 2023 budget request.

Development of land-based long-range hypersonic weapons

The committee is encouraged by the speed with which the Army is working to field an initial land-based long-range hypersonic weapons capability in fiscal year 2023. Options posed by the United States deploying long-range hypersonic strike capability in multiple domains present dilemmas to potential adversaries and can strengthen deterrence by injecting complexity and uncertainty into the decision processes of strategic competitors.

The committee encourages the Army to accelerate development and fielding of the initial Long-Range Hypersonic Weapons (LRHW) batteries where possible, with the understanding that initial prototype-developed missiles that will be fielded will cost more than subsequently-acquired ones. To better understand future costs and inform future decisions, the committee directs the Army to refine the cost estimate for additional currently-designed hypersonic glide body missiles that are to be acquired. Additionally, the committee directs the Army to assess alternatives to the current LRHW missile, to include lower-cost alternative glide bodies and

air-breathing hypersonic technologies and to provide a briefing on the assessment to the Senate Armed Services Committee not later than January 15, 2022.

Extended Range Cannon Artillery acquisition report

The committee supports the Army's efforts to increase the range and lethality of cannon artillery in order to address being outranged by currently fielded systems of strategic competitors. The committee notes that the Extended Range Cannon Artillery (ERCA) system incorporates a number of developmental technologies, including an extended range cannon tube and advanced munitions, grafted to a modified Paladin howitzer currently in production.

As such, the committee directs the Secretary of the Army to provide a report, not later than February 28, 2022, to the Senate Armed Services Committee on ERCA acquisition. The report shall include an assessment and certification of platform mobility and survivability, cannon tube sustainability, and propellant and munition suitability to meet operational requirements under operational conditions. The report shall also include an assessment of the capability, capacity, and benefits of leveraging commercial defense industrial base infrastructure and expertise to assemble the ERCA platform.

Improved Turbine Engine Program

The committee commends the Army's continued development of the Improved Turbine Engine Program. This program is designed to develop a more fuel efficient and powerful engine to upgrade and enhance the performance and operational readiness of the current Black Hawk and Apache helicopter fleets. Importantly, it will also serve as the Government-furnished engine for the Future Attack Reconnaissance Aircraft program, the Chief of Staff of the Army's priority Future Vertical Lift effort. This program represents a cost-effective approach to modernizing Army aviation, and the committee encourages the Army to pursue opportunities to accelerate the fielding of this capability.

Joint Surveillance and Target Attack Radar System modifications

The Air Force intends to replace the capability now provided by the Joint Surveillance and Target Attack Radar System (JSTARS) with the Advanced Battle Management System, a component of the Combined Joint All Domain Command and Control, or CJADC2, a Department of Defense (DOD) effort to digitally connect all elements of the U.S. military—from sensors to shooters—across all five warfighting domains: air, land, sea, space, and cyberspace. The committee fully supports modernization of the JSTARS capability, but believes that the Air Force needs to maintain the current aircraft and make prudent upgrades to the current JSTARS systems until a replacement capability is available. The committee continues to be concerned by the Air Force's lack of progress on sustainment and modification of JSTARS. In a recent report to the congressional defense committees, the Air Force described plans for modernizing JSTARS. While those efforts would have fallen short

of modernizing important systems, the budget request for fiscal year 2022 would not even execute those plans for ensuring that combatant commander requirements are met. Despite existing legislation to the contrary, the budget request proposes to retire four JSTARS aircraft and underfund modernization of the aircraft that would remain in service. In particular, the erratic funding profile for the Bandwidth Efficient Common Data Link (BE–CDL) and the flat funding profile of the Mobile User Objective System (MUOS) do not provide any confidence that a reasonable acquisition strategy is in place, nor do they satisfy mandated timelines. Furthermore, the report provides no plans to satisfy the DOD mandate to replace JSTARS' HAVE QUICK II radios with Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN) radios by October 1, 2024.

Therefore, the committee directs the Secretary of Defense to submit a report to the congressional defense committees not later than November 30, 2021 with: (1) Funding profiles and associated schedules to implement these critical capabilities on the E–8C as expeditiously as possible; and (2) Any necessary changes to the E–8C program management structure to ensure those plans are executed.

Long range strike

The committee remains supportive of a mix of options across multiple domains for combatant commanders in support of joint long range targeting and effects. The committee is concerned that the probability of decreasing budgets has the potential to drive Hobson's choices with respect to long range strike.

Therefore, not later than March 15, 2022, the Secretary of Defense shall submit to the congressional defense committees a report assessing the long range strike capabilities of the Department of Defense on a cost-per-effect basis, including the ability to strike with precision over long ranges and providing the requisite volume of fires, for purposes of maximizing combat power within the overall defense budget. Additionally, the report shall provide a cost-informed strategy that addresses requirements for fires across domains and aligns with the Joint Warfighting Concept.

Machine gun capability gap study

The committee is concerned that there is a gap in capability between current medium and heavy machine guns in terms of range, terminal effects, and weight, which anecdotal evidence from operational employment of currently fielded capabilities has highlighted. The committee supports Army efforts to address a similar gap in rifles and automatic rifles for close-combat formations through the development and fielding of the Next Generation Squad Weapon. The committee is aware of machine gun capability that exists between the current M240 medium and M2 heavy machine gun that may address range and lethality shortcomings of current medium machine guns at soldier-borne weight.

Therefore, the committee directs the Secretary of the Army to conduct a comparative study of machine gun capability in this category of munitions. The study shall include, at a minimum, a comparative analysis between M2 .50 caliber, M240 7.62mm, and .338 Norma Magnum capabilities, focused on the metrics of range,

lethality, weight, cost, and ability to incorporate advanced optics. Where possible, the Army shall consider incorporating data yielded from testing by U.S. Special Operations Command to minimize duplication of effort. The Secretary shall provide a briefing on the study to the Senate Armed Service Committee not later than March 31, 2022.

Mobile Protected Firepower

The committee understands the importance of the Army's efforts to procure a light tank for Infantry Brigade Combat Teams (IBCTs). The Army has recognized that IBCTs need dedicated large-caliber direct-fire weapons support in a lighter protected platform that offers greater tactical mobility and air transportability. The committee understands the Army is committed to the Mobile Protected Firepower (MPF) program as one of its signature modernization efforts because it significantly increases the lethality, survivability, and flexibility of infantry formations not organically equipped with Bradleys or Strykers.

The committee notes that the Army's fiscal year 2022 budget request included the first year of procurement funding for the MPF program. Given the importance of the program, the committee encourages the Army to execute the program without delay.

Modernizing Army short-range air defense capabilities

The committee continues to note the Army's efforts to reconstitute its short-range air defense (SHORAD) systems. Of the capabilities tested, the Army has decided on an Initial Maneuver SHORAD (IM–SHORAD) system consisting of a Stryker vehicle equipped with multiple air defense weapons, including legacy missiles. The Army plans to begin fielding IM–SHORAD vehicles in fiscal year 2021. While the committee applauds the Army's efforts to date, it remains concerned that potential adversaries, such as Russia and China, have developed new aircraft and unmanned aerial systems with operational speeds that can quickly close on U.S. ground forces. The committee believes that there is an unmet requirement to engage hostile air assets at greater ranges to protect U.S. and allied ground forces.

The committee therefore directs the Secretary of the Army, not later than February 16, 2022, to provide a report to the Committees on Armed Services of the Senate and the House of Representatives on the Army's efforts to reconstitute its SHORAD systems to meet current and future air threats to ground forces. This report shall be comprehensive and address issues including, but not limited to: (1) The Army's prioritization level for modernizing SHORAD systems; (2) Whether the Army is allocating sufficient funds for SHORAD systems; (3) How the Army's efforts will address emerging air threats, including an analysis of propulsion technologies available to extend the range of legacy missiles; and (4) Whether the planned force structure of IM–SHORAD units is sufficient to meet Army requirements.

Multi-spectral sensor detection mitigation for body armor and individual equipment

The committee notes that multi-spectral sensor detection is an emerging threat on the battlefield as near-peer competitors and non-state actors gain access to advanced thermal imagers. Given recent developments in sensor technologies, their increasing proliferation, and the incorporation of multi-spectral sensor detection mitigation in combat uniforms, the committee is concerned the military services are not developing multi-spectral sensor detection mitigation capabilities in body armor and individual equipment.

Therefore, the committee directs the Secretary of the Army, in coordination with the Secretary of the Navy and the Secretary of the Air Force, to conduct a feasibility study on incorporating multi-spectral sensor detection mitigation technologies into body armor and individual equipment. The Secretary of the Army shall provide a briefing on the study to the congressional defense committees not later than December 1, 2021.

Paladin Integrated Management acquisition strategy

The committee is concerned by the substantially reduced modernization investment in enduring combat vehicle platforms that comprise the Army's Armored Brigade Combat Teams (ABCTs), including the Paladin Integrated Management (PIM) armored, self-propelled howitzer. Faced with difficult budgetary choices, the Army prioritized funding its highest modernization priority efforts at the expense of continuing timely modernization of enduring ABCT combat vehicle platforms, supporting tactical wheeled vehicles, and munitions.

PIM, which is the Army's program to modernize ABCT organic artillery, was significantly impacted by this budget-driven approach. The President's budget request for fiscal year 2022 reduced PIM production to nearly half the quantities programmed for in the fiscal year 2021 budget request. This reduction would not only slow modernization of ABCT organic artillery by nearly half, it would strain production lines and suppliers, and would increase the per vehicle-set cost of PIM by 17 percent due to the reduced quantities.

Elsewhere in this Act, the committee adds $199.5 million for PIM production to address the Chief of Staff of the Army's unfunded priorities list and achieve procurement quantities that avoid nearly $50.0 million in additional costs of ordering at the reduced budget request level. For future years, the committee is concerned that the Army may not program sufficient quantities to achieve its modernization plan and economic production rates that provide best value for the Army.

The committee directs the Secretary of the Army to provide a briefing, not later than February 15, 2022, on the planned acquisition strategy for PIM. The briefing shall include procurement quantities through the future years defense program, quantities required to complete planned modernization of both the Regular Army and National Guard units, quantities required to realize economic production rate savings, and quantities required to ensure industrial base minimum sustainment requirements. The briefing shall also include an assessment of the merits of requesting multiyear production authority and an assessment of how co-lo-

cated production of Extended-Range Cannon Artillery with PIM production could help address industrial base minimum sustainment requirements and provide economic benefits to the Government.

RC–135 Rivet Joint

The committee recognizes the RC–135 fleet's role in Great Power Competition and vital contributions to understanding adversary intent and capabilities across a range of military operations. The committee also acknowledges that the Air Force's report on unmet intelligence, surveillance, and reconnaissance (ISR) requirements in connection with the RC–135 Rivet Joint aircraft and that combatant commanders' demand for the RC–135's unique capabilities exceeds the current fleet's capacity. Further, to increase RC–135 aircraft availability, the Air Force has been prioritizing the restoration of operational capabilities lost as a result of the March 2019 Offut Air Force Base floods as the primary line of effort. The committee understands that replacing the current NC–135 test aircraft with an aircraft equipped in an operationally representative configuration could help reduce RC–135 depot maintenance timelines and materially improve overall aircraft availability. Accordingly, the committee directs the Secretary of the Air Force to provide a briefing to the congressional defense committees, not later than February 1, 2022, on the costs and benefits of available options for replacing the NC–135 test aircraft with an aircraft in an operationally representative configuration.

Report on Agile Combat Employment

Agile Combat Employment (ACE) is an operational concept that is meant to leverage networks of well-established and austere air bases, multi-capable airmen, pre-positioned equipment, and airlift to rapidly deploy, disperse, and maneuver combat capability throughout a theater. Paired with aircraft fueling, arming, and limited maintenance activities, ACE expands the number of bases from which the U.S. military can generate combat sorties. The committee believes the Air Force needs to apply ACE to U.S. Indo-Pacific Command, U.S. European Command, and to operations within the United States. The United States used to have more options for operating and launching strategic forces, but many of those options have vanished due to base closures, neglect, and crumbling infrastructure. The few that remain viable will likely follow suit unless they are maintained and exercised. ACE exercises also provide more opportunities to train multi-capable airmen and exercise ACE planners without the added expense of and foreign dependence on an overseas exercise. There are locations within the continental United States (CONUS) and Alaska that have the necessary runway and infrastructure, but also have the absence of existing bomber or fighter units, thereby allowing austere training while mitigating risk. Additional ACE exercises in North America would ensure the ACE concept is actually executed proficiently, and not just talked about in academic settings.

Therefore, the committee directs the Secretary of the Air Force, in consultation with the Secretary of the Navy, to provide to the congressional defense committees not later than January 31, 2022,

a report describing the feasibility of ACE exercises in the Pacific, Europe, and within the CONUS and Alaska. The report shall include any currently scheduled ACE exercises within the CONUS or elsewhere. The report shall also include a list of requirements for a base or location to be used in an ACE exercise, to include a breakdown of requirements for various types of exercises such as nuclear bomber exercises, conventional bomber exercises, and fighter exercises. Finally, the report shall include a list of those bases and locations currently meeting such requirements and those that could do so with minor modification.

Report on cryptographic modernization and resiliency of communications systems

The committee remains supportive of the Department of Defense's efforts to develop technology in support of Joint All domain Command and Control (JADC2). However, the committee is concerned with the budgeting and execution of the communications programs critical to the realization of JADC2. Specifically, the committee is concerned with the progress of the cryptographic modernization program effort across the entire Department and the broad use of commercial off-the-shelf technology that may not provide required capabilities when faced with a near-peer adversary. Therefore the committee directs the military service chiefs to provide a report, not later than February 1, 2022, to the congressional defense committees that details the cryptographic modernization strategy of each applicable program, including cost, schedule, and funded and unfunded requirements.

Additionally, the report shall detail how all communications systems fielded or in development will meet the requirements of section 168 of the National Defense Authorization Act for 2020 (Public Law 116–92), including how the Department's use of commercial off-the-shelf capability will achieve the resiliency required in that statute.

Report on enhanced night vision and visual augmentation devices

The committee supports the continued development and fielding of advanced night vision devices and visual augmentation systems and recognizes these systems provide a critical capability to fight, rehearse, and train in all expected combat conditions. The committee further notes that the Army has several advanced night vision or visual augmentation devices in development or fielding, and that these devices have different capability with respect to optical acuity, visual augmentation, network integration, physical dexterity, and power consumption.

The committee directs the Secretary of the Army to provide a report to the congressional defense committees, not later than February 28, 2022, on an updated assessment and distribution plan for enhanced night vision and visual augmentation devices, based on developmental outcomes, differing capabilities, and operational testing of these devices. The updated plan shall include: (1) The basis of issue of the devices within close-combat formations and supporting forces; (2) The rationale for the basis of issue based on anticipated mission requirements; (3) A battery management strat-

egy based on assessed power consumption for anticipated missions; (4) Acquisition objectives and funding profiles based on the updated basis of issue and distribution; (5) Details on how the Army plans to ensure competition amongst night and augmented visual systems from multiple suppliers, to include both traditional and commercial suppliers; and (6) Any other matters the Secretary considers relevant.

Report on excess military equipment

The committee recognizes the potential use of divested Department of Defense equipment to provide additional capabilities to foreign partners. Therefore, the committee directs the Secretary of Defense to provide a report to the congressional defense committees not later than March 15, 2022, regarding potential excess military equipment, particularly combat aircraft, scheduled for decommissioning that could be transferred under the Excess Defense Articles program of the Defense Security Cooperation Agency to foreign partners, including Taiwan.

Report on personnel parachute and cargo management inventory acquisition decisions

The committee remains concerned that the Army is developing an interim parachute management system that is slated to be replaced by a program of record in the 2027 timeframe. The committee acknowledges receipt of the report on Personnel Parachute and Cargo Management Inventory, required by the committee report accompanying H.R. 6395 (H. Rept. 116–442), the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, as passed by the House of Representatives, which the Army provided to the committee on January 8, 2021. The report concluded that the existing paper-based system used by parachute riggers is inadequate. The report then explained the Army's approach to addressing the shortcomings of the current system. The report states that the Army conducted market research on available systems and used the information to "further define the future state considerations and capabilities."

The committee notes that the report only indicates that the Army conducted an "informal assessment" of available systems and that the report does not conclude that the commercially available systems do not meet the Army's requirements. The committee further notes that there are commercial off-the-shelf (COTS) systems being used in several military installations.

The committee directs the Secretary of the Army to provide a briefing to the congressional defense committees not later than February 28, 2022, that explains:

(1) The projected cost of the Mobile Asset Tracker-Automated Parachute Management (MAT–APM);

(2) How does the MAT–APM capability meet joint service requirements;

(3) Which Army organization is the proponent for the requirement;

(4) Whether the Army conducted a business case analysis comparing the cost of developing a Government solution and

deploying an interim solution for parachute management with the cost of a COTS system;

(5) How the Army determined that currently available commercial systems do not meet the Army's Enterprise materiel asset tracking requirements at the tactical level;

(6) How the Army determined that a Government development effort is necessary; and

(7) Whether the Airborne Board was consulted before the Army decided to embark on this development effort and if the Board was informed that there is a program of record slated to replace the interim system within a few years.

Report on training of military pilots

The committee is aware of various pilot shortfalls throughout the services and is concerned that the requirement to produce pilots may be driving multiple efforts across the services to increase production without ensuring that the quality of the pilot training graduates improves or at the very least remains unchanged.

Therefore, the committee directs the Secretary of the Air Force and the Secretary of the Navy to conduct a study and provide a report to the congressional defense committees not later than June 1, 2022 on the efficacy and efficiency of the various pilot training initiatives and pilot programs being undertaken by the services with respect to the quality of graduates. Additionally, the study shall include whether the current number of pilot training bases are adequate for the required pilot production by service and an analysis of vertical takeoff and landing pilot training and provide recommendations on the most effective way to train pilots in these hybrid aircraft. The committee directs the Secretaries to provide an interim briefing to the congressional defense committees on the findings of the study not later than March 1, 2022.

Soldier Enhancement Program

Since the Congress created the program in 1990, the Soldier Enhancement Program (SEP) has served as an effective process designed to help the Army move at "the speed of industry" by evaluating existing prototypes or commercially available items that could enhance soldiers' ability to execute their combat mission. SEP continues to serve a unique and critical function in enabling the accelerated evaluation and procurement of off-the-shelf items that have the potential to substantially improve weapons and support equipment that are focused on critical war-fighting functional areas of fires, mission command, movement and maneuver, sustainability, and protection. The committee notes that SEP has transitioned to Army Futures Command. The committee commends the Army for reestablishing committed funding in the fiscal year 2022 budget and encourages the Army to continue its commitment to this critical program.

Soldier load management strategy update

The committee notes that fielding of advanced capabilities, such as enhanced night vision, visual augmentation systems, and associated networking radios and batteries, are adding weight to the soldier load. The weight and configuration of these advanced capabili-

ties, when added to standard mission combat loads that include weapons, ammunition, armor, and other mission equipment, have the potential to negatively impact soldier performance and small unit effectiveness and soldier agility in contact. The committee recognizes the Army's prior holistic effort to manage soldier load but believes the proliferation of advanced technologies in close-combat units and emerging small-unit supporting platforms warrants reexamination of soldier load.

The committee directs the Secretary of the Army to provide a briefing to the Senate Armed Services Committee not later than February 15, 2022, on an updated assessment and strategy for management of the combat load for close-combat units including load carrying equipment that is appropriate for the "last tactical mile" and subterranean operations. The assessment shall describe how the U.S. Army Special Operations Command and U.S. Army Maneuver Center of Excellence are addressing the issue and provide a description and status of load carrying platforms the Army is examining and planned procurements and fielding or deployment of these platforms. The assessment shall address weights associated with advanced technologies, batteries, and peripheral equipment as well as incorporate anticipated weights and planned reductions for weapons, ammunition, armor, and other soldier items.

Tactical and combat vehicle electrification

The committee directs the Secretary of the Army to provide a briefing to the congressional defense committees by January 31, 2022, on the status of the tactical and combat vehicle electrification (TaCV–E) initial capabilities document (ICD) and electric light reconnaissance vehicle (eLRV) rapid prototype program. The briefing shall include, but not be limited to: courses of action to accelerate eLRV to include funding requirements and engagement strategies with the commercial industrial base and how the Army and U.S. Special Operations Command (SOCOM) are communicating and coordinating on vehicle electrification technology development to include test and evaluation strategies.

The committee understands the Army is currently developing a TaCV–E ICD that is expected to provide the operational requirements foundation for electrification of the Army's ground vehicle fleet. The committee understands the TaCV–E ICD will provide opportunities for new starts and electrification modification of existing vehicles. The committee also notes the Army's eLRV program is a rapid prototyping effort to facilitate the development of an all-electric tactical vehicle through the use of experimentation and soldier touch points that would also help inform the TaCV–E initiative.

The committee supports the TaCV–E plan and the eLRV effort and encourages the Army to sufficiently fund these efforts. The committee is aware the automotive industry is aggressively moving forward with electrification of commercial automotive technologies to include advanced battery technology development and believes the Army should fully leverage these technologies through the appropriate use of acquisition reform initiatives to engage with non-traditional industry partners to help accelerate eLRV prototype development. The committee encourages the Army to also consider

potential operational exportable power generation benefits of electrification modifications of existing tactical vehicles, such as the infantry squad vehicle, as part of the eLRV effort where operationally feasible and appropriate. In addition, the committee is also aware of similar efforts being considered by SOCOM.

U.S. Southern Command requirements

The committee notes that U.S. Southern Command (SOUTHCOM) is responsible for deterring aggression, defeating threats to enhance U.S. security, and defending the U.S. Homeland and national interests. Although the SOUTHCOM area of responsibility (AOR) is important to national security, the Department of Defense is required to make difficult choices among the various combatant commands in allocating forces in peacetime through the Global Force Management Allocation Plan (GFMAP). The committee understands that SOUTHCOM does not always receive a high priority in the GFMAP allocation.

The committee would like to better understand what additional resources might be required to support SOUTHCOM priority requirements. Therefore, the committee directs the following reports to be submitted to the congressional defense committees with the budget request for fiscal year 2023: (1) A report from the Chairman of the Joint Chiefs of Staff that identifies the range of forces that would be appropriate to allocate to SOUTHCOM were additional forces available; and (2) A report from the Chief of Naval Operations (CNO) that identifies options for assigning additional forces, such as ships and aircraft, to the SOUTHCOM naval component, the United States 4th Fleet. The CNO's assessment shall consider the potential use of ships and aircraft scheduled to be decommissioned and address specific needs to sustain the presence of Navy vessels assigned to the SOUTHCOM AOR.

Warm Isostatic Press for manufacture of body armor

The committee recognizes that composite armor raw material performance has improved, but current industry manufacturing capabilities cannot maximize the capability of the advanced materials. The committee notes that using a Warm Isostatic Press (WIP), vice uni-axial presses currently in use, may have the potential to reduce the weight of body armor by nearly 30 percent at the same ballistic protection level and permit manufacture of compound body armor shapes for differing human profiles.

Therefore, the committee directs the Secretary of the Army to conduct an assessment of the utility and potential strategy for establishing a domestic WIP capability for the purpose of producing lighter weight, higher protection, lower profile body armor and lightweight aviation armor components. The assessment shall include, but not be limited to: an assessment of the potential benefits of using a WIP in the manufacture of body and lightweight aviation armor; potential strategies for establishing a domestic WIP capability for the production of body armor, including Government-funded and public-private shared funding approaches; and respective costs of the potential strategies. The Secretary shall provide the committee, not later than March 1, 2022, a briefing on the assessment.

TITLE II—RESEARCH, DEVELOPMENT, TEST, AND EVALUATION

Subtitle A—Authorization of Appropriations

Authorization of appropriations (sec. 201)

The committee recommends a provision that would authorize the appropriations for research, development, test, and evaluation activities at the levels identified in section 4201 of division D of this Act.

Subtitle B—Program Requirements, Restrictions, and Limitations

Increase in allowable rate of basic pay for certain employees of Defense Advanced Research Projects Agency (sec. 211)

The committee recommends a provision that would authorize the Director of the Defense Advanced Research Projects Agency (DARPA) to pay additional compensation to technical program managers to support DARPA's mission of funding and managing high-risk, high-reward research, development, and prototyping activities to support the National Defense Strategy. The committee notes that these individuals are uniquely qualified to develop and manage research programs in emerging sectors, such as artificial intelligence, biotechnology, robotics, and hypersonics. The committee further notes that the provision serves to also reduce the bureaucratic burden and complexity of the processes required to pay these individuals under current authorities, improving auditability and reducing the risk of errors.

Additional mission areas for mechanisms for expedited access to technical talent and expertise at academic institutions by Department of Defense (sec. 212)

The committee recommends a provision that would add additional topics to the areas authorized for the Secretary of Defense and the Secretaries of the military departments to establish streamlined and expedited contracting mechanisms to better access critical talent. The committee notes that the National Security Commission on Artificial Intelligence's Final Report highlighted the importance of research security and integrity.

Modification of other transaction authority for research projects (sec. 213)

The committee recommends a provision that would remove the requirement for regulatory implementation of Other Transaction (OT) Authority for research projects under section 2371 of title 10,

United States Code, and replace it with the more flexible option of Department of Defense (DOD) guidance.

The committee notes that the existing regulatory requirement was established at a time when DOD was slow to issue any type of guidance to the workforce on the use of OTs. Since then, DOD has become much more proactive in its guidance. For example, the Office of the Director, Defense Pricing and Contracting, issued a comprehensive OT Guide in December 2018 that it is currently in the process of updating; the Defense Acquisition University has been providing training and education materials online about the proper use of OTs; and the DOD Grants and Agreements Regulations Working Group under the Office of the Undersecretary of Defense for Research and Engineering is developing a Research OT Guide to provide additional guidance on the unique aspects of OTs awarded under section 2371 of title 10, United States Code.

Artificial intelligence metrics (sec. 214)

The committee recommends a provision that would require the Secretary of Defense to review, not later than 180 days after the date of the enactment of this Act, the potential applications of artificial intelligence (AI) and digital technology to Department of Defense platforms, processes, and operations. The provision would also require the establishment of performance objectives and accompanying metrics for the incorporation of AI and digital readiness into Department of Defense platforms, processes, and operations.

The provision would also require the Secretary to direct the heads of the military departments and components of the Department to conduct a review of skill gaps in the fields of software development, software engineering, knowledge management, data science, and AI. Further, the provision would require the Secretary to develop performance objectives and accompanying metrics related to AI research and development; exercises, wargames, and experimentation; logistics and sustainment; innovation initiatives; and business AI applications.

The provision would also require the Secretary to submit a report on the findings of the review as well as the performance objectives and accompanying metrics established to the congressional defense committees not later than 120 days after the completion of the review.

The committee notes that the final report of the National Security Commission for Artificial Intelligence highlights the establishment of AI and digital readiness performance goals as an important step to achieving a state of military AI readiness by 2025. The committee believes that it is important for the Department to ensure that the workforce contains the skillsets required to adopt these emerging technologies.

Modification of the Joint Common Foundation Program (sec. 215)

The committee recommends a provision that would require the Secretary of Defense to modify the Joint Common Foundation (JCF) program conducted by the Joint Artificial Intelligence Center (JAIC) to ensure that Department of Defense (DOD) Components

can easily contract with leading commercial artificial intelligence (AI) companies to support the rapid and efficient development and deployment of applications and capabilities.

The committee does not intend for the Secretary to halt or otherwise disrupt the ongoing JCF program that is already under contract. Rather, the intent is for the Secretary to establish parallel processes as necessary to ensure that leading commercial providers of AI platforms, services, tools, testing capabilities, and software algorithms and algorithm development capabilities are contractually available to DOD Components. The committee notes that commercial industry already provides a robust and competitive marketplace for supporting AI development and that this industry will continue to outstrip any custom solution that the DOD could build. Taking advantage of this vibrant, competitive commercial industry will save money and time, and ensure that DOD Components have access to the best technology available.

The committee intends that the JCF's commercial participants are able, as necessary and appropriate according to the role they play in DOD Components' development activities, to participate in programs like PlatformOne to qualify as DevSecOps software factories certified for automatic authority to operate and continuous delivery.

The committee furthermore intends that the JAIC JCF program office provide assistance to DOD Components to enable components to select and contract with the most suitable commercial vendors to support their AI initiatives. The JCF role should be to enable DOD Components to focus their attention and resources on the development of AI applications based on the components' domain expertise, data, and operational challenges.

Executive education on emerging technologies for senior civilian and military leaders (sec. 216)

The committee recommends a provision that would direct the Secretary of Defense to establish executive education activities on emerging technologies for appropriate senior civilian and military leaders. The provision would also require the Secretary to provide a report on the status of implementing such activities to the Committees on Armed Services of the Senate and the House of Representatives not later than 3 years after the date of the enactment of this Act.

The committee notes that section 248 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) directed the Secretary of Defense to carry out a pilot program on self-directed training for Department of Defense civilians and military members in advanced technologies, such as artificial intelligence, data science, machine learning, fifth-generation telecommunications technology, and biotechnology. The committee believes that education on advanced technologies remains particularly useful for senior civilian and military leaders. The committee encourages the Department to take a comprehensive look at who should be required to complete this training to benefit people in non-technical positions whose functions are increasingly being affected by technological change.

The committee also notes that the National Security Commission on Artificial Intelligence's Final Report highlights the need for senior civilian and military leaders to understand relevant technologies and how these technologies may be applied to military and business outcomes in the Department of Defense. The committee believes that increasing the awareness of emerging technologies and their applications to the warfighter is critical in building future warfighting concepts and that developing a short course to routinely inform senior decision makers is an important step towards increasing artificial intelligence capabilities within the Department.

Improvements relating to national network for microelectronics research and development (sec. 217)

The committee recommends a provision that would make improvements to the national network for microelectronics research and development originally authorized under the Creating Helpful Incentives to Produce Semiconductors for America (CHIPS) Act, Title XCIX, section 9903(b) of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283). The provision would mandate the establishment of the microelectronics research network, given that the committee believes that the Department of Defense is reluctant to use the permissive authority provided in the CHIPS Act to establish the envisioned research network.

The committee notes that while ongoing Department of Defense research activities, including the Defense Advanced Research Projects Agency Electronics Resurgence Initiative, are important elements of a comprehensive strategy to restore U.S. superiority in the development of next generation microelectronics capabilities and establish commercially viable microelectronics production capabilities in the United States, they are not completely responsive to the mandates of the CHIPS Act. The provision would clarify that the network be established with multiple geographically diverse entities, if possible. The committee stresses the importance of making the process of moving microelectronics research innovation from laboratories to fabrication facilities more effective.

Activities to accelerate domestic quantum computing capabilities (sec. 218)

The committee recommends a provision that would require the Secretary of Defense to establish a set of activities to accelerate the development and deployment of a large-scale, dual-use quantum computing capability and to ensure the Department of Defense consistently has access to state-of-the-art quantum computing capabilities. The provision would also require annual reports through December 31, 2026.

The committee directs the Director of the Defense Advanced Research Projects Agency to develop an acquisition strategy ensuring that funding decisions are made considering technical merit and return on investment to both the Government and the private sector; encouraging private sector cost share of investment; and using a phased and gated development and procurement approach to manage and control technical risk. The committee directs the Director

to provide a briefing to the congressional defense committees on the acquisition strategy not later than March 1, 2022.

Pilot programs for passive telecommunications infrastructure to facilitate installation 5G deployment (sec. 219)

The committee recommends a provision that would require the Secretaries of the military departments to establish pilot programs for the deployment of passive telecommunications infrastructure to facilitate the deployment of fifth-generation (5G) wireless telecommunications on military installations. The provision would also require the Secretaries of the military departments to submit regular reports on their respective pilot programs to the congressional defense committees.

The committee expects that the infrastructure deployments will be financed by private sector partners and offered to carriers as a shared resource, which could become a model to reduce the cost and increase the pace of 5G wireless deployment.

National Guard participation in microreactor testing and evaluation (sec. 220)

The committee recommends a provision that would allow the Secretary of Defense, in coordination with the Director of the Strategic Capabilities Office and the Chief of the National Guard Bureau, to assemble a collection of National Guard units to participate in the testing and evaluation of a micro nuclear reactor program.

Limitation on transfer of certain operational flight test events and reduction in operational flight test capacity (sec. 221)

The committee recommends a provision that would prohibit the transfer of operational flight test events to nontest-designated units until such time as the Director of Operational Test and Evaluation, in consultation with the Secretary of the Navy, has certified that the use of nontest-designated units to conduct flight testing will not have any appreciable effect on program cost or schedule, nor on the ability to complete testing effectively.

Limitation on availability of funds for the High Accuracy Detection and Exploitation System (sec. 222)

The committee recommends a provision that would limit Army obligations for the High Accuracy Detection and Exploitation System (HADES) portion of the Multi-Domain Sensing System (MDSS) pending certain certifications from the Vice Chairman of the Joint Chiefs of Staff.

The committee notes that the Army is planning to develop and field a new intelligence, surveillance, and reconnaissance (ISR) system—the MDSS. The Army believes that the HADES portion of MDSS will provide advanced aerial ISR capabilities to support multi-domain operations against peer and near-peer adversaries. Initial MDSS development has focused on providing indications and warnings, electronic order of battle, patterns of life, and target development for Army multi-domain operations in both competition and conflict. Development efforts have also focused on ensuring MDSS is globally deployable and can operate at extended ranges

to improve survivability against enemy air defenses in a conflict. The Army plan is to deploy the MDSS on higher altitude, longer endurance fixed-wing aircraft that can provide effective standoff from enemy anti-access/area denial systems. The Army believes these capabilities will enable ground commanders to detect, locate, identify, track, and target critical enemy assets on the ground, supporting Army tactical consumers like long-range precision fires.

The committee supports Army efforts to modernize and reorganize for competition and, if necessary, conflict with strategic competitors and understands the need to support targeting of threat long-range fires and air defense systems. However, the committee has concerns about the ability of the manned, fixed-wing element of the MDSS to support operations in a hostile environment, and seeks assurance that a new, manned platform is the best way to achieve the Army's objectives in the pre-hostilities phase of operations.

Therefore, the committee believes that, before spending a significant amount of resources on the MDSS, the Vice Chairman of the Joint Chiefs of Staff should determine whether: (1) The HADES is a critical component of the Army's Project Convergence and is consistent with the Department of Defense's Joint All Domain Command and Control strategy; and (2) The HADES would be able to operate and provide ISR to the ground component commander at standoff distances sufficient to survive against enemy air defenses, consistent with planned operational concepts of employment.

Subtitle C—Codification and Technical Corrections

Codification of direct hire authority at personnel demonstration laboratories for advanced degree holders (sec. 231)

The committee recommends a provision that would codify the authority of the Defense laboratories to use direct hiring authorities to appoint qualified candidates with advanced degrees to work as scientists, engineers, and technical staff. The committee originally established this authority in the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009 (Public Law 110–417) and notes that it has been successfully used by the Defense laboratories to attract technical talent in areas including robotics, hypersonics, artificial intelligence, biotechnology, and other emerging technology areas.

Codification of authorities relating to Department of Defense science and technology reinvention laboratories (sec. 232)

The committee recommends a provision that would codify existing authority for the lab personnel demonstration activities that have been successfully used by Department of Defense laboratories to attract and retain an expert Federal Government technical workforce. The committee notes that these personnel authorities have enabled the laboratories to compete with the private sector for scientific and technical talent to execute the critical innovation missions assigned to the laboratories, especially in high priority

modernization areas such as artificial intelligence, biotechnology, hypersonics, and robotics.

Codification of requirement for Defense Established Program to Stimulate Competitive Research (sec. 233)

The committee recommends a provision that would codify the requirement for the Secretary of Defense to execute the Defense Established Program to Stimulate Competitive Research. The committee notes that the Department of Defense has used this program to award research funding to universities in states that traditionally receive less Department of Defense research funding, including establishing partnerships with defense laboratories, in order to expand the Department's research base and increase the pipeline of technical talent into the defense sector.

Technical correction to pilot program for enhancement of research, development, test, and evaluation centers of Department of Defense (sec. 234)

The committee recommends a provision that would make a technical correction to a pilot program on improving organizational management practices executed by defense laboratories and test centers to reflect the removal of the legislative requirement for the appointment of a Chief Management Officer and reassignment of duties to the Deputy Secretary of Defense. This change would designate the Deputy Secretary as the approving official for management flexibility changes requested by the Director of the Defense Advanced Research Projects Agency. The committee notes that the pilot program, first authorized in the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328), has resulted in the military services reducing bureaucratic and other management burdens that have impeded the efforts of laboratories and test centers to support the modernization goals of the Department of Defense.

Subtitle D—Plans, Reports, and Other Matters

Study on efficient use of Department of Defense test and evaluation organizations, facilities, and laboratories (sec. 241)

The committee recommends a provision that would require the Defense Science Board to report on options to improve the effectiveness of Department of Defense test and evaluation organizations, facilities, and laboratories.

Analysis of potential modifications to Department of Defense unmanned aerial systems categorization (sec. 242)

The committee recommends a provision that would require the Under Secretary of Defense for Acquisition and Sustainment to review the current categorization of unmanned aerial systems (UAS) to determine whether the Department of Defense (DOD) should make changes to the current categorization. Since the definition of categories as assigned by DOD may influence the differentiation in the treatment of these unmanned aerial systems under the International Traffic in Arms Regulations (ITAR) and the Missile Tech-

nology Control Regime (MTCR), the Under Secretary shall consult with the Secretary of State in reviewing the current UAS categorization.

The DOD currently categorizes UAS into five classes based on speed, maximum gross take-off weight (MGTOW), and altitude capability. The DOD has developed policies regarding training, employment, and maintenance of UAS for each of these five categories.

The committee understands that some believe the broad definition used by the DOD for Group 3 UAS (UAS between 55 and 1,320 pounds MGTOW) results in applying rules to smaller systems that are overly burdensome and result in: (1) Increased cost of ownership of smaller UAS; (2) Limits on rapid fielding of smaller UAS; (3) Discouragement of industry investment developments; and (4) Forgone advancements in UAS technology that might allow smaller Group 3 UAS to be operated in the same manner as a Group 1 or Group 2 UAS.

Digital development infrastructure plan and working group (sec. 243)

The committee recommends a provision that would require the Secretary of Defense to establish a working group on digital development infrastructure implementation. The provision would also require the Secretary, through the established working group, to develop a plan for the creation of a modern digital development infrastructure that supports state of the art tools and modern processes to enable development, testing, fielding, and continuous update of artificial intelligence-powered applications at speed and scale from headquarters to the tactical edge.

Additionally, the provision would require the Secretary to provide a report to the congressional defense committees, not later than 180 days after the date of the enactment of this Act, on the status of the plan as well as on progress assembling enterprise data sets. The committee notes that the National Security Commission for Artificial Intelligence's Final Report highlights the need for the Department of Defense to establish digital ecosystem leadership and governance. The committee believes that establishing and maintaining an open architecture, an evolving reference design, governance structure, and processes to include management and authorization for ecosystem functions and growth is an important step for the Department.

Optionally Manned Fighting Vehicle requirements analysis (sec. 244)

The committee recommends a provision that would require a report and briefing of analysis underpinning refined Optionally Manned Fighting Vehicle (OMFV) requirements prior to entering into a contract for physical prototyping of the OMFV. The report would include details of the analysis of organizational design, survivability, mobility, payload, and combat effectiveness in execution of the critical operational tasks required of fighting vehicle-equipped infantry within armor brigade combat teams.

The committee supports Army prioritization of development of the OMFV as critically needed to replace the M2 Bradley Fighting

Vehicle (BFV). The BFV has been in operational service for more than 30 years and lacks the needed growth capacity to achieve combat overmatch against advanced capabilities being fielded by strategic competitors. Furthermore, the committee supports the Army's efforts to ensure competition, assess advanced technologies, and refine requirements through the ongoing digital design phase.

Making permanent requirement for annual report by Director of Operational Test and Evaluation (sec. 245)

The committee recommends a provision that would reestablish a permanent requirement for an annual report from the Director of Operational Test and Evaluation.

Budget Items

Army

Smart thread data exchange

The budget request contained $67.0 million in Research, Development, Test, and Evaluation, Army (RDA), for PE 61103A for University Research Initiatives.

The committee notes the potential of additive manufacturing to support Army modernization priorities and provide deployable capabilities to support the production, repair, and sustainment of Army systems. The committee notes that to realize the full potential of additive manufacturing capabilities, the Army needs to develop a secure network, as well as a data architecture that supports exchange of technical data for additive manufacturing systems, accounts for intellectual property rights management, and provides connectivity to systems designers.

Therefore, the committee recommends an additional $5.0 million in RDA for PE 61103A to further the development of data exchange systems providing a secure digital engineering environment to promote use of additive manufacturing throughout the joint force.

Unmanned aircraft systems propulsion research

The budget request included $297.2 million in Research, Development, Test, and Evaluation, Army (RDA), for PE 61103A Defense Research Sciences.

The committee notes that the Army is increasingly employing unmanned aircraft systems (UAS) to perform critical missions, such as surveillance, reconnaissance, and deployment of counter measures that both augment manned systems and reduce risk to soldiers. Many current unmanned aircraft depend on foreign-made propulsion systems consisting of modified ground engines, which drive up cost while impacting performance and reliability. Research is needed to drive the design and development of next-generation UAS propulsion systems and establish a robust, sustainable domestic industrial base that can meet the military's mission-specific needs.

Therefore, the committee recommends an additional $1.5 million in RDA for PE 61103A for building a domestic research and industrial base for UAS propulsion.

University research programs

The budget request included $67.0 million in Research, Development, Test, and Evaluation, Army (RDA), for PE 61103A University Research Initiatives.

The committee recognizes it is crucial to adequately fund, resource, and structure the Department of Defense to conduct research, development, and testing activities for critical emerging technologies to stay ahead of United States adversaries, most notably Russia and China. Resources must be devoted and responsibly spent toward research and development in critical sectors, including artificial intelligence, quantum computing, hypersonics, directed energy, biotechnology, autonomy, cyber, space, 5G, microelectronics, and fully networked command, control, and communications technologies.

The committee is concerned that the balance of science and technology research in the Army is trending away from basic research, and focusing on more near-term applied research.

Therefore, the committee recommends an additional $30.0 million in RDA for PE 61103A to increase emphasis on the basic research activities performed by the Army to fuel the innovation of the Department for the future.

Ceramic material systems for extreme environments

The budget request included $64.1 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 62141A Lethality Technology.

The committee recognizes the critical threat posed by enemy hypersonic weapons. The committee notes that hypersonic interceptors experience extreme temperatures that would destroy most materials systems. As a result, ceramic materials, which have excellent high temperature performance, may be required for many hypersonic interceptor components.

The committee recommends an additional $2.5 million in RDA for PE 62141A for the development of ceramic materials and associated manufacturing processes for materials designed for these extreme environments.

Earthen structures research

The budget request included $56.4 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 62144A Ground Technology.

The committee notes the need to develop new materials, such as biopolymers, that can be used to enhance military earthen structures to meet Army requirements and reduce the military's carbon footprint.

To achieve this goal, the committee recommends an additional $3.0 million in RDA for PE 62144A for research partnerships with universities to support development of advanced biopolymers for military earthen structures.

Graphene applications for military engineering

The budget request included $56.4 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 62144A Ground Technology.

The committee notes that graphene materials show promise to support a number of defense applications including in ballistic armor and high energy density batteries. The committee notes the importance of efforts in graphene applications in multi-functional materials for force protection, new materials for power projection infrastructure, and new materials that support innovations in expeditionary water treatment and environmental sensing technologies.

Therefore, to support additional research for Army modernization priorities, the committee recommends an additional $2.0 million in RDA for PE 62144A for research on applications of graphene for military engineering.

Polar research and testing

The budget request included $56.4 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 62144A Ground Technology.

The committee notes that improving capabilities for Arctic operations is critical for national security missions. The committee notes the limited Federal investment in polar research, which results in a limited technical workforce with expertise on the environmental conditions that would impact personnel and equipment deployed to cold weather climates.

Therefore, the committee recommends an increase of $4.0 million in RDA for PE 62144A for the development of polar research and testing capabilities.

Verified inherent control

The budget request included $56.4 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 62144A Ground Technology.

The committee notes that the verification and control of the material properties of end products is critical for the trusted deployment of additive manufacturing systems to the warfighter given increasing supply chain threat and cybersecurity challenges.

Therefore, the committee recommends an additional $2.0 million in RDA for PE 62144A to support cyber-hardening of additive manufacturing systems and equipment to support validation of 3D printed systems.

Light detection and ranging technology

The budget request included $172.2 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 62145A Next Generation Combat Vehicle Technology.

The committee notes that light detection and ranging (LiDAR) technology can be used to improve situational awareness and battlefield sensing and significantly enhance warfighter preparedness and mission execution against emerging threats. The committee notes that the Army Research Laboratory has developed a microelectromechanical systems (MEMS) mirror-based LiDAR sensor for manned and unmanned vehicle applications.

Therefore, the committee recommends an additional $2.5 million in RDA for PE 62145A to support additional research on MEMS mirror-based LiDAR systems for Army applications.

Unmanned aerial systems sensor research

The budget request included $84.6 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 62146A Network C3I Technology.

The committee notes that the Department of Defense is exploring the use of multiple drones carrying different types of sensors to support precise target detection and discrimination capabilities in order to provide operational units with enhanced battlefield situational awareness.

Therefore, the committee recommends an additional $2.0 million in RDA for PE 62146A for the development of multispectral sensors for unmanned aerial systems.

Counter-unmanned aerial systems applied research

The budget request included $19.3 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 62150A Air and Missile Defense Technology.

The committee recognizes that unmanned aerial systems (UAS) present an ever-increasing threat to U.S. troops and assets. The committee notes the need for research to evaluate counter-UAS threats and develop mitigation technologies to support military operations.

Therefore, the committee recommends an increase of $5.0 million in RDA for PE 62150A to continue supporting counter-UAS research activities.

High energy laser research

The budget request included $19.3 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 62150A Air and Missile Defense Technology.

The committee notes that the current National Defense Strategy identifies directed energy as a critical technology in defense modernization activities. The development of directed energy capabilities will require numerous technical advances, including enhancing modeling and simulation and technology integration capabilities; expanding lethality testing; and improving beam control and automated detection, track, and engagement of targets.

Therefore, the committee recommends an additional $5.0 million in RDA for PE 62150A for additional high energy laser research.

High energy laser support technology

The budget request included $19.3 million in Research, Development, Test, and Evaluation, Army (RDA), for PE 62150A Air and Missile Defense Technology.

The committee notes that the Army has identified integrated air and missile defense as one of the six Army priorities for modernization. Incorporating high energy laser technology on mobile platforms holds promise to counter enemy indirect fire and missile capabilities, and can facilitate the protection of forward operating bases.

Therefore, the committee recommends an additional $5.0 million in RDA for PE 62150A to support development and testing of mobile and transportable high energy laser systems.

Kill chain automation for air and missile defense systems

The budget request included $19.3 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 62150A Air and Missile Defense Technology.

The committee supports the Army's ongoing efforts to integrate its air and missile defense systems. In order to maintain an asymmetric advantage in future warfare, the committee also supports continued research and development of incorporating artificial intelligence (AI) to improve kill chain automation for Army air and missile defense systems.

Therefore, the committee recommends an additional $8.0 million in RDA for PE 62150A to develop and demonstrate advanced kill chain automation using multi-sensor fusion for improved air and missile defense multi-target tracking, as well as AI and machine learning algorithms to improve target discrimination and defeat.

Secure computing capabilities

The budget request included $19.3 million in Research, Development, Test, and Evaluation, Army (RDA), for PE 62150A Air and Missile Defense Technology.

The committee notes that defense platforms and weapons systems rely heavily on automation, with electronic equipment and computer networks as their primary components. As these systems grow, their complexity and code size has created a larger attack surface that can be exploited by adversaries. The committee notes the Army is addressing these issues in part by demonstrating commercial software elements necessary to secure defense systems.

Therefore, the committee recommends an additional $5.0 million in RDA for PE 62150A for development of secure computing and active cybersecurity capabilities.

Military footwear research

The budget request included $11.1 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 62184A Soldier Applied Research.

The committee is aware of the work being done by the Army Combat Capabilities Development Command Soldier Center in improving the protection, survivability, mobility, and combat effectiveness of military footwear. The committee is also aware of the current investment in new performance standards that will allow the industrial base to incorporate new materials and advanced manufacturing processes in the development and production of military footwear.

Therefore, in order to ensure that the domestic military footwear industrial base can leverage new materials and innovation, the committee recommends an additional $2.5 million in RDA for PE 62184A to support additional investment in military footwear research.

Pathfinder air assault technologies

The budget request included $11.1 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 62184A Soldier Applied Research.

The committee notes the efforts of Army Futures Command to engage university researchers with soldiers to more efficiently transition research innovations into operational use.

Therefore, the committee recommends an additional $5.0 million in RDA for PE 62184A to support Army-university research partnerships exploring next generation air assault technologies.

Additive manufacturing capabilities for austere operating environments

The budget request included $23.4 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 63119A Ground Advanced Technology.

The committee notes that the Army needs a capability to build crossings and repair infrastructure and roads using native materials in the theater of operations. This reduces logistical burdens and lightens the operational load of maneuver units. Additive manufacturing and autonomous construction technologies show promise in automating contingency construction activities for the Army and reducing the risk to soldiers.

The committee recommends an additional $15.0 million in RDA for PE 63119A to continue studies and development of Army additive manufacturing capabilities for austere operating environments.

Permafrost research

The budget request included $23.4 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 63119A for Ground Advanced Technology.

The committee notes the value of research to test the mechanical properties of ice-rich soils to better understand the performance of materials, devices, systems, and infrastructure in cold weather and arctic conditions.

Therefore, the committee recommends an additional $3.0 million in RDA for PE 63119A for permafrost research activities and to modernize permafrost research facilities.

High Performance Computing Modernization Program

The budget request included $189.1 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 63461A High Performance Computing Modernization Program.

The High Performance Computing Modernization Program provides high performance computing and advanced networking capabilities for research engineering needs of the Department of Defense. The program administers supercomputing centers run by the Army, Navy, Air Force, and Army Corps of Engineers in support of science and technology, test, and evaluation, and acquisition engineering activities, as well as other Government agencies and private sector users.

Therefore, the committee recommends an additional $5.0 million in RDA for PE 63461A for the High Performance Computing Modernization Program.

Combat vehicle lithium battery development

The budget request included $165.0 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 63462A for Next Generation Combat Vehicle Advanced Technology.

The committee notes that meeting the Army's ground vehicle systems power goals requires investment in efficient manufacturing practices that are dual-use, automated, and flexible. The committee notes that next generation lithium battery technology can support improvements in the safety, fuel efficiency, systems reliability, lethality, and silent watch capability of ground vehicles.

Therefore, the committee recommends an additional $1.5 million in RDA for PE 63462A for combat vehicle lithium battery development.

Cyber and connected vehicle integration research

The budget request included $165.0 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 63462A Next Generation Combat Vehicle Advanced Technology.

The committee notes the increasing threats to military cyber-physical systems, including combat vehicles.

Therefore, the committee recommends an additional $3.5 million in RDA for PE 63462A to fund integrated academic, commercial, and Government research and testing activities to evaluate and secure vehicle systems.

Robotics development

The budget request included $165.0 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 63462A Next Generation Combat Vehicle Advanced Technology.

The committee notes that the Army is developing technologies for small unit ground robotic capabilities to support future Army missions.

Therefore, the committee recommends an additional $5.0 million in RDA for PE 63462A to support these efforts and to better integrate robotics technology development with tactical-level maneuver units and the appropriate training commands.

Command post modernization

The budget request included $155.9 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 63463A Network C3I Advanced Technology.

The committee notes that the modernization of command post systems and technologies is a priority of the Army.

Therefore, the committee recommends an additional $2.0 million in RDA for PE 63463A for the development of advanced materials and technologies for next generation command post systems to enable more mobile and survivable forward deployed units.

Network technology research

The budget request included $155.9 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 63463A Network C3I Advanced Technology.

The committee is concerned about duplication among the services in efforts to develop battlefield networks, with limited coordination

among organizations with respect to interoperability, technical standards, or considerations of the joint operating environment.

Therefore, the committee recommends a decrease of $15.0 million in RDA for PE 63463A and directs the Undersecretary of Defense for Research and Engineering to improve the coordination and reduce the duplication between service and agency network research and development programs.

Advanced guidance technology

The budget request included $93.9 million in Research, Development, Test, and Evaluation, Army (RDA), for PE 63464A Long Range Precision Fires Advanced Technology.

The committee notes that current cannon artillery is limited in range and capability in contested environments.

Therefore, the committee recommends an additional $5.0 million in RDA for PE 63464A to accelerate development and testing of advanced guidance technology for the Hypervelocity Projectile-Extended Range program.

Future Long Range Assault Aircraft

The budget request included $179.7 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 63465A Future Vertical Lift Advanced Technology.

As one of the Army's six modernization priorities, the Future Vertical Lift program is essentialto support future Army operations. The committee notes that the Future Long Range Assault Aircraft (FLRAA) is developing the next generation of affordable vertical lift tactical assault and utility aircraft for the Army.

Therefore, the committee recommends an additional $3.5 million in RDA for PE 63465A to support FLRAA program risk reduction.

Future vertical lift 20mm chain gun

The budget request included $179.7 million in Research, Development, Test, and Evaluation, Army (RDA), for PE 63465A for Future Vertical Lift Advanced Technology.

The committee notes that future vertical lift is one of Army Future Command's six major modernization priorities.

Therefore, the committee recommends an additional $5.0 million in RDA for PE 63465A to support development and demonstration of a 20mm medium caliber armament system for the Future Armed Reconnaissance Aircraft platform.

Army unfunded requirements

In accordance with section 222a of title 10, United States Code, the Chief of Staff of the Army submitted a list of unfunded requirements. The committee recommends an additional increase of about $71.5 million for items on these unfunded requirements lists.

Development of anthropomorphic armor for female servicemembers

The budget request included $17.5 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 63827A Soldier Systems—Advanced Development.

The committee notes that ill-fitting personal protective equipment is a leading cause of injury among female servicemembers, which anthropomorphic design and prototyping of such equipment can help address.

The committee recommends an increase of $2.9 million in RDA for PE 63827A Soldier Systems—Advanced Development, Project VS–4—Soldier Protective Equipment, for anthropomorphic body armor development and prototyping for female servicemembers.

Synthetic Training Environment

The budget request included $194.2 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 64121A Synthetic Training Environment Refinement and Prototyping.

The committee recommends an additional $4.6 million in RDA for PE 64121A for Multi-Sensor Terrain Data Capture and Processing for Synthetic Training Environment to use a commercial, off-the-shelf software system that can integrate the needed data from multiple sensor types (video, imagery, light detection and ranging) and process into high-resolution georeferenced three dimensional terrain models.

Electric Light Reconnaissance Vehicle

The budget request included $2.1 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 64642A, Light Tactical Wheeled Vehicles.

The Electric Light Reconnaissance Vehicle (eLRV) program effectively generates, stores, and distributes power, providing enhanced tactical and operational capabilities to the maneuver reconnaissance formation while reducing reliance on fossil fuels. The committee notes that the Chief of Staff of the Army submitted an unfunded requirement to allow for the purchase of prototypes to inform electrification performance parameters and accelerate fielding the eLRV capability.

Therefore, the committee recommends an addition of $5.6 million in RDA for PE 64642A for the eLRV program.

Active Protection Systems for Bradley and Stryker

The budget request included $106.4 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 64852A Suite of Survivability Enhancement Systems—EMD.

The committee supports an unfunded requirement that would continue to advance ongoing efforts to develop active protection systems (APS) for Bradley and Stryker vehicles.

The committee recommends an additional $21.0 million in RDA for PE 64852A Suite of Survivability Enhancement Systems—EMD, in project FE8 Vehicle Protection Suite, for further development, characterization, and urgent material release of hard-kill APS solutions for Bradley and Stryker combat vehicles.

Cyber situational understanding

The budget request included $18.9 million in line number 131 of Research, Development, Test, and Evaluation, Army (RDA), for PE65041 for Defensive Cyber Tool Development.

The committee recommends a decrease of $5.0 million in RDA for cyber situational understanding.

In the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283), the committee expressed concern that the Army decided to develop a new system for tactical-level cyber situational understanding (CSU) instead of adapting the existing baseline capability for the Joint Cyber Command and Control (JCC2) program. That baseline is formulated on the technology developed over many years by the Defense Advanced Research Projects Agency under the PlanX program, and further enhancements funded by the Strategic Capabilities Office under the IKE program. The committee notes that using a common JCC2-based system would provide interoperability and training benefits. The committee directed the Army to conduct an independent evaluation of the JCC2 program's ability to meet the Army's CSU requirements. That evaluation indicated that it would have been less costly to adapt JCC2 for the CSU capability, but the Army asserts that, due to the sunk costs already incurred on CSU, the cost to complete using the JCC2 baseline would be more expensive. The committee notes, however, that the Army included a large amount of money in its estimate for adapting JCC2 for engineering that significantly exceeds what it expects to spend on the current path. The committee directs the Army to develop a detailed breakdown of costs to adapt JCC2 for Army CSU requirements, as well as to meet the cyber command and control requirements for the Multi-Domain Task Forces prior to obligation of fiscal year 2022 funding for CSU.

Contract writing systems reduction

The budget request included $23.0 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 65047A Contract Writing System.

The committee continues to be concerned about the multiplicity of contract writing systems that are being developed by the military services, without a clear plan for standards or data interoperability and sharing requirements that will drive better data analysis in the Department of Defense. The committee is also concerned that there is no clear plan for these systems to provide data to the Advana data analytics platform being developed by the Chief Data Officer and Undersecretary of Defense (Comptroller).

Therefore, the committee recommends a decrease of $10.0 million in RDA, for PE 65047A.

CH–47 Chinook Cargo On/Off Loading System

The budget request included $52.4 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 67137A Chinook Product Improvement Program.

The committee notes that integration of advanced ballistic protection system technologies with a standardized configuration cargo loading system provides a low cost weight reduction opportunity.

The committee recommends an additional $8.0 million in RDA PE 67137A Chinook Product Improvement Program for development of the Chinook cargo on/off load system.

Chinook T55–714C engine certification and integration

The budget request included $52.4 million in line 195 of Research, Development, Test, and Evaluation, Army (RDA), for PE 67137A Chinook Product Improvement Program.

The committee recommends an increase of $10.0 million to support the qualification planning, certification, and initial integration of the enhanced CH–47 Chinook T55 engine.

Apache Future Development

The budget request included $10.1 million in line number 199 of Research, Development, Test, and Evaluation, Army (RDA), for PE 67145A Apache Future Development.

The committee recommends an increase of $15.0 million in RDA for PE 67145A Apache Future Development to support necessary engineering analysis to accelerate future development.

Abrams tank modernization

The budget request included $211.5 million in Research, Development, Test, and Evaluation, Army (RDA) for PE 23735A Combat Vehicle Improvement Programs (CVIP).

The committee notes the CVIP request includes $50.3 million in Project 330, Abrams Tank Improvement Program (ATIP), primarily focused on improving lethality of the M1A2 SEP Version 4 Abrams tank. However, there is not funding for the development of additional advanced technologies to significantly reduce weight and increase mobility, survivability and sustainability, and further improve lethality.

Therefore, the committee recommends an additional $64.1 million in RDA for PE 23735A CVIP, Project 330, ATIP, toward the development of improvements, including an unmanned turret, autoloader, ammunition handling system, hydro-pneumatic suspension, integrated active protection, and hybrid electric drive.

Identity, credentialing and access management reduction—Army

The budget request included $15.7 million in line number 220 of Research, Development, Test, and Evaluation, Army (RDA) for PE 33140A Information Systems Security Program.

The committee is concerned about the lack of integrated efforts to establish a common enterprise identity, credentialing and access management (ICAM) solution across the Department of Defense and encourages the Army to work with the Defense Information Systems Agency in migrating its ICAM approach to an enterprise solution. Therefore, the committee recommends a decrease of $5.0 million in RDA for this program.

Navy

High-performance computation and data equipment

The budget request included $117.4 million in Research, Development, Test, and Evaluation, Navy (RDN) for PE 61103N University Research Initiatives.

The committee notes that high-performance computing is a strategic resource for economic competitiveness, scientific and informa-

tion technology leadership, and national security. Large investments are being made globally into high-performance computation resources to leverage innovations in artificial intelligence, machine learning, and large computer models to revolutionize nearly every area of science and engineering.

To support university research capabilities in national security areas, the committee recommends an increase of $3.0 million in RDN for PE 61103N for academic high-performance computation and data equipment capabilities.

University research programs

The budget request included $117.4 million in Research, Development, Test, and Evaluation, Navy (RDN) for PE 61103N Defense Research Sciences.

The committee recognizes it is crucial to adequately fund, resource, and structure the Department of Defense to conduct research, development, and testing activities for critical emerging technologies to stay ahead of our adversaries, most notably Russia and China. Resources must be devoted and responsibly spent toward research and development in critical sectors, including artificial intelligence, quantum computing, hypersonics, directed energy, biotechnology, autonomy, cyber, space, 5G, microelectronics, and fully networked command, control, and communications technologies. The committee is concerned that the balance of science and technology research in the Navy is trending away from basic research and focusing on more near-term applied research.

Therefore, the committee recommends an increase of $30.0 million in RDN for PE 61103N to increase emphasis on the basic research activities performed by the Navy to steer the innovation of the Department for the future.

Graphene electro-active metamaterials

The budget request included $23.0 million in Research, Development, Test, and Evaluation, Navy (RDN) for PE 62114N Power Projection Applied Research.

The committee notes that graphene-based electro-active metamaterials' properties can be tuned in a broad range of frequencies to meet specified performance requirements, including to act as radar absorbing materials for defense systems and platforms.

Therefore, the committee recommends an additional $3.0 million in RDN for PE 62114N for research on graphene electro-active metamaterials.

Relative positioning of autonomous platforms

The budget request included $122.9 million in Research, Development, Test, and Evaluation, Navy (RDN) for PE 62123N Force Protection Applied Research.

The committee notes that the Navy is developing unmanned surface vehicles which can be supported by autonomous unmanned aerial vehicles to provide long-range and long-endurance intelligence, surveillance, and reconnaissance and strike capabilities. The committee notes that communication and maneuvering between unmanned systems, as well as docking of manned and un-

manned vessels, is a complex problem that involves understanding the relative motion and positioning of each vehicle.

Therefore, the committee recommends an increase of $3.0 million in RDN for PE 62123N to develop technologies to improve control of the relative positioning of autonomous platforms.

Resilient innovative sustainable economies via university partnerships

The budget request included $122.9 million in Research, Development, Test, and Evaluation, Navy (RDN) for PE 62123N Force Protection Applied Research.

The committee recognizes the challenges facing isolated States, which limits their ability to develop research, innovation, and technology bases to support national security missions. The committee notes that academic research has led to technological innovations that have contributed significantly to national security and economic growth. The committee believes that leveraging universities to increase industrial diversification will support development of necessary economic infrastructure and potentially lead to useful defense technology and industrial capability.

Therefore, the committee recommends an increase of $2.0 million in RDN for PE 62123N to support efforts to work with universities on research, technology development, and industrial expansion efforts, consistent with Navy modernization priorities.

Anti-corrosion nanotechnologies

The budget request included $70.5 million in Research, Development, Test, and Evaluation, Navy (RDN) for PE 62236N Warfighter Sustainment Applied Research.

The committee notes that the cost of corrosion on military equipment and infrastructure is a universal problem that is acute in the Asia-Pacific region.

Therefore, the committee recommends an additional $3.0 million in RDN for PE 62236N to accelerate technology demonstration and show the feasibility of realizing operational and cost benefits of employing usable nanotechnology surface enhancements on military hardware and infrastructure.

Humanoid robotics research

The budget request included $70.5 million in Research, Development, Test, and Evaluation, Navy (RDN) for PE 62236N Warfighter Sustainment Applied Research.

The committee recognizes the promise of autonomous legged robotics for both dangerous and repetitive jobs on ships. In particular, the Navy has identified shipboard disinfection and a number of shipboard maintenance tasks as ideal candidates for integrating the use of legged robots.

Therefore, the committee recommends an increase of $2.5 million in RDN for PE 62236N for research on the use of humanoid robotics in unstructured environments.

Undersea vehicle research academic partnerships

The budget request included $57.5 million in Research, Development, Test, and Evaluation, Navy (RDN) for PE 62747N Undersea Warfare Applied Research.

The committee notes the value of establishing strong research and technology development partnerships between academic institutions, industry, and the Department of Defense to promote innovation in critical defense sectors.

Therefore, the committee recommends an increase of $12.0 million in RDN for PE 62747N to support the expansion of academic partnerships to support undersea vehicle research activities. The committee supports these activities, including a variety of research efforts ranging from fundamental research to prototyping of novel undersea vehicle components and systems.

Undersea warfare applied research

The budget request included $57.5 million in Research, Development, Test, and Evaluation, Navy (RDN) for PE 62747N Undersea Warfare Applied Research.

The committee notes the importance of undersea warfare in the National Defense Strategy and the efforts of peer competitors to undercut the United States' current technological advantage in the undersea domain.

Therefore, the committee recommends an increase of $10.0 million in RDN for PE 62747N to support additional research to modernize undersea warfare capabilities.

Navy and Marine Corps unfunded requirements

In accordance with section 222a of title 10, United States Code, the Chief of Naval Operations and the Commandant of the Marine Corps each submitted a list of unfunded requirements. The committee recommends an additional increase of about $1.01 billion for items on these unfunded requirements lists.

Unmanned systems interoperability

The budget request included $224.2 million in Research, Development, Test, and Evaluation, Navy (RDN) for PE 63640M U.S. Marine Corps Advanced Technology Demonstration.

The committee notes that the Department of Defense "Unmanned Systems Integrated Roadmap for 2017–2042" made a number of recommendations for accelerating unmanned systems capabilities by increasing interoperability and human-machine collaboration.

Accordingly, the committee recommends an additional $5.0 million in RDN for PE 63640M to support efforts to enhance unmanned systems interoperability and systems for providing relevant data required for mission planning, mission rehearsal, post mission assessment, and simulation.

Naval prototypes

The budget request included $133.8 million in Research, Development, Testing, and Evaluation, Navy (RDN) for PE 63801N Innovative Naval Prototypes Advanced Technology Development.

The committee is concerned about reductions to traditional Navy basic research capabilities, the lack of investments in Navy lab and warfare infrastructure, and the lack of coordination between the growing number of prototyping activities across the Department of Defense.

Therefore, the committee recommends a decrease of $20.0 million in RDN for PE 63801N to reduce funding for prototyping projects with limited transition possibilities to Navy programs of record.

Manned-Unmanned Experimentation

The budget request included $16.9 million in Research, Development, Test, and Evaluation, Navy (RDN), for PE 63128N Unmanned Aerial Systems.

The committee supports the Marine Corps' efforts to develop medium-altitude, long-endurance (MALE) manned-unmanned experimentation (MUX) aircraft to begin operating in U.S. Indo-Pacific Command by fiscal year 2023. The committee further supports the development of a runway-independent capability for MALE–MUX aircraft as a follow-on capability to support Expeditionary Advanced Base Operations.

Therefore, the committee recommends an increase of $25.0 million in RDN for PE 63128N Unmanned Aerial Systems for the development, procurement, and testing of runway-independent MALE–MUX prototypes.

Stratospheric balloon research

The budget request included $46.1 million in Research, Development, Test, and Evaluation, Navy (RDN) for PE 64378N Naval Integrated Fire Control—Counter Air Systems Engineering.

The committee recognizes the increasing importance of stratospheric balloons in command, control, communications, computers, intelligence, surveillance, and reconnaissance and missile defense missions. The committee is concerned that, as projects move from the Office of Secretary of Defense's Missile Defeat Project to elsewhere in the Department, transition of prior research will be insufficient. Specifically, the committee is concerned that stratospheric balloon research activities conducted by the Department still require testing and evaluation activities before systems can transition to the military services as a program of record.

Therefore, to support efforts to transition this technology, the committee recommends an increase of $13.0 million in RDN for PE 64378N for stratospheric balloon research.

Advanced Sensors Application Program

The budget request included no funding in Research, Development, Test, and Evaluation, Navy (RDN) for PE 64419N Advanced Sensors Application Program.

The committee objects to the abrupt termination of this program that has longstanding congressional sponsorship and support.

The committee recommends an increase of $15.0 million in RDN for PE 64419N in support of this program.

Contract writing systems reduction

The budget request included $243.8 million in Research, Development, Test, and Evaluation, Navy (RDN), for PE 65013N Information Technology Development.

The committee continues to be concerned about the multiplicity of contract writing systems that are being developed by the military services, without a clear plan for standards or data interoperability and sharing requirements that will drive better data analysis in the Department of Defense. The committee is also concerned that there is no clear plan for these systems to provide data to the Advana data analytics platform being developed by the Chief Data Officer and Undersecretary of Defense (Comptroller).

Therefore, the committee recommends a decrease of $10.0 million in RDN, for PE 65013N.

Strategic Weapon System Shipboard Navigation System Modernization

The budget request included $177.1 million in Research, Development, Test, and Evaluation, Navy (RDN), for PE 11221N Strategic Sub & Weapons System Support.

The committee notes the importance of completing the Velocity Fusion Development, accelerating gravimeter algorithm development and integration, initiating Fleet Transition, initiating Hydrophone Array Modernization, and establishing a Dynamic Concept of Operations framework within the Strategic Weapons System Shipboard Navigation Modernization program.

Therefore, the committee recommends an increase of $8.0 million in RDN, for PE 11221N for the Strategic Weapons System Shipboard Navigation Modernization program.

Neural network algorithms on advanced processors

The budget request included $189.2 million in Research, Development, Test, and Evaluation, Navy (RDN) for PE 24136N F/A–18 Squadrons.

The committee supports the incorporation of artificial intelligence (AI) to ensure continued relevancy of legacy platforms.

Therefore, the committee recommends an increase of $3.0 million in RDN for PE 24136N for AI algorithms hosted on new hardware and to validate the suitability for warfighter application.

Air Force

University research programs

The budget request included $162.4 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 61103F University Research Initiatives.

The committee recognizes it is crucial to adequately fund, resource, and structure the Department of Defense to conduct research, development, and testing activities for critical emerging technologies to stay ahead of United States adversaries, most notably Russia and China. Resources must be devoted and responsibly spent toward research and development in critical sectors including artificial intelligence, quantum computing, hypersonics, directed energy, biotechnology, autonomy, cyber, space, 5G, microelec-

tronics, and fully networked command, control, and communications technologies.

The committee is concerned that the balance of science and technology research in the Air Force is trending away from basic research and focusing on more near-term applied research.

As such, the committee recommends an increase of $30.0 million in RDAF for PE 61103F to increase emphasis on the basic research activities performed by the Air Force to help set the course of innovation of the Department for the future.

Continuous composites 3D printing

The budget request included $113.5 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 62102F Materials.

The committee notes that the development of state-of-the-art composite additive manufacturing processes may enable major cost reductions and increase the speed of delivery of new systems into operational use.

Therefore, the committee recommends an additional $7.0 million in RDAF for PE 62102F for the development of additive manufactured composites to advance hypersonics, space, and next generation air, launch, and ground vehicles in support of the National Defense Strategy.

High energy synchrotron X-ray research

The budget request included $113.5 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 62102F Materials.

The committee notes the value of research using high-energy X-ray beamlines to support Air Force modernization needs. This research enhances understanding of high performance materials for tactical aircraft, metal fatigue processes, and materials produced using additive manufacturing technologies, and supports technical workforce development.

Therefore, the committee recommends an increase of $5.0 million in RDAF for PE 62102F for high energy synchrotron X-ray research.

Ground test and development of hypersonic engines

The budget request included $163.0 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 62201F Aerospace Vehicle Technologies.

The committee notes the key role of hypersonics technologies in the Department of Defense's modernization strategy and future force posture. The committee notes that a barrier to the development and deployment of new hypersonic engine technologies is the lack of engine test equipment and infrastructure.

Therefore, the committee recommends an increase of $5.0 million in RDAF for PE 62201F for investments in modern ground test activities for hypersonic engines.

Hypersonic flight test services

The budget request included $163.0 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 62201F Aerospace Vehicle Technologies.

The committee supports the Air Force's efforts to design and perform risk reduction demonstration testing in the hypersonic environment while leveraging commercial hypersonic flight test assets.

To accomplish this goal, the committee recommends an increase of $5.0 million in RDAF for PE 62201F to support risk reduction and technology maturation through the demonstration of commercial hypersonic flight technologies to support the advancement of reusable hypersonic systems.

Low-cost small turbine engine research

The budget request included $174.7 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 62203F Aerospace Propulsion.

The committee notes that the need for low-cost small turbine engines is steadily increasing for use in cruise missiles and unmanned aerial vehicles (UAVs). Addressing both emerging threats and near-peer competitors will likely dictate the use of tactics, like swarming and mass attacks, to confuse and overwhelm the defenses of potential adversaries. Unfortunately, due to a lack of investment and a limited industrial base, small engine technology and affordability have evolved only minimally over the past three decades.

To increase the capabilities of small turbine engines, the committee recommends an increase of $7.0 million in RDAF for PE 62203F for low-cost small turbine engine research to support flight test readiness activities, including airframe and engine integration testing.

Skyborg

The budget request included $131.6 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 63032F Future AF Integrated Technology Demos.

The committee supports the Air Force's Skyborg program but remains concerned regarding the rest of the Vanguard programs. Specifically, the committee recommends that the Air Force procure 12 more Valkyrie aircraft and encourages the Air Force to complete the transition to the Advanced Aircraft Capability Development activity.

Accordingly, the committee recommends an increase of $75.0 million in RDAF for PE 63032F Future AF Integrated Technology Demos.

Air Force integrated technology demonstrations

The budget request include $131.6 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 63032F Future Air Force Integrated Technology Demonstrations.

The committee is concerned about the shift in emphasis of Department of Air Force research activities from support of early stage research that explores the frontiers of scientific knowledge to create next generation capabilities, to a more near-term focus that

heavily emphasizes near-term delivery of mature systems. This approach may lead to a hollowing of the base of technological achievement that the Air Force has funded and developed in universities, industry, and the Air Force Research Laboratory that has resulted in the dominant air and space capabilities that are a critical element of the U.S. national security posture. In particular, the committee is concerned that increased funding for Air Force Vanguard programs are reducing resources available for more early stage and cross-cutting research efforts. Further, the committee notes that the Vanguard programs are not well coordinated with programs of other services and Defense Agencies to reduce duplication and leverage technological advances.

Therefore, the committee recommends a reduction of $77.9 million in RDAF for PE 63032F, of which $47.9 million is for a reduction in rocket cargo efforts, and recommends that the Air Force review its science and technology portfolio to ensure adequate balance between near and long term efforts.

Unmanned Adversary Air

The budget request included $131.6 million in line number 17 of Research, Development, Test, and Evaluation, Air Force (RDAF), for PE 63032F Future AF Integrated Technology Demos.

The committee recognizes the importance of cost-effective adversary training and supports the Air Force's efforts on unmanned adversary air platforms to prototype and test the use of unmanned, low-cost, fighter-representative aircraft.

Therefore, the committee recommends an increase of $125.0 million in RDAF for PE 63032F to purchase low-cost unmanned aircraft and to begin testing and integration into the adversary air ecosystem.

B–52 engine pylon fairings increase

The budget request included $70.5 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 63211F Aerospace Technology Dev/Demo.

The committee notes that, where each of the eight engines of a B–52 attach to the wing of the aircraft, there is a strong aerodynamic shock that results in increased drag. Placement of a fairing to smooth airflow at this juncture can reduce drag. Specifically, initial computational fluid dynamics models estimate a 2.5 percent fuel efficiency savings for B–52 engine pylon fairings. Due to the simplicity of the fairings' design and low cost, return on investment is less than 18 months. The committee continues to support the Air Force's sound investments in operational energy improvements and views the cost and fuel saving benefits to warfighters as innovative solutions to meeting the demands of the National Defense Strategy.

Accordingly, the committee recommends an increase of $2.0 million in RDAF for PE 63211F for B–52 engine pylon fairings.

Hypersonics materials manufacturing

The budget request include $45.3 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 63680F Manufacturing Technology Program.

The committee notes the need to improve advanced materials capabilities given the strength, weight, and heat resistance requirements of hypersonic missiles and vehicles. Development programs for hypersonic weapons and vehicles have a number of material and manufacturing challenges, including the need to produce large numbers of high-quality composite parts, improve the machining of aerospace parts, and improve the strength of materials made using additive manufacturing techniques.

Therefore, the committee recommends an increase of $2.0 million in RDAF for PE 63680F for hypersonic weapon and vehicle material manufacturing.

Sustainment and modernization research and development program

The budget request included $45.3 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 63680F Manufacturing Technology Program.

The committee notes that the Air Force logistics enterprise may be able to lower life cycle costs through software development processes and the application of data analytics and artificial intelligence to Air Force business operations; development of novel additive and advanced manufacturing processes; and development and deployment of advanced materials and high-performance coatings. Air Force sustainment missions will also be enhanced by providing innovative research-based education and workforce development programs targeting challenge areas, particularly in the Air Force organic industrial base.

Therefore, to support these activities, the committee recommends an additional $7.0 million in RDAF, for PE 63680F for sustainment research and development.

Advanced engine development

The budget request included $123.7 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 64004F Advanced Engine Development.

The committee supports the Air Force's request to continue development of the advanced engine and acceleration of the prototype and testing.

Accordingly, the committee recommends an increase of $30.0 million in RDAF for PE 64004F Advanced Engine Development.

Tactical Datalink Waveform

The budget request included $82.4 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 64006F, Department of the Air Force Technical Architecture Design, Integration, and Evaluation.

The committee supports the Air Force's efforts to quickly integrate and field resilient tactical datalink capability across the joint force utilizing existing radios and leveraging cryptographic modernization hardware to accelerate fielding. The ability to connect sensors, shooters, and weapons across multiple domains is a prerequisite to realizing the vision of Joint All-Domain Command and Control.

Accordingly, the committee recommends an increase of $80.0 million in RDAF for PE 64006F to accelerate the Air Force's efforts to integrate and field resilient datalink capability.

Automatic target recognition

The budget request included $23.7 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 64257F Advanced Technology and Sensors.

The committee supports the Air Force's acceleration of automatic target recognition across multiple modalities as an enabler for Joint All Domain Command and Control.

Accordingly, the committee recommends an increase of $5.0 million in RDAF for PE 64257F Advanced Technology and Sensors.

Academic technology transfer partnerships

The budget request included $15.8 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 64317F Technology Transfer.

The committee notes that this program captures and manages intellectual property (IP) (e.g. patents and inventions) developed by the Air Force and leads efforts to transfer IP to the commercial sector to support transitioning technology to the warfighter.

The committee recommends an increase of $7.5 million in RDAF for PE 64317F to expand academic partnerships to support Air Force technology transfer activities.

Air Force operational energy increases

The budget request included $343.5 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 64858F Tech Transition Program.

The committee notes that high fidelity computational fluid dynamics modeling and data analysis show an expected 5 percent efficiency increase when using KC–135 active winglets, which would equate to roughly $30.0 million per year in fuel savings based on the same amount of flying hours. Additionally, the shape of turbine engine compressor blades degrade over time, resulting in a fuel inefficiency. Improved compressor blade technology, commonly used by commercial airlines and optimized for an ideal balance of durability and fuel efficiency, allows compressor blades to maintain their optimal shape for a longer period of time. Engines with coated compressor blades can achieve roughly 2 percent fuel efficiency and yield observable net savings within 2 years. Cargo, tanker, and non-stealth bomber aircraft account for roughly 60 percent of the Air Force's total jet fuel consumption at about 1.2 billion gallons per year. Blended wing body (BWB) airframes for these aircraft from tube and wing BWB could yield a 30 percent increase in range and payload capabilities. This would equate to annual fuels savings of $900.0 million per year at current fuel prices. Lastly, building off work done with KC–135s, a new advanced winglet for the C–17 fleet could conservatively result in a 2.5 percent efficiency over the current first generation winglet. This would result in $25.0 million per year in fuel savings with the same annual flying hours. The committee continues to support the Air Force's sound investments in operational energy improvements and views the

cost and fuel saving benefits to warfighters as innovative solutions to meeting the demands of the National Defense Strategy.

Accordingly, the committee recommends the following increases: $10.0 million for KC–135 winglets, $2.0 million for engine compressor blade coatings, $15.0 million for BWB prototype phase 1, and $5.0 million for C–17 active winglets phase 1 in RDAF for PE 64858F Tech Transition Program.

Cold spray technologies

The budget request included $343.5 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 64858F Tech Transition Program.

The committee notes that a January 30, 2020, Government Accountability Office (GAO) report, titled "Military Depots: DOD Can Benefit from Further Sharing of Best Practices and Lessons Learned" (GAO–20–116), cited the potential benefits of the application of cold spray manufacturing technologies in sustainment activities across the Department of Defense.

Accordingly, the committee recommends an increase of $5.0 million in RDAF for PE 64858F Tech Transition Program.

Coordination with private sector to protect against foreign malicious cyber actors

The budget request included $242.5 million in line number 62 of Research, Development, Test and Evaluation, Air Force (RDAF), for PE 36250F Cyber Operations Technology Support. Elsewhere in this Act, the committee recommends a provision that would require the Commander, U.S. Cyber Command, to establish a voluntary process for engaging with commercial information technology and cybersecurity companies to explore and develop methods of assistance or coordination to protect against foreign malicious cyber actors.

The committee recommends an increase of $15.0 million in RDAF PE 36250F to support this initiative.

Contract writing systems reduction

The budget request included $20.3 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 91410F Contracting Information Technology System.

The committee continues to be concerned about the multiplicity of contract writing systems that are being developed by the military services, without a clear plan for standards or data interoperability and sharing requirements that will drive better data analysis in the Department of Defense. The committee is also concerned that there is no clear plan for these systems to provide data to the Advana data analytics platform being developed by the Chief Data Officer and Undersecretary of Defense (Comptroller).

The committee recommends a decrease of $10.0 million in RDAF for PE 91410F.

Air Force combat training ranges

The budget request included $24.0 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 64735F Combat Training Ranges.

The committee supports the Air Force's efforts to modernize the combat training ranges to a level 3 or level 4 threat representation.

Accordingly, the committee recommends an increase of $7.2 million in RDAF for PE 64735F Combat Training Ranges.

Degraded GPS live flight training

The budget request included $24.0 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 64735F Combat Training Ranges.

The committee supports the Air Force's efforts to modernize the combat training ranges and support training for GPS denied and degraded operations.

Accordingly, the committee recommends an increase of $3.0 million in RDAF for PE 64735F Combat Training Ranges.

Gulf test range enhancements

The budget request included $24.0 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 64735F Combat Training Ranges.

The committee supports the Air Force's efforts to modernize the Gulf Test Range and ensure it is capable of supporting the full spectrum of development testing required for fifth and sixth generation weapon technology-based systems, including testing of hypersonic and autonomous systems, which are identified as critically important to current defense strategy.

Accordingly, the committee recommends an increase of $3.0 million in RDAF for PE 64735F Combat Training Ranges.

Future tanker reduction

The budget request included $73.5 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 41221F KC–46A Tanker Squadrons.

The committee is concerned that the Air Force's request looks to begin development of a tanker replacement prior to the KC–46 being fully operational.

Accordingly, the committee recommends a decrease of $6.0 million in RDAF for PE 41221F KC–46A Tanker Squadrons.

U.S. Strategic Command Nuclear Command, Control and Communication Enterprise Center

The budget request included $25.3 million in Research, Development, Test, and Evaluation, Air Force (RDAF), for PE 33255F for Command, Control, Communication, and Computers (C4)—STRATCOM.

The committee notes the importance of developing new architectures and processes for a next generation Nuclear Command, Control and Communications system and the importance of the Rapid Engineering Architecture Collaboration Hub in achieving these goals.

Therefore, the committee recommends an increase of $5.0 million in RDAF for PE 33255F for the Rapid Engineering Architecture Collaboration Hub.

F–35 continuous capability development and delivery

The budget request included $985.4 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 64840F F–35 C2D2 [continuous capability development and delivery].

The committee supports the robust modernization program and investment in critical test assets and infrastructure to support the size and the scale of the F–35 fleet.

Accordingly, the committee recommends an increase of $20.0 million in RDAF for PE 64840F F–35 C2D2.

Foreign material acquisition and exploitation

The budget request included $71.4 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 65117F Foreign Material Acquisition and Exploitation.

The committee recommends a decrease of $5.0 million in RDAF for PE 65117F Foreign Material Acquisition and Exploitation.

Over The Horizon Radar

The budget request included $99.0 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 12412F North Warning System.

The committee notes the importance of having a capability to detect approaches to North America from the Northeast, Northwest, and Western directions. This is also a U.S. Northern Command unfunded requirement.

Therefore, the committee recommends an increase of $25.1 million in RDAF for PE 12412F for the development of the over the horizon radar capability.

Polar Over the Horizon Radar

The budget request included $99.0 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 12412F North Warning System.

The committee notes the importance of having a capability to detect approaches from the far North of over 70 degrees latitude for Russian long-range aviation.

Therefore, the committee recommends an increase of $5.0 million in RDAF for PE 12412F for the development of the Polar Over The Horizon Radar capability for far North detection.

Additive manufacturing

The budget request included $103.7 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 27268F Aircraft Engine Component Improvement Program.

The committee supports the Air Force's effort to leverage additive manufacturing.

Accordingly, the committee recommends an increase of $3.0 million in RDAF for PE 27268F Aircraft Engine Component Improvement Program.

Identity, credentialing, and access management reduction—Air Force

The budget request included $8.0 million in line 242 of Research, Development, Test, & Evaluation, Air Force (RDAF), for PE33140F Information Systems Security Program.

The committee is concerned about the lack of integrated efforts to establish a common enterprise identity, credentialing and access management (ICAM) solution across the Department of Defense and encourages the Air Force to work with the Defense Information Systems Agency in migrating its ICAM approach to an enterprise solution.

Therefore, the committee recommends a decrease of $5.0 million in RDAF for this program.

Weather forecasting using machine learning

The budget request included $26.2 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 35111F Weather Service.

The committee notes the importance of using machine learning for improved weather forecasting and that forecasting and related geospatial data will support the Department of Defense's ability to exploit timely, accurate, and relevant weather information anytime and everywhere on the globe.

Therefore, the committee recommends an increase of $1.0 million in RDDW for PE 35111F for machine learning applied to weather forecasting.

Battery cycle life improvements

The budget request included $175.8 million in Research, Development, Test, and Evaluation, Space Force (RDSF), for PE 1206601SF Space Technology.

The committee supports the Space Force's request to improve battery cycle life.

Accordingly, the committee recommends an increase of $3.0 million in RDSF, for PE 1206601SF Space Technology.

Radiation hardened microelectronics

The budget request included $175.8 million in funding in Research, Development, Test, and Evaluation, Space Force (RDSF) for PE 1206601SF for Space Technology.

The committee notes the importance of developing capabilities for hardened microelectronics to withstand the radiation of a space environment.

Therefore, the committee recommends an increase of $5.0 million in RDSF for PE 1206601SF for the development of microelectronics to withstand radiation in space.

Air Force and Space Force unfunded requirements

In accordance with section 222a of title 10, United States Code, the Chief of Staff of the Air Force and the Chief of Space Operations each submitted a list of unfunded requirements. The committee recommends an additional increase of about $728.0 million for items on these unfunded requirements lists.

Joint Space Rapid Experimentation and Demonstration

The budget request included $76.7 million in Research, Development, Test, and Evaluation, Space Force (RDSF), for PE 1206616SF Space Advanced Technology Development and Demonstration.

The committee notes the importance of accelerating technology demonstrations and rapid prototyping and leveraging non-traditional space industry partners in order to produce fully informed joint space requirements by U.S. Space Command. As a result, this is also a Space Command unfunded requirement.

Therefore, the committee recommends an increase of $10.0 million in RDSF, for PE 1206616SF Space Advanced Technology Development and Demonstration.

Maui Optical Site

The budget request included $123.3 million in Research, Development, Test, and Evaluation, Space Force (RDSF) for PE 1206425SF Space Situation Awareness Systems.

The committee notes the critical importance of deep space domain awareness performed at the Maui Optical Site. This is also a Space Force unfunded requirement.

Therefore, the committee recommends an increase of $7.0 million in RDSF for PE 1206425SF Space Situation Awareness Systems that furthers the capability of the Maui optical telescope and supporting systems.

Tactically Responsive Launch

The budget request included $17.8 million in Research, Development, Test, and Evaluation, Space Force (RDSF) for PE 1206860SF for Rocket Systems Launch Program (SPACE).

The committee notes the importance of developing capabilities and concepts of operations based on those capabilities for the Tactically Responsive Launch.

Therefore, the committee recommends an increase of $10.0 million for RDSF PE 1206860SF for the development of technologies and concepts of operations based on the technologies for the Tactically Responsive Launch.

Digital core services for distributed space test and training

The budget request included $18.1 million in Research, Development, Test, and Evaluation, Space Force (RDSF) for PE 1203174SF Space Innovation, Integration and Rapid Technology Development.

The committee notes the critical importance of distributed space test and training range capability across various test beds. This is also a Space Force unfunded requirement.

Therefore, the committee recommends an increase of $20.0 million in RDSF for PE 1203174SF for Digital Core Services that enable distributed, configurable enterprise test and training activities, and lowers operational risk and facilities integration of test services at the Nevada Test and Training Range.

Microelectronics research network

The budget request included $193.5 million in Research, Development, Test, and Evaluation, Air Force (RDAF) for PE 62204F Aerospace Sensors.

The committee recommends an increase of $250.0 million in RDAF for PE 62204F to support the establishment of the network for microelectronics research established under the Creating Helpful Incentives to Produce Semiconductors Act (CHIPS Act), Title XCIX, section 9903(b) of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283). The committee notes the need to create partnerships between academic researchers, industry, and users of advanced microelectronics to drive the development of new dual use microelectronics capabilities which will be produced domestically. This will reduce the Department of Defense's reliance on the failed trusted foundry models that have been unsuccessfully attempted in the past. The network will also be able to better reflect activities designed to reflect future requirements of the military services for microelectronics systems.

Defense Wide

Defense research sciences

The budget request included $395.8 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 61101E Defense Research Sciences.

The committee recommends an increase of $15.0 million in RDDW for PE 61101E for Defense Advanced Research Projects Agency-funded university research activities.

Defense Established Program to Stimulate Competitive Research

The budget request included $39.8 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 6110D8Z Basic Research Initiatives.

The committee recognizes the importance of the Defense Established Program to Stimulate Competitive Research (DEPSCoR). The program helps increase the number of university researchers and improve the capabilities of institutions of higher education in eligible jurisdictions to perform competitive research relevant to the Department of Defense.

Therefore, the committee recommends an increase of $10.0 million in RDDW for PE 6110D8Z for DEPSCoR.

Minerva management and social science research

The budget request included $39.8 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 61110D8Z Basic Research Initiatives.

The committee notes that the Minerva Research Initiative serves as the Department of Defense's signature management and social science basic research program that funds university-led teams to address problems of strategic importance to the Department of Defense. The National Academies of Sciences, Engineering, and Medicine concluded that Minerva's accomplishments have made impor-

tant contributions to national security. Additionally, the National Academies stated that Minerva's research has yielded a wealth of knowledge to support activities under the National Defense Strategy.

Therefore, the committee recommends an increase of $22.5 million in RDDW for PE 61110D8Z for the Minerva Research Initiative.

Traumatic brain injury research

The budget request included $76.0 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 61117E Basic Operational Medical Research Science.

The committee notes that numerous servicemembers have been diagnosed with traumatic brain injuries over the last 15 years. These injuries are associated with a variety of long-term effects, including cognitive impairment, psychiatric disorders, neurodegenerative diseases, and chronic traumatic encephalopathy.

Therefore, the committee recommends an increase of $5.0 million in RDDW for PE 61117E for traumatic brain injury research.

Workforce development for defense laboratories

The budget request included $112.2 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 61120D8Z National Defense Education Program.

The committee recognizes that a pipeline of highly educated and trained engineering students is needed to meet the current and future needs of the defense research laboratory workforce. As such, the committee expects that the creation of a robust workforce pipeline, with a focus on diverse students engaged in advanced technology development projects intended to support fielding of systems for the warfighter, would be beneficial to Department of Defense (DOD) modernization efforts. This may include placing selected students in DOD laboratories that align with their academic studies to participate in relevant research programs.

Therefore, the committee recommends an increase of $1.5 million in RDDW for PE 61120D8Z and encourages the Secretary of Defense to collect data to inform decisions on the value of expanding the program over time.

Quantum computing acceleration

The budget request included $430.4 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 62303E for Information and Communications Technology.

The committee heard testimony from non-government technology experts who believe that the field of quantum computing is mature enough to warrant increased investment with the goal of developing functional and useful computing systems based on quantum computing within the next 5 to 10 years.

The committee supports this initiative and recommends an additional $100.0 million in RDDW for PE 62303E for acceleration of the deployment of large-scale quantum computing systems to help ensure the United States remains the world leader in quantum computing capabilities. The committee directs the Director of the Defense Advanced Research Projects Agency to use this increased

funding to make one or more large awards to entities who present credible plans for development of functioning large scale quantum computing systems. The committee directs the Director to ensure that systems developed under this effort are available for use for both military and commercial applications.

High speed flight experiment testing

The budget request included $21.5 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 63180C Advanced Research.

The committee notes the importance of developing the ability to test interceptors for the defeat of hypersonic missiles using a rocket-based experimental approach for flight experiments for key high-speed technologies.

Therefore, the committee recommends an increase of $5.0 million for RDDW for PE 63180C for high speed flight testing using a rocket-based experimental approach for flight experiments for key high-speed technologies.

Certification-based workforce training programs for manufacturing

The budget request included $134.0 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 63680D8Z Defense-Wide Manufacturing Science and Technology Program.

The committee notes that the National Science and Technology Council's "Strategy for American Leadership in Advanced Manufacturing" has a strategic objective to "attract and grow tomorrow's manufacturing workforce." The committee notes that priorities for this objective are manufacturing-focused foundational science, technology, engineering, and mathematics education; manufacturing engineering education; and industry and academia partnerships.

Therefore, the committee recommends an increase of $3.0 million in RDDW for PE 63680D8Z to support partnerships between manufacturing innovation institutes, industry, academia, and government to establish certification-based workforce training programs for manufacturing.

Cybersecurity for industrial control systems

The budget request included $134.0 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 63680D8Z Defense-Wide Manufacturing Science and Technology Program.

The committee believes that it is important to study the cybersecurity vulnerabilities of industrial and facility-related control systems, such as those used on military installations. It is also important to expand the scope of current academic efforts to work with leading Federal laboratories on cybersecurity training and advanced control system technology implementation, especially in the area of virtual reality-enabled experimentation.

Therefore, the committee recommends an increase of $3.0 million in RDDW for PE 63680D8Z for cybersecurity of industrial control systems.

Data analytics and visual system

The budget request included $134.0 million in Research, Development, Test, and Evaluation, Defense Wide (RDDW) for PE 63680D8Z Defense-Wide Manufacturing Science and Technology Program.

The committee notes that the National Science and Technology Council's "Strategy for American Leadership in Advanced Manufacturing" has a strategic objective to "capture the future of intelligent manufacturing systems."

To support this objective, the committee recommends an increase of $3.0 million in RDDW for PE 63680D8Z to support the development and deployment of data analytics and visual systems to support advanced manufacturing.

Integrated silicon-based lasers

The budget request included $134.0 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 63680D8Z Defense-Wide Manufacturing Science and Technology Program.

The committee notes the importance of quantum computing and advance electronics to defense modernization priorities and the role that silicon-based optoelectronics will play in modern defense systems. The committee supports efforts to mature integrated silicon-based lasers for use in national security critical applications.

Therefore, the committee recommends an increase of $2.5 million in RDDW for PE 63680D8Z for improving the manufacturing of high-performance, low-cost integrated silicon-based lasers.

High performance computing-enabled large-scale advanced manufacturing

The budget request included $37.5 million in Research, Development, Test, and Evaluation, Defense Wide (RDDW) for PE 63680S Manufacturing Technology Program.

The committee notes that rapid prototyping is important as a tool to both speed defense development and acquisition processes as well as a means to improve outcomes through continuous experimentation. The committee notes that advanced computational resources can be applied to improve the fidelity of early-stage designs while simultaneously taking advantage of advanced manufacturing processes to speed prototype development and testing.

Therefore, the committee recommends an additional $4.0 million in RDDW for PE 63680S to support the development of high performance computing-enabled large-scale advanced manufacturing.

Steel performance initiative

The budget request included $37.5 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 63680S Manufacturing Technology Program.

The committee notes that China is the world's largest national steel producer and user, while the United States ranks fourth, after China, India, and Japan. The committee notes that the failure to consistently invest in steel technology for advanced weapons systems threatens U.S. leadership in commercial steel technology and defense equipment performance.

Therefore, the committee recommends an increase of $5.0 million in RDDW for PE 63680S to continue efforts to support steel research to increase domestic production capacity and increased domestic production capacity in steel.

Artificial intelligence research activities

The budget request included $584.8 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 63766E Network-Centric Warfare Technology.

The committee recommends an increase of $100.0 million in RDDW for PE 63766E to support further development of artificial intelligence capabilities to help maintain United States technological superiority over China.

Deep water active technologies

The budget request included $584.8 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 63766E Network-Centric Warfare Technology.

The committee notes that the Navy and the Defense Advanced Research Projects Agency are collaborating on the development of deployable active sonar nodes and advanced communications systems to improve operational situational awareness.

Therefore, the committee recommends an increase of $5.0 million in RDDW, for PE 63766E to support transition of such technologies to the Navy.

Sensor technology

The budget request included $294.8 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 63767E Sensor Technology.

The committee recommends a decrease of $35.0 million in RDDW for PE 63767E to reduce new program starts.

The committee directs the Director of the Defense Advanced Research Projects Agency to review these programs for technical merit, military value, coordination with other service and Defense Agency activities, and likelihood of transition into operational use or service acquisition programs.

Survivability Planning and Intercept Evaluation Tool

The budget request included $277.9 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 63881C Ballistic Missile Defense Terminal Defense Segment.

The committee notes the importance of developing, designing, and testing a new Survivability Planning and Intercept Evaluation Tool architecture that will deploy to the Missile Defense Agency's classified network virtual enclave to support missile defense analysis.

Therefore, the committee recommends an increase of $2.0 million for RDDW for PE 63881C for the Survivability Planning and Intercept Evaluation Tool.

Strategic capabilities research and prototyping

The budget request included $716.5 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 64250D8Z Advanced Innovative Technologies.

The committee notes that, at the direction of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92), the Secretary of Defense established cross functional teams to support the efforts of the Director of the Strategic Capabilities Office (SCO). These teams are focused on improving the technical review of SCO projects and supporting the transition of successful SCO projects into acquisition programs or operational use. The committee notes that the SCO is performing important research and prototyping activities, particularly in the development of joint capabilities and in supporting cybersecurity missions. The committee notes that a number of SCO projects still reflect a lack of technical rigor or clear transition pathways and, in some cases, appear to be duplicating efforts in the military services and defense agencies.

Therefore, the committee recommends a decrease of $100.0 million in RDDW for PE 64250D8Z and directs the Secretary of Defense and Director of the SCO to engage the cross-functional teams in continuously reviewing the SCO portfolio—including the Avatar, Sirena, Eclipse, and Shawshank projects—to ensure their technical merit and operational impact, coordination with other research and development programs, and to support the development of transition pathways into acquisition programs or operational use.

Increasing manufacturing readiness level for thermionic energy harvesting technology

The budget request included $716.5 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 64250D8Z Advanced Innovative Technologies.

The committee recommends an increase of $15.0 million in RDDW for PE 64250D8Z to raise the manufacturing readiness level (MRL) of thermionic energy harvesting technology from MRL 3 to MRL 7.

The committee notes that the Strategic Capabilities Office (SCO) in the Office of the Under Secretary of Defense for Research and Engineering has funded the successful development, prototyping, and demonstration of thermionic energy harvesting technology able to generate electric power at ambient temperatures. The committee believes that energy densities achieved in prototype devices are impressive. The critical next step is to develop scalable and cost-effective manufacturing processes at optimum feature sizes. The committee directs the SCO to provide a briefing to the congressional defense committees biannually from the date of the submission of the fiscal year 2023 budget request until program completion or the end of calendar year 2023.

Joint affordable kill chain closure program

The budget request included $103.6 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 64331D8Z Rapid Prototyping Program.

The committee recommends a decrease of $50.0 million in RDDW for PE 64331D8Z due to efforts redundant to the Joint Affordable Kill Chain Closure program.

Homeland Defense Radar—Hawaii

The budget request did not include funding in Research, Development, Test, and Evaluation, Defense-wide (RDDW), for PE 64672C Homeland Defense Radar—Hawaii (HDR–H).

The committee notes the importance of having this phased array radar to protect the Homeland, given the configuration and distance of radars in the Pacific relative to existing threats. This is also a U.S. Indo-Pacific Command unfunded requirement.

Therefore, the committee recommends an increase of $76.0 million in RDDW for PE 64672C for the development of the Homeland Defense Radar—Hawaii. Elsewhere in this Act $9.0 million is authorized for military construction planning and design for this radar.

Joint All-Domain Command and Control experimentation

The budget request included $17.4 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE64826J Joint C5 Capability Development, Integration and Interoperability Assessments.

The committee notes the importance of prototyping, experimentation, and integration activities to advance the development, transition, fielding, and employment of technologies and concepts of operation developed by the services and Department of Defense science and technology community in support of Joint All-Domain Command and Control (JADC2). The committee believes that additional funds are necessary to accelerate the work of the JADC2 Cross-Functional Team.

Therefore, the committee recommends an increase of $25.0 million, for a total of $42.4 million, in RDDW for PE64826J for JADC2 experimentation to help support the objectives of the Pacific and European Deterrence Initiatives.

Laser communication ground terminals

The budget request included $636.2 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 1206410SDA for Space Technology Development and Prototyping.

The committee notes the importance of developing high speed anti-jam communications ground terminals and the utility of lasers for such resilient communications systems.

Therefore, the committee recommends an increase of $5.0 million in RDDW for PE 1206410SDA for laser communication ground terminals.

Space laser communications

The budget request included $636.2 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 1206410SDA Space Technology Development and Prototyping.

The committee notes the importance of developing high-speed, anti-jam communications in space with lasers.

Therefore, the committee recommends an increase of $8.0 million in RDDW for PE 1206410SDA for laser communications in space.

Wave glider development

The budget request included $550.1 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 64940D8Z Central Test and Evaluation Investment Development.

The committee notes the importance of at-sea ranges to develop new surface and undersea warfare systems and technologies.

Therefore, the committee recommends an increase of $4.0 million in RDDW for PE 64940D8Z to expand the prototype integration and modification of wave gliders to support real-time collection and exchange of tactical signals used during range test events as well as increase the capacity of at-sea ranges.

Systems engineering

The budget request included $40.0 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 65142D8Z Systems Engineering.

The committee notes that numerous independent and internal assessments have highlighted the role that poor systems engineering practices play in contributing to program technical failures, cost and schedule overruns, and an inability of innovative technologies to transition into programs of record or operational use. These challenges continue to persist despite the resources committed over a number of years by the Undersecretary of Defense for Research and Engineering to support systems engineering activities. The committee directs the Undersecretary to review ongoing systems engineering activities within the services, Defense Agencies, and the Office of the Secretary of Defense, and to develop a comprehensive strategy for the coordinated application of limited resources and personnel to develop more systems engineering technical capabilities to support modernization activities under the National Defense Strategy. Until that analysis and strategy are developed, the committee is concerned that requested systems engineering activities are uncoordinated and disconnected from the real technical challenges facing the Department of Defense.

Therefore, the committee recommends a decrease of $15.0 million in RDDW for PE 65142D8Z for systems engineering activities.

Technical information services

The budget request included $61.5 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 65801KA Defense Technical Information Center (DTIC).

The committee notes that the Department of Defense still struggles with the collection, analysis, and use of technical information to support operational missions, acquisition programs, and research activities. These challenges remain despite revolutionary advances in data analytics made in the commercial sector and an increased emphasis on data use by the Department of Defense. A May 2021 memo from the Deputy Secretary of Defense, which directed a set of actions to accelerate the Department's enterprise data activities, manifested the Department's commitment to improving data analytics. The committee is concerned that despite significant re-

sources being applied to DTIC activities and contractors, the organization is not clearly linked in with the overall data strategy and activities of the Department. The committee also notes that the Department has yet to complete the independent assessment of DTIC activities mandated by the conference report (H. Rept. 116–617) accompanying the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283).

Therefore, the committee recommends a decrease of $50.0 million in RDDW for PE 65801KA.

Rare earth element separation technologies

The budget request included $58.2 million for Research, Development, Test, and Evaluation, Defense-wide (RDDW) in PE 67210D8Z for Industrial Base Analysis and Sustainment Support.

The committee notes that the January 2021 "Industrial Capabilities Report to Congress," required by section 2504 of title 10, United States Code, highlighted the challenges that the Department of Defense faces in obtaining reliable and secure sources of rare earth elements for defense systems.

Therefore, the committee recommends an increase of $7.5 million in RDDW for PE 67210D8Z to accelerate the application of cost-effective and commercially viable rare earth element separation technologies to support achieving U.S. independence from China suppliers.

Demonstration program on domestic production of rare earth elements from coal byproducts

The budget request included $58.2 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 67210D8Z Industrial Base Analysis and Sustainment Support (IBAS).

Elsewhere in this Act, the committee recommends a provision that would authorize a temporary program to demonstrate the feasibility of separating critical minerals and rare earth elements from coal byproducts and acid mine drainage for the purpose of supplementing the Department of Defense's domestic supply of critical minerals. The provision includes $3.0 million to fund this effort. The committee understands that multiple higher learning institutions have demonstrated this technology to date at a small scale. The committee's intent is for such a technology to produce at least 1.5 tons of rare earth elements per year and an equal amount of cobalt. Ideally, the full rate capacity would recover between 18 and 21 tons of rare earth elements per year. Lastly, the committee directs the Department to consult with the Department of Energy's National Energy Technology Lab as much as possible to avoid any duplication and incorporate any lessons learned to the maximum extent possible.

Accordingly, the committee recommends an increase of $3.0 million in RDDW for PE 67210D8Z for IBAS for the coal byproduct demonstration program.

Digital manufacturing

The budget request included $58.2 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 67210D8Z Industrial Base Analysis and Sustainment Support.

The committee notes that the Department of Defense's manufacturing innovation institutes are well poised to promote the development of innovative technologies across the defense industrial base by transitioning manufacturing technologies to major defense contractors.

The committee recommends an increase of $1.5 million in RDDW for PE 67210D8Z to assist with transition costs and implementation of advanced digital manufacturing technologies to acquisition programs and the defense industrial base.

Industrial skills training

The budget request includes $58.2 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 67210D8Z Industrial Base Analysis and Sustainment Support.

The committee notes that there is a need to foster greater pathways from educational institutions to the defense industrial base. The committee further notes the need for a coordinated, multi-level effort to expand training facilities, growing the throughput of both high school and adult training programs; implement programs to recruit middle school students into pipelines; more effectively market advanced technical trades; and create equity and opportunity for underserved populations.

The committee recommends an increase of $2.5 million in RDDW for PE 67210D8Z to improve industrial skills training efforts to support defense acquisition programs and the defense industrial base.

Defense industrial skills and technology training systems

The budget request included $58.2 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 67210D8Z Industrial Base Analysis and Sustainment Support.

The committee notes that the defense industrial base workforce requires modernized skills to augment traditional trade artisan expertise, including robotic programming and operations to increase automation, digitization of work, and increased use of virtual environments.

The committee recommends an increase of $4.0 million in RDDW for PE 67210D8Z to continue efforts to enhance defense industrial skills and technology training to support the National Defense Strategy.

Submarine construction workforce training pipeline

The budget request included $58.2 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 67210D8Z Industrial Base Analysis and Sustainment Support.

The committee notes that over the next decade, the submarine shipbuilding industry must hire at least 18,000 new skilled workers to support the production of the *Columbia*–class ballistic missile submarine and the continued construction of the *Virginia*–class submarine. The submarine industry has worked closely with State

and local governments, community colleges, high schools, and community-based non-profits for the past several years to establish new training pipelines to support these increased hiring needs. Thus far, such pipeline training programs have placed more than 2,500 people in submarine industry jobs.

Therefore, the committee recommends an increase of $21.0 million in RDDW for PE 67210D8Z to increase the throughput of these pipelines and to expand them into additional States in order to more adequately respond to the hiring demand.

Workforce transformation cyber initiative pilot program

The budget request included $49.2 million for Research, Development, Test, and Evaluation, Defense-wide (RDDW), for PE 33140D8Z Information Systems Security Program.

The committee supports the National Security Agency (NSA) National Cryptologic School pilot program to enable workforce transformation certificate-based courses on cybersecurity and artificial intelligence that are offered by Center of Academic Excellence (CAE) universities. The committee understands that this pilot program will develop courses and curricula with technology partners and also provide funding for select NSA CAE universities to offer these courses and receive tuition reimbursement for participation in the courses.

Therefore, the committee recommends an increase of $20.0 million in RDDW for PE 33140D8Z for the workforce transformation cyber initiative pilot program.

Maritime scalable effects acceleration

The budget request included $78.6 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 1160431BB Warrior Systems.

The committee supports prioritization of resources to address capability gaps, particularly those that ensure U.S. Special Operations Forces maintain superiority relative to near peer competitors, and notes that the Commander, U.S. Special Operations Command (SOCOM) has identified the acceleration of maritime scalable effects as an unfunded requirement.

Therefore, the committee recommends an increase of $4.2 million in RDDW for PE 1160431BB for acceleration of SOCOM maritime scalable effects.

Information Systems Security Program

The budget request included $423.7 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 33140G Information Systems Security Program of the National Security Agency.

The committee recommends a decrease of $10.0 million in RDDW for PE 33140G Information Systems Security Program.

Rapid Innovation Program

The budget request included $115.4 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 63338D8Z Defense Modernization and Prototyping.

The committee recommends an increase of $75.0 million in PE 63338D8Z for the Rapid Innovation Program.

The committee notes that this program has been used to successfully transition research programs, including those funded under the Small Business Innovation Research program, into formal acquisition programs and operational use.

Joint test and evaluation

The budget request included $42.6 million in line number 3 of Operational Test and Evaluation (OTE) for PE 65814OTE Operational Test Activities and Analyses.

The committee recommends an additional $20.0 million in OTE for PE 65814OTE for the Joint Test and Evaluation program.

The committee notes that this program funds multi-service projects, coordinated with the Joint Staff, appropriate combatant commanders, and the services, in order to provide non-materiel solutions that improve: joint interoperability of service systems, technical and operational concepts; development and validation of joint test methodologies; and test data for validating models, simulations, and test beds.

Acquisition Innovation Research Center

The budget request included $4.6 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 65151D8Z Studies and Analysis Support—OSD.

The committee recommends an increase of $5.0 million for the Acquisition Innovation Research Center to continue acquisition research activities authorized under section 2361a of title 10, United States Code.

Domestic Comparative Testing Program

The budget request included $25.4 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 63133D8Z Foreign Comparative Testing.

The committee recommends an increase of $20.0 million for the Domestic Comparative Testing Program to support testing of advanced commercial technologies for possible insertion into acquisition programs, as authorized under section 882 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283).

Artificial intelligence applied research activities

The budget request included $430.4 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 62303E Information and Communications Technology.

The committee recommends an increase of $200.0 million in RDDW for PE 62303E to support further development of artificial intelligence capabilities to help maintain the United States' technological superiority over China.

Pilot program on public-private partnerships with internet ecosystem companies to detect and disrupt adversary cyber operations

The budget request included $423.7 million in line number 220 for Research, Development, Test and Evaluation, Defense-wide (RDDW) for PE 33140G Information Systems Security Program (ISSP).

Elsewhere in this Act, the committee recommends a provision that would require the Secretary of Defense to establish and commence a pilot program to assess the feasibility and advisability of entering into voluntary public-private partnerships with internet ecosystem companies to facilitate actions by such companies to discover and disrupt the use of the platforms, systems, services, and infrastructure of such companies by malicious cyber actors.

The committee recommends an increase of $25.0 million in RDDW for the ISSP to support this initiative.

Biomedical technologies

The budget request included $108.7 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for 62115E Biomedical Technology.

The committee recommends an increase of $15.0 million in RDDW for PE 62115E Biomedical Technology.

Information & communications technology

The budget request included $430.4 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for 62303E Information & Communications Technology.

The committee recommends an increase of $15.0 million in RDDW for PE 62303E Information & Communications Technology.

Materials & biological technology

The budget request included $317.0 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 62715E Materials & Biological Technology.

The committee recommends an increase of $15.0 million in RDDW for PE 62715E Materials & Biological Technology.

Electronics technology

The budget request included $430.4 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 62716E Electronics Technology.

The committee recommends an increase of $15.0 million in RDDW for PE 62716E Electronics Technology.

Advanced electronics technology

The budget request included $116.7 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for PE 63739E Advanced Electronics Technology.

The committee recommends an increase of $15.0 million in RDDW for PE 63739E Advanced Electronics Technology.

Command, control, and communications systems

The budget request included $251.8 million in Research, Development, Test, and Evaluation, Defense-wide (RDDW) for 63760E Command, Control, and Communications Systems.

The committee recommends an increase of $15.0 million in RDDW for PE 63760E Command, Control, and Communications Systems.

Funding support for National Security Agency Defense Industrial Base cybersecurity activities

The budget request included $423.7 million in line number 220, Research, Development, Test and Evaluation, Defense-wide (RDDW) for PE 33140G for the Information Systems Security Program (ISSP).

Section 1648 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92) required the Department of Defense (DOD) to develop a comprehensive framework to enhance the cybersecurity of the defense industrial base. Although DOD initially focused too narrowly on the Cybersecurity Maturity Model Certification program, DOD now recognizes that it must address additional elements of the broader framework, and the National Security Agency's (NSA) newly re-established Cybersecurity Directorate must play an increased role.

Accordingly, the committee recommends an increase of $25.0 million in RDDW for the NSA ISSP program to enhance defense industrial base cybersecurity.

Fifth Generation Wireless Network Technology

The budget request included $374.7 million in Research, Development, Test and Evaluation, Defense-wide (RDDW) for PE 64011D8Z Next Generation Information Communications Technology. This program element funds the acceleration of fifth generation (5G) wireless networking technology, both for at-scale prototyping and experimentation of advanced dual-use applications, and to mature and commoditize Open Radio Access Network virtualization technology. This program was initiated by congressional action in the Consolidated Appropriations Act, 2020 (Public Law 116–93).

The budget request also included $22.9 million in RDDW, PE 62230D8Z for Defense Technology Innovation, which funds technology innovation for sixth generation (6G) and beyond wireless networks.

The committee is encouraged by the Department of Defense's (DOD) 5G Strategy and associated Implementation Plan, which reflect the clear recognition of the critical role that the 5G ecosystem plays in U.S. military and economic competitiveness. The committee believes that DOD's 12 experimental sites and associated use cases present a uniquely valuable learning environment that will accelerate 5G advancement, to the benefit of both warfighters and U.S. citizens. The ability to rapidly develop and employ prototypes, at scale, offers an unparalleled resource to the nation, and creates a bridge between rapidly advancing basic research and production that will continue to be an essential link in the cycle of wireless technology innovation that the U.S. can, and must, lead.

The committee expects that any departure from the recently issued strategy and implementation plan will be carefully considered, and that DOD will consult with the congressional defense committees prior to making any significant departures from the 5G Strategy and associated Implementation Plan.

The committee is concerned that the fiscal year 2022 budget request for 5G represents a significant decline from the enacted fiscal year 2021 budget level. The committee believes that these activities need to be enhanced rather than scaled back. Therefore, the committee recommends an increase of $100.0 million in RDDW for PE 64011D8Z for 5G acceleration activities and an increase of $50.0 million in RDDW for PE 62230D8Z for 6G and beyond technology development.

Defense-wide Research and Development unfunded requirements

In accordance with section 222a of title 10 United States Code, the service chiefs and combatant commanders each submitted a list of unfunded requirements. The committee recommends an additional increase of nearly $398.6 million for Defense-wide Research and Development items on these unfunded requirements lists.

Items of Special Interest

Advanced engine development

The committee continues to support adaptive cycle engine research and development and encourages the Department of Defense (DOD) to transition this technology within the Advance Engine Technology Program (AETP) into engineering and manufacturing development activities at the soonest opportunity. Fighter propulsion is one of the few areas in which the United States maintains a clear advantage over near-peer adversaries, specifically China and its threat to the Indio-Pacific region. The F–35 will be one of the key elements of the front-line fighter forces of the military services and U.S. allies and partners for decades to come. Failure to develop an adaptive cycle engine and make it available for production on the F–35 would constitute a missed opportunity to capitalize on more than $4.0 billion in research and development and open a door for U.S. adversaries to overtake fielded engine technology. The committee recognizes the importance of maintaining a strong industrial base, competition, and the role adaptive engine technology could play in supporting the National Defense Strategy.

Therefore, the committee directs the Secretary of the Air Force to provide, as part of the Department's fiscal year 2023 budget submission, details of an acquisition strategy and a plan for an engineering and manufacturing development (EMD) program to transition adaptive cycle engines into the F–35. The acquisition strategy shall include at least one course of action that would provide for executing an EMD contact in fiscal year 2023.

Additionally, in order to preserve critical engineering and manufacturing resources, and preserve momentum toward an affordable EMD program, the committee recommends additional funding in fiscal year 2022 for use in continued progress toward maturation

and risk-reduction of adaptive cycle engines for the F–35. The Air Force should emphasize support for achieving the AETP goals of an acquisition-level product design consistent with the Adaptive Engine Requirements Document statement of requirements and testing prototype engines that validate those designs.

Anti-malarial preventative measures

The committee is concerned about the Department of Defense's reductions to investments in research and development of vaccines to prevent malaria. Since malaria remains the top infectious disease threat to servicemembers in the Indo-Pacific Command and Africa Command areas of responsibilities, a reduction in funding for anti-malarial preventive measures will imperil the mission readiness, health, and safety of servicemembers. Therefore, the committee encourages the Department to continue investment in research for chemoprophylaxis, surveillance, vaccine development, and other countermeasures for malaria by the Walter Reed Army Institute of Research and the Navy Medical Research Center.

Autonomously powered exoskeletons

The committee is aware of the Department of Defense's ongoing efforts to explore the application of exoskeleton technology. Catalyzed by initial Defense Advanced Research Projects Agency investments over the last two decades, proof of concept of exoskeletons has been established and these integrated systems have been used in field experiments and simulated environments. The committee is also aware that further maturation of this technology is being addressed in: Army efforts to develop sufficient exoskeletons for comprehensive operational evaluation; Navy evaluation of industrial exoskeletons to manipulate heavy items and enhance workplace safety and efficiency in a shipyard environment; U.S. Special Operations Command test of a variant for helicopter logistics support to refuel, rearm, and repair; and Marines Corps evaluation of logistical operations such as loading and unloading pallets of gear and ammunition in the field. The committee understands this is a rapidly growing market that is fueled by industrial production needs and healthcare applications, and the committee encourages the Department to continue to leverage the use of full-body, autonomously powered exoskeletons and semi-autonomous or tele-operated single or dual-armed, human controlled robots used for heavy lift sustainment tasks.

Bomber long-term roadmap

The Air Force and Global Strike Command have consistently stated that 225 bombers are necessary to ensure victory in a near-peer conventional war. However, the current bomber roadmap would leave the United States with only 175 bombers (100 B–21s and 75 B–52s) until 2050. After that, with the retirement of the B–52, and absent some effort to buy more bombers, the bomber fleet would consist of 100 B–21 bombers. The committee encourages the Department of Defense to consider multiple options for maintaining a 225 bomber force after 2050, to include procuring more B–21s or augmenting the B–21 fleet with a lower cost B–52 replacement. Pursuing a lower cost B–52 replacement would be consistent with

the Chief of Staff of the Air Force's comments earlier this year about the F–35 program and the need for the Air Force to invest in cheaper, more flexible platforms.

Accordingly, the committee directs the Secretary of the Air Force to conduct a study on options for maintaining 225 bombers after 2050 and to submit the results of the study to the congressional defense committees with the budget request for fiscal year 2023. The study shall include the following:

(1) An assessment of the benefits and risks of adopting a bomber fleet consisting of 225 B–21s;

(2) An assessment of the cost differences between acquiring 225 B–21s and replacing the B–52 with a low-cost, non-stealthy bomber;

(3) An assessment of which missions, if any, for which a lower-cost B–52 replacement might be more appropriate than a B–21; and

(4) A recommendation of how the Air Force should acquire 225 bombers, to include a balance between cost and mission effectiveness.

Comptroller General assessment of operational security standards for microelectronics products and services

The committee recognizes that the Department of Defense (DOD) is developing trusted supply chain and operational security standards for the purchase of microelectronic products and services. These standards, which are to be in place not later than January 1, 2023, are intended to protect the United States from intellectual property theft and to ensure national security and public safety in the application of new generations of wireless network technology. Given the high risk that microelectronics security threats pose to U.S. national security and public safety, the committee directs the Comptroller General of the United States to assess DOD's implementation effort, to include the status of DOD's efforts to:

(1) Develop trusted supply chain and operational security standards for the purchase of microelectronic products and services;

(2) Disseminate the standards throughout the Department and train appropriate acquisition personnel on the application of those standards;

(3) Update acquisition regulations to reflect the standards; and

(4) Coordinate with commercial industry, allies, and partners to ensure adoption of common standards to the greatest extent practicable.

The committee directs the Comptroller General to provide an initial briefing on the status of DOD's efforts to the congressional defense committees, not later than August 1, 2022, and to provide periodic assessments of these efforts as well any others that the Comptroller General determines to be relevant during the course of the work.

Comptroller General review of the Department of Defense's directed energy development efforts

The committee recognizes that the Department of Defense (DOD) has spent decades researching, developing, and acquiring directed energy (DE) technologies and capabilities. As the range of potential applications for directed energy capabilities has expanded, the DOD's ability to develop, acquire, and field these capabilities in a timely manner is critical.

Given DOD's investments in directed energy capabilities, the diversity of these capabilities, and their application in future conflict, the committee directs the Comptroller General of the United States to continuously monitor and report on: (1) DOD's DE efforts, including science and technology, research and development, test and evaluation, and formal acquisition programs; (2) The status of these efforts, including types of technologies, technology maturation, and technology transition strategies being used; (3) Efforts to build expertise and infrastructure within the DOD and industry to support the development, testing, and manufacturing of capabilities; and (4) Other issues the Comptroller General deems relevant to this review.

This review shall be provided in the form of a briefing to the congressional defense committees not later than May 31, 2022, with follow-on reporting to occur on mutually agreed upon dates.

Employing ground-based systems at sea

The committee directs the Department of Defense, not later than April 1, 2022, to provide a briefing to the congressional defense committees on any experiments with employing ground-based systems on sea-based platforms. The briefing shall cover the time period beginning January 1, 2018 and ending April 1, 2022. The briefing shall also include relevant details on any experiments of this type planned after April 1, 2022.

Ground-based systems of interest include, but are not limited to: the High Mobility Artillery Rocket System, Multiple Launch Rocket System, Autonomous Missile Launcher, Medium Range Capability, Precision Strike Missile, Maritime Strike Tomahawk/Tactical Tomahawk, counter-unmanned aircraft systems, and Standard Missile-6.

Sea-based systems of interest include, but are not limited to: L-class amphibious ships, Expeditionary Fast Transports, Expeditionary Transfer Dock/Expeditionary Sea Base, Combat Logistics Force ships, commercial fishing vessels, and barges.

Facial recognition and surveillance technologies

The committee is greatly concerned by the growing use of surveillance and facial recognition technologies by some non-democratic governments to surveil, track, and oftentimes repress their citizens. The committee understands that some foreign companies that have developed and are selling these technologies to countries of concern may have also participated in United States Government competitive prize programs. The committee believes that the Department of Defense should not enter into agreements with companies that have sold such products to such governments.

Foreign military aviation training capacity

The committee directs the Secretary of Defense, not later than September 1, 2022, to provide a report to the congressional defense committees on the Department of Defense's foreign military aviation training capabilities and capacity through 2030. The report shall be submitted in unclassified form, but may include a classified annex. The report shall assess the Department of Defense's ability to train adequate numbers of pilots, aircrew, and maintenance personnel to meet the backlog of U.S. military aviation requirements, while also meeting the training demand for training to support Foreign Military Sales and security assistance programs for allied and partner nation aviation forces.

Graphitic composites and foam for Next Generation Combat Vehicle

The committee is pleased with the U.S. Army Ground Vehicle Systems Center's (GVSC) decision to develop lower cost, wider application of mesophase pitch-based graphitic composite and graphitic carbon foam components in support of the Next Generation Combat Vehicle (NGCV). The committee notes that graphitic composites used in parts, batteries, and fuel cells can reduce weight, increase strength, enhance mission capability, and extend service life of the NGCV. Graphitic carbon foam can dramatically reduce component heat signatures, improve heat dissipation from electronic devices and sensors, and cool electronic compartments in demanding environments. Graphitic carbon foam can also protect against blast energy, directed energy weapons, and electromagnetic pulse threats. The committee recognizes the versatility and broad application that graphitic composites and foam technology provides for the Armed Forces by reducing the weight of parts by over 50 percent against traditional metal components, while improving survivability and performance. The committee recommends that the GVSC continue to test, develop, and field low cost mesophase pitch based graphite composite and graphitic carbon foam components that can reduce weight, reduce energy consumption, extend service life, reduce component thermal signatures, dissipate heat, and improve equipment survivability for the NGCV.

Graphitic composites and foam for special operations forces communications and intelligence support systems

The committee understands U.S. Special Operations Command (SOCOM) is working to develop lower cost, wider application graphitic composite and graphitic foam components in support of special operations forces communications and intelligence support systems. The committee understands that graphitic composite and foam components may reduce weight, increase strength, enhance mission capability, and could extend service life for these programs. Additionally, graphitic foam may reduce component heat signatures, improve heat dissipation from electronic devices and sensors, cool electronic compartments in demanding environments, and could protect against blast energy, directed energy weapons, and electromagnetic pulse threats. The committee encourages SOCOM to continue its efforts to test, develop, and field low-cost carbon

fiber and graphitic carbon foam in support of its programs, as appropriate.

High energy laser research

The committee notes that directed energy laser weapons provide lethal effects to respond to rapidly emerging threats. The committee also notes that research and development efforts are needed to better understand system requirements and the effects of laser pulse duration on weapons capabilities. The committee urges the Secretary of Defense to continue to support research in these technology areas in partnership with industry, Federal laboratories, and academia.

High Mobility Multipurpose Wheeled Vehicles rollover mitigation

The committee is concerned with the continued rollovers of High Mobility Multipurpose Wheeled Vehicles (HMMWV), generally known as Humvees, and other combat vehicles but has been encouraged by the development of a rollover mitigation program funded in last year's budget. The committee understands that work began on this program and two recent proof of concept pilots at Red River Army Depot have been successful and shown that a retrofit approach works, thus removing any concern with quality, readiness, and cost. As there are 54,810 HMMWVs in the enduring and fielded fleet that are legacy vehicles, new, or have been modernized without the kits installed, this is of great concern to the committee. The President's budget request for fiscal year 2021 only provided funding for 9,480 vehicles in fiscal years 2021, 2022, and 2023.

Therefore, the committee directs the Secretary of the Army to provide to the congressional defense committees, not later than January 31, 2022, a plan as to how it will fund the rollover mitigation retrofit for the remainder of the entire HMMWV fleet.

Hypersonic research

The committee supports the continued development of hypersonic technology and encourages the development of hypersonic capabilities as a key element of the National Defense Strategy. These weapons represent an area of intense technological competition between the United States, People's Republic of China, and Russian Federation. The committee is concerned that there is a lack of focus on air-launched and air-breathing hypersonic capability, including the potential for rapid space launch capability facilitated by purpose-built hypersonic aircraft. The committee believes that the Department of Defense (DOD) needs to focus more attention on the expeditious development and maturation of key hypersonic flight technologies. In addition to the need to improve ground-based test facilities such as wind tunnels, the DOD also needs to increase its flight test rate to expedite the maturation and fielding of hypersonic technologies. The combination of ground-based testing and flight testing is critical to fully maturing the fundamental technologies needed to field a hypersonic flight system. High-rate hypersonic flight test programs would help mature six critical technology areas: (1) Thermal protection systems and high temperature flight structures; (2) Seekers and sensors for hypersonic vehicles;

(3) Advanced navigation, guidance, and control; (4) Communications and data links; (5) High speed aerodynamic characterization; and (6) Advanced avionics and vehicle communication systems for hypersonic vehicles.

Therefore, the committee directs the Under Secretary of Defense for Research and Engineering, in consultation with the Secretaries of the services, to provide an executable strategy and report to the congressional defense committees, not later than December 30, 2021, on the plan to field air-launched and air-breathing hypersonic weapons and the potential use for tactically responsive launch capabilities within 3 years. The strategy shall include required investment in testing and infrastructure to address the need for both flight and ground testing.

Hypersonics test facilities

The committee remains supportive of hypersonic technology programs and a robust test infrastructure to support the burgeoning operational capability in development today. Therefore, the committee directs the Secretary of Defense to deliver a report to the congressional defense committees not later than March 1, 2022. The report shall: (1) Identify each facility and resource of the Major Range and Test Facility Base that is primarily concerned with the test and evaluation of hypersonics technology; and (2) Recommend the optimal organization and coordination mechanisms to promote effective and efficient use of test resources to support hypersonics technology development.

Joint All-Domain Testing and Training

The committee recognizes the critical need for the National Guard, as an essential component of the Joint Force, to conduct all-domain training and exercises in support of the National Defense Strategy (NDS). The committee notes the Joint Staff's development of the joint warfighting concept to support the NDS. The committee notes that in order to support the NDS, training capabilities can best be achieved within an all-domain training environment. Such a venue should be able to support training and exercises for aircraft; training in maritime and littoral environments; amphibious training; joint fire support; maneuver coordinated with fires and effects; multi-echelon sustainment; combined arms live-fire; decisive major combat operations scenarios; air mobility; cyber operations; space operations; electronic warfare spectrum availability; mission command; remotely piloted aircraft launch and recovery; and four seasons capabilities.

The committee notes that the National All Domain Warfighting Center (NADWC), which includes the Alpena Combat Readiness Training Center, delivers a joint all-domain, four-season training environment that is able to support its users in their efforts to achieve or sustain proficiency in conducting joint command and control, air, maritime, and ground maneuver integration, and the synchronization of kinetic and non-kinetic fires in a joint, multinational major combat operations environment that is scalable across unit resources levels. These capabilities are critical to the preparedness of the U.S. Armed Forces for future warfighting demands. Accessibility is critical to the ability of units and partners

to be able to train with their equipment in a wide range of environments that mimic potential conflict zones. NADWC has multimodal capabilities to train and exercise joint logistics and sustainment at operationally relevant distances. This also provides a training environment that addresses training gaps and builds readiness at multiple echelons with the scope and scale required to address emerging challenges of near-peer competitors.

The committee encourages the Secretary of the Army and the Secretary of the Air Force to appropriately resource joint all-domain training, exercises, test, and experimentation for the Army and Air National Guards to maximize readiness in an all-domain training environment to the maximum extent practicable.

Jointless hull development

The committee notes that as the Army seeks to revamp its ground vehicle portfolio in order to compete with near peer competitors, advanced breakthrough technologies are crucial enabling efforts. The Army's jointless hull development work within the Next Generation Combat Vehicle (NGCV) program is an important enabling program for developing and building lighter and better protected combat vehicles. The program's goal of creating a large additive manufacturing printer capable of producing hull sized components will not only benefit the NGCV program but will also allow the Army to print hull sized parts and components which can reduce part supply backlogs across the Army. Therefore, the committee encourages the Army to continue its research on jointless hull and additive manufacturing technology.

KC–10 Divestiture

The committee remains concerned about the divestiture of the KC–10 aerial refueling tanker while the replacement KC–46 Pegasus continues to display significant category 1 deficiencies involving the Remote Vision System and the air refueling boom. Prior to any further divestment of the KC–10 in fiscal years 2022, 2023, and 2024, the committee directs the Commander, U.S. Transportation Command, and the Chief of Staff of the Air Force to provide a briefing to the congressional defense committees detailing tanking requirements and the metrics made in determining the size and makeup of the tanking fleet.

KC–46 basing

The committee directs the Secretary of the Air Force to provide a briefing to the congressional defense committees, not later than December 1, 2021, on the strategic basing process and resulting decisions related to the KC–46 beddown. The briefing shall cover the entirety of the basing timeline, supporting evidence that informed decisions, and a thorough explanation justifying any constraint to beddown KC–46 aircraft exclusively within the continental United States (CONUS).

The briefing shall also encompass impacts to operational and contingency plans in theaters outside of CONUS resulting from a lack of overseas basing of the KC–46, how the U.S. Air Force plans to mitigate those impacts, and what risks are being imposed on combatant commanders due to the CONUS basing constraint.

Mobile compact high energy laser

The committee recognizes that special operations forces (SOF) conduct missions that require stand-off counter sensor capabilities and understands that compact high energy laser systems that can be moved, assembled, and operated by small, dismounted teams could be beneficial to SOF operations. The committee encourages U.S. Special Operations Command to pursue the development of compact high energy laser capabilities, as appropriate.

MQ–9 Resiliency

The committee understands the high demand for the MQ–9 Reaper in current operations. The committee would like to understand what role the MQ–9 could play within a 21st century battle landscape. Some obstacles to MQ–9 survivability within a contested environment include a lack of command and control (C2) resiliency and lack of threat awareness.

Therefore, the committee directs the Secretary of the Air Force to provide a report, not later than April 15, 2022, to the congressional defense committees detailing: (1) The cost difference, potential savings, and operational impact associated with switching the MQ–9's C2 structure from SATCOM to Low Earth Orbit satellites; (2) The feasibility of autonomous MQ–9 operations without beyond line-of-sight or within line-of-sight C2; (3) An updated assessment of the Reaper Defensive Electronic Support System as a tool to remedy the MQ–9's current lack of threat awareness; and (4) What effect implementing these improvements would have on MQ–9 survivability.

Networked integrated controls kit and electronics link in support of Next Generation Combat Vehicle advanced technology

The committee is encouraged by the U.S. Army Ground Vehicle Systems Center's (GVSC) efforts to develop a prognostic and predictive maintenance (PPMx) solution coupled with the ability to track and disable associated vehicles remotely via a common onboard electronic control unit should the requirement arise. This technology potentially could gather data and transmit securely from the vehicle to a cloud-based data management center, enable the control, location monitoring, and usage of each vehicle in support of PPMx, and provide increased security. The committee encourages the GVSC to continue to research, develop, test, and evaluate solutions that meet the Army's requirements to support PPMx and provide additional capabilities to the warfighter in deployed environments.

Policies to support use of additive manufacturing capabilities

The committee is supportive of the use of additive manufacturing capabilities as a complement to traditional manufacturing techniques for use in defense supply chains. However, the committee is concerned about the Department of Defense (DOD)'s ability to use these capabilities to manufacture components of systems that are currently in development and have yet to be fielded.

Therefore, the committee directs the Secretary of Defense to provide a briefing to the congressional defense committees, not later than March 1, 2022, on issues relating to licensing and use of technical data and intellectual property that may limit the DOD's ability to use additive manufacturing capabilities to produce systems components and parts as part of robust and responsive supply chains.

Radar and multi-function sensor capabilities

The committee notes the significant commitment of the Army Research Laboratory to collaborate with academia in the development of new technologies in core mission areas. The committee notes that one of these technologies is distributed radar and multi-function sensors, which can provide: performance improvement in coverage, targeting, and engagement timeline; increased jamming power on target; new electronic warfare effects; and enhanced survivability of participating platforms.

The committee further notes that investments in distributed radar and multi-function sensors, modeling and simulation of distributed radio frequency (RF) sensors, advanced antennas and RF electronics, and methods for timing and synchronization across large numbers of platforms, will accelerate the transformation of current sensor and effector architectures.

Therefore, the committee supports research into the development of such technologies and directs the Secretary of the Army to leverage research with academic partners to support development of distributed radar and multi-function sensor capabilities.

Report on special access program administration

The committee is aware of the disparate administration organizations in the Department of Defense and an ongoing discussion as to the most effective and efficient organizational structure to meet the requirements for special access program (SAP) administration. Therefore, the committee directs the Secretary of Defense, in consultation with the Secretaries of the military departments, not later than January 31, 2022, to provide a report to the congressional defense committees on the current organizations for SAP administration across the services, as well as the rationale for the differences. Additionally, the report shall recommend the most effective organization and provide a strategy and timeline to align all service SAP administrators with the optimum organization. The committee also highly encourages the termination of all service reorganization efforts until such time as the committees receive the required report and strategy from the Secretary of the Defense.

Study of injuries during aircraft ejections

The committee notes the evolving capabilities of high-performance aircraft ejection seats and sees the need to ensure the capability of an ejected pilot to escape and evade potential capture or to engage in life-saving activities. The committee is concerned that current ejection seats may cause preventable injuries to pilots during ejection.

Therefore, the committee directs the Secretary of Defense to conduct a study, to be completed not later than March 15, 2022, of all

pilot ejections from Department of Defense aircraft from 1985 to the present to examine injuries to pilots, determine mitigations to injury, and inform design of future ejection seat systems. The committee believes that the study's findings should be considered during the development and procurement of all future aircraft escape systems.

Support by manufacturing institutes for modernization priorities

The committee notes that the Department of Defense (DOD) has established Manufacturing Innovation Institutes to support enhancing partnerships between industry, academia, and Government to develop advanced manufacturing capabilities in emerging technology sectors.

The committee notes that the manufacturing institutes should play a role in developing reliable, low-cost, and modern production and industrial capabilities to support DOD's modernization priorities. Therefore, the committee directs the Undersecretary of Defense for Research and Engineering to provide a briefing to the congressional defense committees not later than October 1, 2022, on the support that the manufacturing institutes are providing to the technical and transition roadmaps developed for relevant modernization priorities.

Support Naval Power and Energy Systems Technology Development Roadmap

The committee supports the recommendations in the recently updated Naval Power and Energy Systems Technology Roadmap for development of advanced power electronics, including silicon carbide power modules, which can reduce the size and weight of power conversion modules and other electronic systems needed to power advanced sensors and weapons systems.

Wide-area motion imagery development

Wide-area motion imagery (WAMI) technology is a combat-proven intelligence, surveillance, and reconnaissance system that has provided persistent, real-time intelligence for commanders in the U.S. Central Command area of responsibility. The committee is pleased that prior year congressional funding has resulted in the development of a beyond-line-of-sight capability, artificial intelligence/machine learning-ready airborne processors/sensors, and multi-intelligence capabilities. The committee encourages the continued development into potential new uses for WAMI technology that will support anti-access/area denial operations against near-peer adversaries.

TITLE III—OPERATION AND MAINTENANCE

Subtitle A—Authorization of Appropriations

Authorization of appropriations (sec. 301)

The committee recommends a provision that would authorize the appropriations for operation and maintenance activities at the levels identified in section 4301 of division D of this Act.

Subtitle B—Energy and Environment

Expansion of purposes of Sentinel Landscapes Partnership program to include resilience (sec. 311)

The committee recommends a provision that would amend section 317 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) to clarify that the Sentinel Landscape Partnership program is also authorized to address concerns of military installation resilience in addition to conservation efforts.

Maintenance of current analytical tools in evaluating energy resilience measures (sec. 312)

The committee recommends a provision that would amend section 2911 of title 10, United States Code, to direct the Department of Defense to develop a process to ensure that when evaluating energy resilience measures, analytical tools are accurate and effective in determining life cycle costs and performance measures.

Military Aviation and Installation Assurance Clearinghouse matters (sec. 313)

The committee recommends a provision that would amend section 183a(c) of title 10, United States Code, to clarify a notice of presumed risk. The provision would also direct the Department of Defense to develop a strategy to test and integrate wind turbine interference mitigation technologies into radars and the air surveillance command and control architecture.

The committee is aware that compatibility concerns between wind turbines and radars in the energy projects must be balanced with proper radar siting. The committee also understands there are mitigation options available today to address wind turbine and radar issues. The committee strongly urges the Department to accelerate efforts to develop, test, and deploy mitigation options, including infill radar, which can provide supplemental coverage to an existing radar. Infill radar has been tested over a multi-year period by the Air Force at Travis Air Force Base and demonstrated improved detection capabilities while reducing impacts from turbines. The committee understands the Air Force provided funding to the Federal Aviation Administration to establish performance requirements and develop a pathway to certify infill radars for use in the

national airspace system. The committee understands there has not yet been testing of the integration of infill radars with North American Aerospace Defense Command (NORAD)'s surveillance command and control system known as Battle Command System—Fixed (BCS–F). Given the promise of infill radars, the committee strongly urges the Department to move forward with field testing integration of infills with the NORAD BCS–F, including fusing of radar data prior to delivery to NORAD to solve a potential barrier with the architecture of the BCS–F.

Accordingly, the committee directs the Secretary of Defense to provide a briefing to the Senate Armed Services Committee not later than March 1, 2022, outlining: (1) The available mitigation options by radar type, including infill radars; (2) Potential mitigation options the Department is actively investigating and the remaining steps and timeline to validate and deploy such mitigation options if they are successfully tested, including plans for testing integration of infill radars with NORAD's system; (3) Mitigation options the Department is not considering but could with additional resources; and (4) Mitigation options the Department has considered but rejected along with an explanation of why the option(s) is not considered viable. For (2) and (3) above, the briefing shall include an assessment of the resources necessary to develop, test, validate, and deploy the individual mitigation options, including opportunities for industry financing under section 183a of title 10, United States Code. The briefing shall acknowledge the role of other agencies in the process, as appropriate.

Exemption from prohibition on use of open-air burn pits in contingency operations outside the United States (sec. 314)

The committee recommends a provision that would amend section 317 of the National Defense Authorization Act for Fiscal Year 2010 (Public Law 111–84) to prohibit the use of open-air burn pits in contingency operations outside the United States unless waived by the Secretary of Defense. If a waiver occurs, the committee directs the Secretary to report to the committee, not later than 30 days after granting an exemption, the location of the open-air burn pit, the number of personnel assigned to the location, the size and expected duration of use, the need for the burn pit, and the specific rationale for granting the exemption. Such a report may be classified.

Demonstration program on domestic production of rare earth elements from coal byproducts (sec. 315)

The committee recommends a provision that would authorize a temporary program to demonstrate the feasibility of separating critical minerals and rare earth elements from coal byproducts and acid mine drainage for the purpose of supplementing the Department of Defense's domestic supply of critical minerals. The committee understands that multiple higher learning institutions have demonstrated this technology to date at a small scale. The committee's intent is for such a technology to produce at least 1.5 tons of rare earth elements per year and an equal amount of cobalt. Ideally, the full rate capacity would recover between 18 and 21 tons of

rare earth elements per year. Lastly, the committee directs the Department to consult with the Department of Energy's National Energy Technology Lab as much as possible to avoid any duplication and incorporate any lessons learned to the maximum extent possible.

Authority to transfer amounts derived from energy cost savings (sec. 316)

The committee recommends a provision that would amend section 2912 of title 10, United States Code, to clarify that the Secretary of Defense may transfer amounts derived from energy cost savings to other funding accounts of the Department of Defense to be used for the purposes previously outlined in statute.

The committee strongly supports the actions to reduce fuel costs and use taken by the military departments' operational and installation energy offices. Specifically, the committee notes that the Navy has realized at least $20.4 million to date in operational energy savings, while the Navy, Army, and Air Force have saved $45.0 million, $36.0 million, and $34.0 million in installation energy savings, respectively. The committee's expectation going forward is for the military services to continue sharing best practices and improve cost recovery mechanisms to further realize savings, improve warfighter capabilities, and reduce fuel use.

The committee remains concerned that the Department has failed to appropriately use the authority amended in fiscal years 2020 and 2021 due to apparent internal disputes over which colors of money can be used via section 2912 of title 10, United States Code. Accordingly, the committee's intent for this provision is to ensure that the Department exercise this authority to realize cost savings across all accounts and for the uses previously outlined in this section.

Sense of Senate on energy independence and diversification (sec. 317)

The committee recommends a provision that would express the sense of the Senate that the United States should remain energy independent to enhance national security.

Subtitle C—National Security Climate Resilience

National Security Climate Resilience (secs. 331–335)

The committee recommends a series of provisions (secs. 331–335) that would direct the Secretary of Defense to fully consider and make needed adjustments to account for current and emerging climate and environmental challenges and to ensure the climate resilience of assets and capabilities of the Department of Defense. The provision would also direct the Secretary to conduct a mission impact assessment on climate resilience in order to identify the full spectrum of climate risks that currently or could impact the Department. Additionally, the provision would require the Chairman of the Joint Chiefs of Staff to submit to the Committees on Armed Services of the Senate and the House of Representatives a report on the broader strategic and operational impacts of extreme weather on the Department.

Subtitle D—Treatment of Perfluoroalkyl Substances and Polyfluoroalkyl Substances

Treatment by Department of Defense of perfluoroalkyl substances and polyfluoroalkyl substances (sec. 351)

The committee recommends a provision that would require the Secretary of Defense to establish a task force to improve testing for and treatment of per- and polyfluoroalkyl substances by the Department of Defense; require preliminary assessment and site inspection testing to be completed within 2 years to provide a preliminary basis for additional response actions; and provide a status report on testing conducted at all military installations and facilities of the National Guard.

Public disclosure of testing and results of Department of Defense testing for perfluoroalkyl or polyfluoroalkyl substances and additional requirements for testing (sec. 352)

The committee recommends a provision that would require the Secretary of Defense to disclose testing and results of testing for per- and polyfluoroalkyl substances within 10 days of receipt of validated testing results and to provide additional requirements regarding testing for such substances.

Extension of transfer authority for funding of study and assessment on health implications of per- and polyfluoroalkyl substances contamination in drinking water by Agency for Toxic Substances and Disease Registry (sec. 353)

The committee recommends a provision that would amend section 316 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91), as most recently amended by section 337 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283), to extend the authorization and funding transfer by 2 years for the ongoing study and assessment on human health impacts of per- and polyfluoroalkyl substances in drinking water by the Centers for Disease Control and Prevention.

Report on remediation of perfluoroalkyl substances and polyfluoroalkyl substances at certain military installations (sec. 354)

The committee recommends a provision that would require the Secretary of Defense to submit to the Congress a report identifying the status of efforts to remediate per- and polyfluoroalkyl substances at 50 military installations and National Guard locations by not later than 60 days after the date of the enactment of this Act.

Report on schedule for completion of remediation of perfluoroalkyl substances and polyfluoroalkyl substances (sec. 355)

The committee recommends a provision that would require the Secretary of Defense to submit to the Committees on Armed Serv-

ices of the Senate and the House of Representatives a report detailing a proposed schedule for the completion of remediation of perfluoroalkyl substances and polyfluoroalkyl substances by not later than 270 days after the date of the enactment of this Act.

Subtitle E—Other Matters

Extension of temporary authority to extend contracts and leases under the ARMS Initiative (sec. 371)

The committee recommends a provision that would amend section 343 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114–92) and extend the lease authority until November 25, 2025.

Incident reporting requirements for Department of Defense regarding lost or stolen weapons (sec. 372)

The committee recommends a provision that would require the Secretary of Defense to submit to the congressional defense committees a report on security, control, thefts, losses, and recoveries of sensitive conventional arms, ammunition, and explosives of the Department of Defense. Additionally, the provision would require the Secretary of Defense to report a confirmed theft, loss, or recovery of a sensitive conventional arm, ammunition, or explosive within 72 hours to the National Crime Information Center and local law enforcement.

The committee notes the provision would only require the report to Congress requirement for the next three fiscal years.

Repeal of sunset for naval vessel examination report (sec. 373)

The committee recommends a provision that would strike subsection (d)(3) of section 8674 of title 10, United States Code, in order to retain an annual report relating to examinations of naval vessels.

Report on ammunition organic industrial base modernization by Department of the Army (sec. 374)

The committee recommends a provision that would require the Secretary of the Army to submit to the congressional defense committees a report, not later than March 15, 2022, on ammunition organic industrial base modernization by the Department of the Army. The provision would also require the Secretary to, as part of the annual budget submission by the President under section 1105(a) of title 31, United States Code, for fiscal years 2023 through 2027, submit to the congressional defense committees a report describing the progress made in establishing and implementing the master plan for each arsenal of the Department of the Army and an updated strategy planned for each arsenal of the Department of the Army.

Annual report by Secretary of the Navy on ship maintenance (sec. 375)

The committee recommends a provision that would require the Secretary of the Navy to submit a report to the congressional de-

fense committees, not later than October 15 of each year, setting forth:

(1) A description of all ship maintenance planned for the fiscal year in which the report is submitted by hull;

(2) The estimated cost of the maintenance;

(3) A summary of all ship maintenance conducted by the Secretary during the previous fiscal year;

(4) Details of any ship maintenance that was deferred during the previous fiscal year; and

(5) Details of planned ship maintenance that was canceled during the previous fiscal year and a summary of the reasons for the decision.

Budget Items

Unfunded requirements

In accordance with section 222a of title 10, United States Code, the service chiefs and combatant commanders each submitted a list of unfunded requirements. The committee recommends an additional increase of about $6.2 billion for Operation and Maintenance items on these unfunded requirements lists.

Critical organic industrial base production capacity

The budget request included $54.6 billion in Operation and Maintenance, Army (OMA), of which $4.1 billion was for SAG 132 Facilities Sustainment, Restoration, and Modernization.

The committee notes that the Chief of Staff of the Army's unfunded priorities list included a request for additional funds to assist in the critical Organic Industrial Base (OIB) production capacity at McAlester Army Ammunition Plant, Anniston Army Depot, and Red River Army Depot.

Accordingly, the committee recommends an increase of $7.4 million in OMA, for SAG 132 for the above projects to support critical OIB production capacity.

Facilities Sustainment, Restoration and Modernization

The budget request included $4.1 billion in Operation and Maintenance, Army (OMA) for SAG 132 Facilities, Sustainment, Restoration and Modernization; $3.0 billion in Operation and Maintenance, Navy (OMN), for SAG BSM1 Sustainment, Restoration and Modernization; $1.2 billion in Operation and Maintenance, Marine Corps (OMMC), for SAG BSM1 for Sustainment, Restoration and Modernization; and $3.9 billion in Operation and Maintenance, Air Force (OMAF), for Facilities Sustainment, Restoration and Modernization.

The committee understands that additional funds would alleviate current challenges in maintaining facilities to better support existing readiness levels, while increased sustainment funding would also prevent disproportionate restoration and modernization backlog growth.

Accordingly, the committee recommends the following increases: $829.0 million in OMA for SAG 132, $575.0 million in OMN for SAG BSM1, $224.0 million in OMMC for SAG BSM1, and $774.0 million in OMAF for SAG 011R.

U.S. Africa Command intelligence, surveillance, and reconnaissance

The budget request included $54.6 billion for Operation and Maintenance, Army (OMA), of which $384.8 million was requested for SAG 141 U.S. Africa Command (AFRICOM).

The committee notes that AFRICOM is currently able to meet 30 percent of its Joint Staff-validated intelligence, surveillance, and reconnaissance (ISR) requirements in its area of responsibility and has identified the need to sustain this level of ISR support in fiscal year 2022 as an unfunded requirement.

The committee recommends an increase of $67.0 million in OMA for SAG 141 for ISR support to AFRICOM.

Training Improvements for Counter-small Unmanned Aerial Systems

The budget request included $54.6 billion in Operation and Maintenance, Army (OMA), of which $488.5 million was for SAG 431 Administration.

The committee supports the efforts of the Joint Counter-Small Unmanned Aerial Systems Office (JCO), with the U.S. Army as the executive agent, in advancing Counter-small Unmanned Aerial Systems (C–sUAS) capabilities, technology, tactics, and training. The committee understands the urgent need to expedite training of a cadre of servicemembers in utilizing and leveraging C-sUAS technologies.

Accordingly, the committee recommends an increase of $4.0 million in OMA for SAG 431 Administration for expedited C–sUAS training.

Army real estate inventory system

The budget request included $54.6 billion in Operation and Maintenance, Army (OMA), of which $269.0 million was for SAG 437 Real Estate Management.

The committee notes that in the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283), the conferees authorized the Secretary of the Army to develop a pilot program to improve real estate inventory and utilization. The committee also notes that the pilot program will help to enhance current efforts by the U.S. Army to inventory the space they now have available to find potential savings and efficiencies consistent with the National Defense Strategy. The committee further notes that additional funding could be used to build additional capabilities into the online tool like artificial intelligence and machine learning capabilities to enhance information.

Accordingly, the committee recommends an increase of $5.0 million in OMA for SAG 437 Real Estate Management to further the development of the Army's real estate prototype inventory system.

United States Southern Command traditional intelligence, surveillance, and reconnaissance

The budget request included $2.0 billion in Operation and Maintenance, Army (OMA) for SAG 411 Security Programs, of which $30.9 million is for U.S. Southern Command (SOUTHCOM) intelligence, surveillance, and reconnaissance (ISR) operations.

The committee notes that SOUTHCOM is currently able to meet 15 percent of its Joint Staff-validated ISR requirements in its area of responsibility and has identified the need to sustain this level of ISR support in fiscal year 2022 as an unfunded requirement.

The committee recommends an increase of $18.0 million in OMA for traditional SOUTHCOM ISR requirements.

Army National Guard Weapons of Mass Destruction Civil Support Teams Equipment Sustainment

The budget request included $7.6 billion in Operation and Maintenance, Army National Guard (OMANG), of which $704.8 million was requested for SAG 121 Force Readiness Operations Support.

The committee notes the importance of training the Weapons of Mass Destruction Civil Support Teams at Dugway Proving Ground and other similar facilities. Further, the Army National Guard Civil Support Teams listed this training shortfall as an unfunded requirement.

Accordingly, the committee recommends an increase of $5.0 million in OMANG for SAG 121 Force Readiness Operations Support.

Identity, credentialing, and access management reduction—Navy

The budget request included $60.4 billion in Operation and Maintenance, Navy (OMN), of which $565.9 million was requested for SAG 1CCY Cyberspace Activities.

The committee is concerned about the lack of integrated efforts to establish a common enterprise identity, credentialing, and access management (ICAM) solution across the Department of Defense and encourages the Navy to work with the Defense Information Agency in migrating its ICAM approach to an enterprise solution.

Therefore, the committee recommends a decrease in OMN of $5.0 million for SAG 1CCY.

Additional intelligence, surveillance and reconnaissance for United States Central Command

The budget request included $53.9 billion for Operation and Maintenance, Air Force (OMAF), of which $2.4 billion was for SAG 011C Combat Enhancement Forces.

U.S. Central Command identified $53.0 million in an unfunded requirement for MQ–9s to support operations in the command's area of responsibility.

The committee recommends an increase of $53.0 million in OMAF for SAG 011C Combat Enhancement Forces in support of this request.

A–10 force structure

The budget request included $5.6 billion in Operation and Maintenance, Air Force (OMAF) for SAG 011Y Flying Hour Program.

Elsewhere in this Act, there is a provision that would prohibit the Air Force from retiring any of the A–10 aircraft in the force structure, rather than retiring 42 aircraft as proposed in the budget request.

Therefore, the committee recommends an increase of $272.0 million in the OMAF SAG 011Y Flying Hour Program, of which the committee notes $156.0 million is for contract work maintainers.

C–130 force structure

The budget request included $5.6 billion in Operation and Maintenance, Air Force (OMAF) for SAG 011Y Flying Hour Program.

Elsewhere in this Act, there is a provision that would require the Air Force to maintain 292 C–130 aircraft in the force structure, rather than a force level of 279 aircraft as proposed in the budget request.

Therefore, the committee recommends an increase of $83.0 million in OMAF for SAG 011Y Flying Hour Program.

Office of Security Cooperation–Iraq reduction

The budget request included $372.4 million in Operation and Maintenance, Air Force (OMAF) for SAG 015F US CENTCOM, of which $30.0 million was for the Office of Security Cooperation-Iraq (OSC–I).

The committee expects the OSC–I to further continue its transition to a normalized security cooperation office, including by transitioning funding for its operations to the Foreign Military Financing Administrative Fund and the Foreign Military Sales Trust Fund Administrative Surcharge Account.

Therefore, the committee recommends a reduction of $5.0 million in OMAF SAG 015F US CENTCOM for the OSC–I. The committee notes that there is a corresponding legislative provision elsewhere in this Act.

United States Space Command pathway to full operational capability

The budget request included $53.9 billion in Operation and Maintenance, Air Force (OMAF), of which $272.6 million was requested for SAG 015X Combatant Command Mission Operations—U.S. Space Command (SPACECOM).

The committee notes the importance of accelerating the stand up of SPACECOM operational capability and that the Commander, SPACECOM submitted this as an unfunded requirement.

Accordingly, the committee recommends an increase of $26.8 million in OMAF for SAG 015X Combatant Command Mission Operations—U.S. Space Command.

Joint Exercise Program

The budget request included $407.2 million in Operation and Maintenance, Defense-wide (OMDW), for SAG 1PL1 Joint Chiefs of Staff, of which no funds were requested for the Chairman of the Joint Chiefs of Staff Joint Exercise Program.

The committee is concerned about sequential cuts to the Joint Staff suite of joint exercise programs, including the Joint Exercise Program, the Combatant Commander's Exercise, Engagement, and Training Transformation Program, and others across multiple accounts, even amid the increased salience of such activities.

Therefore, the committee recommends an increase of $50.0 million in OMDW for SAG 1PL1 to accelerate high-priority joint training and experimentation activities in fiscal year 2022.

Modernized forward-look sonar

The budget request included $9.4 billion in Operation and Maintenance, Defense-wide (OMDW) for U.S. Special Operations Command (SOCOM), of which $1.1 billion was requested for SAG 1PL7 Special Operations Command Maintenance.

The committee supports prioritization of resources to address capability gaps, particularly those that ensure U.S. Special Operations Forces maintain superiority relative to near peer competitors, and notes that the SOCOM Commander has identified modernized forward-look sonar as an unfunded requirement.

Therefore, the committee recommends an increase of $900,000 in OMDW for SAG 1PL7 to support modernized forward-look sonar capabilities for SOCOM.

Personal signature management acceleration

The budget request included $9.4 billion in Operation and Maintenance, Defense-wide (OMDW) for U.S. Special Operations Command (SOCOM), of which $1.1 billion was for SAG 1PL7 Special Operations Command Maintenance.

The committee supports prioritization of resources to address capability gaps, particularly those that ensure U.S. Special Operations Forces maintain superiority relative to near-peer competitors, and notes that the SOCOM Commander has identified the acceleration of personal signature management capabilities as an unfunded requirement.

Therefore, the committee recommends an increase of $5.4 million in OMDW SAG 1PL7 for acceleration of SOCOM personal signature management capabilities.

Innovative Readiness Training increase

The budget request included $44.9 billion in Operation and Maintenance, Defense-wide (OMDW), of which $137.3 million was for SAG 4GT3 Civil Military Programs.

The committee notes that $13.1 million of the request for Civil Military Programs was for the Innovative Readiness Training (IRT). The committee is aware that the military services continue to face readiness challenges due to budgetary constraints. The committee continues to recognize the value of the IRT, which affords the military services realistic joint training opportunities for National Guard, Reserve, and Active-Duty servicemembers.

The committee understands that the IRT offers complex and challenging training opportunities for domestic and international crises. The committee is also aware that Alaska, Arizona, Arkansas, California, Colorado, Hawaii, Indiana, Kentucky, Louisiana, Maine, Minnesota, Missouri, Montana, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, South Dakota, Texas, Virginia, West Virginia, and Wyoming all use the IRT.

Accordingly, the committee recommends an increase of $5.0 million in OMDW for SAG 4GT3 Civil Military Programs.

STARBASE

The budget request included $44.9 billion for Operation and Maintenance, Defense-wide (OMDW), of which $137.3 million was for SAG 4GT3 Civil Military Programs.

The committee notes that the Science and Technology Academies Reinforcing Basic Aviation and Space Exploration (STARBASE) program is an effective program that improves the knowledge and skills of students in kindergarten through 12th grade in science, technology, engineering, and mathematics.

Therefore, the committee recommends an increase of $15.0 million for SAG 4GT3 Civil Military Programs for the STARBASE program.

Defense Counterintelligence and Security Agency analytic tools for assessing FOCI

The budget request included $44.9 billion in Operation and Maintenance, Defense-Wide (OMDW), of which $941.5 million was requested for SAG 4GTE, Defense Counterintelligence and Security Agency (DCSA).

The committee understands that to fulfill its responsibilities under section 847 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92), the DCSA requires data analytic tools for assessing, continuously monitoring, and mitigating risks associated with the foreign ownership, control, and influence (FOCI) of current and prospective contractors and subcontractors in the Defense and Federal industrial base. DCSA provided a request for increased analytic tools as an unfunded priority.

Accordingly, the committee recommends an increase of $5.0 million in OMDW for SAG 4GTE for analytic tools for DCSA.

Troops-to-Teachers Program

The budget request included $44.9 billion for Operation and Maintenance, Defense-wide (OMDW), of which $816.2 million was for SAG 4GT8 Defense Human Resources Activity.

Since its inception, the Troops-to-Teachers program has successfully placed many veterans in teaching positions throughout the country, especially in high need school districts. The committee notes that two years ago the Department of Defense ended support for the program without sufficient data to assess its effectiveness and its benefit to separating servicemembers and veterans. Elsewhere in this Act, the committee recommends a provision that would require the Secretary of Defense to restart the Troops-to-Teachers program for a period of four years, with the requisite data collection and reporting.

Therefore, the committee recommends an increase in OMDW of $15.0 million for SAG 4GT8 Defense Human Resources Activity.

milCloud 2.0 migration

The budget request included $44.9 billion for Operation and Maintenance, Defense-wide (OMDW), of which $1.9 billion was for SAG 4GT9 Defense Information Systems Agency.

The committee notes that previously scheduled cloud migration efforts at select fourth-estate agencies have been repeatedly delayed by funding shortfalls, including shortfalls created by

reprioritization of funds toward immediate COVID–19 related teleworking information technology improvements. The committee understands that the Agencies involved desire to migrate to milCloud 2.0 as soon as possible, as required by the Department of Defense Chief Information Office memorandum dated May 2018.

Therefore, the committee recommends an increase of $42.0 million in OMDW for SAG 4GT9 Defense Information Systems Agency for milCloud 2.0 migration efforts.

Cybersecurity automation and orchestration for Joint Force Headquarters, Department of Defense Information Network

The budget request included $44.9 billion in Operations and Maintenance, Defense-wide (OMDW), of which $530.8 million was requested for SAG 4GU9, for the Defense Information Systems Agency.

Congress directed the Department of Defense to conduct technology demonstrations of automated orchestration and interoperability of cybersecurity systems and applications in the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283). Section 1733 of the same Act created a pilot program to use speed-based metrics to measure performance and efficacy of the Department's cybersecurity service providers and security operations centers.

The committee recommends an increase in OMDW of $25.0 million for SAG 4GU9 to support these mandated cybersecurity demonstrations and pilot activities.

Hardening of Department of Defense Information Network and security validation demonstration

The budget request included $44.9 billion in Operation and Maintenance, Defense-wide (OMDW), of which $530.3 million was requested in SAG 4GU9 Defense Information Systems Agency—CYBER.

The unfunded requirements list submitted by the Commander, U.S. Cyber Command, requested additional funding for hardening Department of Defense networks. Elsewhere in this committee report, the committee directs the Department to create a security validation demonstration program. Accordingly, the committee recommends an increase of $60.1 million in OMDW, for SAG 4GU9, of which $20.0 million is for a security validation demonstration program.

U.S. Africa Command international security cooperation programs

The budget request included $44.9 billion for Operation and Maintenance, Defense-Wide (OMDW), of which $2.1 billion was requested for SAG 4GTD Defense Security Cooperation Agency (DSCA), and of which $1.1 billion is for the International Security Cooperation Programs (ISCP) account.

The committee notes that U.S. Africa Command identified maintaining its annual security cooperation program as an unfunded requirement. The committee also notes that elsewhere in this report

the committee is recommending a Strategic Competition Initiative for U.S. Africa Command and U.S. Southern Command.

Therefore, the committee recommends an increase of $60.0 million to OMDW, for SAG 4GTD DSCA for U.S. Africa Command security cooperation programs and activities within the ISCP account.

Ukraine Security Assistance Initiative

The budget request included $44.9 billion for Operation and Maintenance, Defense-wide (OMDW), of which $2.1 billion was requested for SAG 4GTD Defense Security Cooperation Agency (DSCA) and of which $250.0 million was requested for the Ukraine Security Assistance Initiative.

The committee recommends an increase of $50.0 million to OMDW for SAG 4GTD DSCA for the Ukraine Security Assistance Initiative.

Joint Combined Exchange Training

The budget request included $3.2 billion in Operation and Maintenance, Defense-wide (OMDW), for SAG 1PLR Special Operations Command Theater Forces, of which $48.0 million was requested for the Joint Combined Exchange Training (JCET) program.

The committee notes the growing importance of U.S. interoperability with partners and allies in unconventional warfare and foreign internal defense missions.

Therefore, the committee recommends an increase of $3.2 million in OMDW for SAG 1PLR to restore the JCET program to fiscal year 2021 enacted levels.

State Partnership Program

The budget request included $77.0 million in Operation and Maintenance, Army National Guard (OMARNG), for SAG 431 Administration.

This SAG resources the State Partnership Program (SPP), which supports the combatant commanders' security cooperation goals and helps build the capabilities of partner security forces.

The committee notes that the Fiscal Year 2022 Justification for Security Cooperation Program and Activity Funding indicates a reduction in funding for SPP from fiscal year 2021 to fiscal year 2022 of $23.7 million.

To restore SPP to fiscal year 2021 funding levels, the committee recommends an increase of $23.7 million in OMARNG for SAG 431 for the SPP.

Impact Aid

The budget request included $44.9 billion in Operation and Maintenance, Defense-wide (OMDW), of which $3.1 billion was for SAG 4GTJ, Department of Defense Education Activity. The amount authorized to be appropriated for OMDW includes the following changes from the budget request. The provisions underlying these changes in funding levels are discussed in greater detail in title V of this committee report.

[Changes in millions of dollars]

Impact aid for schools with military dependent students	+50.0
Impact aid for children with severe disabilities	+20.0
Total	+70.0

Analytical tools in evaluating energy resilience measures

The budget request included $1.7 billion in Operation and Maintenance, Defense-wide (OMDW) for SAG 4GTN Office of the Secretary of Defense, of which no funds were provided for instituting a process to ensure that the Department of Defense, when evaluating energy resilience measures, uses analytical tools that are accurate and effective in projecting the costs and performance of such measures.

Accordingly, the committee recommends an increase of $2.0 million in OMDW for SAG 4GTN for the maintenance of analytical tools in evaluating energy resilience measures in the Office of the Assistant Secretary of Defense for Energy, Installations, and Environment.

Bien Hoa dioxin cleanup

The budget request included $1.8 billion in Operation and Maintenance, Defense-wide (OMDW) for SAG 4GTN Office of the Secretary of Defense, of which no funds were proposed for Bien Hoa dioxin cleanup in Vietnam.

The committee recommends an increase of $15.0 million in OMDW for SAG 4GTN for Bien Hoa dioxin cleanup. The committee notes that elsewhere in this Act, the committee recommends a provision that would extend the authority of the Secretary of Defense to transfer up to $15.0 million to the Secretary of State for Bien Hoa dioxin cleanup in Vietnam through fiscal year 2022.

Centers for Disease Control and Prevention Nation-wide human health assessment

The budget request included $44.9 billion in Operation and Maintenance, Defense-wide (OMDW), of which $1.8 billion was for SAG 4GTN Office of the Secretary of Defense, of which no funds were proposed for the ongoing Centers for Disease Control and Prevention (CDC) Nation-wide human health assessment related to contaminated sources of drinking water from per- and polyfluoroalkyl substances.

The committee continues to support the ongoing human health assessment. Accordingly, the committee recommends an increase of $15.0 million in OMDW for SAG 4GTN for the ongoing CDC assessment.

Congressional Hearings and Reporting Requirements Tracking System Modernization

The budget request included $44.9 billion in Operation and Maintenance, Defense-wide (OMDW), of which $1.8 billion was requested for SAG 4GTN Office of the Secretary of Defense.

The committee notes that the Office of the Secretary of Defense for Legislative Affairs (OASD(LA)) catalogues all congressional reporting requirements in their Congressional Hearings and Report-

ing Requirements Tracking System (CHARRTS). Unfortunately, CHARRTS is an antiquated system with network security issues, and the Department of Defense has recommended that it be replaced with a modern cloud-based system. However, the Department has not prioritized funding for this effort, even though it could help streamline the congressional tracking and reporting process, which is a high priority for both the Congress and the Department.

Accordingly, the committee recommends an increase of $2.0 million in OMDW for SAG 4GTN to support modernization of CHARRTS.

Cost Assessment Data Enterprise

The budget request included $1.8 billion in Operations and Maintenance, Defense-Wide (OMDW), for SAG 4GTN Office of the Secretary of Defense, of which $28.5 million was for Director, Cost Assessment and Program Evaluation.

The committee commends the initiative of the Cost Assessment Data Enterprise (CADE) to create a unified effort to ensure the strategic collection, curation, and use of acquisition, cost, and technical data for improved analysis and decision making. In the past decade, CADE has advanced capabilities for digitizing data collection, storage, and sharing to expedite availability for analysis of acquisition programs and contract spending; strategically planning and collecting data; and reducing the reporting burden on contractors while improving data quality and insight for analysis. The committee is concerned that without adequate funding, CADE cost data and software initiative will slow, efficient availability of up-to-date data will decrease, and the lack of strategic planning will cause irreparable data gaps in the future.

Therefore, the committee recommends an increase of $3.5 million in SAG 4GTN Office of the Secretary of Defense for CADE's cost data and software efforts.

Defense Environmental International Cooperation program increase

The budget request included $1.8 billion in Operation and Maintenance, Defense-wide (OMDW) for SAG 4GTN Office of the Secretary of Defense, of which no funds were provided for the Defense Environmental International Cooperation (DEIC) program.

The committee continues to note that the Army National Guard and other military units are frequently called upon to respond to humanitarian assistance and disaster relief (HA/DR) crises around the world. The DEIC program enables the Army National Guard to share best practices and lessons learned from its own HA/DR missions with U.S. allies. This important program promotes and develops allied HA/DR capability for a relatively small amount of money. In addition, illegal trafficking can threaten the stability and economies of nations of strategic importance to the United States, particularly in Africa and the Indo-Pacific, and often become a key source of funding for extremist groups. The DEIC program can be used by geographic combatant commanders to engage with U.S. allies, partners, and other nations around the globe to assist them

in addressing these impacts that might undermine national and regional stability.

Accordingly, the committee recommends an increase of $2.0 million to SAG 4GTN for the purpose of reviving and broadening the DEIC program.

Occupational license portability for military spouses through interstate compacts

The budget request included $44.9 billion for Operation and Maintenance, Defense-wide (OMDW), of which $1.8 billion was for SAG 4GTN Office of the Secretary of Defense.

The committee remains concerned about the lack of portability of employment licenses and credentials across State lines, which hinders military spouse employment. Due to the delays and expense involved in re-licensure and re-credentialing, many military spouses decide not to practice their professions. This becomes a financial and career choice issue for military families, impacting servicemembers' desire to stay in the military.

Accordingly, the committee recommends an increase of $4.0 million in OMDW, for SAG 4GTN for the activities outlined in section 575 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92), which required the Secretary of Defense to enter into cooperative agreements with the Council of State Governments to assist with the funding and development of interstate compacts on licensed occupations.

Office of the Secretary of Defense civilian workforce

The budget request included $44.9 billion in Operation and Maintenance, Defense-wide (OMDW), of which $1.8 billion was requested for SAG 4GTN Office of the Secretary of Defense.

The committee is concerned about decreased funding for the civilian workforce within the Office of the Secretary Defense. The committee understands that this has resulted in a reduction of civilian billets in critical components including the Office of the Under Secretary of Defense for Policy, the Office of the Under Secretary of Defense for Acquisition and Sustainment, and the Office of the Under Secretary of Defense for Research and Engineering.

Accordingly, the committee recommends an increase of $25.0 million in OMDW for SAG 4GTN to support the civilian workforce.

Personnel in the Office of Assistant Secretary of Defense Sustainment and Environment, Safety, and Occupational Health

The budget request included $44.9 billion in Operation and Maintenance, Defense-wide (OMDW), of which $1.8 billion was requested for SAG 4GTN Office of the Secretary of Defense, of which no funds were provided for sufficient numbers of personnel in the Office of the Assistant Secretary of Defense for Sustainment in Environment, Safety, and Occupational Health (ESOH).

The committee recognizes the challenges facing the Department of Defense in the Office's remit, ranging from per- and polyfluoroalkyl substances to the Military Housing Privatization Initiative.

Accordingly, the committee recommends an increase of $5.0 million in OMDW for ESOH personnel in the Office of the Assistant Secretary of Defense for Energy, Installations, and Environment.

Secretary of Defense Strategic Competition Initiative

The budget request included $44.9 billion in Operation and Maintenance, Defense-wide (OMDW), of which $1.8 billion was requested for SAG 4GTN Office of the Secretary of Defense.

The committee notes the establishment elsewhere in this Act of the Secretary of Defense Strategic Competition Initiative, which will support Department of Defense activities and programs that advance United States national security objectives in the strategic competition with near-peer rivals China and Russia.

Accordingly, the committee recommends an increase in OMDW of $20.0 million for SAG 4GTN for the Secretary of Defense Strategic Competition Initiative.

United States Special Operations Command management and headquarters

The budget request included $9.4 billion in Operation and Maintenance, Defense-wide (OMDW), for U.S. Special Operations Command (SOCOM).

The committee is concerned by the continued management, headquarters, civilian personnel, and contractor growth within the SOCOM enterprise and believes additional resources should be better prioritized to address capability gaps, particularly those that ensure our special operations forces maintain superiority relative to near peer competitors.

Therefore, the committee recommends an undistributed decrease of $28.7 million in OMDW for SOCOM. The committee notes that these funds have been applied to unfunded requirements identified by the SOCOM Commander elsewhere in this Act.

Overseas Humanitarian, Disaster, and Civic Aid

The budget request included $110.0 million in SAG 4GTD, Overseas Humanitarian, Disaster, and Civic Aid (OHDACA).

The committee notes that the OHDACA program has been the primary source of funding for the Department of Defense contributions to COVID–19 pandemic support to partners and allies to include assistance to aid testing, diagnostic support, infection control, personal protective equipment, and contact tracing. Despite increased demands, the budget request decreased from prior years.

The committee recommends an increase of $25.0 million in 4GTD OHDACA for additional OHDACA programming.

Bulk fuel adjustment

The budget request included $6.6 billion across the Operation and Maintenance accounts for the purchase of bulk fuel.

Analysis conducted by the Government Accountability Office (GAO) using the most recent data indicates that the Department of Defense has overstated its refined fuel costs by $319.5 million in fiscal year 2022. The committee commends GAO for its work in analyzing bulk fuel prices to assist Congress in decision-making given the unique uncertainty of the current fuel markets.

Accordingly, the committee recommends a decrease in the Operation and Maintenance accounts of $319.5 million to account for likely overstated bulk fuel purchases.

Foreign currency fluctuations

The budget request included $290.5 billion in Operation and Maintenance.

The committee notes that the Government Accountability Office has repeatedly issued recommendations for the Department of Defense to analyze its Foreign Currency Fluctuations, Defense account balance given historical trends and managerial usage of the account.

Accordingly, the committee recommends an undistributed decrease of $300.0 million across the Operation and Maintenance accounts.

Printing costs reduction

The budget request included $290.4 billion across the Operation and Maintenance accounts.

The committee notes that the Government Accountability Office found in its latest review of Department of Defense document services that the Department averaged $608.0 million per year in printing costs.

Accordingly, the committee recommends a decrease of $25.5 million across the Operation and Maintenance accounts of the active components and Defense-wide agencies for printing costs.

Unobligated balances

The budget request included $290.4 billion across the Operation and Maintenance accounts.

The committee notes that the Government Accountability Office has repeatedly issued recommendations for the Department of Defense to analyze its unobligated balances given historical trends and managerial usage of the account.

Accordingly, the committee recommends a decrease of $1.6 billion across the Operation and Maintenance accounts of the active and reserve components and a decrease of $577.2 million in Operation and Maintenance, Defense-wide.

Items of Special Interest

Aberdeen Proving Ground

The committee understands that Aberdeen Proving Ground, Edgewood Area, contained 63 remnant production plant slabs and 50-year-old laboratories that are inactive and mostly vacant. These facilities were formerly used by Edgewood Chemical Biological Center and the Medical Research Institute of Chemical Defense (MRICD). The committee is encouraged by the Department of Defense's inclusion of specific funding to remove these contaminated facilities, which includes decommissioning, decontamination, and demolition through a phased approach under the Contaminated Building Demolition Program. The Department has already obligated funds, begun demolition, and programmed additional funds for future years to continue these efforts. The committee encour-

ages the Department to continue these funding efforts to ensure demolition activities continue, particularly with significant progress already underway. Demolition of these facilities will result in cost savings on infrastructure, maintenance, and security of these unusable buildings and reduce the risk of contamination. The reduction of these facilities will have a positive impact on the surrounding missions, including the new MRICD facility, the United States Army's Research, Development and Engineering Command Advanced Chemistry Laboratory, and the Army Public Health facility.

Advanced human performance based small arms training

The committee is aware of small arms synthetic training capabilities within the Department of Defense (DOD) that have received independent agency validation that demonstrate the ability to increase readiness and lethality while improving cognitive load management and emotional modulation to address lawful and proportional application of force training and implicit bias instruction, within the Department's small arms training and readiness model. The committee commends the Marine Corps Operational Test and Evaluation Activity–Quantico (MOCTEA) for its diligence in testing and evaluating methods to improve combat marksmanship and lethality by replicating the physical, ocular, and cognitive challenges of combat utilizing an Advanced Small Arms Lethality Trainer (ASALT). An independent agency study demonstrated that the ASALT-trained shooters outperformed all other training categories, with a significant increase in individual marine's lethal efficiency percentage, while also scoring higher on cognitive-based decisions than their live-fire counterparts and reducing resource requirements for combat marksmanship training, delivering a far higher warfighter training return on investment.

In light of these results, the committee strongly urges the DOD to continue to prioritize and properly resource each service's transition from less effective and efficient legacy small arms simulation systems to advanced human performance training platforms that integrate wearable biosensors and data collection software capable of collecting and analyzing individual servicemember data to track improvements, degradation, and remediation requirements in weapon competency, lethality, and the management of cognitive load and emotional modulation throughout their military careers, pre- and post-deployment, as validated by the MOCTEA study.

The committee also directs the Department to provide, not later than March 1, 2022, a briefing that includes: (1) The status of each service's integration of advanced human-performance based small arms synthetic training systems; (2) A description of the program or system's ability to utilize Internet of Things-based biosensor and training data to track and validate increased lethality, the impact and management of cognitive load, and the ability to modulate emotions to address implicit bias and cognitive-based decision making; (3) The independent agency studies that validated the system's capabilities and results; (4) A sampling of the individual and unit readiness data outcomes; and (5) An assessment of how small arms synthetic training systems that incorporate biosensor and big data collection tools could assist in the pre-and-post deployment health assessments and rehabilitation of warfighters.

Advanced materials processing briefing

The committee remains concerned that the United States relies heavily upon foreign imports for a number of processed critical minerals, including rare earth elements. The committee believes the Defense Logistics Agency should conduct a review of the resiliency of the domestic defense industrial base and, based upon the concern surrounding resiliency in the critical minerals industrial base, brief the Senate Armed Services Committee, not later than March 1, 2022, on whether it is beneficial to establish advanced materials processing hubs that can partner with industry and universities to facilitate advanced materials processing and research and development in order to increase resiliency across the defense industrial base.

Agent Orange briefing

The committee notes that under Operation Red Hat, the Department of Defense (DOD) imported Agent Orange to be used as a herbicide on military bases in Okinawa. Agent Orange was stored at the bases and used on public spaces in the 1980s through 2013. There has been widespread medical evidence linking Agent Orange and multiple health conditions.

Accordingly, the committee directs the Secretary of Defense to provide a briefing to the Senate Armed Services Committee, not later than March 1, 2022, on the use and storage of herbicides on present and former military installations on the island of Okinawa. The briefing shall discuss the shipment of herbicides to Johnston Island under Operation Red Hat, the excavation of suspected herbicide containers at Marine Corps Air Station Futenma in 1981, the Okinawa City soccer pitch in 2013, and Kadena Air Base; and other suspected locations of herbicide. The briefing shall address any test results by the DOD and the Government of Japan showing the presence of the chemical components of herbicide–2,4,5-Trichlorophenoxyacetic acid, 2,4-Dichlorophenoxyacetic acid, and 2,3,7,8-Tetrachlorodibenzo-p-dioxin. The Secretary shall consult with appropriate organizations who represent veterans of Okinawa in preparing this briefing.

Air Force range prioritization and modernization

The committee supports the Air Force's intention to prioritize and accelerate investments to develop and upgrade certain training ranges to attain threat matrix framework level 4 capability, such as peer threat, by not later than fiscal year 2026. To that end, the committee supports Air Force investment in advanced radar threat systems, live mission operations capability common architecture, infrastructure, advanced integrated air defense systems, air combat maneuvering instrumentation modernization, global positioning jamming suites, contested-degraded operations jamming suits, higher fidelity targets with more advanced characteristics, modernized weapons scoring systems, and secure-live-virtual-constructive advanced air combat training systems. To continue this investment effort, the committee made funding available elsewhere in the bill.

Alternatively powered vehicles

The committee notes that the Department of Defense (DOD) has indicated some concern as to what authority it might use to obtain alternatively fueled vehicle (AFV) charging or refueling stations on its installations. Not only may the Department use authorities under sections 2805 and 2912 of title 10, United States Code, to fund such facilities, as well as funding under the Energy Resilience and Conservation Investment Program, but the Department may also use section 2913(d) of title 10, United States Code, authority to enter into agreements with utilities to provide and operate such facilities. The committee's intent is that the Department may authorize contracting officers to use current non-DOD funding mechanisms, such as energy savings performance contracts, utility energy services contracts (UESC), and others, for transportation projects to modernize installations, given it is unlikely that the Department will have enough resources on its own to modernize through direct appropriations. Similarly, the committee's intent is for the Department to authorize contracting officers to use UESCs and other non-DOD-funded mechanisms for the deployment of AFVs, as defined in section 321 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283), along with its related charging or refueling infrastructure.

As the Department continues to use AFVs, the Department should start its preparations now, ensuring the designs allow for expansion as commercial and Government demand increases over time. The committee also notes that Division Z, Title I, section 1002, subsection (b) of the Consolidated Appropriations Act, 2021 (Public Law 116–260) changed the definition of "Energy Conservation Measures" to include "energy consuming devices and required support structures," under which AFV charging or refueling infrastructure would certainly apply. The committee notes that the military services also are able to use the current Government Services Administration blanket purchase agreements to effectively pursue AFV charging or refueling infrastructure whether through the procurement of, or installation by, non-DOD funded agreement, in locations that are covered by one of the area-wide contracts without additional legislative authority. The committee also encourages the Department to explore the concept of charging or refueling as a service that would obviate the need for the Department to procure, operate, and maintain AFV infrastructure.

Lastly, the committee directs the Secretary of Defense to provide a briefing to the Senate Armed Services Committee not later than March 1, 2022, including: (1) A determination of the optimum inventory for non-tactical fleet vehicles with an emphasis on eliminating unnecessary or non-essential vehicles, as well as a determination by the Department of how much of the non-tactical fleet should consist of AFVs or other vehicle types; (2) The need for an executive agent for the development of alternatively powered tactical vehicles; (3) The long-term availability of internal combustion engines and spare parts for such engines; (4) The relative tactical benefits and limitations of each type of propulsion, such as speed, acceleration, noise production, time to refuel or recharge, and range and operational duration across the scope of mission profiles; (5) The relative tactical benefits and limitations of each type of propul-

sion with regard to providing support to other tactical systems requiring electricity; (6) How electrical and other alternatively powered propulsion systems might be fueled on the battlefield and what investments might be necessary to provide such a fueling system; (7) The relative vulnerability to personnel and to interruption in the supply chain of fuel sources for each type of propulsion system; (8) A projected timeline of when a possible conversion to alternatively powered tactical vehicles could reasonably occur without causing a significant impact on readiness of the Armed Forces; (9) The projected cost of converting or replacing and sustaining alternatively powered tactical vehicles, to include training; (10) Any national security implications related to the use of and supply chain of AFVs and their source materials; and (11) Any other element the Secretary deems appropriate.

The committee further requests that the Secretary identify the types of tactical vehicles considered in the above analysis and notes that the term "alternatively powered," with respect to a vehicle or a propulsion system for a vehicle, means a fuel or power source described in the first sentence of section 241(2) of the Clean Air Act (42 U.S.C. 7581(2)) or propane.

Army organic industrial base modernization

The committee encourages the Army to consider the operational and performance benefits of potentially adopting commercial best practices in manufacturing throughout installations comprising the Army's organic industrial base (OIB) as part of their strategic framework for long-term OIB modernization. The committee notes this could result in significant improvements not only for legacy weapon system sustainment but also next-generation weapon system sustainment. The committee also notes that the Army has indicated a modernized OIB must include emerging technology, such as robotics and artificial intelligence, and visionary plant and process layouts, and machine programming. The committee is aware of emerging commercial manufacturing and repair technology to include fixture-less assembly manufacturing, automated fabrication, laser cutting, and a number of techniques for cutting, forming, and shaping components that could potentially help inform modernization efforts in the Army's OIB to improve upon manufacturing efficiencies and capabilities.

Accordingly, the committee directs the Secretary of the Army to brief the committee on courses of action to facilitate engagement and coordination with the commercial industrial base, to include non-traditional defense contractors regarding OIB modernization, not later than March 1, 2022. The briefing shall include: (1) An update on efforts to modernize aging capital equipment; (2) An update on plans to include emerging technology, to include fixture-less assembly manufacturing, automated fabrication, robotics, and visionary plant and process layouts and machine programming; and (3) The advisability and feasibility of initiating pilot programs between the industrial base and the Army's OIB related to experimentation and demonstrations of commercial advanced manufacturing techniques to help accelerate organic industrial base modernization.

Army Pre-Positioned Stock readiness

The committee recognizes Army Pre-Positioned Stock (APS) materiel is the cornerstone of the Army's ability to rapidly project power. APS also includes war reserve stocks for allies, which are stocks owned and funded by the United States, to be released to supported allied forces under the Foreign Assistance Act of 1961 (Public Law 87–195). As such, the readiness and preparedness of APS sites are paramount in the era of great power competition. The committee acknowledges increases in ship use cost rates and the need to execute dry dock maintenance at APS–3 (Afloat). The committee recognizes failure to address required APS–3 (Afloat) fleet maintenance adds unnecessary risk and uncertainty to U.S. and allied nations' strategic logistics readiness and encourages the Department of Defense to seek solutions to mitigate this risk.

Augmented reality training to support aviation operations

The committee is encouraged by the steps the Department of Defense has taken to support necessary training and sustainment activities that continue to enhance military operations, especially in the wake of the COVID–19 pandemic. Focus must remain on providing the warfighter with the needed tools to properly support their ongoing training for mission readiness.

Accordingly, the committee directs the Secretary of Defense to fully evaluate and consider deployment of commercial-off-the-shelf virtual reality platforms that support aircraft maintenance, operations training, and advanced pilot training across all military services, specifically those dealing with the MQ–9, C–130J, and F–16. The Secretary shall provide a briefing to the Senate Armed Services Committee on the results of its evaluation not later than March 1, 2022.

Autonomous robotic targets for small arms training ranges

The committee is aware of increasing Marine Corps operational force demand for small arms training range autonomous robotic targets to improve soldier lethality, team performance, and marksmanship. The committee understands that this technology provides marines with an unpredictable and dynamic training adversary, improves warfighter readiness, and expands the useful-life of existing small arms ranges. The committee also understands that within the Marine Corps, operational units, as well as one training unit, have generated two directive universal needs statements since 2008 for rapid, widespread adoption of autonomous robotic targets, including urgent requests from the Combat Marksmanship Program. These requests resulted in six favorable studies and internal assessments, including a year-long 2018 End User Evaluation conducted by the Marine Corps Warfighter Lab that determined autonomous robotic targets were a "vast improvement to training modality over existing systems and was value added in all training events/scenarios."

The committee also notes that this technology was previously favorably reviewed by the Army Asymmetric Warfare Group and Army Research Institute for small arms training and has been utilized by select Army units for improved training and soldier performance evaluation. Finally, the committee understands that

while this technology has shown promise to deliver additional capability to the Marine Corps, the Marine Corps Training and Education Command has thus far not initiated a full capability development document as a precursor to a program of record.

Accordingly, the committee directs the Secretary of the Navy to provide a briefing to the Senate Armed Services Committee by not later than March 1, 2022, on an assessment of whether a program of record for autonomous robotic targets to address the needs for both formal schools and operational forces is needed. If the determination is that a program of record is needed, the briefing should include a timeline for implementation.

Additionally, the committee encourages the Army to accelerate more rapid deployment of autonomous robotic targets and to leverage end-user evaluations, existing logistics support, and lessons learned from similar Marine Corps training exercises in order to hasten potential adoption.

Briefing on reducing life cycle costs

The committee is encouraged by the efforts of the Office of Assistant Secretary of Defense for Sustainment (ASD Sustainment) to improve readiness and control life cycle costs.

Accordingly, the committee encourages the ASD Sustainment to expand these efforts across the Department of Defense (DOD) to support modeling complex defense systems, performing simulation, and analytically optimizing readiness and life cycle cost outcomes. This should reliably redefine readiness not as a single measure but rather as a cost-optimized curve to provide the Congress and the Department with multiple support options across an array of budgetary scenarios. These scenarios should help the Department better understand the current state of readiness and the steps required to reduce life cycle costs and improve system performance.

Additionally, the committee directs the ASD Sustainment to provide a briefing, not later than January 15, 2022, to the Senate Armed Services Committee on efforts to standardize readiness modeling for major weapon systems across the Department's enterprise.

Center for per- and polyfluoroalkyl substances

The committee notes that per- and polyfluoroalkyl substances (PFAS) are persistent in the environment and may adversely affect human health at certain levels. The committee believes that a whole-of-government approach should be pursued to address these substances and that a center is needed where knowledge is compiled, correlated, and where best practices can be shared. A multidisciplinary PFAS center would bring together all levels of Government, universities, research institutions, and private industry to support multidisciplinary and cross-institutional projects and gather an index of existing information in order to identify data gaps, guide approaches, and inform policy decisions. The committee encourages the Department of Defense to work with other Federal agencies to consider this approach.

Cooperative agreements for shared use of airspace near United States southern border

The committee urges the Secretary of Defense to consult with the Secretary of State, and the heads of other Federal departments and agencies as appropriate, regarding the feasibility and desirability of initiating negotiations with Mexico on shared use agreements for airspace near the United States–Mexico border to meet the increasing demand for airspace at U.S. military training ranges including the Barry M. Goldwater Range.

The committee supports the Department's exploration of appropriate shared use agreements with Mexico and directs the Secretary of Defense to provide a report and briefing to the Committees on Armed Services of the Senate and the House of Representatives not later than March 1, 2022, on the feasibility and benefits of entering into a shared use agreement with Mexico to extend range airspace.

Cost Assessment Data Enterprise

The committee believes that the complexity and scope of cost estimation work at the Department of Defense continues to expand, as departmental senior leadership and congressional staff, among others, seek additional cost estimation information on a growing list of programs of all sizes and types. The Cost Assessment Data Enterprise within the Cost Assessment and Program Evaluation office remains crucial to ensuring that the accuracy and responsiveness of cost estimates continues to improve at the Department of Defense. However, the committee is concerned that funding for the Cost Assessment Data Enterprise has fallen nearly 25 percent since the fiscal year 2018 level of $8.0 million, even as the office's requirements continue to grow and the necessity of lessening data burdens on contractors increases in importance. Funding decreases are evident in the Cost Assessment and Program Evaluation office's own contribution to the Cost Assessment Data Enterprise, as well as the contributions of other offices.

Therefore, the committee encourages the Deputy Secretary of Defense to program for real growth in the Cost Assessment Data Enterprise budget to accelerate modernization of cost estimation and acquisition data across the Department of Defense.

The committee directs the Deputy Secretary to provide a briefing to the congressional defense committees, not later than March 1, 2022, on the Cost Assessment Data Enterprise, including a description of its use in execution of CAPE missions, identification of resources made available to the enterprise, and a discussion of the role of the Cost Assessment Data Enterprise within the Department's overall strategy to improve the use of data in decision making.

Defense Counterintelligence and Security Agency industrial security report

The committee notes the significant expansion of the Defense Counterintelligence and Security Agency (DCSA) mission pursuant to section 847 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92) and recognizes the need for DCSA to have the proper resources to implement the National Industrial

Security Program (NISP) given its expanded mission. In particular, the committee notes the national security imperative that the DCSA successfully execute comprehensive assessments of foreign ownership, control, or influence for the NISP.

As such, the committee directs the Director of the Defense Counterintelligence and Security Agency, not later than by March 1, 2022, to submit to the congressional defense committees and the congressional intelligence committees a report on DCSA implementation of the NISP, to include a description of the purpose, authorities, and resources associated with the DCSA's administration of the NISP and other industrial security programs. The report shall additionally address the DCSA's path forward in overseeing the NISP, including:

(1) The anticipated resources, workforce authorizations, and authorities required by the DCSA to perform its NISP and other industrial security programs administered by the DCSA;

(2) Any anticipated and proposed additional industrial security responsibilities to be carried out by the DCSA on behalf of the Department of Defense, including—

(a) the DCSA's role in the implementation of the assessment and mitigation of risks related to Foreign Ownership, Control, or Influence of contractors and subcontractors doing business on behalf of the Department of Defense, to include those conducting work on behalf of the Agency, per section 847 of the National Defense Authorization Act for Fiscal Year 2020; and

(b) the Controlled Unclassified Information program, established by Executive Order 13556, on behalf of the Department of Defense; and

(3) the resources, workforce authorizations, and authorities required to perform any anticipated and proposed responsibilities on behalf of the Department of Defense.

Demining the North Atlantic Treaty Organization's firing ranges in Afghanistan

The committee acknowledges the humanitarian threat presented by North Atlantic Treaty Organization (NATO) firing ranges in Afghanistan and encourages the Department of Defense, in coordination with the Department of State, NATO, and other members of the international coalition, to assess the advisability and feasibility of clearing these areas of explosive contamination, particularly in light of the planned departure of international security contractors. The committee further notes the important role that humanitarian demining organizations play in both undertaking demining work and supporting security and stability for Afghan nationals. The committee encourages the U.S. Army Corps of Engineers to partner with humanitarian demining organizations where practicable to complete such work.

Accordingly, the committee directs the Secretary of Defense, in coordination with the Secretary of State, and the U.S. Army Corps of Engineers, to provide a briefing to the Senate Armed Services Committee regarding the assessment, including the feasibility of partnering with humanitarian demining organizations, not later than September 1, 2022.

Distributed energy projects briefing

The committee is aware of Department of Defense (DOD) initiatives on energy resilience as outlined in DOD Instruction 4170.11, Installation Energy Management, and commends the Department for its efforts to date to mitigate the impact of energy disruptions on military installations that could threaten mission accomplishment. The committee continues to encourage the Department to procure, operate, maintain, test, and upgrade energy resilient systems for critical energy requirements on its military installations. The use of alternative or distributed energy offers significant promise in achieving energy resilience and meeting the renewable energy goal of 25 percent by 2025 for the Department. However, the committee is interested in exploring how the Department can better address barriers to development of additional distributed energy projects to support military installation energy needs. The committee encourages the Department, in coordination with the military services, to standardize, wherever possible, the policies and processes that guide distributed energy projects.

Accordingly, the committee directs the Secretary of Defense, in coordination with the Secretaries of the military departments, to provide a briefing to the Senate Armed Services Committee, not later than March 1, 2022, on the following: (1) The average time elapsed from project initiation to completion for non-DOD funded distributed energy projects; (2) Areas that the DOD and the military services can standardize items such as consent agreements, power purchase agreements, site licenses, ground and roof-top leases and subleases, and memos of aforementioned documents; (3) An analysis of whether any actions, including more flexible contract terms, could increase incentives for project developers; (4) Measures that would increase incentives for battery storage on military installations; (5) An analysis and comparison of the cost-effectiveness of the various projects and technologies; and (6) An analysis determining whether net-metering arrangements between developers and installations that provide electricity under utility service agreements are subject to Federal Acquisition Rules.

Encouraging the Army's integration of synthetic and live training

The committee agrees with senior Army leaders' stated desire to accelerate live training efforts within the Synthetic Training Environment (STE) program such that this critical element reaches initial operating capability before fiscal year 2026, as originally planned. The committee believes the Army must continue STE–Live Training System (LTS) and STE Soldier Virtual Trainer (SVT) development and is supportive of leveraging additional STE program funding in this effort.

Accordingly, the committee directs the Secretary of the Army to provide a briefing to the Senate Armed Services Committee, not later than December 15, 2021, on efforts to accelerate the live training element of STE. The briefing shall include, but not be limited to, a detailed description of STE–LTS and SVT development to date, an assessment of benefits accrued from incorporating live training within STE, and any plans for accelerating synthetic live training environment into a program of record.

Energy savings performance contracts

The committee is aware of significant delays occurring within U.S. Army Installation Management Command's (IMCOM's) utilization of energy savings performance contracts (ESPCs) and utility energy service contracts (UESCs). For example, the committee notes that investment grade audits (IGAs) for pending projects are being delayed significantly at IMCOM without substantive reason being provided. As a result, installation resilience needs are going unaddressed while private sector partners are waiting months for proposal feedback. While the committee recognizes that due diligence must be completed to ensure performance contracts are a positive investment for the Government and taxpayers, a decision on whether to proceed with a contract must be made expeditiously at each phase of the process.

Accordingly, the committee directs the Secretary of the Army to provide a briefing to the committee, not later than March 1, 2022, on the average processing times of ESPCs and UESCs, any actions the Department of Defense has taken to reduce these timelines, the standard timeline for providing feedback to the contractor on submitted IGAs, how often this timeline has been exceeded in the past 3 years and who currently has the authority to terminate the project after review of the IGA, what the timeline is for providing the decision to terminate the project to the installation commander and the contracting officer, and how often has this timeline been exceeded in the past 3 years.

Equipment procurement parity for operational reserves

The committee notes the continued importance of reserve component units to fulfill critical operational and manning requirements in support of combatant commands. As the military services continue to develop, procure, and issue new non-aircraft equipment necessary to compete with near-peer adversaries in support of the National Defense Strategy, it is imperative that new non-aircraft equipment is distributed between the active, National Guard, and Reserves based on the operational need of the combatant commander. The committee is concerned that aging older-model platforms in the Guard and Reserves present operational and readiness risks to units that are consistently deployed. Reliance by Guard and Reserves units on older non-aircraft equipment that is less capable, maintenance-intensive, and hamstrung by increasingly scarce repair parts hampers unit readiness and reduces the capability units provide to combatant commanders when deployed. The committee encourages the military services to work with the combatant commands to consider the age of non-aircraft equipment in Guard and Reserves units as they prioritize and field new equipment sets to the force.

Expansion of the ship depot maintenance pilot program

The committee notes that the budget request for fiscal year 2022 includes a continuation and expansion of the ongoing ship depot maintenance pilot program. This program utilizes funds from the Other Procurement, Navy (OPN) account to improve maintenance outcomes through an extended funding obligation period for private contracted ship maintenance in the U.S. Pacific Fleet.

The committee further notes this pilot program has been in effect since fiscal year 2020, with $1.0 billion in OPN funds in fiscal year 2020, $1.2 billion in OPN funds in fiscal year 2021, and $1.3 billion in OPN funds requested in fiscal year 2022.

The committee believes this pilot program has demonstrated the value of using the OPN account to improve ship depot maintenance outcomes through improved industrial base stability in ship repair scheduling, improved ability to horizontally group availabilities, improved ability to extend contract awards across fiscal years, reduced potential for poor quality obligations late in a fiscal year, and an opportunity to establish and capitalize on best practices and improve ship maintenance agility.

The committee recommends that the Congress support continuation of this pilot program during fiscal year 2022, including expanding the pilot program to include the U.S. Fleet Forces Command.

Ground Test Asset Board

The committee understands that the Ground Test Asset Board (GTAB) is a new Air Force Test Center (AFTC) presentation that is intended to replicate the Air Force Materiel Command (AFMC) "Fleet Board" briefing to quickly bring awareness to the capacity and demographics of specific AFTC test/test support facilities. AFTC is currently developing the GTAB to provide information to stakeholders as to the capacity and limitations for selected test facilities. The committee understands that the GTAB brings together capacity, demand, capability description, and demographics such as age, Plant Replacement Value (PRV), current assessment, and future needs. The committee notes this is different from the traditional Facilities, Sustainment, Restoration, and Modernization (FSRM) model and could provide a more comprehensive picture of the total sustainment needs of certain facilities.

As the AFTC works to achieve 2 percent PRV, the committee recognizes the importance of the quantitative and qualitative information provided by the GTAB in order to ensure the capabilities, constraints, and needs of test/test support facilities across its enterprise. The committee understands that this new concept may better depict preventive maintenance funding levels for installations such as the AFTC. The committee notes that while PRV gives a rough estimate for replacement of subject facility, it may not be a complete view of requirements for research, development, test, and evaluation facilities. The committee understands that the AFTC is instead developing Equipment Replacement Value (ERV), which are systems not covered by PRV, the "missionized" portion of the facility. When combining PRV and ERC, a valuation of Capability Replacement Value (CRV) may better provide estimates to replace a research, development, test, and evaluation "capability" vice the empty facility.

The committee believes there are disconnects in financial resourcing for Air/Ground Test Infrastructure, and CRV development through the GTAB could help determine the adequacy of FSRM funding. Additionally, as reflected in 2018 and 2021 Secretary of the Air Force AFTC assessments, the AFTC is not properly resourced to comply with the 2018 National Defense Strategy/

Chief of Staff of the Air Force direction to "Accelerate change, or lose."

The committee believes that the GTAB could increase external awareness of crucial ground test assets by adopting the "Fleet Board" presentation measuring capacity and capability.

Accordingly, the committee directs the Secretary of the Air Force to provide a briefing to the Senate Armed Services Committee not later than January 1, 2022, on the GTAB's ability to better inform FSRM resourcing decisions. The briefing shall include, but not be limited to:

(1) The current status of standing up the GTAB;

(2) Planned milestones to measure success;

(3) Any known gaps in funding resources for AFTC test/test support facilities, as well as for non-AFTC test/test support facilities;

(4) An explanation of how the development of FSRM funding requirements through use of the CRV informs Air Force FSRM funding allocation decisions; and

(5) Information on how the GTAB could inform Sustainment Management System Builder, to which all services, including the Air Force, will be transitioning.

High pressure advanced rapid deposition technology

The committee recognizes that repairs using high pressure advanced rapid deposition (HPARD) technology for maintenance, repair, and overhaul is a proven technology for repairs performed by depots and deployed forces as evidenced by the services' use of this technology for repairs to submarines, other vessels, aircraft, and ground vehicles. These repairs have resulted in significant cost savings as compared to procuring new parts or sourcing obsolescent parts.

Accordingly, the committee encourages procurement of HPARD technology systems for maintenance and repairs of the types of systems cited above and further exploration by the Department of Defense of applications for this cost saving technology in order to enable greater service life extension as well as leverage operations and maintenance cost savings for investment in research, development, test, and evaluation, and procurement. Additionally, the committee encourages the Department to institutionalize annual funding for further development and procurement of HPARD technology in order to assure stabilized and predictable funding levels.

Knee and elbow protection

The committee commends the U.S. Marine Corps Systems Command (MARCORSYSCOM) for being proactive to improve knee and elbow protection for marines. As musculoskeletal injuries remain a top disability claim for servicemembers transitioning to Veterans Administration healthcare, the Marine Corps has made the modernization of knee and elbow protection a priority. The committee understands that through the Marine Corps Equipping Challenge, MARCORSYSCOM has identified commercially available and field validated solutions that provide significantly improved comfort, impact protection, and operator acceptance while maintaining mobility and range of motion.

Accordingly, the committee encourages MARCORSYSCOM leadership to advance these improvements through timely acquisition to ensure that all Marine Corps personnel in combat and training environments are provided with the most effective knee and elbow protection available to improve combat capability and the long-term health of marines.

Large-capacity batteries

The committee notes that the Department of Defense has a strategic vulnerability due to its heavy reliance on certain foreign mineral imports necessary for large-capacity batteries such as lithium, cobalt, graphite, manganese, and nickel. As a result of this supply and production issue, and consistent with the identification of the criticality of "large-capacity batteries'" in Executive Order 14017 of February 24, 2021, the committee directs the Secretary of Defense to assess whether lithium-ion battery materials, such as lithium, cobalt, manganese, graphite, and nickel, and the domestic supply chains that mine, refine, recover, recycle, and process them should be eligible to receive a Presidential Determination as Defense Production Act Title III materials, given that these materials are required for a growing list of weapons platforms to include unmanned aerial aircraft, special operations forces missions, and other applications across the Department. The Secretary shall provide a briefing to the Senate Armed Services Committee regarding the results of this assessment not later than March 31, 2022.

Military installation resilience training

The committee recognizes that the Department of Defense (DOD) is setting ambitious goals for military installation resilience and energy innovation to strengthen combat capabilities and make installations more resilient. To ensure that the DOD meets these goals in a timely and effective manner, the committee directs the Department to add military installation resilience curricula to DOD education and training programs for officers assigned to be installation commanders to build competency on the risks, challenges, and opportunities that a variable climate brings to the national security enterprise. The DOD has world-class education and training programs, but curriculum priorities largely do not touch on approaches to resiliency. The committee notes that building military installation resilience knowledge would be especially useful in forums like pre-command courses where those assuming command of, for example, a large military installation, may face extreme weather impacts and environmental responsibilities. The Joint Staff J–7 has a key role to play as part of its Joint Professional Military Education governance and accreditation responsibilities.

The committee notes that DOD offers several foreign military training program opportunities. For example, the International Military and Training (IMET) program was established to enhance regional stability through mutually beneficial military-to-military relations and enhanced interoperability between DOD and its allies. IMET and similar programs provide a tremendous opportunity to enhance interoperability for responding to natural disasters, as well as to build a common base of knowledge on military installation resilience, environmental security risks, and best practice solu-

tions and to share experiences and lessons learned. DOD should also consider using existing fiscal authorities to conduct and pay for joint security training exercises on these issues with partner militaries and security forces to achieve interoperability that advances American interests in strategic areas of the world that are particularly vulnerable to extreme weather events that might generate DOD military involvement. Training might address mass migration and instability triggered by water and food shortages, traditional humanitarian relief exercises simulating natural disasters, as well as more technical exercises around construction of natural and built infrastructure to increase resilience. Because of the detailed nature of this matter, it is the committee's view that it is best left to the DOD to develop the training and that statutory direction is not needed at this time. However, the committee is also concerned that the DOD is currently unable to access innovative energy and military installation resilience technologies or deploy technologies and new business models at the scale, speed, and cost-effectiveness required to meet these challenges.

Accordingly, the committee encourages the Department to create and/or partner with a consortium of industry, academic, and national laboratory partners dedicated to military installation resilience and energy innovation pursuant to sections 2371, 2371b, and 2373 of title 10, United States Code. Lastly, the Under Secretary of Defense for Acquisition and Sustainment shall provide a briefing to the Senate Armed Services Committee on its progress in developing a consortium dedicated to military installation resilience and energy innovation, as well as the other DOD education and training programs mentioned above, not later than March 1, 2022.

Military munitions program construction support

The committee recognizes that construction support activities are an effective and cost-efficient way to reduce risks associated with the potential presence of unexploded ordnance (UXO) in instances where property owners are conducting ground-disturbing activities. However, the committee is aware that construction support has been inconsistently deployed and strongly urges the U.S. Army Corps of Engineers to develop consistent guidance on how construction support can be used to assist landowners in order to regain more productive use of properties known or suspected to contain UXO munitions.

The committee is also concerned that extreme weather events, including heavy rain and flooding, have caused UXO to rise to the surface in Formerly Used Defense Sites where surface-level cleanup has occurred, including at the Waikoloa Maneuver Area. The committee strongly urges the U.S. Army Corps of Engineers to institute a process whereby a subsurface cleanup could be undertaken concurrently, as a Time Critical Removal Action, should it be required in the interest of public safety, particularly at sites where future development or activities are planned.

Optimizing private sector fast attack submarine maintenance

The committee notes the budget request for fiscal year 2022 includes a continuation and expansion of fast attack submarine depot

maintenance availabilities contracted with private shipyards that had previously been performed at Navy public shipyards.

The committee believes fast attack submarine depot maintenance contracted with private shipyards has the potential to reduce overloading issues at public shipyards, provide workforce and workload stability at private shipyards, and increase the operational availability of fast attack submarines for fleet commanders. However, the committee is concerned that recent fast attack submarine depot maintenance availabilities contracted with private shipyards have significantly exceeded initial cost and schedule estimates.

Therefore, the committee directs the Secretary of the Navy to submit a report to the congressional defense committees, not later than February 1, 2022, on options to improve outcomes in contracting with private shipyards for fast attack submarine depot maintenance availabilities. This report shall identify courses of action that evaluate different scopes of work, periods of performance, and intervals between availabilities at each private shipyard currently capable of performing such work. One such course of action shall be to evaluate the repeated contracting with private shipyards for the first drydock availability for *Virginia*-class submarines, with one such submarine in planning and one such submarine in maintenance at any given time. Based on the courses of action evaluated, the Secretary shall identify the optimal approach for contracting with private shipyards for fast attack submarine depot maintenance availabilities in terms of cost, schedule, and performance.

Pilot program to extract natural gas to develop energy security and resilience

The committee directed the Department of Defense, in the Senate Report accompanying S. 1376 (S. Rept. 114–49) of the National Defense Authorization Act for Fiscal Year 2016, to provide an analysis of major Department of Defense installations with likely gas and oil reserves, the expected quality of those reserves, the estimated cost and savings of producing gas and oil at such installations, the statutory and regulatory challenges to implementing such energy development projects, potential mission and environmental impacts from such energy development projects, and recommendations for which installations, if any, may benefit from such development.

Accordingly, the committee directs the Secretary of Defense to review and update this analysis and provide a briefing to the Senate Armed Services Committee, not later than March 1, 2022, with the updated analysis. The briefing shall include a recommendation for a pilot site to initiate a pilot program to use on-site mineral reserves to enhance the installation's energy resilience and security, with the objective of providing the installation with on-site energy production, light refining, storage, and onsite generation to maintain critical operations during intentional or unintentional grid outages.

Propulsion readiness

The committee recognizes the criticality of aircraft engine readiness across the Department of Defense (DOD) and notes the im-

pacts of system age, supply chain viability, industrial base dynamics, and workload on the DOD's ability to modernize and sustain propulsion systems across the life cycle. The committee is encouraged by the DOD's actions to maintain the readiness of the overall propulsion fleet. However, the committee is concerned about funding levels to ensure long-term engine readiness and continued propulsion dominance over near-peer competitors.

Accordingly, the committee directs the Assistant Secretary of Defense for Readiness to provide a briefing to the Senate Armed Services Committee, not later than February 1, 2022, on systemic factors impacting propulsion readiness and effectiveness. The briefing shall include, but not be limited to, a discussion on: (1) Engine system age; (2) Leveraging capability from the commercial industrial base; (3) Industrial base viability and the process to balance workload between the public and private sectors; (4) Funding sufficiency to address research, modernization, and sustainment requirements; and (5) Impediments to speed in development and sustainment.

Readiness and Environmental Protection Initiative

The budget request included $1.8 billion in Operation and Maintenance, Defense-wide, for SAG 4GTN Office of the Secretary of Defense, of which $150.0 million was for the Readiness and Environmental Protection Initiative (REPI). The committee has long recognized that the REPI program has proven to be highly effective in addressing encroachment and in maintaining and improving military installation resilience. The committee appreciates the success that the REPI program has achieved in addressing encroachment and resiliency problems and encourages the Department to continue its support of the program in future budget requests.

Recycling rare earth materials

The committee is encouraged by the Department of Defense's actions in the previous year to establish and maintain a secure, domestic supply of neodymium iron boron rare earth permanent magnets. The committee encourages the Department to continue using the Defense Production Act to create needed industrial capabilities when gaps in critical supply chains are identified. The committee is aware that the Department has significant quantities of end-of-life equipment, such as hard drives, that contain appreciable amounts of rare earth materials. These materials can be recovered and recycled into useful products, including permanent magnets, thereby reducing the need to import rare earth materials from China.

Accordingly, the committee directs the Under Secretary of Defense for Acquisition and Sustainment to brief the committee, not later than March 1, 2022, on the ability of the Department to identify rare earth-containing end-of-life items, to sell or barter such end-of-life items to rare earth recycling manufacturers, and to ensure that recovered rare earth and other critical materials are retained in the United States.

Report on competitiveness in the defense industrial base

The committee supports a more competitive defense industrial base and efforts to ensure the Department of Defense is making de-

cisions with full awareness of the competitive implications of corporate mergers and acquisitions. The committee notes the recent July 2021 Executive Order 14036 on Promoting Competition in the American Economy has implications for mergers and acquisitions within the defense industrial base.

Accordingly, the committee directs the Under Secretary of Defense for Acquisition and Sustainment to submit to the congressional defense committees a report, not later than March 1, 2022, that includes: (1) Actions being taken within the Department of Defense to comply with the Executive Order, including those related to mergers and acquisitions, and (2) A detailed assessment of the state of competition within the defense industrial base, including areas where a lack of competition may be a concern, and any recommendations for changes in defense acquisition processes to improve outcomes.

Review to reduce reporting requirements

The committee continues to be interested in reducing the number of Department of Defense reports required to be sent to the Congress. Accordingly, the committee directs the Under Secretary of Defense for Acquisition and Sustainment to evaluate its existing statutory and congressional reporting requirements in its areas of responsibility in order to identify any overlap, duplication, and opportunities for streamlined reporting. The Under Secretary of Defense for Acquisition and Sustainment shall provide a briefing on the findings of the evaluation to the Senate Armed Services Committee not later than February 1, 2022. The briefing shall include recommendations to reduce, combine, or streamline specific reports while retaining reports that are essential to enabling long-term tracking and informing policymaking.

Shipyard Infrastructure Optimization Plan implementation

The committee recognizes the critical strategic and logistics role our public shipyards play in the security of our Nation. To address chronically unmet infrastructure needs at the shipyards, the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) directed the Department of Defense to create and implement a Shipyard Infrastructure Optimization Plan (SIOP). The committee strongly supports the SIOP, which will revitalize the Nation's four public shipyards and equip them with the facilities needed to meet the requirements of the naval fleet into the future. The public shipyards are American institutions of shipbuilding and maintenance that, in some cases, date back more than two hundred years. They employ a highly skilled workforce that performs critical repair and maintenance work on complex Navy ships and submarines in order to maintain the fleet's operational readiness needed to respond to national security requirements. The committee believes continued investment in the public shipyards is a national security imperative, and the SIOP must remain on schedule.

The committee is very concerned that the Navy's SIOP is falling behind schedule because details on multiple projects that are needed to properly assess and evaluate this critical recapitalization effort have not been timely and fully provided to the committee. While unforeseen challenges arise during the execution of large

and complicated construction projects, they can often be mitigated with prudent planning and foresight. This heightens concerns whether the Navy can maintain its current operational depot-level maintenance schedule as dry docks are temporarily unavailable when they are upgraded and replaced, whether adequate resourcing has been provided to the managing program office to mitigate the risk of construction cost increases, and how the Navy will meet its commitment to its budget for these projects. The committee urges the Navy to incorporate these concerns into the detailed planning process for planned implementation.

The recently revealed cost overrun of more than 150 percent for the multi-mission dry dock project at the Portsmouth Naval Shipyard (PNSY) not only costs finite resources, it risks unacceptable delays for a project that is essential for maintaining the submarine force. Furthermore, delays in commencing or completing dry dock modernization will have a great impact on our Nation's national security. In the case of Joint Base Pearl Harbor (JBPH), the older Dry Dock 3 will be filled in during the construction of the newer and larger Dry Dock 5. The committee is concerned that with the last scheduled availability for Dry Dock 3 in 2023 and with Dry Dock 5 not scheduled for completion until 2028, there will be a significant lack of facilities to maintain fleet readiness.

The committee is also concerned that the SIOP may not sufficiently account for the differences between the Nation's four historical public shipyards. Each shipyard has a unique history, design, and local workforce with valuable knowledge of its respective facilities that can help ensure the proper modernization and optimization of these facilities. Rather than relying solely on a one-size-fits-all approach that is centralized without fully considering local conditions, the committee urges the Navy's SIOP program office to seek more input and engagement from these local workforces and their installation leadership to efficiently and effectively build and maintain shipyards that can sustain the fleet for generations to come.

In order to ensure the Navy is appropriately managing the PNSY multi-mission dry dock project, future JBPH dry dock, and the overall SIOP, the committee directs the Secretary of the Navy to provide a briefing to the congressional defense committees not later than October 1, 2021. The briefing shall include:

(1) A description of the cause(s) of the cost overrun at PNSY;

(2) Analysis on measures that could have mitigated the cause(s) of the overrun;

(3) A discussion on the need to revise cost and schedule projections for future SIOP projects in light of the overrun;

(4) What steps the Navy is taking to incorporate the lessons learned from the overrun to apply to future SIOP work;

(5) The impact of the current military construction timelines on JBPH shipyard availabilities in each of the fiscal years from 2023 through 2029;

(6) A detailed plan of the construction timeline for JBPH Dry Dock 5 and accompanying water front production facilities; and

(7) The planned utilization of the Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility workforce during

this same period if Dry Dock 5 is not completed before the closure of Dry Dock 3.

Staffing and resources

The committee remains concerned that the Department of Defense has failed to adequately staff and resource several offices and elements under the purview of the Assistant Secretary of Defense for Energy, Installations, and Environment. For example, past reductions to headquarters elements resulted in the Army eliminating at least thirty percent of its personnel who oversaw privatized housing. The committee recognizes the litany of challenges facing the Department, including the contamination by per- and polyfluoroalkyl substances, the Military Housing Privatization Initiative, operational and installation energy programs, energy and military installation resilience, among others. The committee's intent is for the Department to be able to effectively navigate all of these challenges and ensure they are appropriately staffed and resourced so the workforce is not unduly overburdened.

Accordingly, the committee directs the Assistant Secretary of Defense for Energy, Installations, and Environment to provide a briefing to the Senate Armed Services Committee, not later than March 1, 2022, on the staffing and resourcing of the aforementioned offices, including current and projected staffing levels, which should include budget information for fiscal year 2022 and 2023; recommendations on potential changes to hiring authorities or policies that might yield a more robust workforce; and any other aspects the Department deems appropriate.

Study for enhancing ship readiness through digital techniques

The committee believes that the readiness of our Navy's surface combatant and auxiliary fleets is a critical issue that deserves enhanced attention. The committee continues to support efforts to enhance the readiness of Military Sealift Command (MSC) vessels through a condition-based approach. This approach has improved availability planning, operational availability, and readiness of MSC vessels, with potential long-term cost avoidance in maintenance and repair of such vessels. The committee believes that the use of similar commercial standards and developmental approaches can be of significant benefit to the Navy and would be compatible with the Navy's existing program of record known as Condition-Based Maintenance Plus (CBM+).

Therefore, the committee directs the Secretary of the Navy to assess the potential of using a condition-based maintenance approach similar to CBM+, utilizing digital techniques to support other classes of surface naval vessels. The Secretary of the Navy shall provide a briefing to the Senate Armed Services Committee on the results of the assessment not later than April 1, 2023. The briefing shall include a description of: (1) Options to integrate CBM+ and other commercially-developed condition-based program standards for ship maintenance on other classes of Navy vessels, including the associated costs, and (2) What would be required to deploy CBM+ or other commercially-developed condition-based program standards for ship maintenance to other classes of Navy surface vessels, in-

cluding the associated costs, schedule, and equipment requirements.

Study of expanding ship repair capacity

The committee is concerned the Navy is facing a fleet sustainment predicament without clear solutions. Congressional and Navy leaders believe that the United States needs a fleet of 355 or more battle force ships. However, the Navy has been unable to maintain and modernize the fleet, which has had 300 or fewer ships, over the past 5 years due to affordability challenges; the number of shipyards able to perform maintenance and modernization work; and limitations within shipyards, including a paucity of dry docks. The Navy has been executing a plan to modernize the Navy's public shipyards called the Shipyard Infrastructure Optimization Program (SIOP). While the SIOP effort is sorely needed, it will not yield substantial increases in capacity sufficient to handle a larger fleet. Furthermore, the committee is unaware of any Navy-identified alternatives on the scale required to expand overall ship repair capacity to sustain a fleet of 355 or more ships.

Accordingly, the committee believes that the Navy needs to investigate more expansive and, perhaps, non-traditional options for expanding the Nation's ship repair capacity. Therefore, the committee directs the Secretary of the Navy to conduct an analysis of options for increasing ship repair capacity that would be necessary to support a fleet of 355 or more ships comprised of the optimal mix of ship types, including addressing the costs and benefits of the following options:

(1) Expanding plant capacity at existing naval shipyards beyond the current SIOP effort;

(2) Building new or re-opening closed naval shipyards;

(3) Investing in modernization or expansion of private repair yard infrastructure;

(4) Modifying or relaxing restrictions on overseas maintenance of Navy vessels;

(5) Changing ship repair practices or processes to enhance existing capacity;

(6) Increasing technical competence of current naval shipyard workforce;

(7) Increasing or expanding the use of rolling admission for multiple-award maintenance contracts;

(8) Increasing or expanding private repair activities at Navy bases; and

(9) Any other options the Secretary may identify.

The committee directs the Secretary to submit a report on this analysis not later than March 1, 2022, including recommendations for implementation and funding and any associated legislative changes.

Survivable Airborne Operations Center

The committee is encouraged by increased investment in the Survivable Airborne Operations Center (SAOC) program to accelerate overdue replacement of the Air Force's E–4B National Airborne Operations Center. Given the E–4B's critical role in the National Military Command System, the committee views this as a high-priority

recapitalization in support of a no-fail mission. The E–4B fleet is approaching 50 years in service and is facing capability gaps, diminishing manufacturing sources, increased maintenance costs, and parts obsolescence as it approaches the end of its serviceable life. The committee understands the SAOC weapon system will be comprised of a commercial derivative aircraft, mission system, and ground support systems. The committee has expressed concern that E–4B recapitalization has been under consideration since at least 2008 with limited progress and expects the Air Force to execute fiscal year 2022 funds on-plan and budget for future years appropriately to support a planned Milestone B decision and the start of engineering, manufacturing, and development in early fiscal year 2023. The committee is aware that the SAOC program is informed by prior relevant Air Force and Department of Defense analyses and encourages the Air Force to pursue an acquisition approach that appropriately reflects the urgency of this effort and delivers the best value for the taxpayer.

Sustainable technology evaluation and demonstration

The committee notes that the Department of Defense (DOD) and civilian Federal agencies are directed by Federal acquisition regulations and Federal statutes to implement sustainable technologies and products when availability, performance, and cost savings meet or exceed non-sustainable products. The recently established DOD Sustainable Technology Evaluation and Demonstration (STED) Program demonstrates sustainable technologies and products against Government performance requirements at DOD installations to validate performance, compatibility, mission benefits, and cost savings. The STED Program provides valued and centralized support to the installations while reducing duplication of effort across the services.

The committee commends the Office of the Assistant Secretary of Defense for Sustainment (ASD Sustainment) for implementing the STED Program and conducting initial successful sustainable technology demonstrations that: (1) Reduce health and safety impacts to the warfighter; (2) Decrease energy requirements; and (3) Lessen waste and environmental impacts to our installations and bases. However, the committee believes that more should be done to create broader awareness and increase acceptance of sustainable alternatives that improve maintenance, operations, training, and mission objectives.

Accordingly, the committee directs the ASD Sustainment to provide a briefing to the Senate Armed Services Committee not later than December 1, 2021, on its current activities and any long-term plans to expand the STED Program and participation across all the military departments.

Sustainment of Army health and holistic fitness system equipment

The committee notes that the U.S. Army's shift to a Holistic Health and Fitness (H2F) system is designed as the Army's primary investment in soldier readiness, lethality, optimal physical and non-physical performance; to reduce injury rates; improve re-

habilitation after an injury; decrease attrition; and increase the effectiveness and deployability of the total Army.

The committee notes equipment and facilities are essential elements of the H2F system and that the Soldier Performance Readiness Center (SPRC) is an integral part of the H2F programming, as it provides a supportive, individually focused fitness training environment that delivers comprehensive, integrated, and immersive physical and non-physical programming. The committee further notes that, in addition to the SPRC, the Army has used Army Combat Fitness Test lane equipment, Gyms-in-a-Box (GiaBs), container gyms, and other commercial, off-the-shelf fitness equipment and technological solutions to help improve solider health, fitness, and performance.

The committee also notes that the H2F system was designed under a single governance structure to enable commanders to improve soldier health and fitness, including an initial phase and a sustaining phase. The committee understands, however, that this governance structure has not been fully staffed or resourced. Additionally, the equipment and facilities required for the H2F system are actively being acquired, yet the acquisition and contracting process, funding, authority, operations, and sustainment responsibility have not been unified under one command.

Accordingly, not later than March 1, 2022, the committee directs the Secretary of the Army, in coordination with the Commander, Army Training and Doctrine Command, to provide a briefing to the Senate Armed Services Committee outlining the necessary staffing and resourcing for the Soldier Performance Center of Excellence to provide oversight on governance, requirements generation, and capabilities assessment. The briefing should also include an assessment of the need to designate a Program Executive Office as well as the planned sustainment activities for SPRC, GiaBs, and any other equipment utilized for H2F.

U.S. Special Operations Command Preservation of the Force and Families Program

The committee recognizes the short and long-term physical, mental, and emotional effects of continuous operations in high-stress environments experienced by special operations forces (SOF). As articulated by the Commander, U.S. Special Operations Command (SOCOM), SOCOM represents 2 percent of the Department of Defense's (DOD) budget and 3 percent of DOD personnel, but has sustained more than half of the combat casualties across DOD in recent years. The committee notes that many more special operators suffer from psychological trauma long after their deployments. Despite the exceptional sacrifices by our SOF servicemembers and their families, 72 percent of wounded SOF have been retained in military service, with 61 percent returning to duty inside their original occupational specialty. This remarkable achievement has been significantly enabled by the SOCOM Preservation of the Force and Families (POTFF) Program.

The committee strongly supports all aspects of the POTFF initiative, to include efforts to support the psychological health and cognitive performance of SOF. Efforts to guarantee access to such care and eliminate the stigma associated with seeking help are vital.

The committee encourages SOCOM to continue to prioritize the POTFF program while seeking to measure the effectiveness of the program, institutionalize best practices, and evolve care to meet the needs of special operators and their families.

Underwater cut and capture

The committee understands underwater munitions continue to pose environmental and safety threats for the Department of Defense. High-pressure water jet technology systems have proven their capability to safely demilitarize munitions on land and have demonstrated the ability to demilitarize munitions underwater as well. The committee remains concerned that underwater munitions pose a threat that has not been sufficiently addressed. Accordingly, the committee directs the Secretary of Defense to continue to expand the use of water jet technology systems for the removal of explosive constituents in underwater munitions.

Universal Robotic Controller project

The committee is encouraged by the Air Force's development of artificial intelligence robotic technologies with adaptive autonomous intelligence, referred to as the Universal Robotic Controller project, in order to lower growing sustainment costs for aging and advanced complex weapon systems and increase warfighter readiness. As such, the committee encourages the Secretary of the Air Force to continue the development and deployment of this technology to lessen workforce development challenges and to provide increased capability, greater productivity, and safer work environments.

Utilities Privatization

The committee continues to enthusiastically support the successful utilities privatization (UP) efforts that have been underway within the Department of Defense (DOD) for the past 25 years. The UP program has succeeded because of the continuing support and robust oversight of the military departments.

The committee sees UP as a key enabler for the Department and the services to achieve energy resilience, sustainability, and mission readiness on military installations that can also leverage and integrate advances in technology and grid modernization in an efficient and cost-effective way. As DOD implements efficiency standards in the coming years, it should look to the UP program as an effective, scalable solution to drive this change, which will provide the broader capability to implement emerging technologies.

Because of the UP program's continuing success and cost-effective performance, the committee strongly encourages the DOD to continue to maximize use of the UP program as an effective, integrated solution to construct, repair, modernize, maintain, or replace an installation's utility system to achieve energy reliability and resilience. The committee further encourages the DOD to use additional resilience metrics and performance-based calculations, which are currently captured on UP installations and routinely reported to base energy managers, to assess the performance outcomes and the cost-effectiveness of the program.

The committee has been concerned with the lack of movement by the Department in advancing UP contracting opportunities and urges that it resume this process and leverage existing authorities to modernize and upgrade installation infrastructure. Accordingly, the committee directs the Under Secretary of Defense for Acquisition and Sustainment, in coordination with the Assistant Secretaries of the military departments with responsibility for energy, installations, and environment, to provide a briefing to the congressional defense committees not later than March 1, 2022, outlining the Department's plans to continue the implementation of the UP program.

Vieques cleanup

The committee notes that from the 1940s until 2003, the U.S. Navy conducted bombing exercises and other live-fire training activities on the Island of Vieques, which is located off the coast of Puerto Rico. The Navy ceased its operations on Vieques in 2003 but remains responsible for environmental cleanup. Since 2005, Vieques has been included on the Environmental Protection Agency's (EPA) National Priorities List of contaminated sites. The Atlantic Fleet Weapons Training Area—also encompassing waters surrounding parts of Vieques—includes large amounts of unexploded ordnance and remnants of exploded ordnance. According to the EPA, hazardous substances at the site "may include mercury, lead, copper, magnesium, lithium, perchlorate, TNT, napalm, depleted uranium, PCBs, solvents, and pesticides." The committee is concerned that the contamination may have contributed to significant health problems for the island's population of approximately 9,000 U.S. citizens. Hurricanes Irma and Maria in 2017 exacerbated the public health problems on the island. On March 26, 2021, the Government Accountability Office (GAO) published a report, titled "Efforts at Former Military Sites on Vieques and Culebra, Puerto Rico, Are Expected to Continue through 2032" (GAO–21–268), which stated that the "U.S. Navy estimate[s] that cleanup efforts will continue through fiscal year 2032." Given how long the cleanup already has been ongoing, and the risk that each passing day could contribute to the population's health problems, this newly revealed timetable is disappointing and worrying.

Accordingly, the committee urges the Navy to accelerate with all possible speed the cleanup without creating major negative environmental or health impacts. The committee also directs the Secretary of the Navy to provide annual updates on the Navy's progress to the Senate Armed Services Committee in the form of a briefing. The annual updates shall include any authorities, tools, or resources the Navy estimates are needed to accelerate the cleanup. The Secretary shall provide the first briefing not later than March 1, 2022.

Water resource management

The committee notes that the Department of Defense has consistently cited drought as a major current and projected adverse impact on military installation resilience. Many military installations, particularly in the West, rely in whole or in part on groundwater for water supplies, and the committee notes the ongoing and con-

cerning depletion of many of the aquifers from which this groundwater is drawn. The committee applauds the significant progress that the services and individual installations have made in reducing groundwater use. Further, the committee notes the growing recognition of groundwater recharge as an important element of a strategy to address this depletion and that groundwater recharge is currently part of a water management strategy at a number of military installations. One military installation in particular—Fort Huachuca, Arizona—has played a major role in collaborative intergovernmental and public-private efforts both to reduce groundwater usage on and off the installation and to recharge the supporting aquifer. This effort at Fort Huachuca involved actions under the Readiness and Environmental Protection Integration (REPI) program. Section 2684a of title 10, United States Code, was amended by section 315(b) of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) to clarify: (1) That maintaining and improving military installation resilience is a major purpose of the REPI program; and (2) That the interagency collaboration authority under the REPI program pursuant to subsection (h) of section 2684a of title 10, United States Code, was broadened to include both the conservation and resilience program of any Federal agency, which includes the groundwater recharge and other water resilience programs of the Bureau of Reclamation. The committee also notes that section 2815 of title 10, United States Code, was amended by section 315(a) of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 to extend the authority for the construction of military installation resilience projects, such as groundwater recharge facilities, to projects located both on and outside of a military installation.

Accordingly, the committee directs the Secretary of Defense, in preparing the report required by subsection 2827(e) of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, to include an assessment of: (1) The potential for greater interagency and public-private collaboration using these and other authorities both to reduce the use of groundwater and to recharge aquifers as an element of a regionalized strategy to manage water resources; and (2) The potential for construction of groundwater recharge facilities as elements of a strategy as defined in subsection 2827(f) of such Act, at military installations relying in whole or in part on groundwater resources. The committee encourages the Secretary in responding to this requirement to consult with other regional stakeholders, including the Western States Water Council, academia, the Bureau of Reclamation, the U.S. Geological Survey, the National Oceanic and Atmospheric Administration regional partners, and entities in defense communities that manage water resources.

TITLE IV—MILITARY PERSONNEL AUTHORIZATIONS

Subtitle A—Active Forces

End strengths for active forces (sec. 401)

The committee recommends a provision that would authorize Active-Duty end strengths for fiscal year 2022, as shown below:

Service	FY 2021 Authorized	FY 2022		Change from	
		Request	Recommendation	FY 2022 Request	FY 2021 Authorized
Army	485,900	485,000	485,000	0	−900
Navy	347,800	346,200	346,200	0	−1,600
Marine Corps	181,200	178,500	178,500	0	−2,700
Air Force	333,475	328,300	329,220	+920	−4,255
Space Force	n/a	8,400	8,400	0	+8,400
DOD Total	1,348,375	1,346,400	1,347,320	+920	−1,055

The committee has taken a cautious approach to the end strength authorization for active forces. This provision would authorize end strength levels within existing variance authority for the Army, Navy, Air Force, and Marine Corps.

For the first time, in acknowledgment of the rapidly growing Space Force within the Department of the Air Force, the committee has recommended a specific authorization level for the Space Force. The committee's recommendation is 8,400 for the Space Force, which is in line with the Department's request. The new, separate line for Space Force personnel authorization accounts for much of the decrease in the Air Force end strength as well as the ongoing growth of the Space Force.

Authority with respect to authorized strengths for general and flag officers within the Armed Forces for emerging requirements (sec. 402)

The committee recommends a provision that would authorize the Secretary of Defense to reallocate a limited number of general and flag officer authorizations among the military departments in response to emerging requirements, as needed.

Additional authority to vary Space Force end strength (sec. 403)

The committee recommends a provision that would authorize the Secretary of the Air Force to vary U.S. Space Force end strength by a greater degree than is otherwise permitted for the Armed Forces in order to give the Secretary additional discretion to build and establish the U.S. Space Force.

Temporary exemption from end strength grade restrictions for the Space Force (sec. 404)

The committee recommends a provision that would temporarily exempt the Space Force from the grade restrictions in sections 517 and 523 of title 10, United States Code.

Subtitle B—Reserve Forces

End strengths for Selected Reserve (sec. 411)

The committee recommends a provision that would authorize end strengths for Selected Reserve personnel for fiscal year 2022, as shown below:

Service	FY 2021 Authorized	FY 2022		Change from	
		Request	Recommendation	FY 2022 Request	FY 2021 Authorized
Army National Guard	336,500	336,000	336,000	0	−500
Army Reserve	189,800	189,500	189,500	0	−300
Navy Reserve	58,800	58,600	58,600	0	−200
Marine Corps Reserve	38,500	36,800	36,800	0	−1,700
Air National Guard	108,100	108,300	108,300	0	+200
Air Force Reserve	70,300	70,300	70,300	0	0
Coast Guard Reserve	7,000	7,000	7,000	0	0
DOD Total	809,000	806,500	806,500	0	−2,500

End strengths for Reserves on active duty in support of the reserves (sec. 412)

The committee recommends a provision that would authorize full-time support end strengths for fiscal year 2022, as shown below:

Service	FY 2021 Authorized	FY 2022		Change from	
		Request	Recommendation	FY 2022 Request	FY 2021 Authorized
Army National Guard	30,595	30,845	30,845	0	250
Army Reserve	16,511	16,511	16,511	0	0
Navy Reserve	10,215	10,293	10,293	0	78
Marine Corps Reserve	2,386	2,386	2,386	0	0
Air National Guard	25,333	26,662	25,333	−1,329	0
Air Force Reserve	5,256	6,003	6,003	0	747
DOD Total	90,296	92,700	91,371	−1,329	1,075

The committee is concerned that the Department of Defense has gone too far in requesting increases in Active Guard Reserve authorizations in the Air National Guard (ANG) at the expense of military technician authorizations in the ANG. The committee is concerned about the impact of such changes on the readiness of the U.S. Air Force.

End strengths for military technicians (dual status) (sec. 413)

The committee recommends a provision that would authorize military technician (dual status) end strengths for fiscal year 2022, as shown below:

Service	FY 2021 Authorized	FY 2022		Change from	
		Request	Recommendation	FY 2022 Request	FY 2021 Authorized
Army National Guard	22,294	22,294	22,294	0	0
Army Reserve	6,492	6,492	6,492	0	0
Air National Guard	10,994	9,885	10,994	+1,109	0
Air Force Reserve	7,947	7,111	7,111	0	−836
DOD Total	47,727	45,782	46,891	+1,109	−836

The provision would also establish limits on the number of temporary technicians authorized to be employed within the end strengths set forth by this section to not more than 25 percent of the total authorized strength for each component.

The committee is concerned that the Department of Defense has gone too far in reducing military technician authorizations in favor of Active Guard Reserve authorizations. The committee is concerned about the impact of such changes on the readiness of the U.S. Air Force.

Finally, the provision would also prohibit under any circumstances the coercion of a military technician (dual status) by a State into accepting an offer of realignment or conversion to any other military status, including as a member of the Active, Guard, and Reserve program of a reserve component. The provision would further specify that if a technician declines to participate in such a realignment or conversion, no further action may be taken against the individual or the individual's position.

Maximum number of reserve personnel authorized to be on active duty for operational support (sec. 414)

The committee recommends a provision that would authorize end strengths for reserve personnel on Active Duty for operational support for fiscal year 2022, as shown below:

Service	FY 2021 Authorized	FY 2022		Change from	
		Request	Recommendation	FY 2022 Request	FY 2021 Authorized
Army National Guard	17,000	17,000	17,000	0	0
Army Reserve	13,000	13,000	13,000	0	0
Navy Reserve	6,200	6,200	6,200	0	0
Marine Corps Reserve	3,000	3,000	3,000	0	0
Air National Guard	16,000	16,000	16,000	0	0
Air Force Reserve	14,000	14,000	14,000	0	0
DOD Total	69,200	69,200	69,200	0	0

Subtitle C—Authorization of Appropriations

Military personnel (sec. 421)

The committee recommends a provision that would authorize the appropriations for military personnel activities at the levels identified in section 4401 of division D of this Act.

Budget Items

Military personnel funding changes

The amount authorized to be appropriated for military personnel programs includes the following changes from the budget request:

[Changes in millions of dollars]

Military personnel underexecution	−950.7
Army UFR—JTIMS exercise support	67.4
Army UFR—Reserve Component EDI for Rotational Forces	56.0
Army UFR—Reserve Component Homeland Security Ops	228.4
CNGB UFR—CBRN Response Forces	9.2
A–10/F–35 Active duty maintainers	93.0
Total	−496.6

The committee recommends a total reduction in the Military Personnel (MILPERS) appropriation of $496.6 million to reflect the Government Accountability Office's most recent assessment of expected MILPERS under-execution for fiscal year 2022, additional funding to address a number of unfunded requirements of the Department, and additional funding to address A–10/F–35 active duty maintainers.

TITLE V—MILITARY PERSONNEL POLICY

Subtitle A—Officer Personnel Policy

Increase in authorized lieutenant commander billets in the Navy (sec. 501)

The committee recommends a provision that would amend section 605(g)(4)(B) of title 10, United States Code, to increase the number of temporary promotions to the grade of lieutenant commander in the Navy from 325 to 350.

Time in grade requirements (sec. 502)

The committee recommends a provision that would amend section 619(a) of title 10, United States Code, to authorize the Secretary of the military department concerned to prescribe a shorter period of service in grade, but not less than 2 years, for eligibility for consideration for promotion, in the case of certain officers designated for limited duty.

Subtitle B—General Service Authorities and Correction of Military Records

Part I—Selective Service Reform

Modernization of the Selective Service System (sec. 511)

The committee recommends a provision that would make numerous amendments to the Military Selective Service Act (50 U.S.C. section 3801 et seq.) to expand registration requirements under that Act to all Americans and to restate the purpose and solemnity of selective service. The expansion of registration to all Americans would take effect 1 year after the date of the enactment of this Act.

Report on exemptions and deferments for a possible military draft (sec. 512)

The committee recommends a provision that would require the Director of Selective Service, in consultation with the Secretary of Defense and Secretary of Homeland Security, to submit a report to the Congress reviewing exemptions and deferments from registration, training, and service under the Military Selective Service Act (50 U.S.C. 3801 et seq.), together with proposed revisions to such exemptions and deferments.

Report on processes and procedures for appeal of denial of status or benefits for failure to register for Selective Service (sec. 513)

The committee recommends a provision that would require the Director of Selective Service, in consultation with the Secretary of Homeland Security, the Secretary of Education, and the Director of

the Office of Personnel Management, to submit to the appropriate committees of the Congress a report on the processes and procedures for appeal of denial of status or benefits for failure to register for selective service.

Responsibilities for national mobilization; personnel requirements (sec. 514)

The committee recommends a provision that would require the Secretary of Defense to establish within the Office of the Secretary of Defense an Executive Agent for National Mobilization. The provision would require the Secretary, within one year of the date of the enactment of this Act, to submit to the Congress a plan for obtaining inductees as part of a mobilization timeline for the Selective Service System.

This provision addresses a recommendation of the National Commission on Military, National, and Public Service.

Enhancements to national mobilization exercises (sec. 515)

The committee recommends a provision that would amend section 10208 of title 10, United States Code, to require that major mobilization exercises required annually by that section periodically include the processes of the Selective Service System in preparation for the induction of personnel into the Armed Forces under the Military Selective Service Act (50 U.S.C. 3801 et seq.).

This provision addresses a recommendation of the National Commission on Military, National, and Public Service.

Part II—Other Matters

Military service independent racial disparity review (sec. 518)

The committee recommends a provision that would require each Secretary of a military department to conduct an assessment of racial disparity in military justice and discipline processes and military personnel policies, as they pertain to minority populations, and to submit to the Committees on Armed Services of the Senate and the House of Representatives a report detailing the results of the assessment. Finally, the provision would require the Comptroller General of the United States to assess each assessment and compare racial disparity in the military justice system to racial disparity in civilian criminal justice systems in the United States.

Appeals to Physical Evaluation Board determinations of fitness for duty (sec. 519)

The committee recommends a provision that would require the Secretary of Defense, not later than 90 days after the date of the enactment of this Act, to incorporate a formal appeals process into the policies and procedures of the Integrated Disability Evaluation System. The provision would ensure that servicemembers may submit a formal appeal regarding a fitness for duty determination to a physical evaluation board of the military department concerned.

Extension of paid parental leave (sec. 520)

The committee recommends a provision that would amend section 701 of title 10, United States Code, to authorize 12 weeks of paid military leave for servicemembers that have newborn, newly-adopted, and newly placed minor children. This leave would ordinarily be used within 1 year of the birth, adoption, or foster care placement of the minor child. This provision would permit the Secretary of Defense to authorize servicemembers to use this parental leave beyond the first year in the event that operational requirements, professional military education needs, or other circumstances the Secretary deems reasonable would prevent the servicemember from taking such leave within the first year.

Bereavement leave for members of the Armed Forces (sec. 520A)

The committee recommends a provision that would amend section 701 of title 10, United States Code, to create a new category of leave for military personnel that would permit servicemembers to take up to 2 weeks of leave in connection with the death of a spouse or child.

Under this provision, bereavement leave would be available to all servicemembers regardless of tenure and would only be charged for servicemembers who have 30 or more days of accumulated leave, and only until such members' balances drop below 30 days of leave. Any remaining bereavement leave taken by servicemembers whose leave balances drop below 30 days would be non-chargeable.

Subtitle C—Prevention and Response to Sexual Assault, Harassment, and Related Misconduct, and Other Military Justice Matters

DoD Safe Helpline authorization to perform intake of official restricted and unrestricted reports for eligible adult sexual assault victims (sec. 521)

The committee recommends a provision that would amend section 584 of the National Defense Authorization Act for Fiscal Year 2012 (Public Law 112–81) to authorize the Department of Defense Safe Helpline to receive sexual assault reports in both unrestricted and restricted forms, and to provide support to victims making such reports.

Assessment of relationship between command climate and the prevention and adjudication of military sexual misconduct (sec. 522)

The committee recommends a provision that would require the Secretary of Defense to require the Secretaries of the military departments to conduct no fewer than six independent reviews at military installations under the control of the Secretary concerned assessing the command climate at such installations, to include a review of that installation's programs to prevent and respond to sexual assault and sexual harassment, organizational climate, gender discrimination, and support of survivors. The provision would require the Secretaries concerned to conduct the assessments at three installations with the highest risk of sexual assault and three

installations with the lowest risk of sexual assault, as defined by the Secretary of Defense, for that military department.

The provision would require the assessments required under this section to be completed not later than 18 months after the date of the enactment of this Act and for the assessments to be transmitted by the Secretary of Defense to the Committees on Armed Services of the Senate and the House of Representatives not later than 30 days after each assessment's completion.

Policy for ensuring the annual report regarding sexual assaults involving members of the Armed Forces includes information on race and ethnicity of victims (sec. 523)

The committee recommends a provision that would require the Secretary of Defense to include in the annual Sexual Assault Prevention and Response Office report information on the race and ethnicity of victims and accused individuals to the maximum extent practicable, allowing for exclusion of such information, if necessary, based on privacy concerns, impacts on accountability efforts, or other matters of importance, as determined by the Secretary.

Department of Defense tracking of allegations of retaliation by victims of sexual assault or sexual harassment and related persons (sec. 524)

The committee recommends a provision that would require the Secretary of Defense to designate a component within the Office of the Secretary of Defense to document and track allegations of retaliation submitted by a victim of a sexual assault or sexual harassment, an individual charged with providing services or support to a victim, a witness or bystander to sexual assault or sexual harassment, or any other person associated with an allegation of sexual assault or sexual harassment.

The committee understands that retaliation related to a sexual assault or sexual harassment can take the form of reprisal or restriction, cruelty or maltreatment, or ostracism, and that allegations of same may be investigated by the Department of Defense Inspector General, another inspector general, a military criminal investigative organization or other law enforcement, a commander, or another organization, officer, or employee of the Department.

The committee believes that centralizing the documentation and tracking of all such allegations of retaliation in a single office in the Office of the Secretary of Defense will both improve the fidelity of annual reports on retaliation required by section 543 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) and provide more accurate data to inform the Department's development, execution, and evaluation of retaliation prevention and response programs.

Special Victims Counsel representation of civilian victims of sex-related offenses (sec. 525)

The committee recommends a provision that would amend section 1044e(a)(2) of title 10, United States Code, to authorize special victim's counsel representation for civilian victims of alleged sex-related offenses committed by individuals subject to the jurisdiction of the Uniform Code of Military Justice.

Notice to victims of further administrative action following a determination not to refer to trial by court-martial (sec. 526)

The committee recommends a provision that would amend section 549 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92) to clarify that the provision of information required by that section is not subject to the provisions of the Privacy Act of 1974 (5 U.S.C. 552a). Section 549 requires a commander, who has determined not to refer an allegation of sexual assault to trial by court-martial, to keep the victim in such a case periodically informed of the status of such further administrative action that may be taken against the accused.

Recommendations on separate punitive article in the Uniform Code of Military Justice on violent extremism (sec. 527)

The committee recommends a provision that would require the Secretary of Defense to submit to the Committees on Armed Services of the Senate and the House of Representatives a report containing such recommendations as the Secretary considers appropriate with respect to the establishment of a separate punitive article in the Uniform Code of Military Justice (chapter 47 of title 10, United States Code) on violent extremism. The report would be required to be submitted not later than 180 days after the date of the enactment of this Act.

Determination and reporting of missing, absent unknown, absent without leave, and duty status-whereabouts unknown service members (sec. 528)

The committee recommends a provision that would require the Secretary of Defense to instruct the Secretary of each military department to conduct a comprehensive review of that Department's policies and procedures for determining and reporting servicemembers as missing, absent unknown, absent without leave, or duty status-whereabouts unknown.

The provision would further require a review and update of installation-level procedures, with a focus on force protection, enhanced security for servicemembers living on a military installation, and prioritization of protocols for reporting at the earliest practicable time to local and Federal law enforcement when a servicemember is determined to be missing, absent unknown, absent without leave, or duty status-whereabouts unknown.

Conduct unbecoming an officer (sec. 529)

The committee recommends a provision that would amend Article 133 of the Uniform Code of Military Justice (10 U.S.C. 933) by striking the words "and a gentleman" from the title and text of the current article prohibiting conduct unbecoming an officer and a gentleman.

Analysis of the use of non-judicial punishment (sec. 530)

The committee recommends a provision that would require the Secretary of Defense to conduct statistical analysis on non-judicial

punishments with respect to race, ethnicity, gender, rank, and grade.

Sexual Assault Response Coordinator Military Occupational Specialty (sec. 530A)

The committee recommends a provision that would require the Secretary of Defense to submit a report to the congressional defense committees not later than 180 days after the date of the enactment of this Act on various elements concerning a military occupational specialty for Sexual Assault Response Coordinators.

Implementation of recommendations of the Independent Review Commission on Sexual Assault in the Military (sec. 530B)

The committee recommends a provision that would require the Secretary of Defense to implement the recommendations of the Independent Review Commission (IRC) contained within Lines of Effort 2, 3, and 4, as reflected in the IRC's 2021 report entitled "Hard Truths and the Duty to Change: Recommendations from the Independent Review Commission on Sexual Assault in the Military."

Subtitle D—Military Justice Reform and Sexual Assault Prevention

Part I—Military Justice Matters

Special victim prosecutors (sec. 531)

The committee recommends a provision that would add a new article 24a to the Uniform Code of Military Justice (UCMJ), codified at section 824a of title 10, United States Code, that would require the Secretaries of the military departments to detail commissioned officers to serve as special victim prosecutors and assistant special victim prosecutors. The provision would require that such prosecutors be certified by the Judge Advocate General of the armed force concerned to be qualified by reason of education, training, experience, and temperament for such duty.

The provision would grant exclusive authority to prosecutors detailed under this provision to determine whether a reported offense is a special victim offense for the purposes of the section and to exercise authority over any such offense under the UCMJ. The provision would authorize prosecutors detailed pursuant to the section to exercise authority over any reported offense that the prosecutor determines to be related to the special victim offense or committed by a person alleged to have committed a special victim offense.

The provision would grant exclusive authority to prosecutors detailed under the section to: (1) Dismiss charges and specifications or make a motion to dismiss charges and specifications; (2) Refer charges and specifications for trial by special or general court-martial; (3) Enter into a plea agreement; and (4) Determine if an ordered rehearing is impracticable.

Finally, the provision would authorize a convening authority to exercise any of the authorities granted to convening authorities under the UCMJ, notwithstanding the exclusive authority granted

to prosecutors detailed under the section, in the event such prosecutors decline to exercise authority granted to them under the section.

Policies with respect to special victim prosecutors (sec. 532)

The committee recommends a provision that would add a new section 1044f to title 10, United States Code, and require the Secretary of Defense to establish policies with respect to the appropriate mechanisms and procedures that the Secretaries of the military departments shall establish and carry out relating to the activities of special victim prosecutors.

Definition of military magistrate, special victim offense, and special victim prosecutor (sec. 533)

The committee recommends a provision that would amend section 801 of title 10, United States Code, to add definitions to the Uniform Code of Military Justice (UCMJ) for "military magistrate," "special victim offense," and "special victim prosecutor." The provision would define special victim offense as an offense under Articles 117a, 120, 120b, 120c, 128b, 130, or 132 of the UCMJ (10 U.S.C. 917a, 920, 920b, 920c, 928b, 930, or 932); conspiracy, solicitation, or attempt to commit such offense under Articles 81, 82, or 80 of the UCMJ (10 U.S.C. 881, 882, or 880); and the standalone offenses of sexual harassment and child pornography under Article 134 of the UCMJ (10 U.S.C. 934).

Clarification of applicability of domestic violence and stalking to dating partners (sec. 534)

The committee recommends a provision that would amend Articles 128b and 130 of the Uniform Code of Military Justice (10 U.S.C. 928b and 10 U.S.C. 930) to add dating partners to the victims covered by those articles (criminalizing domestic violence and stalking).

Clarification relating to who may convene courts-martial (sec. 535)

The committee recommends a provision that would amend Article 22 of the Uniform Code of Military Justice (10 U.S.C. 822) to clarify that a commanding officer shall not be considered an accuser in a general or special court-martial to which charges and specifications were referred by a special victim prosecutor.

Inclusion of sexual harassment as general punitive article (sec. 536)

The committee recommends a provision that would require the President to amend the Manual for Courts-Martial to include sexual harassment as a standalone offense under article 134 of the Uniform Code of Military Justice (10 U.S.C. 934).

Determinations of impracticability of rehearing (sec. 537)

The committee recommends a provision that would amend Article 65 of the Uniform Code of Military Justice (10 U.S.C. 865) to provide exclusive authority to a special victim prosecutor to make a determination on behalf of the Government that a rehearing au-

thorized by a military justice appellate authority in a special victim case is impracticable and, if so, to dismiss any affected charge.

Plea agreements (sec. 538)

The committee recommends a provision that would amend Article 53a of the Uniform Code of Military Justice (10 U.S.C. 853a) to provide exclusive authority, in special victim cases, to special victim prosecutors to enter into plea agreements on behalf of the United States.

Opportunity to obtain witness and other evidence in trials by court-martial (sec. 539)

The committee recommends a provision that would amend Article 46 of the Uniform Code of Military Justice (10 U.S.C. 846) to authorize special victim prosecutors to issue pre-referral investigative subpoenas.

Former jeopardy (sec. 540)

The committee recommends a provision that would amend Article 44 of the Uniform Code of Military Justice (10 U.S.C. 844) to clarify that jeopardy attaches when a special victim prosecutor dismisses charges or otherwise terminates a court-martial in certain cases.

Advice to convening authority before referral for trial (sec. 541)

The committee recommends a provision that would amend Article 34 of the Uniform Code of Military Justice (10 U.S.C. 834) to provide a special victim prosecutor with exclusive authority to refer charges alleging special victim offenses for trial by a special or general court-martial.

Preliminary hearing (sec. 542)

The committee recommends a provision that would amend Article 32 of the Uniform Code of Military Justice (10 U.S.C. 832) to authorize a special victim prosecutor to convene a preliminary hearing and to receive the preliminary hearing officer's report. The provision would also require that the preliminary hearing officer in a special victim case be a military judge or military magistrate.

Detail of trial counsel (sec. 543)

The committee recommends a provision that would amend Article 27 of the Uniform Code of Military Justice (10 U.S.C. 827) to require that for each general and special court-martial for which charges and specifications were referred by a special victim prosecutor, that a special victim prosecutor or assistant special victim prosecutor be detailed as trial counsel for such case. The provision would also specify authority to detail assistant trial counsel in such cases.

Sentencing reform (sec. 544)

The committee recommends a provision that would amend Articles 53, 53a, 56, and 66 of the Uniform Code of Military Justice (10 U.S.C. 853, 853a, 856, and 866) to require military judge-alone sen-

tencing in non-capital courts-martial subject to the President's establishment of sentencing parameters and criteria. The provision would also provide that, for capital cases, panel members would determine whether the sentence would include death or life without parole, or such other lesser punishment as may be determined by the military judge, and that the military judge would then sentence the accused in accordance with the determination of the panel members.

Uniform, document-based data system (sec. 545)

The committee recommends a provision that would require the Secretary of Defense to establish a single mechanism and process into and through which records, data, and information would be collected, tracked, and maintained regarding the reporting, investigation, processing, adjudication, and final disposition of all offenses under the Uniform Code of Military Justice arising in any component of the Department of Defense.

Primary prevention workforce (sec. 546)

The committee recommends a provision that would require the Secretary of Defense to establish a Primary Prevention Workforce to provide a comprehensive and integrated program across the Department of Defense for the prevention of sexual assault, sexual harassment, domestic violence, child abuse and maltreatment, problematic juvenile sexual behavior, suicide, workplace violence, and substance misuse.

Annual primary prevention research agenda (sec. 547)

The committee recommends a provision that would require the Secretary of Defense to annually publish a Department of Defense research agenda for that fiscal year focused on the prevention of sexual assault, sexual harassment, domestic violence, child abuse and maltreatment, problematic juvenile sexual behavior, suicide, workplace violence, and substance misuse.

Full functionality of certain advisory committees and panels (sec. 548)

The committee recommends a provision that would require the Secretary of Defense to reconstitute the Defense Advisory Committee on the Investigation, Prosecution, and Defense of Sexual Assault in the Armed Forces, the Defense Advisory Committee for the Prevention of Sexual Misconduct, and the Military Justice Review Panel.

Military defense counsel parity (sec. 549)

The committee recommends a provision that would require the Secretary of Defense to ensure parity of resources between military prosecutors and military defense counsel, and that military defense counsel in special victim cases possess sufficient training and experience.

Resourcing (sec. 550)

The committee recommends a provision that would require the Secretary of Defense to submit to the Committees on Armed Serv-

ices of the Senate and the House of Representatives a report, not later than March 1, 2022, detailing the resourcing necessary to implement this part of this subtitle.

Applicability to the United States Coast Guard (sec. 551)

The committee recommends a provision that would require the Secretary of Defense to consult and enter into an agreement with the Secretary of Homeland Security to apply the provisions of this subtitle to the U.S. Coast Guard when it is operating as a service in the Department of Homeland Security.

Effective date (sec. 552)

The committee recommends a provision that would establish an effective date for the provisions contained in this subtitle of not later than 2 years after the date of enactment of this Act.

Part II—Military Justice Improvement and Increasing Prevention Act

Short title (sec. 561)

The committee recommends a provision that would establish a short title for the series of provisions in this part of this subtitle as "Military Justice Improvement and Increasing Prevention Act of 2021".

Improvement of determinations on disposition of charges for certain offenses under UCMJ with authorized maximum sentence of confinement of more than one year (sec. 562)

The committee recommends a provision that would require that the determination on whether to cause charges to be preferred on an accused or to refer charges for certain offenses to general or special courts-martial be made by trial counsel in the grade of O–6 or above, appointed by the chiefs of the military services for this purpose, rather than by convening authorities as they are currently defined under the Uniform Code of Military Justice (UCMJ). The provision would require that these officers not be in the victim's or accused's chain of command. The provision would apply to the following articles of the UCMJ: 93a, 117a, 118, 119, 119a, 119b, 120, 120a, 120b, 120c, 121, 121a, 121b, 122, 124, 124a, 124b, 125, 126, 127, 128(b) and (c), 128a, 128b, 130, 131, 131a, 131b, 131c, 131d, 131e, 131f, 131g, and 132. The provision would also apply to the standalone offenses of child pornography, negligent homicide, indecent conduct, indecent language, and pandering and prostitution under general article 134 of the UCMJ. Finally, the provision would apply to the offenses of conspiracy, solicitation, and attempt to commit an offense listed above under articles 81, 82, and 80 of the UCMJ.

Modification of officers authorized to convene general and special courts-martial for certain offenses under UCMJ with authorized maximum sentence of confinement of more than one year (sec. 563)

The committee recommends a provision that would amend Article 22 of the Uniform Code of Military Justice (UCMJ) (10 U.S.C. 822) to modify the officers authorized to convene general and special courts-martial for certain offenses under the UCMJ with maximum sentences of confinement of more than 1 year.

Discharge using otherwise authorized personnel and resources (sec. 564)

The committee recommends a provision that would require the Secretaries of the military departments and the Secretary of Homeland Security (with respect to the U.S. Coast Guard) to implement the provisions contained in this part of this subtitle using personnel, funds, and resources otherwise authorized by law.

Monitoring and assessment of modification of authorities by Defense Advisory Committee on Investigation, Prosecution, and Defense of Sexual Assault in the Armed Forces (sec. 565)

The committee recommends a provision that would require the Defense Advisory Committee on Investigation, Prosecution, and Defense of Sexual Assault in the Armed Forces to monitor the implementation of the provisions contained in this part of this subtitle.

Limitation on modifications to sexual assault reporting procedures (sec. 566)

The committee recommends a provision that would prohibit the Secretary of Defense from amending section 4 of enclosure 4 of Department of Defense Instruction 6495.02, relating to Sexual Assault Prevention and Response Program Procedures.

Professionalization of military prosecutors (sec. 567)

The committee recommends a provision that would require the Secretary of Defense to increase training to certain prosecutors on the proper conduct, presentation, and handling of sexual assault and domestic violence cases.

Increased training and education on military sexual assault (sec. 568)

The committee recommends a provision that would increase training and education on military sexual assault for certain officers, senior enlisted personnel, officer candidates, and cadets and midshipmen at the military academies and in the Reserve Officer Training Corps.

Increasing the physical security of military installations (sec. 569)

The committee recommends a provision that would require the Secretary of Defense to conduct a survey of lodging and living spaces on military installations to assess various physical security measures in place and to develop and carry out a program to in-

crease physical security at military installations based on the survey.

Effective date and applicability (sec. 570)

The committee recommends a provision that would require that the provisions contained in this part of this subtitle become effective 180 days after the date of the enactment of this Act.

Subtitle E—Member Education, Training, and Transition

Modification of grant program supporting science, technology, engineering, and math education in the Junior Reserve Officers' Training Corps to include quantum information sciences (sec. 571)

The committee recommends a provision that would amend chapter 102 of title 10, United States Code, to add quantum information sciences to the list of covered subjects for the program to support science, technology, engineering, and math education in the Junior Reserve Officers' Training Corps.

Allocation of authority for nominations to the military service academies in the event of the death, resignation, or expulsion from office of a member of Congress (sec. 572)

The committee recommends a provision that would amend chapters 753, 853, and 953 of title 10, United States Code, to allocate unused nominations to the military service academies resulting from the death, resignation, or expulsion from office of a Member of Congress to the remaining Senator or Senators from the same State as the departed Member.

Troops-to-Teachers Program (sec. 573)

The committee recommends a provision that would amend section 1154 of title 10, United States Code, to require the Secretary of Defense to carry out the Troops-to-Teachers Program. The provision would sunset the program for new entrants on July 1, 2025, unless subsequently extended. Finally, the provision would require annual reports from the Secretary on a number of performance and outcome metrics.

The committee directs the Comptroller General of the United States to conduct an assessment of the Troops-to-Teachers Program authorized by section 1154 of title 10, United States Code, since that program's inception. The assessment shall include: (1) The numbers of teachers placed; (2) The quality of teachers; (3) Placements, especially at "high need" schools; (4) Diversity of teachers placed; (5) The duration of their employment; (6) The satisfaction of the gaining local education agencies; (7) The budgetary resources expended; and (8) The overall effectiveness of the program in producing highly qualified teachers from separating members of the Armed Forces and placing them in local educational agencies with demonstrated need for teachers.

Finally, the assessment shall include data provided by the Department by the annual reports required by the provision. The Comptroller General shall provide a report on this assessment to

the Committees on Armed Services of the Senate and the House of Representatives not later than March 1, 2023.

Combating foreign malign influence (sec. 574)

The committee recommends a provision that would amend section 589E of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) to create a working group to assist the official designated to coordinate and integrate the training program mandated under this section. The working group would assist in identifying mediums and themes used by covered foreign countries in foreign malign influence campaigns directed against servicemembers and Department of Defense civilian employees. The provision would also require the working group to assist in coordinating and integrating the training program in order to enhance and strengthen servicemember and Department of Defense civilian employee awareness of and defenses against foreign malign influence, including by bolstering information literacy.

Prohibition on implementation by United States Air Force Academy of civilian faculty tenure system (sec. 575)

The committee recommends a provision that would prohibit the Secretary of Defense from implementing a civilian faculty tenure system for the United States Air Force Academy until a report explaining the purpose and detailed plans for the proposed system is delivered to the Committees on Armed Services of the Senate and the House of Representatives.

Subtitle F—Military Family Readiness and Dependents' Education

Certain assistance to local educational agencies that benefit dependents of military and civilian personnel (sec. 581)

The committee recommends a provision that would authorize $50.0 million in Operation and Maintenance, Defense-wide, for continuation of the Department of Defense (DOD) assistance program to local educational agencies impacted by enrollment of dependent children of military members and DOD civilian employees.

The provision would also authorize $10.0 million in Operation and Maintenance, Defense-wide, for impact aid payments for children with disabilities as enacted by the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001 (Public Law 106–398), using the formula set forth in section 363 of the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001, for continuation of Department of Defense assistance to local educational agencies that benefit eligible dependents with severe disabilities. Subsection (b)(2) of the provision would authorize the Secretary of Defense to use an additional $10.0 million for payments to local educational agencies determined by the Secretary to have higher concentrations of military children with severe disabilities. Subsection (b)(3) of the provision would require the Secretary to brief the Committees on Armed Services of the Senate and the House of Representatives by March 31, 2022, on the Department's evaluation of each local educational agency with higher concentra-

tions of military children with severe disabilities and its subsequent determination of the amounts of impact aid each such agency should receive.

Pilot program to establish employment fellowship opportunities for military spouses (sec. 582)

The committee recommends a provision that would authorize the Secretary of Defense to establish a pilot program to provide employment for military spouses through a fellowship with employers across a variety of industries.

Subtitle G—Other Matters and Reports

Amendments to additional Deputy Inspector General of the Department of Defense (sec. 591)

The committee recommends a provision that would amend section 554 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) that established an additional Deputy Inspector General to improve oversight of diversity and inclusion programs of the Department of Defense, as well as programs designed to prevent and respond to incidents of extremism within the Armed Forces. The provision would clarify that this official would report to the Inspector General of the Department of Defense.

Inclusion of Senior Reserve Officers' Training Corps data in diversity and inclusion reporting (sec. 592)

The committee recommends a provision that would amend section 113 of title 10, United States Code, to include in reports on diversity and inclusion required by that section, information pertaining to graduates of the Senior Reserve Officers' Training Corps program.

Modified deadline for establishment of special purpose adjunct to Armed Services Vocational Aptitude Battery test (sec. 593)

The committee recommends a provision that would amend section 594 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) to modify the deadline for establishment of the special purpose adjunct to the Armed Services Vocational Aptitude Battery required by that section.

Reports on Air Force personnel performing duties of a Nuclear and Missile Operations Officer (13N) (sec. 594)

The committee recommends a provision that would require the Secretary of the Air Force to report on the Nuclear and Missile Operations Officer (13N) career field through fiscal year 2027. The committee notes that the 13N career field has often been overstressed in terms of work hours and deployments inside the United States, with the COVID–19 pandemic impacting the career field particularly hard. The committee commends the Air Force for recognizing this challenge early and programming additional resources for additional officers in the 13N field. However, the com-

mittee believes, especially given the transition to the Ground Based Strategic Deterrent, that further oversight of the health of the 13N career field is required.

Reports on security force personnel performing protection level one duties (sec. 595)

The committee recommends a provision that would require the Secretary of the Air Force to provide to the congressional defense committees a report annually for fiscal years 2023 through 2027 on the status of Air Force security forces dedicated to the defense of protection level one (PL–1) assets. The report would include the numbers of such personnel, mission and installation breakdowns of such personnel, retention rates, training details, and the status of vehicle replacements at PL–1 installations.

The role of the security forces in intercontinental ballistic missile fields are of particular concern to the committee. Much progress has been made to ensure that arming and use-of-force fitness standards can be used instead of the Personal Reliability Program, and that the security forces are rotated through the missile fields and other PL–1 installations on a regular basis. However, issues remain, such as replacing the BearCat and high-mobility multipurpose wheeled vehicles (currently used by the security forces) with alternatives more suitable to the long distances and off-road conditions encountered in the missile field security mission.

Items of Special Interest

Active-Duty service obligations for graduates of cybersecurity courses

The committee remains interested in the recruitment and retention of military personnel trained in cybersecurity. The Department of Defense (DOD) invests in a number of incentives and training to develop cybersecurity personnel with valuable qualifications. Given the substantial demand for personnel with these qualifications in the private sector, the committee is concerned about DOD's ability to retain trained military cybersecurity personnel. Therefore, the committee directs the Comptroller General of the United States to review DOD recruitment and retention of cybersecurity military personnel.

The Comptroller General shall provide a briefing with preliminary observations of this review to the Committees on Armed Services of the Senate and the House of Representatives not later than March 7, 2022, followed by a report to be delivered on a mutually agreeable date. This review shall include: (1) The extent to which the DOD met overall cybersecurity-related staffing targets; (2) A discussion of recruitment and retention of the military cybersecurity workforce; and (3) The extent to which DOD has utilized business case analyses to explore the use of increased Active-Duty service obligations and other policies to improve recruiting and retention of the military cybersecurity workforce. In addition, the report should include any other related information the Comptroller General determines to be appropriate.

Appointment of Chiropractors as Commissioned Officers

Section 505 of the National Defense Authorization Act for Fiscal Year 1993 (Public Law 102–484) authorized the military departments to appoint "chiropractors who are qualified under regulations" issued by the military departments as commissioned officers in the Army Medical Specialist Corps, Navy Medical Service Corps, or Air Force Biomedical Service Corps. Since enactment of section 505, servicemembers have experienced decades of deployment-related musculoskeletal injuries that can limit their combat effectiveness.

The committee is aware that over 80 civilian chiropractors provide care to Active-Duty servicemembers at 51 military medical treatment facilities in the United States and overseas. These practitioners can offer non-surgical alternative treatments and therapies to help servicemembers recover more quickly from musculoskeletal injuries. The Department of Defense has no capability, however, to provide chiropractic services in deployed environments to address the effects of such injuries there. Therefore, the committee directs the Secretary of Defense to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives, not later than March 1, 2022, that assesses the feasibility of using the Department's statutory authority to commission chiropractors as military officers. The assessment shall include: (1) Any combatant commander requirements for chiropractors as part of operating or generating forces; (2) The potential role of military chiropractors in deployed medical units; (3) The conditions under which the Department would deem military chiropractors as a critical wartime medical specialty; and (4) Any recommendations, as may be required, for the committees to clarify related authorities or adjust end-strength allowances for the commissioning of chiropractors as military officers.

Asian American and Pacific Islander Medal of Honor Review

Section 586 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) required the Secretaries of the military departments to conduct a review of the service records of each Asian American and Native American Pacific Islander war veteran who was awarded the Distinguished-Service Cross, the Navy Cross, or the Air Force Cross during the Korean War or the Vietnam War. The committee understands that the services have completed their reviews and submitted recommendations to the Department of Defense. After the Department finalizes its review of the recommendations of the military departments, but not later than March 1, 2022, the Secretary of Defense shall provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives on its findings, to include the number of affected veterans recommended for an upgrade to the Medal of Honor.

Career Intermission Program

The committee supports the Career Intermission Program (CIP) and continued efforts to expand and improve upon the accessibility of this program across the Department of Defense. CIP helps the

Armed Forces retain talented, capable, and diverse servicemembers. The committee urges the military departments to establish flexible options for CIP to further expand access to this unique retention tool. Decreasing the lead time necessary to apply for the program and expanding enrollment eligibility may be easy ways to make the program more attractive to servicemembers. The committee encourages the military departments to establish appropriate public affairs outreach to ensure that servicemembers are aware of the program.

Comptroller General of the United States review of certain professional development activities of Department of Defense Education Activity employees

The committee directs the Comptroller General of the United States to conduct an assessment of professional development activities offered or required by the Department of Defense Education Activity (DODEA) of teacher and other school-level employees, including an assessment of how useful and effective DODEA school-level employees find this professional development. The report shall also include a comparative review of DODEA's professional development activities for school-level employees and a representative sample of such activities in school districts in the United States, as selected by the Comptroller General. Finally, the report shall include an assessment of the utility of DODEA's requirement that certain school-level employees perform 24 hours of uncompensated professional development activities each school quarter outside of normal working hours.

The committee directs the Comptroller General to provide a report to the Committees on Armed Services of the Senate and the House of Representatives on the results of this assessment not later than April 1, 2022.

Comptroller General of the United States review of Department of Defense payroll system for employees of the Department of Defense Education Activity

The Department of Defense (DOD) Education Activity (DODEA) is a DOD Field Activity that operates DOD's school system. A February 4, 2021, Government Accountability Office (GAO) report, titled "K–12 Education: U.S. Military Families Generally Have the Same Schooling Options as Other Families and Consider Multiple Factors When Selecting Schools" (GAO–21–80), observed that the majority of DODEA's 160 accredited schools were located on overseas installations. Educators and other specialized DODEA employees, particularly overseas employees, are entitled to certain allowances and differentials not applicable to similar DODEA employees inside the United States. Payroll accounting for DODEA employees is part of the DOD civilian payroll system and is processed by the Defense Finance and Accounting Service (DFAS). Given that auditors have identified numerous internal control deficiencies in the DOD and DFAS's accounting systems, the committee is concerned about the ability of the DOD payroll system to adequately process and provide pay for these DODEA employees.

Therefore, the committee directs the Comptroller General of the United States to provide a report to the Committees on Armed

Services of the Senate and the House of Representatives, not later than October 1, 2022, on the DOD payroll system as it pertains to DODEA. The report shall include the following elements:

(1) The extent to which DOD has implemented prior directives to improve its payroll system for DODEA, particularly for overseas employees;

(2) The extent to which DODEA overseas employees' pay is provided in a timely manner and calculated properly to include base pay and any additional allowances and differentials; and

(3) Any other matters the Comptroller General deems appropriate.

Comptroller General review of military personnel policies related to United States Indo-Pacific Command

The committee supports the current Department of Defense (DOD) effort to evaluate and revise various personnel-related policies to focus more on the security challenges posed by China. This review process should include a consideration of the need to emphasize the U.S. Indo-Pacific Command (INDOPACOM) area of responsibility in preparing servicemembers for future armed conflict.

Therefore, the committee directs the Comptroller General of the United States to review the Department's efforts to focus professional military education and promotion policies to ensure military personnel have adequate education, exposure, and expertise in the Indo-Pacific theater and the countries and territories contained therein.

The Comptroller General shall provide a briefing with preliminary observations of this review to the Committees on Armed Services of the Senate and the House of Representatives not later than May 1, 2022, followed by a report to be delivered on a mutually agreeable date. The review shall include: (1) The extent to which current promotion boards consider service in INDOPACOM and the other combatant commands as part of the board process; (2) A discussion of current DOD efforts to re-orient professional military education toward the security challenges posed by China; and (3) Any related information the Comptroller General determines to be appropriate.

Comptroller General review of Senior Reserve Officers' Training Corps program contributions to a diverse officer corps

The Senior Reserve Officers' Training Corps (ROTC) program is critical for producing officers from the Nation's colleges and universities to meet the leadership and readiness needs of the military services. ROTC units have a geographically diverse presence at hundreds of colleges and universities throughout the United States and its territories, which is intended to help produce officers that reflect the communities they serve. However, the committee is concerned about the extent to which this is currently being achieved.

Therefore, the committee directs the Comptroller General of the United States to provide preliminary observations to the Committees on Armed Services of the Senate and the House of Representatives by February 24, 2022, on the extent to which ROTC programs are contributing to a racially, ethnically, and socioeconomically di-

verse and representative military, with a report to follow on an agreed upon date. The report shall address the following elements:

(1) Trends in the racial, ethnic, and socioeconomic makeup of military officers commissioned through ROTC programs;

(2) The extent to which the current distribution of ROTC units across U.S. colleges and universities contributes to the military services' desire for a diverse and representative officer corps;

(3) The extent to which the military services periodically review and, as necessary, modify ROTC programs to help ensure that they are maximizing opportunities to recruit individuals who will contribute to a diverse and representative officer corps; and

(4) Any other areas that the Comptroller General considers relevant to the review.

Connecting certain servicemembers with community-based organizations through state veterans agencies

Section 570F of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92) required the Secretary of Defense and the Secretary of Veterans Affairs to seek to enter into memorandums of understanding or other agreements with State veterans agencies or related entities to connect retiring and separating servicemembers with benefits or services provided by community-based organizations. The committee notes the significant, helpful contribution this section could have for servicemembers undergoing retirement, discharge, or release from the Armed Forces. Therefore, the committee directs the Secretary of Defense to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives, not later than June 1, 2022, on the Department of Defense's efforts to implement section 570F. The briefing shall include a description of any modifications to form DD–2648 that would allow a servicemember to provide contact information voluntarily to State veterans agencies. Additionally, the briefing shall provide the number and types of memorandums of understanding or other agreements completed with such agencies (or related entities) to facilitate communication of available services and benefits with certain servicemembers.

Defense POW/MIA Accounting Agency briefing on recovery of servicemembers' remains

As the Defense POW/MIA Accounting Agency (DPAA) works to account for missing servicemembers, the committee believes that there is particular urgency in addressing field recoveries since those remains are most at risk. Therefore, the committee directs the Director, DPAA, to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives, not later than February 1, 2022, outlining a detailed plan and timeline describing how DPAA will account for remains other than those from graves of the unknown. The plan shall also address the extent to which DPAA will collaborate with external partners to maximize recoveries of such remains.

Department of Defense civilian workforce career developmental programs

The committee notes that skill gaps in hiring, development, and retention of personnel in Science, Technology, Engineering, Mathematics, and Manufacturing (STEMM), Cyber, Artificial Intelligence, acquisition workforce, financial management and other critical functional areas required by the National Defense Strategy (NDS) persist, even after numerous legislative initiatives that provided greater flexibility in setting the terms and conditions of employment. Each military department has created its own separate career program brands for the same kinds of skills, often with their own separate developmental paths and certification and training requirements that create a cumbersome application process and may at times impede consideration of otherwise qualified candidates for civilian jobs. The committee believes that this fragmented approach does not meet the needs of the Department.

Accordingly, the committee directs the Secretary of Defense to provide a report to the Committees on Armed Services of the Senate and the House of Representatives not later than January 1, 2022, on its plan to streamline civilian personnel management across the Department of Defense (DOD) with the goal of further developing the skills the Department needs to meet the priorities of the NDS while maintaining an apolitical civilian workforce. The plan should at least address the following elements:

(1) Emphasis on competitive hiring using objective assessments of qualifications in lieu of rigid tools for classification;

(2) Promoting innovative management of the Federal workforce;

(3) Using data analytics to establish a systematic process to ensure the current and future DOD workforce is aligned with the current and future mission of the Department;

(4) Use of subject matter expert hiring panels to limit rigid assessments of qualifications;

(5) Recognition of alternative developmental paths to establish qualifications required for positions;

(6) Emphasis on diversity and inclusion;

(7) Increasing use of standing registers of qualified applicants to fill open positions;

(8) Emphasis on active recruitment methods through visits to high schools, trade schools, colleges, universities, job fairs, and community groups rather than passive recruitment through job postings;

(9) Utilizing standardized and uniform Government-wide job classification;

(10) Reducing cumbersome application processes, including removing the requirement to use Federal resumes; and

(11) Legislative proposals required to achieve these outcomes.

Department of Defense implementation of open Government Accountability Office recommendations concerning sexual harassment and sexual assault

According to information provided to the committee by the Government Accountability Office (GAO), since 2006, GAO has issued

18 reports containing 130 recommendations that address the continuum of unwanted sexual behavior in the military. Of these 130 recommendations, a significant number remain open and unresolved by the Department of Defense (DOD). These unresolved matters include high priority recommendations, as characterized by GAO, concerning the incorporation into the Department's sexual harassment policies principles contained in the Center for Disease Control's framework for sexual violence prevention; the requirement that DOD's Office of Diversity Management and Equal Opportunity develop and aggressively implement an oversight framework to guide the Department's efforts to prevent and address incidents of sexual harassment involving servicemembers; and the requirement that the Department develop a strategy for holding individuals in positions of leadership accountable for promoting, supporting, and enforcing the Department's sexual harassment programs and policies.

The committee directs the Secretary of Defense, not later than December 31, 2021, to implement the open and unresolved GAO recommendations cited above, or, if the Secretary determines that implementing one or more recommendations by that date is impracticable, to notify GAO of that determination, and provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives not later than February 1, 2022, on the reasons and status of such open recommendations.

Education in the Department of Defense

The committee is aware that servicemembers often face the competing demands of work, education, and family needs, and that it can be difficult to keep all three in balance. Education remains important for developing military personnel for greater responsibility and eventual promotion. The committee encourages the Department to take any steps it deems necessary to ensure that servicemembers are well-equipped to balance these competing demands adequately as they continue to serve in the Armed Forces.

Establish a Naval Community College

The committee is supportive of the efforts by the Department of the Navy to establish a Naval Community College (USNCC), the primary function of which is to provide post-secondary, lower division education programs and the attendant support services to enlisted personnel of the Navy and Marine Corps. As the Navy conducts its initial USNCC pilot to determine the feasibility of process, the committee remains interested in the educational direction and benchmarks of the USNCC. The committee directs the Assistant Secretary of the Navy (Manpower and Reserve Affairs) to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives not later than 30 days after the completion of the pilot program on the primary competencies gained by sailor participants, with a focus on high-skilled competencies.

Foreign language testing and tracking

Foreign language skills, regional expertise, and cultural knowledge are critical competencies for ensuring global operational readiness. The committee is interested in better understanding how the

Department of Defense (DOD) identifies and tracks foreign language proficiency resident in the force and the extent to which initial entry servicemembers who have indicated foreign language proficiency are able to gain access to screening. Therefore, the committee directs the Secretary of Defense to provide a report to the Committees on Armed Services of the Senate and the House of Representatives by September 1, 2022, on the Department's administration and tracking of the screening and testing of military recruits with self-professed language proficiency in accordance with Department of Defense Instruction (DODI) 5160.71 DOD Language Testing Program.

The report shall include the following elements:

(1) The total number of initial entry servicemembers from January 1, 2019 to January 1, 2022, who self-profess proficiency in a foreign language described in subsection (a), broken down by service and Strategic Language List category for each year;

(2) The total number of Defense Language Proficiency Tests or Oral Proficiency Interviews administered per year to those initial entry servicemembers with self-professed proficiency in a foreign language from January 1, 2019 to January 1, 2022, broken down by service and Strategic Language List category;

(3) The average amount of time between when initial entry servicemembers with self-professed knowledge of a foreign language were identified and when they were tested, broken down by service, Strategic Language List category, and year;

(4) A description of each military service's procedures to screen and track all newly commissioned officer personnel for language aptitude or capability as outlined in DODI 5160.71 Enclosure 1, paragraph 9, section f;

(5) A description of each military service's procedures to administer the Defense Language Proficiency Test to military recruits or enlisted personnel who have a self-professed knowledge of a foreign language during their first term of enlistment as outlined in DODI 5160.71 Enclosure 1, paragraph 9, section m; and

(6) Any additional resources that would support the timely administration of the Defense Language Proficiency Test or Oral Proficiency Interview to recruits, enlisted personnel, and newly commissioned officer candidates who profess to have language proficiency as early in the term of service as possible.

The committee encourages the Department of Defense to continue to place a high priority on foreign language proficiency programs to ensure warfighters and national security professionals receive the language and culture training needed to complete their missions effectively, to include partnerships with K–12 schools and universities.

Accordingly, the committee directs the Secretary of Defense to provide a briefing to the Senate Armed Services Committee not later than January 1, 2022, on the viability and utility of establishing a comprehensive plan for the development and maintenance of advanced foreign language skills and training for DOD personnel. The briefing shall include consideration of whether there is a need to establish an Executive Agent for the program and wheth-

er there is a need for investment in commercially available foreign language training to maintain access to language training after linguists transition from education or training environments to operational environments.

Increased capacity for servicemember childcare on military installations

The committee is aware that servicemembers frequently face low availability and high costs of childcare, and that this issue negatively impacts servicemember readiness and military spouse employment. This childcare issue further forces parents to make difficult choices and adds stress to military families.

The committee encourages the military services to seek out creative solutions to solve this childcare availability crisis, including exploring options to create public-private partnerships if they would increase capacity and availability of quality childcare for servicemembers and their dependents. The committee commends the Navy's efforts to expand capacity in the Southern California area and encourages the other military services to consult with the Navy about its approach in devising creative childcare solutions.

Issuance of prisoner-of-war medal

The committee is concerned about inequities across the services in applying prisoner-of-war medal eligibility requirements under section 1128(b) of title 10, United States Code, as amended by the National Defense Authorization Act for Fiscal Year 2013 (Public Law 112–239). Specifically, the Department of the Army has implemented regulatory hurdles that are difficult for servicemembers and next-of-kin to clear, whereas the other services have implemented the Act's updates in a much more direct and streamlined fashion.

Section 584 of the National Defense Authorization Act for Fiscal Year 2013 authorized the Secretaries concerned to issue the prisoner-of-war medal to any person who, while serving in any capacity with the Armed Forces, was held captive under circumstances in which the Secretary concerned finds were comparable to those circumstances under which persons have generally been held captive by enemy armed forces during periods of armed conflict. The intent of this law was to broaden eligibility for the prisoner-of-war medal to those who, for reasons of law and not fact, were not eligible for the medal because they were not in a conflict or taken prisoner and held captive by a party whose legal status met the criteria under subsection (a) of the aforementioned statute. Nothing in the law required or encouraged the Secretaries concerned to limit servicemembers' eligibility under subsection (b) to those members held captive by individuals or groups that were included on any official or published list of hostile actors. The law's intent was to give discretion to the Secretaries to balance the equities and use discretion in appropriate cases.

The committee encourages the services to eschew any policy that would make the consultation of published lists of bad actors dispositive in determining whether a member is eligible for a prisoner-of-war medal.

Not later than March 1, 2022, the Secretaries of the military departments shall provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives on the process by which they will consider applications for the prisoner-of-war medal under section 1128(b) of title 10, United States Code.

Management policies for emerging technology qualified officers

Emerging technologies will reshape future warfare. The military most able to build a cadre of officers who understand the potential of new technologies will likely be best positioned for success. The National Security Commission on Artificial Intelligence (NSCAI) final report stated, "It is crucial that the [Department of Defense] incentivize and increase the skill needed to introduce and field emerging and disruptive technologies within the military officer corps."

The NSCAI report recommends creating a management system modeled on the joint qualification process for officers qualified in emerging technologies. Officers qualified in emerging technologies could be useful to their respective military departments in a number of ways, including: "1) Assisting with acquisition of emerging technology; 2) Helping integrate technology into field units; 3) Developing organizational and operational concepts; and 4) Developing training and education plans."

The committee encourages the Secretaries of the military departments to review the NSCAI recommendations. Many of the recommendations may be implemented with new or updated policies. If a recommendation cannot be implemented using current authority, the committee encourages the Secretary of Defense to submit proposals that would amend current law to enable the Department of Defense to better prepare officers to understand and take advantage of emerging technologies.

Military Spouse Employment

The committee notes that the well-being and economic stability of the Nation's military families—and the Nation's military spouses—is directly linked to the national security interests of the United States and the long term strength and viability of the Armed Forces. It is imperative that the Armed Forces retain and develop their personnel. The committee remains concerned that the services may be prematurely losing highly trained personnel as military families are confronted with the choice of discontinuing a successful business or gainful employment for a spouse in advance of an overseas relocation. Other provisions in this Act aim to address these issues, through a direct hire pilot program within the Department; however, more avenues of employment must be explored. As such, the committee urges the Secretary of Defense to work with the Department of State to address and ameliorate provisions in future Status of Forces Agreements that restrict military spouse employment.

The committee recognizes that the COVID–19 pandemic has changed the manner in which we work, creating greater opportunities for military spouses globally. The committee commends the Department for its ongoing efforts to support military spouse remote

work and entrepreneurship, including the Military Spouse Employment Partnership to better equip military spouses to navigate the array of regulatory and administrative challenges they face. Section 560 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) authorized the Secretary to create a public-private pilot program for telework facilities for military spouses on military installations outside the United States. Pursuant to that text, this program should conclude not later than December 12, 2021.

Additionally, not later than March 1, 2022, the Secretary of Defense shall provide the Committees on Armed Services of the Senate and the House of Representatives a briefing on the status and, if complete, the outcome of the pilot program enacted under section 560 of the National Defense Authorization Act for Fiscal Year 2018.

Notice to servicemembers who separate before completion of service obligation to transfer GI Bill benefits

The committee has heard concerns that some servicemembers who have completed substantially all of their service obligation for transferring GI bill benefits to dependents are losing eligibility for those benefits because their official date of separation occurs prior to the completion of their Active-Duty service obligation. In some cases, the military departments have approved final separation dates for servicemembers within weeks or months of satisfying their obligation, resulting in a devastating loss of benefits for the servicemember's family.

Accordingly, not later than March 1, 2022, the Under Secretary of Defense for Personnel and Readiness shall provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives detailing what notice, if any, the military departments provide to servicemembers whose final separation dates fall prior to the completion of their GI Bill transfer service obligation that their benefits will be affected by their early discharge from service. The briefing shall also include findings on any deficiencies that exist in providing such notice and what steps the Department is taking to address those deficiencies. Finally, the briefing shall include any efforts the Department is making to ensure that, when possible, servicemembers are permitted to complete their service obligation so that they do not lose their benefits, especially in cases when the final date of separation is within 90 days of completing such service obligation.

Parental rights at service academies

The committee understands that every year the military service academies experience instances of cadets and midshipmen who become parents during their period of enrollment. The unique demands of attending a service academy make it impossible for cadet or midshipmen parents to care for or financially support dependents. Therefore, the committee understands the long-standing policies prohibiting persons with dependents from enrolling or remaining in our service academies.

While small in number, these cases present difficult decisions for cadet and midshipmen parents who deserve the utmost care by service academy leadership. Academy policies seem to vary in this

area and the committee is concerned about any policy that would require cadets and midshipmen to choose between surrendering all parental rights and continuing their enrollment at a service academy.

Therefore, the committee directs the Under Secretary of Defense for Personnel and Readiness to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives on the following issues not later than January 30, 2022:

(1) Current policies for cadets and midshipmen who have children while enrolled at the various service academies;

(2) The justification for any policy requiring cadets and midshipmen to surrender all parental rights before returning to a service academy after the birth of a child;

(3) Recommendations for a uniform policy that would allow cadets and midshipmen who have children while enrolled at a service academy to return to such service academy without requiring them to surrender all parental rights; and

(4) Recommendations for legal or other resources that may be provided to affected cadets and midshipmen to provide assistance for decisions related to parental rights, custody, and benefits that are available to commissioned officers.

The committee encourages the Department of Defense to consult with the Department of Homeland Security and the Department of Transportation in developing its recommendations.

Promotion revision report

The committee notes that the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115–232) included numerous provisions that provided flexibility to military officer personnel policy. At the same time, the law requiring an "up-or-out" system for officer promotion was retained. The committee remains supportive of the long-standing requirement for most officers to continue promoting through the ranks in order to be retained on Active Duty. Therefore, the committee directs the Under Secretary of Defense for Personnel and Readiness to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives, not later than December 1, 2021, that includes the following items:

(1) Military department policies related to Active Duty service obligations following a promotion;

(2) Military department selective continuation rates for officers not selected for promotion to the grades of O–4 through O–6; and

(3) Military department utilization of constructive credit, temporary promotion, alternative promotion, and other recently enacted officer management authorities.

Public schools on military installations program

There are over 160 public schools located within the boundaries of military installations. Many of these schools have not had significant facility improvements in years; they are outdated, operating at or above capacity, and functionally inadequate. The committee believes that the Department of Defense and local school districts should prioritize facility improvements for schools in the

Public Schools on Military Installations (PSMI) program to ensure that military children are taught in safe, secure environments conducive to learning. Such schools should also mirror the best local standards established for other public schools within a particular school district.

Therefore, the committee directs the Secretary of Defense to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives, not later than April 1, 2022, on the PSMI program. The briefing shall include: (1) An update on progress made by the program to improve school facilities on military installations; (2) Recommendations on how to speed up renovation or new construction of school facilities in the program; (3) An analysis regarding whether the PSMI list of prioritized construction projects should undergo a more frequent, regular review; and (4) An assessment of whether a school on such prioritized list should affect the overall family support ranking of a military installation.

Public-private talent exchanges

The committee notes that in the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283), the conferees authorized the enhancement of public-private talent exchange programs in the Department of Defense (DOD) to "carry out exchanges of personnel with private sector entities that are working on the modernization priorities of the DOD." The committee considers artificial intelligence (AI) to be a modernization priority of the DOD and therefore directs the Secretary of Defense, when carrying out the enhancement and expansion of these programs, to seek out private sector entities on the forefront of AI development.

Restructure of Army Criminal Investigation Command

The Fort Hood Independent Review Committee (FHIRC) conducted a comprehensive assessment of the Fort Hood command climate and culture, and its impact on the safety, welfare, and readiness of soldiers and units. Among other findings, the FHIRC found that the Fort Hood Criminal Investigation Division (CID) special agent workforce was unstable, under-experienced, over-assigned and under-resourced, leading to inefficiencies that had an adverse impact on investigations, especially in complex cases involving sex crimes and soldier deaths.

The committee is pleased to learn that the Army has taken action to address this finding by restructuring the CID with enhanced capabilities and capacity. The restructured CID will be led by a civilian member of the Senior Executive Service with criminal investigative experience and will have a higher ratio of civilian criminal investigators to military special agents to increase investigative experience and grow effective partnerships with local and regional law enforcement agencies. The committee will carefully monitor the implementation and effectiveness of this reorganization and its impact on the quality and timeliness of Army criminal investigations.

Servicemember workforce development

The committee recognizes the importance of supporting servicemembers as they transition from Active Duty to the civilian workforce. Servicemembers develop knowledge, skills, and abilities (KSAs) within their military occupational specialties (MOSs) that could satisfy the requisite KSAs associated with civilian occupations. The committee encourages efforts to improve transitioning servicemembers' prospects for employment within the civilian workforce by matching servicemembers' MOSs and potential civilian occupations more accurately and believes that the U.S. Department of Labor civilian occupation surveys provide useful means to collect data that could support those efforts.

Therefore, the committee directs the Secretary of Defense, in consultation with the Secretaries of Labor and Veterans Affairs, to assess the feasibility of integrating such surveys into the Department of Defense's Transition Assistance Program (TAP). The assessment shall also consider the feasibility of expanding the scope of those surveys to incorporate the 20 most populous MOSs in each military department and any additional data the Secretary deems appropriate. The Secretary shall provide a briefing on the results of this assessment to the Committees on Armed Services of the Senate and the House of Representatives not later than December 31, 2022.

Temporary promotion utilization

Section 503 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115–232) authorized each military department to award temporary promotions to the grade of O–3 for officers with critical skills. Based on feedback from organizations within the Department of Defense, this authority is designed to serve as a modest incentive to highly qualified junior officers. To date, none of the military departments have utilized spot promotion authority to the grade of O–3, despite continuing to struggle to retain junior officers who possess valuable skill sets. The committee directs the Director of the Defense Digital Service (DDS) to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives, not later than December 1, 2021, on the potential benefits of utilizing spot promotion authority for officers selected for an assignment to the DDS.

Unanimous verdicts for criminal convictions

In *Ramos* v. *Louisiana*, 590 U.S. _____ (2020), the U.S. Supreme Court held that the Sixth Amendment to the U.S. Constitution requires unanimous verdicts for criminal convictions in State criminal trials. Article 52 of the Uniform Code of Military Justice (UCMJ) (10 U.S.C. 852) requires only concurrence of three-fourths of the members present to convict an accused of a non-capital offense.

The committee directs the Secretary of Defense to conduct a legal review of Article 52 of the UCMJ, to determine whether that Article is constitutional in light of this recent Supreme Court decision. The committee directs the Secretary to provide a briefing to the Committees on Armed Services of the Senate and House of Representatives, not later than February 1, 2022, on the results of this

legal review and on the feasibility and advisability of revising the UCMJ to require unanimous verdicts to be consistent with Federal and State civilian practices, even if not legally required to do so.

Updates to Fourth Quadrennial Quality of Life review

Under section 118a of title 10, United States Code, the Secretary of Defense is required to conduct a comprehensive examination of the quality of life of servicemembers, to result in determinations and foster policies and actions that reflect the priority given to the quality of life of servicemembers as a primary concern of the Department of Defense leadership.

The committee received the Fourth Quadrennial Quality of Life Review and is disappointed with the lack of thorough assessment given to the programs of the Department as they relate to servicemembers and the quality of life of their families. By statute, the review should identify actions that are needed in order to provide servicemembers with the quality of life necessary to encourage the successful execution of the full range of their missions. As currently constituted, the Fourth Quadrennial Review does not comprehensively address the considerations required by section 118a(c) of title 10, United States Code, nor does it include determinations on policies or actions to undertake to improve the quality of life for servicemembers and their families.

The committee directs the Secretary of Defense to review the statutory requirements in section 118a of title 10, United States Code, and to update the report to comply with the comprehensive requirements of Federal law not later than March 1, 2022. Additionally, the committee directs the Secretary of Defense to submit any requested changes to section 118a of title 10, United States Code, to ensure that the Department has sufficiently detailed statutory guidance to comply with this quadrennial review requirement.

Upfront use of DNA to identify remains of servicemembers missing in action

The committee continues its long-standing concern for the accounting of missing servicemembers from past conflicts and encourages the Defense POW/MIA Accounting Agency (DPAA) to explore new and innovative means to identify servicemembers' remains. Therefore, the committee directs the DPAA to assess the feasibility and desirability of the use of DNA samples under its control for comparison to samples in public or private DNA databases. Such an assessment shall include a description of laws, policies, systems, training, personnel, facilities, infrastructure, information technology, and stakeholder engagement relevant to potential forensic genetic genealogical DNA analysis. The committee directs the Director of the DPAA to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives on the results of the assessment not later than January 1, 2022.

TITLE VI—MILITARY COMPENSATION

Basic needs allowance for members on active service in the Armed Forces (sec. 601)

The committee recommends a provision that would create an allowance for servicemembers whose gross household income falls below 130 percent of the Federal poverty guidelines of the Department of Health and Human Services. This provision is intended to ensure that all servicemembers can meet the basic needs of their families, particularly for food expenses.

Equal incentive pay for members of the reserve components of the Armed Forces (sec. 602)

The committee recommends a provision that would amend subchapter II of chapter 5 of title 37, United States Code, to require the Secretary concerned to pay equal monthly incentive pays to eligible members of the reserve components and regular components.

Extension of expiring travel and transportation authorities (sec. 603)

The committee recommends a provision that would amend section 12604 of title 10, United States Code, and sections 451 and 452 of title 37, United States Code, to extend certain travel and transportation authorities that would otherwise expire at the end of the year. The amendments would extend authorizations for travel and transportation payments for: (1) Lodging in kind for reserve component members performing training; (2) Mandatory pet quarantine fees for household pets; (3) Travel for certain dependent children to obtain formal secondary, undergraduate, or vocational education; and (4) Dependent transportation incident to ship construction, inactivation, and overhauling.

Repeal of expiring travel and transportation authorities (sec. 604)

The committee recommends a provision that would repeal travel and transportation authorities in subchapter III of chapter 8 of title 37, United States Code. These authorities were replaced by subchapter I of chapter 8 of title 37, United States Code, and are set to expire on December 31, 2021. The committee recommends that the expiring provisions be repealed so as to eliminate confusion about the controlling law after December 31, 2021.

One-year extension of certain expiring bonus and special pay authorities (sec. 605)

The committee recommends a provision that would extend through December 31, 2022, various expiring bonus and special pay authorities for military personnel. The provision would extend spe-

cial pay and bonus authority for reserve personnel, military healthcare professionals, and nuclear officers and consolidated pay authorities for officer and enlisted personnel. The provision would also extend the authority to provide temporary increases in the rate of Basic Allowance for Housing in certain circumstances.

Requirements in connection with suspension of retired pay and retirement annuities (sec. 606)

The committee recommends a provision that would prohibit the Defense Finance and Accounting Service (DFAS) from suspending military retired pay or a military retirement annuity until 90 days after the provision of written notice to a military retiree, annuitant, or their designated representative of the basis for such proposed suspension, along with other relevant information.

The provision would also require the Secretary of Defense to develop, within 180 days of the date of the enactment of this Act, a single annual eligibility determination procedure for determinations of continued eligibility for military retired pay or annuity as a replacement for the current procedures in connection with the "Certificate of Eligibility" and "Report of Existence" for military retirees and annuitants.

Finally, the provision would require the Secretary of Defense, in consultation with the Secretaries of Veterans Affairs and Homeland Security, to provide a report to the appropriate committees of the Congress not later than one year after the date of the enactment of this Act on the process by which notifications of the death of a military retiree or annuitant may be shared among such Secretaries for the purpose of determining the termination of eligibility for benefits administered by such Secretaries.

Items of Special Interest

Basic allowance for housing

A recent Government Accountability Office (GAO) report published January 25, 2021, "Military Housing: Actions Needed to Improve the Process for Setting Allowances for Servicemembers and Calculating Payment for Privatized Housing Projects" (GAO 21–137), made several concerning findings. The Committee is particularly concerned about the finding that the process for determining basic allowance for housing (BAH) rates often does not include a sample size with the minimum number of rental units needed to estimate the total housing cost for certain locations and housing types. The report found that "44 percent of locations and housing types had fewer than the minimum sample-size target." This finding reveals a significant risk of BAH rates not accurately reflecting the actual cost of housing for servicemembers and their families.

Therefore, the committee directs the Under Secretary of Defense for Personnel and Readiness to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives not later than December 31, 2021, with a detailed explanation of the following items:

1) How the Department of Defense can utilize other Government housing data to better assess the accuracy of BAH rates;

2) The methodology used to establish appropriate housing "anchor points" for given ranks;

3) How the Department calculates the difference between the "with dependent" and "without dependent" BAH rates in a given housing area;

4) Why the Department of Defense prefers to utilize the BAH national average to calculate the BAH reductions authorized in recent legislation;

5) Whether and how the Department will begin using cost data from recently rented properties to increase the sample size for BAH rate-setting;

6) Actions under consideration to monitor and reduce potential bias within local military housing offices as part of the BAH rate-setting process; and

7) Any other matters the Under Secretary considers relevant.

Partial dislocation allowance for members ordered to vacate housing provided by the United States

The committee is concerned that the Department of Defense has not updated the Joint Travel Regulation to account for changes to sections 477(f)(1) and 452(c) of title 37, United States Code, in the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92). These changes, to both the "old law" and the "new law" pertaining to travel and transportation allowance, expanded eligibility for partial dislocation allowance to members ordered to vacate barracks and dormitory-style housing in addition to family housing. Section 477(f)(1) struck the word "family" from the "old law", and section 452(c) added an entitlement to the "new law" to allow for such an allowance to be paid to any member ordered to vacate any housing provided by the United States. In spite of these changes, the Joint Travel Regulation still limits eligibility for a partial dislocation allowance to those members ordered to vacate "family-type" housing.

The committee has heard concerns about financial pressures placed on junior enlisted members being ordered to vacate barracks and dormitory-style housing. Under the existing law, they would be eligible for a partial dislocation allowance, but the Department has not authorized such payments. The committee encourages the Department to expand eligibility for the partial dislocation allowance to those members being ordered to vacate any type of housing provided by the United States, including barracks and dormitory-style housing, and especially for those members in the grades E–4 and below with fewer than 3 years of service.

The committee directs the Secretary of Defense, not later than March 1, 2022, to provide a briefing on this issue to the Committees on Armed Services of the Senate and the House of Representatives.

TITLE VII—HEALTH CARE PROVISIONS

Subtitle A—Tricare and Other Health Care Benefits

Addition of preconception and prenatal carrier screening coverage as benefits under TRICARE program (sec. 701)

The committee recommends a provision that would amend section 1079(a) of title 10, United States Code, to authorize coverage of preconception and prenatal carrier screening tests for certain medical conditions under the TRICARE program. The provision would authorize an eligible covered beneficiary to one test per condition per lifetime.

Coverage of overseas subacute and hospice care for eligible overseas dependents of members of the uniformed services (sec. 702)

The committee recommends a provision that would amend sections 1074j(b) and 1079(a)(15) of title 10, United States Code, to authorize the Secretary of Defense to provide coverage of subacute (skilled nursing and home health care services) and hospice care for eligible overseas dependents of members of the uniformed services who are on Active Duty for a period of more than 30 days.

Modification of pilot program on receipt of non-generic prescription maintenance medications under TRICARE pharmacy benefits program (sec. 703)

The committee recommends a provision that would amend section 706 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) to require the Secretary of Defense to conduct a 3-year pilot program under which covered TRICARE beneficiaries could elect to receive certain non-generic prescription maintenance medications either through military treatment facility pharmacies, the TRICARE mail order pharmacy program, or retail network pharmacies, if the Secretary determines that the total cost to the Department of Defense would not exceed the total cost for providing these prescriptions through the TRICARE mail order pharmacy program. The provision would also provide that reimbursement of retail pharmacies for prescriptions provided under the pilot program may not exceed the amount of reimbursement that would have been paid for prescriptions dispensed through the TRICARE mail order pharmacy program.

Subtitle B—Health Care Administration

Revisions to TRICARE provider networks (sec. 721)

The committee recommends a provision that would amend sections 1075 and 1097a of title 10, United States Code, to authorize

multiple provider networks in the same geographical area under TRICARE Select and TRICARE Prime.

Implementation of an integrated TRICARE program through effective market management (sec. 722)

The committee recommends a provision that would require the Secretary of Defense, acting through the Director of the Defense Health Agency, to implement integration of the direct care and purchased care components of the TRICARE program through effective management of geographic markets. The provision would prescribe the elements of market integration that would include a responsibility to ensure: (1) The medical readiness of the Armed Forces; and (2) Provision of health care services in military medical treatment facilities to maintain the critical wartime medical readiness skills and core competencies of health care providers in the Armed Forces. In addition, the provision would require a streamlined, effective patient referral system for TRICARE beneficiaries and a continued enrollment operation for such beneficiaries in geographic markets.

Establishment of centers of excellence for enhanced treatment of ocular injuries (sec. 723)

The committee recommends a provision that would require the Secretary of Defense, acting through the Director of the Defense Health Agency (DHA), to establish, not later than October 1, 2022, at least four regional centers of excellence (COEs) for the enhanced treatment of ocular wounds or injuries and vision dysfunction related to ocular wounds or injuries and traumatic brain injury. Each COE would be located at a military medical center that provides graduate medical education in ophthalmology and its related subspecialties. Regional COEs would be the primary referral centers for providing specialized medical services for vision of servicemembers located in each center's region.

The provision would also require the DHA to publish policies on a publicly available internet web site for the referral of eligible beneficiaries of the Department of Defense to such centers. To address staffing of the COEs, the provision would require the Secretaries of the military departments, in conjunction with the Joint Staff Surgeon and the DHA Director, to identify specific medical personnel billets essential for the evaluation and treatment of ocular sensory injuries and to ensure that the COEs are staffed to provide the enduring medical support of each center.

Finally, the provision would require the Secretary of Defense to submit a report to the Committees on Armed Services of the Senate and the House of Representatives, not later than December 31, 2022, that: (1) Describes the establishment of each COE and the referral policy published by the DHA; (2) Identifies the medical personnel billets required to staff the COEs; and (3) Provides a plan for staffing the COEs.

Mandatory training on health effects of burn pits (sec. 724)

The committee recommends a provision that would require the Secretary of Defense to train Department of Defense medical providers on the potential health effects of burn pits.

Removal of requirement for one year of participation in certain medical and lifestyle incentive programs of the Department of Defense to receive benefits under such programs (sec. 725)

The committee recommends a provision that would amend section 729 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) to remove the requirement for 1 year of participation in certain medical and lifestyle incentive programs before an eligible beneficiary could receive benefits under such programs. This provision would authorize the Secretary of Defense to offer incentives earlier to encourage beneficiaries to change their behaviors to improve their health.

Authority of Secretary of Defense and Secretary of Veterans Affairs to enter into agreements for planning, design, and construction of facilities to be operated as shared medical facilities (sec. 726)

The committee recommends a provision that would authorize the Secretary of Defense and the Secretary of Veterans Affairs to enter into agreements to plan, design, and construct facilities to be operated as shared medical facilities. The provision would prescribe how funds could be transferred and merged between the Department of Defense and the Department of Veterans Affairs.

Consistency in accounting for medical reimbursements received by military medical treatment facilities from other Federal agencies (sec. 727)

The committee recommends a provision that would amend section 1085 of title 10, United States Code, to provide consistency in accounting for medical reimbursements received by the Department of Defense for inpatient and outpatient medical or dental care provided to beneficiaries of another Federal agency and for reimbursements from third-party insurance companies.

Subtitle C—Reports and Other Matters

Access by United States Government employees and their family members to certain facilities of Department of Defense for assessment and treatment of anomalous health conditions (sec. 741)

The committee recommends a provision that would require the Secretary of Defense to provide certain U.S. Government employees and their family members who are experiencing symptoms of anomalous health conditions, as defined by the Secretary for the purposes of this provision, timely access for medical assessment, subject to space availability, to the National Intrepid Center of Excellence, an Intrepid Spirit Center, or an appropriate military medical treatment facility.

The provision would also require the Secretary to furnish treatment to any such individual diagnosed with an anomalous health condition or related affliction, subject to space availability, at the National Intrepid Center of Excellence, an Intrepid Spirit Center, or an appropriate military medical treatment facility.

The provision would further require the Secretary, in consultation with the heads of appropriate Federal agencies, to develop a process by which employees of those agencies and their family members are afforded timely access to the National Intrepid Center of Excellence, an Intrepid Spirit Center, or an appropriate military medical treatment facility, pursuant to subsection (a) by not later than 60 days after the date of enactment of this Act.

Finally, the provision would require the Secretary of Defense to include certain demographic data on these anomalous health conditions in the Department of Defense Trauma Registry, subject to agreement by the employing agency and the consent of the employee.

Extension of authority for Joint Department of Defense–Department of Veterans Affairs Medical Facility Demonstration Fund (sec. 742)

The committee recommends a provision that would amend section 1704(e) of the National Defense Authorization Act for Fiscal Year 2010 (Public Law 111–84), as amended by section 732 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92), to extend the authority for the Joint Department of Defense-Department of Veterans Affairs Demonstration Fund from September 30, 2021, to September 30, 2023.

Comptroller General study on implementation by Department of Defense of recent statutory requirements to reform the military health system (sec. 743)

The committee recommends a provision that would require the Comptroller General of the United States to conduct a study on the Department of Defense's implementation of statutory requirements to reform the military health system. The provision would prescribe the elements of such study and require the Comptroller General to brief the Committees on Armed Services of the Senate and the House of Representatives on the status of the study not later than May 1, 2022. The Comptroller General would then submit a report on the study to the same committees not later than May 1, 2023.

Budget Items

Anomalous health incidents

The budget request included $35.6 billion in Operation and Maintenance, Defense-wide (OMDW), for the Defense Health Program, of which $9.7 billion was for line number 1 In-House Care.

The committee recommends an increase in OMDW of $30.0 million for line number 1 In-House Care to address the threat characterization and treatment of certain uniformed members, Federal civilian employees, and their family members affected by anomalous health incidents. The provision underlying this change in funding levels is discussed in greater detail in title VII of this committee report.

Items of Special Interest

Access to mental health care

The challenges associated with military life, including frequent deployments, repeated moves, and spouse unemployment, put servicemembers and their families at increased risk of mental and behavioral health concerns. It is essential that the military health system (MHS) ensures that servicemembers and their families have access to timely, high quality mental health care.

However, an August 2020 report by the Department of Defense Inspector General (DOD IG), titled "Evaluation of Access to Mental Health Care in the Department of Defense" (DODIG–2020–112), revealed significant barriers to accessing mental health care. The DOD IG concluded that thousands of Active-Duty servicemembers and their families may have experienced delays in obtaining mental health care. These delays may have involved numerous beneficiaries not being able to see the right provider at the right time, obtain mental health care at all, or receive timely follow-up treatment. All of these types of delays in mental health care increase the risk of jeopardizing patient safety and affecting the readiness of the force. The DOD IG also found that more than 5 percent of those referred for mental health treatment in the purchased care system never received the prescribed care.

The committee is concerned by these findings and directs the Secretary of Defense to brief the Committees on Armed Services of the Senate and House of Representatives not later than February 1, 2022, on actions taken to address these shortfalls. The committee expects the DOD to develop a plan to ensure that when beneficiaries are referred for mental health care they receive direct assistance in identifying appropriate mental health providers within the direct care system or TRICARE network, confirming the availability of the service with a particular provider within access to care standards, and securing the initial appointment for the beneficiary.

Battlefield analgesia

In a battlefield environment, wounded servicemembers may receive either inadequate or no pain treatment following severe traumatic injury. Studies of U.S. and international Armed Forces report that only 19 percent to 39 percent of combat casualties receive adequate pain treatment at the point of injury. Typically, combat medics accomplish pain management on a far-forward battlefield by administering opioid analgesics, but opioids can lead to respiratory depression, further complicating treatment, and in certain cases, hasten a servicemember's death.

In the United States, medical professionals in emergency medicine departments commonly use ketamine, a general anesthetic agent, in analgesic (low) doses as an alternative to opioid medications because ketamine has no deleterious hemodynamic or respiratory effects. In fact, the Department of Defense's Committee on Tactical Combat Casualty Care recommends intravenous (IV) or intraosseous (IO) ketamine to treat moderate to severe pain in wounded patients experiencing hemorrhagic shock and/or respiratory depression. Unfortunately, IV and IO modes of ketamine

administration may be impractical in a highly contested combat environment, and thus, effective pain management may be delayed until the patient has been transported to a field hospital.

The committee is aware that the Food and Drug Administration (FDA) has approved intranasal ketamine for certain medical conditions. The committee believes that intranasal ketamine could be easily administered in a far-forward combat environment and could result in better pain management as the patient moves from the battlefield to a field hospital. Therefore, the committee recommends that the Department of Defense conduct the necessary pre-clinical testing and clinical trials of intranasal ketamine such that the results may be used to facilitate FDA approval of intranasal ketamine for acute pain management.

Body composition standards

Currently, military body composition standards are based on archaic, homogeneous data and standards that can be discriminatory. These standards appear to be based on the goal of ensuring a "military appearance." Attempts to comply with body composition standards frequently contribute to unhealthy eating disorders that can be hazardous in career fields where focus and attention to detail can be impacted by the disorder.

The committee commends the Army Research Institute of Environmental Medicine and the Marine Corps' Human Performance Branch on partnering to conduct the most technologically advanced study of body composition standards since the 1980s. Participants in this study will receive high-tech body scans and special X-rays that may lead to military-wide updates to body composition standards, which have long been criticized as outdated. The committee expects this study to lead to enlightened body composition standards for all servicemembers.

Briefing on impact of TRICARE copays on utilization of certain healthcare services

The committee is concerned about the potential impact of TRICARE copay increases on utilization of healthcare services for mental health care, physical therapy, speech therapy, and occupational therapy by some TRICARE beneficiaries. These services often require multiple therapy sessions to address an underlying medical condition, and higher copays may dissuade some beneficiaries from seeking care.

As a result, the committee directs the Secretary of Defense to conduct an analysis of the impact of TRICARE copay increases on utilization of outpatient mental health and on physical, speech, and occupational therapy visits by TRICARE Group A beneficiaries. The analysis shall compare utilization rates of these services in 2016 and 2017 to utilization rates of these services in 2018 and 2019. Utilization may be measured by variables such as unique users, average number of visits per user, distribution of users across the number of visits (one visit only, 2–3 visits, 4–6 visits, 7–9 visits, 10–12 visits, and more than 12 visits) or other measures the Secretary deems appropriate. For TRICARE Prime beneficiaries where the data are available, the analysis shall assess the percent of patients referred for these services who actually accessed

care. The analysis shall cross-tabulate data for each beneficiary sponsor category and TRICARE Plan (Prime vs. Select) given that copays vary across these groups. The Secretary shall submit a briefing of such analysis, not later than February 1, 2022, to the Committees on Armed Services of the Senate and the House of Representatives.

Comprehensive brain health and treatment for special operations forces

The committee encourages the Secretary of Defense to support academic medical centers carrying out comprehensive brain health and treatment programs. These programs provide coordinated, integrated, evidenced-based and/or evidence-informed care, multidisciplinary specialist evaluations, treatment initiation, nursing case management, and aftercare coordination to members of Special Operations Forces and other servicemembers impacted by traumatic brain injury and other associated health factors that influence long-term brain health and performance.

Comptroller General assessment of Department of Defense health care provider adverse privileging actions

Not later than December 1, 2022, the Comptroller General of the United States shall complete an assessment and provide a report to the Committees on Armed Services of the Senate and the House of Representatives on the Department of Defense's implementation and oversight of clinical quality management procedures, including: (1) Procedures for taking adverse privileging action against health care providers on the basis of quality and safety concerns; and (2) Procedures for reporting such actions to the National Practitioner Data Bank, State licensing boards, and other regulatory agencies.

Continued collaboration between the Department of Defense and Israeli institutions on medical research

The conference report (H. Rept. 116–617) accompanying the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) directed the Secretary of Defense to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives on military health research collaboration between the United States and Israel on technical areas such as military trauma, infectious disease surveillance, and diagnostics and treatment for traumatic brain injury and post-traumatic stress disorder. The Assistant Secretary of Defense for Health Affairs provided a briefing to such committees in April 2021. The briefing highlighted multiple collaborative research efforts in each of the technical areas by the Department of Defense (DOD) and Israel. Since 2016, the DOD and Israeli research institutions have completed 12 research projects, and 10 projects are ongoing. Additionally, the DOD and Israel have broad-scope intergovernmental agreements in place that foster continued collaboration, support access to Israeli medical research advances, and provide for contracts and grants to engage Israeli institutions in the DOD's medical research efforts. The committee encourages the DOD to continue its successful collaboration with Israeli institutions to make further advances in military medical research.

Continued study and research on post-traumatic stress disorder and traumatic brain injury

The committee notes the significant effect that post-traumatic stress disorder (PTSD) and traumatic brain injury (TBI) have had on servicemembers. The committee has been encouraged by the valuable research conducted through Department of Defense-sponsored consortia that has enhanced understanding of the causes, treatments, and recovery protocols for PTSD and TBI. As these medical conditions are the signature injuries of the Iraq and Afghanistan conflicts, they will likely have an enduring impact on military personnel in the future. Therefore, the committee encourages the Secretary of Defense to continue robust study and research into the causes of, and the treatments for, PTSD and TBI.

Continuity of care in TRICARE's Extended Care Health Program

The committee remains concerned that certain military family members registered in the Department of Defense's Extended Care Health Option (ECHO) under its Exceptional Family Member Program (EFMP) are unable to receive timely medical specialty care referrals when they move to a new permanent change of station (PCS) location. Therefore, the committee directs the Director of the Defense Health Agency to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives, not later than March 1, 2022, that:

(1) Assesses the feasibility of continuing certain ECHO services initiated at the previous duty station for up to 6 months without authorization and referral after servicemembers execute a PCS;

(2) Assesses the degree to which the Department prioritizes or fast-tracks specialty care referrals after a PCS to ensure continuity of care;

(3) Assesses the feasibility of using virtual health services as a method by which ECHO case managers can better provide continuity of care services to military families;

(4) Describes the average wait-time for an ECHO family to receive a medical specialty care referral after a PCS move; and

(5) Describes any barriers that may exist that delay an EFMP enrollee from receiving timely medical specialty care.

Development of oral, ultra-long-acting, sustained-release hypertension and diabetes therapeutics

The committee is concerned about the increase of type II diabetes and hypertension in Active-Duty, Reserve, and National Guard personnel that may impact unit readiness. Advances in the development of oral, ultra-long-acting drug delivery methods have potential for significant health improvement, increased readiness, and cost savings for the Department of Defense (DOD). The committee supports accelerated development of sustained-release oral medications for the treatment of type II diabetes and hypertension and encourages DOD to include oral, ultra-long-acting, sustained-release drug platforms as a priority focus area in its medical research portfolio.

Dietary supplement adverse event reporting

The committee commends the Department of Defense (DOD) for its efforts to educate servicemembers on safe dietary supplement use through the Operation Supplement Safety Program. The Food and Drug Administration's (FDA's) adverse events reporting data show that certain dietary supplements are more likely to cause severe medical problems than vitamins or minerals. The committee acknowledges the FDA's existing adverse event reporting system and recognizes the military health system's need to track adverse events data. Therefore, the committee recommends that the DOD include adverse event reporting for dietary supplements within military electronic health records and share these data with the FDA's adverse events tracking system.

Domestic active pharmaceutical ingredient manufacturing report

The committee remains concerned about the Department of Defense's (DOD's) reliance on foreign nations, especially adversarial nations like China, for active pharmaceutical ingredients and finished pharmaceutical products. To ensure resiliency in the DOD's medical products supply chain, the committee directs the Secretary of Defense, in consultation with other appropriate Federal officials, to submit a report to the congressional defense committees, not later than March 1, 2022, on the feasibility of establishing a pilot project to increase the capacity of the United States to manufacture active pharmaceutical ingredients and finished pharmaceutical products identified in such assessment as required to enable combat readiness and protect the health of the Armed Forces. The report shall include an assessment of:

(1) The drugs and active pharmaceutical ingredients, including oral solid dose medicines, that such a pilot program should prioritize for manufacture, based on the importance of the drugs for combat readiness and their existing domestic and international manufacturing capacity;

(2) The existing domestic manufacturing capacity, specifically current active contracts procuring medications, for the drugs and active pharmaceutical ingredients identified in subparagraph (1);

(3) The existing international manufacturing capacity in the potential partners identified in section 713(b)(E) of subtitle B of title VII of the William M. (Mac) Thornberry National Defense Authorization Act (Public Law 116–283) for the drugs and active pharmaceutical ingredients identified in (1);

(4) The financial resources necessary for the pilot program to ensure an uninterrupted supply from domestic manufacturers of the drugs and active pharmaceutical ingredients identified in (1) for use by the Department of Defense; and

(5) The length of time necessary for such a pilot program.

Electronic health record interoperability between the Departments of Defense and Veterans Affairs

A Government Accountability Office (GAO) report released on February 11, 2021, titled "Electronic Health Records: VA Has Made Progress in Preparing for New System, but Subsequent Test Find-

ings Will Need to Be Addressed" (GAO–21–224), described implementation challenges faced by the Department of Veterans Affairs (VA) prior to its initial electronic health record (EHR) deployment. Those challenges are similar to ones experienced by the Department of Defense (DOD) as it deployed its EHR—problems with system configuration and workflows, capability development and documentation, system interfaces, end user training, and resolution of critical and high severity test findings. In its report, the GAO recommended the VA postpone new EHR deployments until it resolved its problems. Continued deployment of the VA's EHR without fully resolving known problems could lead to deployment of a system that fails to perform as intended, negatively impacting patient care and hurting user adoption. Additionally, if problems remain, the committee is concerned that there will be greater risk to seamless interoperability between DOD and VA EHRs in the future.

The DOD's operational testing of its fielded electronic health record system, MHS Genesis, helped to identify and address similar problems. The Department's Office of Testing and Evaluation (DOT&E) has more than 3 years of experience operationally testing MHS Genesis at military treatment facilities that are using the same EHR platform as the VA. During this period, DOD's operational testers learned many important lessons about testing EHR systems in an operational environment. The committee believes that the VA should tap this vast source of knowledge and extensive experience within DOD so that the VA can address known and unknown EHR problems quickly.

Therefore, the committee directs the Secretary of Defense to offer an operational test and evaluation of the VA's EHR modernization program to the Secretary of Veterans Affairs, not later than 60 days following deployment to the VA's first medium or large hospital. If the Secretary of Veterans Affairs accepts that test and evaluation offer, and after performing such test and evaluation, the DOT&E shall provide a report, not later than 180 days following such deployment, to the Secretaries with copies of the report provided to the Committees on Armed Services and Veterans' Affairs of the Senate and the House of Representatives.

Elimination of low-value healthcare

The American Board of Internal Medicine Foundation created the Choosing Wisely initiative to "promote conversations between clinicians and patients" that would help patients select the best course of medical treatment for themselves—treatment free from harm, necessary, evidence-based, and not duplicative. According to the Choosing Wisely web site, numerous medical specialty societies have published more than 550 recommendations of overused tests and treatments, including five recommendations from the American Dental Association, that clinicians and patients should discuss. These discussions between physicians or dentists and their patients will often lead to lower healthcare costs by limiting the number of unnecessary, low-value healthcare services delivered to patients.

While the Defense Health Agency (DHA) has taken certain small steps to eliminate the delivery of low-value healthcare services in

the military health system (MHS), it has not conducted a comprehensive analysis of those services provided by its direct and purchased care components. A thorough analysis by the DHA would help the MHS better understand how to use Choosing Wisely initiatives more fully and effectively. Without such analysis, the committee believes that the Department of Defense (DOD) may be wasting healthcare dollars on low-value services that often yield little results for patients. The committee understands that Humana Military, TRICARE's East Region managed care support contractor, estimates that incorporation of the top five Choosing Wisely initiatives into its region could save the DOD approximately $13.0 million annually. Therefore, the committee directs the DHA to leverage best practices from commercial health plans to eliminate low-value services from the MHS by incorporating Choosing Wisely initiatives into its TRICARE managed care support contracts and the TRICARE Dental Program.

Improvements to healthcare for Active-Duty women

In November 2020, the Defense Health Board (DHB), a Federal Advisory Committee to the Secretary of Defense, published a report on Active-Duty women's (ADW) healthcare services. In the report, the DHB provided its findings and submitted recommendations to improve access to care, the quality of care, and the medical readiness of women servicemembers. In preparation for publishing the report, a DHB subcommittee conducted a review of the current women's health services provided in the military health system, evaluated the Department of Defense's and foreign militaries' policies and practices on women's healthcare, and studied relevant peer-reviewed scientific literature. Disturbingly, the DHB found that "decades of findings and recommendations concerning ADW's health have not led to sustained improvements." Of note, the DHB highlighted that "DOD's traditional male norms and attitudes contribute to the variability in the knowledge of ADW's health needs" and determined that women's health improvements "should be implemented proactively using a life cycle perspective, rather than reacting to isolated episodes or incidents." Additionally, the report recognized that women's healthcare improves when women are "empowered to perform self-care and be equal partners in their care."

The committee recognizes the far-reaching importance of this report and believes that the Office of the Secretary of Defense and the military departments must firmly commit to prioritize women's health by introducing health information technology solutions that specifically serve the needs of women in garrison and while deployed. Furthermore, the Department must: (1) Standardize the scope of healthcare services given to ADW throughout their careers; (2) Provide options for self-treatment of common medical conditions unique to women, especially in a deployed or field environment; (3) Apply uniform post-partum fitness-for-duty standards across the services; (4) Develop an outcomes-based dashboard that gives specific data on the medical readiness of ADW; and (5) Provide customized equipment to ADW to minimize injuries during training or during deployments.

Finally, the committee believes that the Department must place greater emphasis on advancing evidence-based healthcare services for ADW by standardizing the delivery of such services in its medical treatment facilities and in the TRICARE provider network. The committee deems the Defense Health Agency (DHA) uniquely qualified, under its enhanced execution authority, to lead this effort. Therefore, the committee encourages the DHA to implement the DHB recommendation to establish an office "with a clear charter to approve recommendations necessary to improve ADW's health, fitness, safety, and performance" during each phase of their careers.

Integrated training for Army first responders and medical professionals

The committee applauds the Department of Defense's (DOD) support to the U.S. national pandemic response and recognizes that DOD may be required to provide future support to a whole-of-government response to mass casualty events caused by chemical, biological, radiological, or nuclear (CBRN) weapons.

The Army's CBRN first responders and medical professionals, including physicians, nurses, physician assistants, and combat medics, will play a key role in any DOD response to such events. The committee is aware, however, that these first responders and medical professionals do not currently train together in an institutional setting to respond together during CBRN events. This training gap may limit the ability to deliver a prompt and well-coordinated operational medical response to CBRN mass casualty events. Therefore, the committee directs the Secretary of the Army to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives not later than April 1, 2022, that describes the Army's plans to establish integrated training for the Army's CBRN first responders and its medical professionals.

Integration of biometric synthetic training technologies to support better health outcomes

The committee is aware that the U.S. Army Health Center at Vicenza, Italy, has demonstrated promising results from the use of a small arms human performance-based synthetic training system to assist in the diagnosis, assessment, and rehabilitation of military personnel recovering from mild traumatic brain injury (mTBI) and post-traumatic stress disorder (PTSD). This system allows medical personnel to collect and analyze hundreds of biometric and human performance data points, establishing detailed cognitive and physical baselines to track patient rehabilitation progress more effectively. Therefore, the committee encourages the Department of Defense to conduct a pilot program to explore how human performance synthetic training systems can be further used to establish and monitor cognitive and physical baselines for servicemembers throughout their careers to aid in the assessment and diagnosis of mTBI and PTSD.

Market price generics program

The committee has received reports of disruptions in pharmacy access for some beneficiaries due to inadequate supplies of medica-

tions provided by the Defense Logistics Agency (DLA) to the TRICARE Mail Order Pharmacy. When DLA is unable to provide the medications required to serve beneficiaries, mail order pharmacy beneficiaries are referred to the TRICARE retail pharmacy program, leading to potentially higher costs for the beneficiary and the Government. To address this problem, the Defense Health Agency (DHA) established the Market Price Generics Program (MPGP) that authorizes DHA to rely on alternate sources of supply to serve the pharmaceutical needs of its beneficiaries.

The committee commends DHA's efforts to address this problem. However, the committee is concerned that the program is underutilized due to the MPGP's processes that result in delays to beneficiaries' access to prescribed drugs. Therefore, the committee encourages DHA to streamline MPGP processes, continue expansion of MPGP utilization, and use additional tools to ensure beneficiaries have access to prescribed medications when using the TRICARE Mail Order Pharmacy.

Medical necessity and prior authorization process for non-covered drugs in the TRICARE program

Section 702 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) authorized the Secretary of Defense to exclude from the TRICARE pharmacy program any pharmaceutical agent that the Secretary determines provides very little or no clinical effectiveness over other covered drugs. These drugs are known as Tier 4 (non-covered), and the Secretary may exclude their coverage when alternative medications are available on the TRICARE drug formulary.

There is no specific process, however, for TRICARE beneficiaries to request medical necessity coverage and prior authorization of a Tier 4 drug when other formulary medications are ineffective or less effective. Beneficiaries must, therefore, file a formal reconsideration request with the TRICARE mail order pharmacy contractor, and the contractor has up to 60 days to issue a determination. Upon denial of such request by the contractor, a beneficiary may file a formal review request, in writing, to the Defense Health Agency (DHA). The DHA may then take up to 90 days to issue a formal review determination. Throughout this lengthy process, beneficiaries may be without medications that more effectively manage their specific medical conditions. Therefore, the committee directs the Director of the Defense Health Agency to establish a medical necessity and prior authorization process whereby a beneficiary may request coverage of a Tier 4 drug at the same co-pay or cost-share as a Tier 3 non-formulary drug, and to brief the Committees on Armed Services of the Senate and the House of Representatives on this appeal process not later than February 1, 2022.

Mobile application to enable periodic health assessments for National Guard members

The committee encourages the Chief of the National Guard Bureau to implement a mobile application, fully compliant with Department of Defense information security protocols that would enable National Guard members to complete certain portions of the

annual Periodic Health Assessment on a smartphone, tablet computer, or other handheld mobile device. The committee recommends that the application incorporate a flexible interface that allows users to adopt it with minimal effort and resources. Additionally, the committee believes that such application should incorporate standardized approaches to handle data definition and mapping, cybersecurity, device protocols, data format, and quality assurance testing and support.

Musculoskeletal injury prevention

The committee recognizes that preventable musculoskeletal injuries negatively impact servicemembers' health and military readiness. Musculoskeletal injuries account for almost 25 percent of all military injuries, and investing in injury prevention education and human performance programming can greatly reduce the number of injuries. Therefore, the committee encourages the Secretary of Defense to expand current programs addressing musculoskeletal injury prevention and to include research that will identify risk factors for musculoskeletal injuries among members of the Armed Forces. Additionally, the committee supports partnerships between the Department of Defense and institutions of higher education with existing injury prevention and human performance education programs to support data collection and research regarding musculoskeletal injuries to improve servicemembers' health and force readiness.

National Disaster Medical System Pilot Program

The committee continues to support the National Disaster Medical System Pilot Program authorized in section 740 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92), as amended by section 741 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283).

The committee notes the Department of Defense's decision to select Washington D.C.; San Antonio, TX; Sacramento, CA; Omaha, NE; and Denver, CO as pilot program sites, and the Department's plan to commence the pilot after September 30, 2021. The committee expects to be informed periodically on the progress of the program throughout its duration.

National public health emergency and disaster medical network model

The committee commends the U.S. Army's Telemedicine and Advanced Technology Research Center (TATRC) for the rapid development and deployment of the National Emergency Tele-Critical Care Network (NETCCN). In response to the COVID–19 pandemic, TATRC quickly established a cloud-based, low-resource, standalone telehealth information management system capable of providing flexible, mobile, and scalable virtual critical care capabilities to healthcare facilities, field hospitals, and other locations lacking the critical care expertise and resources necessary to provide health care to critically ill patients. The committee recognizes the NETCCN's competitive innovative approach and its derived technology platform as a model for future clinically guided telemedicine

technology procurements. Therefore, the committee encourages the Defense Health Agency to fully leverage this Federal investment by adopting relevant modules of this highly configurable technology portfolio to accelerate current and future digital health and telehealth applications throughout the military health system.

Non-helmet preventative devices for traumatic brain injury

Although the Department of Defense (DOD) has spent approximately $1.8 billion over the last 10 years on research and development related to traumatic brain injury (TBI), a recent assessment by the Congressional Research Service found that DOD has pursued only a few projects focused on non-helmet TBI preventative devices. The committee is concerned that DOD's research and development efforts have not included a study of these devices that could help prevent TBI. The committee believes that evaluation of such devices should be a key component of the Department's holistic effort to prevent TBI in training and combat environments. Therefore, the committee directs the Secretary of Defense to provide a briefing on TBI prevention to the Committees on Armed Services of the Senate and the House of Representatives not later than January 31, 2022. This briefing shall include, at a minimum: (1) An analysis of the number and types of traumatic brain injuries experienced by servicemembers over the previous 10 years; (2) An assessment of types of commercially available non-helmet preventive devices cleared by the Food and Drug Administration; and (3) A plan to study the effectiveness of such devices to prevent TBIs in training and combat environments.

Plasma-derived antibody products

The committee recognizes the importance of plasma-derived antibody therapies for the temporary protection from infectious diseases affecting warfighters at home and abroad. Plasma-derived antibody therapies allow for military personnel to obtain naturally-occurring antibodies until more specific therapeutics, vaccines, or other medical countermeasures are available. The committee understands the threat that emerging infectious diseases, such as coronavirus, pose to our national security, and thus, encourages the Department of Defense to study the use of Food and Drug Administration-approved pooled plasma-derived antibody products developed in the United States to prevent or treat disease caused by new or emerging disease pathogens.

Point-of-care ultrasound system in the tactical combat casualty care environment

The committee notes that timely diagnostic imaging that supports sound clinical decisions can improve battlefield injury survival. By using whole-body single transducer ultrasound systems, advanced diagnostic imaging capabilities can now be available to medical personnel from the moment of battlefield injury through casualty evacuation and subsequent transport to a tertiary care center. Equipped with machine learning tools and a simple user interface on a mobile device, such relatively inexpensive systems incorporate secure image storage and can facilitate reach-back consultation from combat casualty locations directly to trauma special-

ists. Therefore, the committee encourages the Department of Defense to implement a point-of-care ultrasound system in the tactical combat casualty care environment.

Pooled testing to promote bio-surveillance of disease outbreaks

The committee recognizes that COVID–19 outbreaks have had a dramatic effect on the medical readiness of the Armed Forces. Regular, population-level bio-surveillance through pooled or aggregate testing in the military could help thwart disease outbreaks that may harm national security. Implementing this testing capability now, during the COVID–19 pandemic, could establish a viable bio-surveillance capability for the military in the future. Therefore, the committee encourages the Secretary of Defense to conduct a 6-month pilot program to expand pooled COVID–19 testing of asymptomatic servicemembers at recruit training depots using commercial-off-the-shelf test kits that could serve as a proof-of-concept for broader implementation throughout the Department of Defense.

Prevention of hemorrhagic death with next generation freeze-dried platelets

Uncontrolled bleeding is the major cause of preventable death on the battlefield for military forces. The Department of Defense estimates that 976 deaths (or 90 percent of preventable deaths) caused by hemorrhage from 2001 to 2011 in Afghanistan and Iraq were potentially survivable if bleeding could have been stopped. The committee understands the future battlefield will require prolonged field care and that next generation lyophilized blood products for hemorrhage control must be immediately available at all levels of care. Furthermore, austere environments have changed battlefield medical logistics and may require ruggedized packaging of freeze-dried plasma and platelets with greater capabilities than currently deployed systems. Therefore, the committee encourages the Assistant Secretary of Defense for Health Affairs and the Defense Health Agency to fund clinical trials of freeze-dried hemostatic products, especially platelet-derived products, and the development of unique packaging for use by deployed forces.

Review of maternal deaths at military treatment facilities

The committee commends the Department of Defense for its efforts to address maternal mortality and severe morbidity among servicemembers.

The committee recognizes that continued efforts to improve the standardization of data and review processes related to U.S. maternal mortality are a necessary step in an effort to eliminate disparities and preventable maternal deaths. Therefore, the committee directs the Secretary of Defense to provide a report to the Committees on Armed Services of the Senate and the House of Representatives, not later than February 1, 2022, on the Department's efforts to review maternal deaths at military treatment facilities, as well as details on the Department's efforts to implement recommendations presented in the Department's June 10, 2019, report to the Congress titled "Maternal and Infant Mortality Rates in the Military Health System." The committee also directs the Department

to include in the report information on: (1) The extent to which reviews of each death are conducted by a multidisciplinary group of experts; (2) The extent to which the Department seeks input from physicians, epidemiologists, patient advocates, civilians with experience with reviews of maternal mortality records, and other experts; (3) Measures taken to ensure data collection is transparent, consistent, and comprehensive; (4) Measures to ensure confidentiality protections and de-identification of any information specific to a maternal mortality case or severe maternal morbidity case; (5) Efforts to facilitate data and records sharing with State maternal mortality review committees; and (6) The Department's process for accessing National Death Index data and State death certificate data at the Centers for Disease Control and Prevention. The report shall also include information on the Department's meaningful participation in quality improvement programs, including the Alliance for Innovation on Maternal Health program, a perinatal quality collaborative, or similar maternal health quality improvement initiatives.

Selected Reserve separation history and physical examinations

The committee understands that the Departments of Defense and Veterans Affairs (VA) are working to develop a single, comprehensive separation history and physical examination (SHPE), which will include a mental health examination for servicemembers leaving Active-Duty service. The committee encourages the Departments to extend the SHPE to members of the National Guard and Reserves who otherwise qualify as veterans eligible for benefits from the VA, including members of the Selected Reserve who have not supported a contingency operation for a period of more than 30 days.

Not later than January 31, 2022, the Secretary of Defense, in coordination with the Secretary of Veterans Affairs, shall review a statistically significant sample of records of former members of the Selected Reserve and submit to the Committees on Armed Services of the Senate and the House of Representatives a briefing addressing the following: (1) The total number of individuals qualified for VA benefits who separated from the Selected Reserve during the 1-year period preceding the submittal of the report; (2) The number of such individuals who received a SHPE at a military medical treatment facility; and (3) The number of such individuals who applied for VA benefits, enrolled in the VA health system, or received other VA benefits.

Synchronized procurement of combat medical kits

Reducing the number of preventable deaths on the battlefield is a top priority for the committee. Individual first aid kits (IFAKs) and combat life saver kits (CLSKs) contain products designed to improve lifesaving performance by every servicemember. These products target the leading causes of preventable combat deaths—massive hemorrhage, airway obstruction, respiration, circulation, head wounds, and hypothermia—and simplify tactical medicine from the point-of-injury through evacuation from the battlefield.

The current logistics systems used to procure such products, however, are not synchronized. For example, procurement of IFAKs/CLSKs for one combat brigade requires extensive management of approximately 180,000 single items, from depots down to the individual soldier level, and each product has its own expiration date and manufacturer lot number. Additionally, the current patchwork procurement process, involving nearly a dozen different supply chains, may often be performed by facilities not registered by the Food and Drug Administration and not ISO: 13485 compliant. This inefficient process can lead to extensive delays in product delivery that can result in medical products, particularly sterilized products, with shortened shelf lives when they reach the end user. Therefore, the committee believes that a simplified supply chain, with synchronized manufacturing for combat medical products, could lead to supply chain efficiencies and cost savings to the Department of Defense while ensuring that servicemembers have the best medical products available to treat combat injuries.

Therapeutic research for traumatic brain injury

The committee continues to support the Department of Defense's efforts to evaluate and treat servicemembers for acute traumatic brain injury (TBI). The committee is aware of recent advances in the development of therapeutics designed to stimulate nerve regeneration and to promote brain plasticity. These therapeutics hold great promise for recovery from TBI, Alzheimer's disease, multiple sclerosis, and spinal cord injury. Therefore, the committee encourages the Department to continue investments in the development of therapeutics to promote brain plasticity following TBI and other nervous system disorders.

Trauma and public health training

The committee recognizes the valuable support universities and hospitals provide to National Guard trauma and public health training. Through civilian-based emergency response trauma/critical care and public health training, the National Guard is better prepared to face future medical challenges. These public-private training collaborations help to sustain the trauma and public health capabilities of the National Guard Enhanced Response Forces Packages, National Guard Homeland Response Forces, and National Guard Civil Support Teams.

TRICARE healthcare delivery demonstration project contracting

The Congress has enacted provisions that require the Department of Defense to adopt a new private sector healthcare delivery acquisition model to: (1) Foster innovation; (2) Utilize value-based reimbursement methods; (3) Incorporate local and regional health plans to provide greater beneficiary choice; and (4) Improve healthcare quality and beneficiaries' experience of care. The Defense Health Agency (DHA) has conveyed to the committee its shared intent to achieve these goals.

The committee recognizes, however, that there may be contracting impediments to the entrance of new health system or plan entrants into TRICARE that may inhibit adoption of value-based

reimbursement methods. The DHA should explore flexible acquisition approaches to enable broader participation in its purchased care programs. Therefore, the committee encourages the Secretary of Defense to utilize authorities for direct contracts with regional and local health care systems, payers, and providers to incentivize participation in value-based healthcare demonstrations. The committee further directs the Secretary to utilize, for the purposes of demonstration projects, acquisition methods that would safeguard the Government's interests while providing greater contracting flexibility.

TRICARE healthcare delivery demonstrations

The committee understands that the Defense Health Agency (DHA) plans to implement healthcare delivery demonstrations, separate from the upcoming TRICARE T–5 contract, to test a multiple contract/multiple provider network approach to help expand TRICARE beneficiary enrollment choices. A more localized market approach to healthcare delivery may allow private sector health plans and providers to better address the unique needs of beneficiaries with innovative, value-based healthcare plan options.

The committee is aware that the DHA plans to implement these demonstrations soon after it awards a separate administrative contract for management of TRICARE's eligibility, enrollment, and encounter (EEE) processes. The committee agrees with this construct and encourages the DHA to time the award of an EEE contract and implementation of demonstrations to coincide with transition to the T–5 contracts. Such timing would allow a more equitable comparison of patient choice, healthcare quality, innovation, and cost within these demonstrations to T–5 contracts.

Therefore, the committee directs the Secretary of Defense to provide a briefing not later than September 1, 2021, to the Committees on Armed Services of the Senate and the House of Representatives that describes a plan to implement a simultaneous acquisition strategy for the T–5 contracts, an EEE contract, and independent healthcare demonstrations. The briefing shall include a detailed description regarding how the DHA intends to compare healthcare delivery models, including the outcome measures that will be used to determine the performance of various models.

Trusted domestic vaccine supplier capability

The committee is concerned about the availability of key starting materials (KSMs), such as plasmid DNA and mRNA, antibodies, and enzymes that are critical components in the rapid production of important medical countermeasures against biologic threats. Domestic manufacturing of KSMs can limit dependence on foreign supplies and improve the response to national health emergencies caused by pandemics. Therefore, the committee recommends that the Department of Defense, through the Defense Logistics Agency Strategic Materials division, include KSMs as strategic materials in the National Defense Stockpile. Long-term domestic storage of KSMs would facilitate the swift development and allocation of medical countermeasures against biologic threats, both to servicemembers and the general public.

Virtual health expansion

The committee recognizes the important role that virtual health and telemedicine services have played in advancing health outcomes during the COVID–19 pandemic and acknowledges that such services are increasingly relevant in deployed environments or at remote and isolated military installations. The committee supports the expansion of these services to promote safe, accessible, and high quality medical care to all servicemembers and their families.

Therefore, the committee directs the Director of the Defense Health Agency to provide a briefing not later than December 1, 2021, on its efforts to increase and improve virtual health and telemedicine services available to servicemembers and their families and the resources needed to make those services more readily available. The briefing shall include lessons learned and virtual health and telemedicine best practices captured by the Department of Defense and private sector health care systems during the global pandemic. Additionally, the committee recognizes that such services are highly dependent on reliable, high capacity broadband, which may be limited or unavailable at many remote and isolated military installations. The briefing shall include any recommendations on resources required to ensure that servicemembers and their families stationed at such installations can fully utilize those services. These resources shall include, but not be limited to, access to broadband internet and personal computers.

TITLE VIII—ACQUISITION POLICY, ACQUISITION MANAGEMENT, AND RELATED MATTERS

Subtitle A—Acquisition Policy and Management

Repeal of preference for fixed-price contracts (sec. 801)

The committee recommends a provision that would repeal the preference for fixed-price contracts, previously established by section 829 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328).

The committee notes that the preference for fixed-price contracts was originally established as an effort to control cost growth on large acquisition programs and to incentivize contractors to actively manage costs. While the committee remains concerned about acquisition cost growth, it recognizes that the fixed-price contract type may not be suitable for all acquisitions. With the repeal of the preference for fixed-price contracts, the committee expects the Department of Defense to select contract types and negotiate contract terms that are appropriate for the product or service being acquired and that effectively account for an acquisition program's risks, requirements, and cost and schedule goals.

The committee also notes that the Department has used fixed-price type contracts for the majority of major defense acquisition program obligations fairly consistently over the last several years.

The committee further notes that fixed-price type contracts can be used to encourage better cost and schedule performance. Fixed-price type contracts also are appropriate when requirements are stable and technical and technology risks are minimal and understood. Fixed-price contracts also remain appropriate when the Department is purchasing commercial items.

Improving the use of available data to manage and forecast service contract requirements (sec. 802)

The committee recommends a provision that would amend statutes governing the management and oversight of the procurement of services and would require the Secretary of Defense, Secretary of the Navy, and Secretary of the Air Force to review and implement recommendations of the Government Accountability Office (GAO), in a report published February 18, 2016, titled, "DOD Service Acquisition: Improved Use of Available Data Needed to Better Manage and Forecast Service Contract Requirements" (GAO–16–119), with respect to the oversight and management of service contracts, or provide rationale to the congressional defense committees for not implementing such recommendations.

The committee notes that both sections 2329 and 235 of title 10, United States Code, create requirements that the Secretary of De-

fense must implement in managing the procurement of services. To streamline reporting requirements and improve the ability to understand trends and reduce duplication in such contracting efforts, the committee recommends a provision that would clarify the existing reporting requirements, make technical corrections within section 2329 of title 10, United States Code, and instruct the Secretary of Defense to issue guidance to standardize service contract reviews across the Department of Defense (DOD).

The committee also notes that the GAO has previously recommended that the Secretary of Defense and military departments revise project objective memorandum guidance, coordinate efforts to forecast services, and fully comply with statutory budget reporting requirements. The committee notes that DOD concurred with the GAO recommendation on budget reporting but did not identify actions it would take to address the recommendations for revised guidance or coordination.

The committee notes that the DOD is making significant progress in improving its data collection and analysis capabilities for these types of management and oversight functions through the Advana platform. The committee expects that this effort will play a major role in improving the effectiveness and efficiency of the oversight and management of service contracting. The committee encourages the Secretary to continue working with the Congress to improve budgetary transparency, including related to contracting for services.

Assessment of impediments and incentives to improving the acquisition of commercial technology, products, and services (sec. 803)

The committee recommends a provision that would require the Under Secretary of Defense for Acquisition and Sustainment and the Chairman of the Joint Requirements Oversight Council to jointly assess impediments and incentives to fulfilling the goals of sections 1906, 1907, and 3307 of title 41, United States Code, and sections 2375–2377 of title 10, United States Code, regarding preferences for commercial products and services. The objective of the assessment is to enhance the innovation strategy of the Department of Defense (DOD) to compete effectively against peer adversaries by rapidly adopting commercial technology advances.

DOD leaders consistently emphasize the critical importance in the current great power competition of capitalizing quickly on commercial technology advances in such areas as artificial intelligence and machine learning, cloud computing, cloud-based enterprise services, and software products and services. However, the committee is concerned that, too often, DOD components choose to contract for the development of custom solutions when mature commercial capabilities exist that will save time and money and provide better performance. The committee is aware of instances where custom developments are justified as "open source" or on the grounds that commercial licenses are expensive. The committee is also aware that some DOD officials view commercial software as untrustworthy and argue that DOD should control the technical baseline through in-house software development. The committee is further aware that the requirements process, without careful atten-

tion, can be used to effectively foreclose on commercial solutions even before market research is conducted. Since DOD must have wide discretion to pursue non-commercial solutions to most military requirements, successful protests are rare, even when the underlying facts support a commercial acquisition.

The committee recognizes that DOD must maintain technical expertise in order to be a smart buyer, to manage programs effectively, and in some cases, to undertake in-house development. It is also important when weighing acquisition options to consider sustainment requirements. Balancing these factors appropriately requires leadership and unbiased processes.

Pilot program on acquisition practices for emerging technologies (sec. 804)

The committee recommends a provision that would establish a pilot program to develop and implement unique contracting mechanisms for emerging technologies that seek to increase the speed, flexibility, and competition of the Department of Defense (DOD) acquisition process.

The committee notes that in testimony on February 23, 2021, the Chairman of the National Security Commission on Artificial Intelligence recommended that the Congress appoint a joint committee to identify four DOD acquisition projects and apply radically different procurement approaches to those projects to explore options to improve DOD acquisition outcomes.

While the committee has worked to improve DOD acquisition processes in recent years, the committee believes more work is required to improve DOD acquisition outcomes.

Annual report on highest and lowest performing acquisition programs of the Department of Defense (sec. 805)

The committee recommends a provision that would require the Secretary of Defense to identify the highest and lowest performing acquisition programs with significant expenditures within the Department of Defense, according to criteria developed by the Department. The provision would also direct the decision authority for the lowest performing programs to provide a report that outlines the factors behind the program's performance and steps being taken to improve program performance.

Systems engineering determinations (sec. 806)

The committee recommends a provision that would require systems engineering determinations for transactions entered into under certain legal authorities.

The committee notes that companies that develop emerging technologies, are non-traditional, and/or are small businesses have increasing opportunities to conduct initial demonstrations and other activities with the Department of Defense but are challenged in transitioning these products into programs-of-record.

The committee believes the role of systems engineering commands (SECs) (e.g., Naval Warfare Centers; Army Combat Capabilities Development Command Centers; Air Force Research Laboratory) should include the activities necessary to transition promising technologies from a successful initial demonstration to a pro-

gram-of-record within the SEC's area of expertise, including working with the product company and the desired program executive officer (PEO) to develop and execute a systems engineering plan (SEP) necessary to achieve transition to the PEO.

The committee envisions the scope of each SEP being tailored to the needs of each covered product, which may include resolution of: interfaces, data rights, technical warrant holder requirements, specific platform technical integration, software development, subsystem prototyping, reliability improvements, scale models, technical manuals, life cycle sustainment needs, and PEO-identified needs.

The committee believes the benefits to the Government of this provision should include SEC technical experts and test equipment better able to: (1) Keep pace with emerging technology; (2) Support covered products in-service; (3) Make more informed recommendations to PEOs and other DOD leaders; and (4) Provide greater clarity and accountability on the steps necessary to transition covered products to programs-of-record.

The committee also believes the benefits to companies of this provision should include greater clarity on the steps necessary to transition a covered product to a program-of-record, the Government's technical partners at the SEC and the associated SEP, and identification of the associated funding.

Subtitle B—Amendments to General Contracting Authorities, Procedures, and Limitations

Recommendations on the use of other transaction authority (sec. 811)

The committee recommends a provision that would require the Secretary of Defense to review the current use, authorities, regulations, and policies relative to the use of other transaction authorities and make recommendations to the Congress on possible modifications to the authorities. The committee notes that the use of the other transaction authority has increased significantly over the last few years and that industry and independent experts have proposed a number of new proposals for possible adjustments to the authorities. The committee also is concerned about the differing interpretations by Department of Defense counsels on the flexibilities currently authorized, resulting in inconsistent application of the authority and significant confusion among industry and Government personnel.

Modified condition for prompt contract payment eligibility (sec. 812)

The committee recommends a provision that would modify the conditions set forth in section 2307 of title 10, United States Code, under which certain prime contractors are eligible for accelerated payment timeframes. The committee reiterates its expectation that prime contractors will flow accelerated payments down to their subcontractors, particularly those subcontractors that are small businesses.

Exclusion of certain services from intergovernmental support agreements for installation-support services (sec. 813)

The committee recommends a provision that would make a clarifying amendment to section 2679 of title 10, United States Code.

Modification of prize authority for advanced technology achievements (sec. 814)

The committee recommends a provision that would clarify that the technology prize authority under section 2374a of title 10, United States Code, can be used for the awarding of procurement agreements. The committee notes that this authority, originally established by the committee in the National Defense Authorization Act for Fiscal Year 2000 (Public Law 106–65), has been used successfully within the Department of Defense to promote technological advancements in robotics, space launch, spectrum technologies, biomedical technologies, and other areas. The committee believes that it can be used to more seamlessly and rapidly move successful technologies into operational use.

Cost or pricing data reporting in Department of Defense contracts (sec. 815)

The committee recommends a provision that would modify section 2306a of title 10, United States Code, to make conforming changes consistent with section 814 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283).

Authority to acquire innovative commercial products and services using general solicitation competitive procedures (sec. 816)

The committee recommends a provision that would permanently authorize the Department of Defense to use what are commonly known as Commercial Solutions Openings to solicit and acquire innovative commercial items, technologies, or services.

The committee notes that this authority was originally established in section 879 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) and that it has been successfully used by the Department to establish agreements with small businesses in technology areas relevant to supporting the National Defense Strategy. The committee also notes that this authority has been used successfully by the Defense Innovation Unit and the Air Force to support efforts to work with commercial sector firms, as well as to support COVID–19 response activities.

Reporting requirement for defense acquisition activities (sec. 817)

The committee recommends a provision that would require the Secretary of Defense to establish procedures to identify all agreements awarded to entities through the use of an Other Transaction (OT) consortia, OTs, individual task orders awarded under a task order contract, and individual task orders issued to a federally funded research and development center. For example, the committee notes that the Department of Defense (DOD) Inspector Gen-

eral found that "the [DOD] did not properly track and could not readily account for all OTs awarded through consortiums" in an April 2021 report (DODIG–2021–077). Additionally, the committee is concerned about the lack of transparency on these types of awards. As such, the provision would also require the Secretary to establish mechanisms to publicize awards, similar to those currently in place for contracts.

Department of Defense contractor professional training material disclosure requirements (sec. 818)

The committee recommends a provision that would require the Secretary of Defense to require all Department of Defense contractors to disclose certain training materials for review.

Report on place of performance requirements (sec. 819)

The committee recommends a provision that would direct the Secretary of Defense to improve contract place of performance data and report on its use. The committee notes that the Government Accountability Office (GAO) raised concerns about the consistency in the interpretation and entry of place of performance contract data in a report, published November 8, 2017, titled, "OMB, Treasury, and Agencies Need to Improve Completeness and Accuracy of Spending Data and Disclose Limitations" (GAO–18–138). The committee directs the Secretary of Defense to review its guidance, policies, and training to ensure consistency in place of performance data. The committee also notes that the COVID–19 pandemic has changed the manner in which the Federal Government and the Department of Defense conduct business. With an increased focus on remote work, the committee believes an assessment of the Department of Defense's use of place of performance clauses is necessary.

Multiyear contract authority for defense acquisitions specifically authorized by law (sec. 820)

The committee recommends a provision that would add an additional criterion to the certifications required for approving a multiyear procurement contract.

The committee notes the budget request would breach a multiyear contract for *Arleigh Burke*-class destroyers entered into under authority provided in section 2306b of title 10, United States Code. The committee believes such an action would set an unacceptable precedent and undermine future confidence in entering into these highly cost effective and stabilizing contractual agreements.

Accordingly, this provision would require the Secretary of Defense to certify, as part of an existing certification required under section 2306b of title 10, United States Code, that the Department of Defense will not reduce the quantity of end items that would be procured with a multiyear contract in each fiscal year of the future years defense program planned at the time of contract award without prior approval from the congressional defense committees.

Subtitle C—Industrial Base Matters

Addition of certain items to list of high priority goods and services for analyses, recommendations, and actions related to sourcing and industrial capacity (sec. 831)

The committee recommends a provision that would amend section 849 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) by adding U.S. producers as a category for the Department of Defense to consider for potential restricted procurement and items to the list of high priority goods and services for analyses, recommendations, and actions.

Prohibition on acquisition of personal protective equipment from non-allied foreign nations (sec. 832)

The committee recommends a provision that would prohibit the Secretary of Defense from procuring personal protective equipment (PPE) manufactured in China, Russia, North Korea, or Iran. It would authorize limited waivers to the prohibition for small purchases, for the use of PPE outside the United States, and for cases in which satisfactory PPE cannot be purchased from other sources at reasonable cost or to meet requirements.

Further prohibition on acquisition of sensitive materials (sec. 833)

The committee recommends a provision that would amend section 2533c of title 10, United States Code, to add covered companies to the existing prohibition of sensitive materials from non-allied foreign nations.

Requirement for industry days and requests for information to be open to allied defense contractors (sec. 834)

The committee recommends a provision that would make, to the maximum extent practicable, industry days and requests for information open to defense contractors from the national technology and industrial base.

Assessment of requirements for certain items to address supply chain vulnerabilities (sec. 835)

The committee recommends a provision that would require the Secretary of Defense to assess the Department of Defense's requirements for dual-use items covered by section 2533a of title 10, United States Code. The provision would also require the Secretary to submit a report of the Department's findings to the congressional defense committees not later than October 1, 2022.

Requirement that certain providers of systems to Department of Defense disclose the source of printed circuit boards when sourced from certain countries (sec. 836)

The committee recommends a provision that would require that certain providers of systems to the Department of Defense disclose the source of printed circuit boards when sourced from certain countries.

Employment transparency regarding individuals who perform work in the People's Republic of China (sec. 837)

The committee recommends a provision that would require the Secretary of Defense to require defense contractors to disclose their use of workforce and facilities in the People's Republic of China in the performance of certain defense contracts.

Subtitle D—Small Business Matters

Clarification of duties of Director of Small Business Programs (sec. 841)

The committee recommends a provision that would clarify that the duties of the Department of Defense's (DOD) Director of Small Business Programs include strengthening the small businesses in the national technology and industrial base. The committee notes that small businesses represent an important element of the defense industrial base, including acting as key suppliers of defense products and services; serving as key subcontractors on major acquisition programs; and developing and delivering advanced and innovative technologies to the warfighter.

The committee notes that the Director of Small Business programs within the Department of Defense reports to the Assistant Secretary of Defense for Industrial Base Policy, which is a different reporting chain than other Federal agencies, which are mandated to make the Directors report to Cabinet secretaries. The committee further notes that the title "Director" is not consistent with typical position titles within DOD and that the successful Small Business Innovation Research program is not managed by the Director of Small Business Programs but instead by the Office of the Under Secretary of Defense for Research and Engineering. These reporting arrangements, titles, and organizational assignments may have both positive and negative impacts on the execution of small business programs.

The committee directs the Secretary of Defense to provide a briefing to the congressional defense committees, not later than March 1, 2022, assessing these issues; providing justification for the current status of the title, reporting, and authorities of the Director of Small Business Programs; outlining any changes to these that would benefit defense missions; and making recommendations for any statutory changes that are needed to effect such changes.

Data on Phase III Small Business Innovation Research and Small Business Technology Transfer program awards (sec. 842)

The committee recommends a provision that would require the Secretaries of the military departments to collect data on Phase III awards under the Small Business Innovation Research and Small Business Technology Transfer programs and submit such data to the President for inclusion in the budget submitted to the Congress under section 1105 of title 31, United States Code.

Pilot program to incentivize employee ownership in defense contracting (sec. 843)

The committee recommends a provision that would permit the Secretary of Defense to carry out a 5-year pilot program that allows for the use of noncompetitive procedures for follow-on contracts to qualified businesses wholly owned by an Employee Stock Ownership Plan (ESOP). The Department of Defense may benefit from the workforce talent attracted by businesses that are owned entirely by an ESOP. However, as a June 18, 2020, Government Accountability Office (GAO) study, titled "Defense Contracting: DOD Contracts with Companies Having Employee Stock Ownership Plans" (GAO–20–514R), showed, there are no readily available data to determine what percent of an entity is owned by an ESOP. Therefore, a pilot program will provide the Department with information to understand the potential use and benefits of allowing such noncompetitive procedures and whether these procedures create incentives for qualified businesses to continue working with the Department.

In addition, the provision would require the Comptroller General of the United States to submit a report to the Committees on Armed Services of the Senate and the House of Representatives on the Department's use of the pilot not later than 3 years after the date of the enactment of this Act.

Subtitle E—Other Matters

Technology protection features activities (sec. 851)

The committee recommends a provision that would amend section 2357 of title 10, United States Code, to allow the contractor's share of costs for the technology protection features activities for certain designated systems to be treated as allowable independent research and development. The committee notes that these technology protection features make it possible for defense contractors to export appropriate technologies to allied and friendly nations, with resultant economic and national security benefits. The committee believes that these kinds of activities will facilitate greater cooperation between industry and the Department of Defense in achieving the National Defense Strategy goal of deepening interoperability between the United States and partner nations.

Independent study on technical debt in software-intensive systems (sec. 852)

The committee recommends a provision that would require the Secretary of Defense to enter into an agreement with a federally funded research and development center to perform a study on defense software-intensive systems that can identify and assess technical debt and make recommendations on best practices for the Department of Defense to employ to manage technical debt. The committee notes that in the course of developing software-intensive systems in the Department of Defense, accumulation of "technical debt" is common. "Technical debt" in software systems reflects the use of design approaches that are expedient and lower cost in the short term, but that create a system that increases costs to sustain and maintain the systems over time. This also leads to increasing

delays in delivering new features and an inability to fix software defects, vulnerabilities, and design issues due to increasing and often unintended system complexity.

Determination with respect to optical fiber transmission equipment for Department of Defense purposes (sec. 853)

The committee recommends a provision that would require a review and determination with respect to optical fiber transmission equipment for Department of Defense (DOD) purposes.

The committee notes the DOD expressed concern regarding China's industrial strategy for international communications and concluded that China is poised to be a leader and a standard-setter in 5G by dominating the global fiber optic market through a heavily state-supported system in its December 2020 "Report Evaluating the Risk to the Supply Chain for Fiber and Related Telecommunications Components" in response to the explanatory statement accompanying the Consolidated Appropriations Act, 2020 (Public Law 116–93).

The committee is concerned China may use trade protection, discriminatory procurement, and forced technology transfer policies to dispose of surplus optical fiber transmission equipment in a manner that would be contrary to the national security interests of the United States.

Two-year extension of Selected Acquisition Report requirement (sec. 854)

The committee recommends a provision that would extend the requirement for Selected Acquisition Reports, as established under section 2432 of title 10, United States Code, through fiscal year 2023, and require a demonstration of the replacement reporting system that includes the Department of Defense's plan for implementing such a system.

The committee recognizes that the Secretary of Defense is in the process of developing an alternate approach for reporting on defense acquisition programs, pursuant to section 830 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92). The committee supports these ongoing efforts and notes the importance of replacing the Selected Acquisition Report requirement with an updated reporting construct for all acquisition programs that can be tailored to the acquisition pathways of the Department of Defense's new Adaptive Acquisition Framework. However, until these efforts are fully developed and implemented, the committee believes the requirement for Selected Acquisition Reports should be maintained to ensure the Congress continues to receive critical information about the cost, schedule, performance, and other challenges of the Department of Defense's largest acquisition programs.

Military standards for high-hardness armor in combat vehicle specifications (sec. 855)

The committee recommends a provision that would require the Secretary of the Army to provide a report to the congressional defense committees, not later than January 31, 2022, on its establish-

ment of military standards for high-hardness armor and its strategy for incorporating those standards into combat vehicle specifications.

Revisions to the Unified Facilities Criteria regarding the use of variable refrigerant flow systems (sec. 856)

The committee recommends a provision that would require the Department of Defense to publish any proposed revision to the Unified Facilities Criteria regarding the use of variable refrigerant flow systems in the Federal Register and specify a comment period of at least 60 days.

The committee encourages the Department to pursue the use of variable refrigerant flow systems in its facilities to maximize efficiency along with reducing costs and energy use.

Items of Special Interest

Acquisition of synthetic graphite material

The committee notes that section 849 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) directed the Department of Defense to analyze sourcing and industrial capacity for synthetic graphite and other strategic materials. In addition, section 848 instructed the Department to acquire strategic and critical materials from sources within the United States prior to purchasing from key allies. The committee believes that creating domestic demand for synthetic graphite will bolster the existing industry to ensure it can provide the Department, industry, and civilian needs with a secure supply of synthetic graphite.

Accordingly, the committee urges the Secretary of Defense, to the maximum extent practicable, to acquire synthetic graphite material, which is a strategic and critical material for defense, industrial, and civilian needs, in the following order of preference: (1) From sources domestically owned and produced; (2) From sources located within the United States or the national technology and industrial base; (3) Suppliers in other allied nations; or (4) From other sources, as appropriate.

Agile weapons system sustainment

The committee understands that increasingly complex and software-reliant weapons systems have challenged some existing sustainment and modernization practices. While recognizing safeguards are needed to protect intellectual property, the committee also believes weapons systems need agile sustainment and modernization methods in order to maximize the combat power available to operational commanders.

Accordingly, the committee directs the Secretary of each military department to submit a report to the congressional defense committees, not later than March 1, 2022, on weapons systems intellectual property safeguards and approaches to agile sustainment and modernization. This report shall include the following elements for at least five illustrative weapons systems within the military department:

(1) The types of technical data needed to sustain or increase readiness and gain sustainment efficiencies;

(2) Steps or actions the department has taken to obtain the technical data needed to sustain or increase readiness and gain sustainment efficiencies;

(3) Obstacles that inhibit or may inhibit the ability of the department to obtain the technical data needed for readiness and sustainment; and

(4) Other matters the Secretary deems appropriate.

Comptroller General review of flexible budget and financial management authorities

The committee notes that the Congress has provided the Department of Defense (DOD) some flexibility in the budgeting, financial management, and expenditure of funds over the years, especially in order to support research, development, and other innovation and modernization activities. For example, the Congress has provided special authority for a new research, development, test, and evaluation budget activity to support software development programs, allowed for some flexibility in the expenditure of funds under rapid acquisition and fielding programs to support accelerated development and deployment of new technologies, and created special authorities to support certain military construction projects both at defense labs and test ranges and at other DOD facilities. The committee is interested in understanding how the Department has used these authorities and their effect on acquisition.

Therefore, the committee directs the Comptroller General of the United States to conduct a comprehensive assessment of these and other similar special authorities, to include a review of the extent of their use and their effectiveness in furthering defense innovation and military missions. The Comptroller General shall submit this review to the Committees on Armed Services of the Senate and the House of Representatives not later than March 1, 2022.

Incentives to promote the use of energy efficient manufacturing technologies

The Secretary of Defense shall provide a briefing to the congressional defense committees not later than January 1, 2023, analyzing the possible use of incentives to promote the adoption of energy efficient manufacturing technologies by the defense industrial base, including: (1) The organic industrial base; (2) The feasibility of the Department in implementing such incentives; (3) The costs and benefits of using such incentives; (4) The costs and benefits of such adoption to the efficient and effective execution of Defense missions; and (5) Policies that would support the participation of small businesses in the development and adoption of such technologies.

National technology and industrial base

The committee is concerned about the pace of implementation of policies and procedures necessary to enhance the national technology and industrial base (NTIB) consistent with section 881 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328). The intended seamless integration of the indus-

trial bases of the countries that comprise the NTIB, to include the United States, United Kingdom, Australia, and Canada, has yet to occur as a result of the expansion of the NTIB in that Act. As the United States seeks to address the threat from China, these countries will become even more important to the national security strategies of the United States. There is a need for greater industrial information sharing and the harmonization of allied plans and policies for foreign investment review, export control, and the movement of critical supplies and materials that are currently being manufactured in China. This harmonization and industrial base integration must occur within a community of nations where the United States has its highest level of intelligence information sharing and cooperation to establish the pathway for broader industrial partnerships with other allies who share the common national security goal of the United States while protecting the viability of U.S. suppliers or producers and with consideration to existing agreements.

Therefore, the committee directs the Comptroller General of the United States to assess the current state of the implementation and effectiveness of the plan required by section 881 of the National Defense Authorization Act for Fiscal Year 2017 and provide a briefing to the congressional defense committees on its preliminary findings not later than October 1, 2022, and to submit a report to the committees on an agreed-upon date. Specifically, the Comptroller General shall review progress made in reducing the barriers to the seamless integration between the persons and organizations that comprise the NTIB, as defined by section 2500 of title 10, United States Code, and recommend actions necessary to fully implement the plan.

Past performance by subcontractors and predecessor companies

The committee notes that Federal contracting regulations require that contracting officials consider past performance when evaluating contract proposals and describe the scope of that performance in their evaluations. The regulations also include guidance that contractor evaluations should take into account past performance information regarding predecessor companies, key personnel who have relevant experience, or subcontractors that will perform major aspects of the requirement when such information is relevant to the acquisition. The committee directs the Secretary of Defense to provide a briefing to the congressional defense committees, not later than March 1, 2022, providing a summary of the Federal and Department of Defense policies related to consideration of past performance by subcontractors and predecessor companies at both the prime and subcontractor level; the guidance provided to acquisition workforce and industry relating to these considerations; and any challenges that the Department has in collecting, performing analyses on, or using this information.

Policy modeling and testing

The committee notes the work that the Under Secretary of Defense for Acquisition and Sustainment has done in establishing the Acquisition Innovation Research Center (AIRC) as mandated by

section 2361a of title 10, United States Code. The committee also notes that this effort will allow world-leading academic researchers to study and make recommendations on addressing the myriad policy and practice challenges facing the Department of Defense as it seeks to modernize acquisition efforts to support the National Defense Strategy.

The committee understands that the Under Secretary has engaged with many university experts on a broad range of engineering, business, social science, and management disciplines, as well as acquisition experts within the Department to identify key challenges that can be addressed by activities of the AIRC. The committee recommends that the Under Secretary continues to work to fully establish the AIRC and expand its programs.

The committee notes that the last decade has seen a surge in efforts to reform acquisition. Numerous new policies and pilot programs have been mandated by the Congress or established by the Department with the intent of improving acquisition practices to meet the needs of the acquisition programs and operational users.

The committee notes that, unlike the hardware, systems, and software communities, acquisition policymakers have little capability to test and model proposed acquisition policy changes in the equivalent of computer simulations or "test ranges." Poorly designed and tested policy changes have a negative effect on both Government and industry, create bureaucratic process problems, and lead to confusion in the acquisition community.

The committee believes that a robust policy modeling and testing capability would refine analyses of new policy proposals to improve their effectiveness in positively reforming acquisition practices. The committee directs the Under Secretary to engage the AIRC on an activity to develop a capability to model and test proposed policy changes to better assess the effectiveness and suitability for use prior to changes being made to law, regulation, or acquisition practices.

Report on contracting for procurement of body armor

The committee notes that the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) and the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) placed restrictions on the use of lowest priced technically acceptable (LPTA) contracting for personal protective equipment. As of October 1, 2019, Defense regulations prohibit the Department of Defense's use of LPTA when procuring personal protective equipment for which the level of quality or failure of the equipment or item could result in combat casualties.

The committee recognizes the importance of obtaining high-quality personal protective equipment and avoiding the use of LPTA contracting for the procurement of body armor. Therefore, the committee directs the Under Secretary of Defense for Acquisition and Sustainment to provide a briefing, not later than January 31, 2022, on the Department's contracting for body armor. The briefing shall include: (1) A description of the methods of contracting being used to procure body armor; (2) An assessment of the compliance of the contracting methods being used with the law promulgated by the National Defense Authorization Acts for fiscal years 2017 and

2018; and (3) An assessment of whether the use of "fair opportunity to compete" for the procurement of body armor circumvents the intent of the restrictions on the use of LPTA contracting to procure body armor.

Report on life cycle share-in-savings contracts

The committee understands that Federal agencies have successfully implemented share-in-savings contracting related to energy savings performance contracts (ESPC) pursuant to section 8287 of title 42, United States Code. The committee believes greater use of these types of contracts, as applied to operations and sustainment technologies and missions, could enable the Department of Defense to realize savings while improving military readiness with appropriate contract performance incentives.

The committee directs the Secretary of Defense to provide the congressional defense committees a report on the Department's assessment of the potential to use share-in-savings contracts to reduce weapon system life cycle costs. The report shall be submitted not later than November 1, 2022, in unclassified form but may include a classified annex.

The report shall include, at a minimum:

(1) Analysis of current statutory and policy obstacles to share-in-savings contracting to reduce life cycle costs, and proposed policy changes to create incentives for private sector investments in technologies that would reduce life cycle costs;

(2) Recommendations for processes for documenting auditable cost savings accruing to the Government based on application of new technologies intended to reduce life cycle costs;

(3) Recommendations for processes for determining the contractor's share in these auditable savings;

(4) Quantitative measures of readiness that could serve as required performance measures to be sustained or improved under share-in-savings contracts;

(5) Acquisition strategies that will facilitate multiyear share-in-savings contracts;

(6) Best practices for negotiating performance requirements, both initially and at specific points over the course of the contract;

(7) Assessment of benefits accruing to the Government beyond cost reductions, such as improved agility for accommodating technological improvements; and

(8) Other related matters the Secretary deems appropriate.

Small Business Innovation Research and commercial item purchasing program training

The committee directs the Secretary of Defense to establish training activities for contracting officers and the Department of Defense (DOD) acquisition workforce to ensure that such individuals are fully aware of flexibilities designed to streamline contracting methods to improve the Department's ability to work with innovative small businesses. The committee notes that the training topics should include market research, commercial item preferences, the missions and authorities of the Small Business Innova-

tion Research (SBIR), the use of SBIR Phase III funding to transition innovative technologies to DOD acquisition programs and for operational use, and the use of Other Transactions and other flexible contracting authorities to support small business participation in the defense industrial base.

Small Business Innovation Research and the Small Business Technology Transfer programs

The committee appreciates the importance of an expeditious contracting process for small businesses working with the Department of Defense under the Small Business Innovation Research (SBIR) and the Small Business Technology Transfer (STTR) programs. Section 864 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) provided for other transaction authority for small businesses participating in SBIR or STTR, allowing for further flexibility for the Department and small businesses. The committee understands that there are additional authorities that may be useful to decrease the burden on small businesses to work with the Department. Therefore, the committee directs the Secretary of Defense to provide a briefing, not later than March 1, 2022, on the benefits and drawbacks of using simplified acquisition procedures for SBIR and STTR contracts in excess of the simplified acquisition threshold.

Submission of selected acquisition reports

The committee notes that the Department of Defense is not producing Selected Acquisition Reports (SARs) in fiscal year 2022 as statutorily required by section 2430 of title 10, United States Code.

The committee also notes that while it is not uncommon in the first year of a new administration to exclude a future years defense program (FYDP), the last administration included an FYDP with its budget in its first year and produced SARs, albeit late, as statutorily required.

Without the benefit of an FYDP, the Congress and the defense committees will not have visibility into the cost, schedule, and performance changes of the largest and costliest defense acquisition programs. In addition, the Secretaries of the Army, Navy, and Air Force and the military service chiefs cannot certify the health of these programs, including that funding is stable and adequate to meet cost, schedule, and performance objectives.

The committee is concerned that without SARs submitted on a quarterly basis during the fiscal year, the Congress will not have insight into programs entering and exiting the major defense acquisition pathways, programs experiencing unit cost increases of at least 15 percent, schedule delays of at least 6 months, or programs that rebaselined cost or schedule at major milestone decisions.

The committee directs the Secretary of Defense to provide a report to the congressional defense committees not later than March 1, 2022, that details options to provide the Congress information as statutorily required in future first years of administrations or in years during which an FYDP is not developed.

Support of fourth-party logistics program

The committee acknowledges that the Department of Defense (DOD) has successfully used the General Services Administration's (GSA's) Retail Operations, which provides fourth-party logistics solutions, to obtain crucial industrial supplies and services for the U.S. military. Using GSA's Retail Operations, the DOD has leveraged GSA's acquisition expertise to help meet the military services' logistics and supply needs in the United States and around the world. The committee supports the DOD's efforts to leverage other agencies' capabilities and innovative acquisition practices to meet its logistics and supply needs.

TITLE IX—DEPARTMENT OF DEFENSE ORGANIZATION AND MANAGEMENT

Change in eligibility requirements for appointment to certain Department of Defense leadership positions (sec. 901)

The committee recommends a provision that establishes a requirement for the Assistant Secretary of Defense for Special Operations and Low Intensity Conflict (ASD SOLIC) to not be within seven years relieved from Active Duty as a commissioned officer of a regular component of an armed force in order to be appointed to the position. The provision would also amend sections 7013, 8013, and 9013 of title 10, United States Code, to provide consistency in the requirements for persons appointed to the position of a secretary of a military department with other civilians appointed to senior leadership positions within the Department of Defense.

The committee notes that the ASD SOLIC has "service secretary-like" responsibilities for exercising authority, direction, and control of all special operations-peculiar administrative matters relating to the organization, training, and equipping of special operations forces. However, unlike a secretary of a military department, there is no statutory requirement for an individual to be relieved from Active-Duty service for a specified period of time before being appointed as the ASD SOLIC. In addition, civilians appointed to be a secretary of a military department are required to be only five years separated from Active-Duty service. This conflicts with the seven-year requirement for civilians who serve in senior civilian leadership positions within the Office of the Secretary of Defense, to include the Deputy Secretary of Defense or an Under Secretary of Defense.

Earlier this year, the committee held a hearing on civilian control of the Armed Forces. The committee heard expert testimony that a seven-year waiting period strengthened civilian control of the military because it "allows a minimum of two rotations for military deployments and assignments, which means that allows time for the command relationships and the people in those command positions to change significantly from the time that the recently retired officer was in a position of commands." Furthermore, another expert witness testified "that Congress has also strengthened the norm in other ways, in particular by, in recent years, extending the statutory cooling-off period to key civilian appointments within the Department of Defense. So the Congress appears to have started to look at civilian control of the military and its expression in these appointments more holistically across the Department and across these different positions."

Prior military service is not a disqualifying factor for serving in a senior civilian position in the Department of Defense. In fact,

many former members of the Armed Forces have served their country with distinction as civilians after leaving military service. However, it is important that there is a diversity of opinion when crafting policy and making decisions that are critical to U.S. national defense. As such, creating a uniform threshold for service for the secretaries of the military departments and ASD SOLIC may enhance the advice provided to the Secretary of Defense, and ultimately to the President, and would send a strong signal that the principle of civilian control of the military is essential to the American democratic system of government.

Renaming of Air National Guard to Air and Space National Guard (sec. 902)

The committee recommends a provision that would change the name of the Air National Guard to the Air and Space National Guard to account for the creation of the Space Force in the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92). The committee believes this is the most efficient use of scarce funding based on the number of personnel performing space missions in the existing Air National Guard and the size of the Space Force. The provision would also require the Secretary of Defense to submit a report to the congressional defense committees, not later than 180 days after the date of the enactment of this Act, on a plan and any necessary changes in law to implement this section.

Joint Aviation Safety Council (sec. 903)

The committee recommends a provision that would establish, within the Office of the Secretary of Defense, a Joint Aviation Safety Council to advise the Secretary of Defense and the Secretaries of the military departments on aviation safety issues. The provision would also recommend an increase of $4.0 million in Operation and Maintenance, Defense-wide SAG 4GTN, for the Council.

Assignments for participants in the John S. McCain Strategic Defense Fellows Program (sec. 904)

The committee recommends a provision that would amend section 932 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115–232) to provide more flexibility in the assignment of fellows participating in the John S. McCain Strategic Defense Fellows Program. The provision would also authorize the Secretary of Defense to require a minimum service obligation for participants in exchange for receipt of certain education loan repayment benefits.

Alignment of Close Combat Lethality Task Force (sec. 905)

The committee recommends a provision that would direct the Secretary of Defense to return the Close Combat Lethality Task Force (CCLTF) to its initial alignment and status as a direct reporting activity to the Secretary of Defense, including its designation as a Cross Functional Team (CFT) under section 911 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328), until such time the Secretary provides a report on an alternative alignment of the CCLTF. The report would require

details of the proposed alternative alignment and supporting analysis, including: how the alternative alignment would facilitate the effective pursuit of, and support for, both material and non-material initiatives; how the alternative alignment would maintain benefits similar to designation as a CFT and alignment as a direct-reporting activity to the Secretary of Defense; how the alternative alignment would ensure collaboration and support from, the primary CCLTF stakeholders, the U.S. Army, the U.S. Marine Corps (USMC), and U.S. Special Operations (SOCOM) Command; and how the alternatively-aligned CFT would be funded and gain appropriate resourcing for CFT initiatives supported by the Secretary of Defense.

As previously expressed in the Senate report accompanying S. 1790 (S. Rept 116–48) of the National Defense Authorization Act for Fiscal Year 2020, the committee remains concerned about the ability of the CCLTF to affect its charter of dramatically improving the effectiveness and survivability of close combat formations through a combination of materiel and non-materiel means. Established in March 2018 as a direct report to the Secretary of Defense, the CCLTF was designated a Cross Functional Team (CFT) under section 911 of the National Defense Authorization Act for Fiscal Year 2017 to be able to leverage the critical enabling authorities of that law.

In March 2020, the Secretary of Defense directed the transfer of the CCLTF to the Secretary of the Army with a tasking to determine alignment of the CCLTF within the Army. This transfer effectively ended the CCLTF's status as a direct reporting activity to the Secretary of Defense and its designation as a CFT under section 911. Since the transfer, the Army has failed to gain support from the primary CCLTF partners, SOCOM and the USMC, for its alignment within the Army, and the organization has lost manning, lost leadership support, and become essentially ineffective in executing its charter.

Management innovation activities (sec. 906)

The committee recommends a provision that would require the Secretary of Defense to establish a set of management innovation activities, with a goal of incorporating appropriate private sector management practices and technologies and enhancing the capabilities of the Defense management workforce.

The committee received testimony from management expert witnesses who made a series of recommendations to improve the Department of Defense's ability to manage its multi-billion dollar business operations enterprise, which includes some of the world's largest financial, logistics, education and training, healthcare, and data systems resident in any single organization. Despite this vast business and management mission, and the fact that defense reform is a pillar of the National Defense Strategy, senior leaders in the Department of Defense often view management reform as being limited to efforts to cut civilian workforce or weapons programs and reduce spending on information technology (IT) and data modernization. The committee notes that the management challenges identified by the witnesses and annually by the Comptroller General of the United States as part of the High Risk list and countless

reports are not "back office" issues but are critical to executing defense missions. Even seemingly minor improvements in management and business processes can have outsized effects at the scale of the Department of Defense.

Management inefficiencies and a culture of bureaucratic stasis use valuable resources and time by creating unnecessary waste. They slow the delivery of new and needed capabilities to deployed forces at a time when technological change is happening at accelerated rates while stifling the creativity of uniformed, civilian, and contractor personnel. Over time, they drive high-performing personnel out of public service due to frustration, further exacerbating the downward spiral of mismanagement.

The committee notes that, unlike other areas where the Department makes focused efforts on innovation and modernization, there is little focused effort on management innovation activities with a goal to improving processes and practices. Unlike the identified modernization priorities of the Department, there are no robust, established systems of leveraging commercial management innovation and expertise to support Department missions; there are no serious efforts by the senior officials responsible for acquisition, technology, and research to improve practices and technologies to support management modernization, such as in data analytics, policy research, or prototyping of new business processes; and there are no strong ties, such as research programs or personnel exchanges, established to the innovation and talent resident at world-leading business, management, and public administration universities. Further, there are no systems to test new management concepts or experiment with new management techniques appropriate for the unique and idiosyncratic bureaucratic and cultural norms of the Department of Defense, and there is no equivalent to the Defense Advanced Research Projects Agency or Defense Innovation Unit to develop and pioneer the defense management practices of the future.

Items of Special Interest

Assistant Secretary of Defense for Special Operations and Low Intensity Conflict

The committee strongly supports the issuance of Department of Defense guidance on May 5, 2021, that clearly articulates the role of the Assistant Secretary of Defense for Special Operations and Low Intensity Conflict (ASD SOLIC) in the oversight of and advocacy for U.S. Special Operations Command. Though long overdue, the committee believes this guidance is a meaningful signal of the Department's commitment to fully implement the ASD SOLIC reforms mandated by the Congress.

The committee looks forward to continuing to work with the Department to institutionalize the "service secretary-like" responsibilities of the ASD SOLIC as the Principal Staff Assistant reporting directly to the Secretary of Defense and the civilian official tasked with exercising of authority, direction, and control of all special operations-peculiar administrative matters relating to the organization, training, and equipping of special operations forces. The committee appreciates the commitment of the Department to ensure

the ASD SOLIC is included in senior leader fora and maintains dedicated resources and grows to a level commensurate with its increased responsibilities.

Lastly, the committee directs the Department to conduct an updated manpower study to validate the number and types of personnel necessary to support the activities of the Secretariat for Special Operations and consider the issuance of additional agreements, understandings, arrangements, and similar instruments necessary to formalize the "service secretary-like" role of the ASD SOLIC.

Component content management systems

The committee is concerned that the Department of Defense's approach to managing technical data and artifacts is outdated. The Department uses millions of pages of technical data, regulations, guidance, and other artifacts that are often manually updated and transmitted within the Department. Current methods for content management at the Department are so outdated and byzantine that the Department has developed specialized search engines to find content within its own environment.

The committee recognizes that commercial technological advances have revolutionized how content is created, protected, organized, and securely disseminated. The Department of Defense could significantly reduce costs by adopting modern component content management software and commercial best practices to drastically lower organizational friction, reduce manual content management costs, and improve efficiency throughout the organization.

Therefore, the committee directs the Secretary of Defense to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives, not later than March 1, 2022, on the applicability of component content management software to the Department's content management challenges and on any plans to increase the usage of such software to modernize content management capabilities.

Personnel requirements for functions previously carried out by the Chief Management Officer

The committee looks forward to reviewing the report from the Secretary of Defense on the future of functions previously carried out by the Chief Management Officer, as required by section 901 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283). The committee understands that the former Deputy Secretary of Defense issued a memorandum in January 2021 recommending interim reassignment of certain functions previously carried out by the Chief Management Officer to organizations within the Department of Defense. The committee encourages the Secretary of Defense to seriously consider the sufficiency of the capacity and capability of existing organizations and their workforces in deciding where to permanently relocate these functions within the Department.

Remote work information technology

The committee notes that COVID-related work-from-home arrangements and growing cyber threats have only increased the imperative that the Department of Defense realize the dramatic oper-

ational, security, and cost improvements from modern information, networking, and communications technologies, including cloud computing. The committee strongly urges the Department to emphasize technology modernization and cloud migration efforts while balancing security requirements, to include incorporating appropriate commercial information technology solutions, with a goal of improving workforce productivity through remote work arrangements.

Workforce management training

The committee supports the Department of Defense's dedication to professional and workforce development, however it notes continued challenges associated with enterprise management. The committee is concerned these management inefficiencies can easily impact dozens of organizations, thousands of employees, cost tens of millions of dollars, and undermine the effectiveness of key warfighter support functions. To that end, the committee believes the Department can enhance relationships between Department educational institutions and civilian colleges and universities to improve management training. Therefore, the committee urges the Secretary of Defense to identify and develop relationships with private sector colleges and universities for the purposes of enhancing the Department's management training efforts. The committee also directs the Secretary to provide a briefing to the congressional defense committees on: (1) Existing management training initiatives at Department educational institutions, and (2) Opportunities for enhanced collaboration between Department educational institutions and colleges and universities on management training not later than July 1, 2022.

TITLE X—GENERAL PROVISIONS

Subtitle A—Financial Matters

General transfer authority (sec. 1001)

The committee recommends a provision that would allow the Secretary of Defense to transfer up to $6.0 billion of fiscal year 2022 funds authorized in division A of this Act to unforeseen higher priority needs in accordance with normal reprogramming procedures. Transfers of funds between military personnel authorizations would not be counted toward the dollar limitation in this provision.

Commission on Planning, Programming, Budgeting, and Execution Reform (sec. 1002)

The committee recommends a provision that would establish a Commission on Planning, Programming, Budgeting, and Execution (PPBE) Reform tasked with providing an independent review and assessment of the PPBE process of the Department of Defense (DOD).

The PPBE process was first designed and implemented by Secretary Robert McNamara 60 years ago, with little change in the intervening years. The committee has heard from a variety of experts and DOD officials who have suggested that aspects of the PPBE process need to be modernized to reflect the speed of 21st century programs and technologies that evolve faster than the current cycle of the PPBE process, as well as to respond to the complexity of threats DOD faces today. To inform the committee and the Department on those aspects in need of reform, this commission would assess the efficacy and efficiency of all phases of the PPBE process and provide its recommendations to the Secretary of Defense and to the Congress.

The committee notes that there are obstacles in the programming and budgeting processes to the rapid development and integration of new war-fighting capabilities and directs the Commission to analyze these obstacles and make recommendations to overcome them. The committee notes that these obstacles may involve acquisition policies and practices for emerging technologies; the inefficient use and sharing of data across DOD organizations; and DOD bureaucratic and programmatic risk tolerance and risk management practices.

The committee expects the Department of Defense to fully cooperate with the Commission established under this provision during its review of the PPBE process and ensure it has the support necessary to fulfill its mandate.

Plan for consolidation of information technology systems used in the planning, programming, budgeting, and execution process (sec. 1003)

The committee recommends a provision that would require the Under Secretary of Defense (Comptroller), in consultation with the Chief Information Officer and the Chief Data Officer, to submit to the congressional defense committees, not later than 180 days after the date of the enactment of this Act, a plan to consolidate the information technology (IT) systems used to manage data and support the planning, programming, budgeting, and execution (PPBE) process of the Department of Defense. Such a plan for consolidation should incorporate those systems used by the military departments as well as those used by the Defense-wide Agencies, and should address the retirement or elimination of such systems.

The committee notes that, in response to a direction in the Senate report accompanying S. 4049 (S. Rept. 116–236) of the National Defense Authorization Act for Fiscal Year 2021, the Office of the Deputy Chief Financial Officer submitted a report to the committee on October 1, 2020, outlining the results of its review of the IT systems used to manage data. The report concluded that there are 132 unique systems across the Department of Defense that support planning, programming, and budgeting decisions. The committee acknowledges that the Departments of the Army, Air Force, and Navy have developed initial retirement and consolidation plans for their general ledger financial management systems and urges these military departments to expeditiously complete and implement these plans. The committee encourages the Department of Defense to use IT systems that improve the sharing of data and the efficiency of decision-making across organizations.

Subtitle B—Counterdrug Activities

Codification and expansion of authority for joint task forces of the Department of Defense to support law enforcement agencies conducting counter-terrorism, counter-illicit trafficking, or counter-transnational organized crime activities (sec. 1011)

The committee recommends a provision that would codify in title 10, United States Code, the authority of section 1022 of the National Defense Authorization Act for Fiscal Year 2004 (Public Law 108–136), as amended, for the Secretary of Defense to use funds for counter-drug activities to enable joint task forces that support law enforcement agencies engaged in counter-drug activities to also support law enforcement activities for countering terrorism and countering transnational criminal organizations. The provision would also clarify that Department of Defense support that may be provided under this section would be available for law enforcement activities for countering illicit trafficking, whether conducted by a transnational criminal organization or a state actor.

Extension of authority to support a unified counterdrug and counterterrorism campaign in Colombia (sec. 1012)

The committee recommends a provision that would extend through fiscal year 2023 the authority under section 1021 of the

Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 (Public Law 108–375), as most recently amended by section 1021 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92), to support Colombia's unified counterdrug and counterterrorism campaign.

Subtitle C—Naval Vessels

Modification to annual naval vessel construction plan (sec. 1021)

The committee recommends a provision that would require the inclusion of naval vessel expected service lives in the annual naval vessel construction plan.

Navy battle force ship assessment and requirement reporting (sec. 1022)

The committee recommends a provision that would require Navy battle force ship assessment and requirement reporting when a covered event occurs.

Subtitle D—Counterterrorism

Extension of prohibition on use of funds for transfer or release of individuals detained at United States Naval Station, Guantanamo Bay, Cuba, to the United States (sec. 1031)

The committee recommends a provision that would extend through December 31, 2022, the prohibition on the use of funds provided to the Department of Defense to transfer or release individuals detained at United States Naval Station, Guantanamo Bay, Cuba, to the United States.

Extension of prohibition on use of funds to construct or modify facilities in the United States to house detainees transferred from United States Naval Station, Guantanamo Bay, Cuba (sec. 1032)

The committee recommends a provision that would extend until December 31, 2022, the prohibition on the use of funds provided to the Department of Defense to construct or modify facilities in the United States to house detainees transferred from United States Naval Station, Guantanamo Bay, Cuba.

Extension of prohibition on use of funds for transfer or release of individuals detained at United States Naval Station, Guantanamo Bay, Cuba, to certain countries (sec. 1033)

The committee recommends a provision that would extend through December 31, 2022, the prohibition on the use of funds provided to the Department of Defense to transfer or release individuals detained at United States Naval Station, Guantanamo Bay, Cuba, to Libya, Somalia, Syria, and Yemen.

Extension of prohibition on use of funds to close or relinquish control of United States Naval Station, Guantanamo Bay, Cuba (sec. 1034)

The committee recommends a provision that would extend through the end of fiscal year 2022 the prohibition on the use of funds provided to the Department of Defense to: (1) Close or abandon United States Naval Station, Guantanamo; (2) Relinquish control of Guantanamo Bay to the Republic of Cuba; or (3) Implement a material modification to the Treaty between the United States of America and Cuba signed at Washington, D.C., on May 29, 1934, which modification would constructively close United States Naval Station, Guantanamo Bay, Cuba.

Report on medical care provided to detainees at United States Naval Station, Guantanamo Bay, Cuba (sec. 1035)

The committee recommends a provision that would require the Chief Medical Officer of the United States Naval Station, Guantanamo Bay, to submit, not later than 120 days after the date of the enactment of this Act, a detailed report to the Committees on Armed Services of the Senate and the House of Representatives on the provision of medical care to detainees at Guantanamo. The report is to be submitted in classified form.

Subtitle E—Miscellaneous Authorities and Limitations

Notification of significant Army force structure changes (sec. 1041)

The committee recommends a provision that would require the Secretary of Defense or Secretary of the Army to notify the congressional defense committees of plans to make significant changes to Army force structure, including the establishment or stationing of new or experimental units of significance.

The committee supports Army efforts to modernize and reorganize for competition and, if necessary, conflict with strategic competitors. Given the critical role that Army forces serve in all theaters of operation, the Congress has an inherent oversight responsibility with respect to the size of the Army, Army force structure, and its capability and capacity to meet the requirements of the National Defense Strategy.

Extension of admission to Guam or the Commonwealth of the Northern Mariana Islands for certain nonimmigrant H–2B workers (sec. 1042)

The committee recommends a provision that would amend section 6(b)(1)(B) of the Joint Resolution titled "A Joint Resolution to approve the 'Covenant to Establish a Commonwealth of the Northern Mariana Islands in Political Union with the United States of America', and for other purposes" (48 U.S.C. 1806(b)(1)(B)), approved March 24, 1976, by extending the deadline for certain nonimmigrant H–2B workers. The committee notes that this provision would support the realignment of U.S. forces to Guam by addressing limited workforce availability on Guam.

Subtitle F—Studies and Reports

Report on implementation of irregular warfare strategy (sec. 1051)

The committee recommends a provision that would require the Secretary of Defense to submit to the congressional defense committees, not later than 180 days after the date of enactment of this Act and annually through fiscal year 2027, a report on the activities and programs of the Department of Defense to implement the irregular warfare strategy consistent with the 2019 Irregular Warfare Annex to the National Defense Strategy.

Optimization of Irregular Warfare Technical Support Directorate (sec. 1052)

The committee recommends a provision that would require the Assistant Secretary of Defense for Special Operations and Low Intensity Conflict, in coordination with the Under Secretary of Defense for Research and Engineering, the Under Secretary of Defense for Acquisition and Sustainment, and the service secretaries, to submit a plan to improve the Irregular Warfare Technical Support Directorate's (IWTSD) support to military requirements and a Department of Defense Instruction to better define the IWTSD's role in the Department of Defense research, development, and acquisition enterprise.

The committee notes that section 264 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92) directed an independent study by a federally funded research and development center on optimizing resources allocated to the Combating Terrorism Technical Support Office, which was renamed the IWTSD in November 2020. The independent study made a number of recommendations to improve the effectiveness and efficiency of the IWTSD, which are reflected in the recommended provision.

Quarterly briefings on anomalous health incidents (sec. 1053)

The committee recommends a provision that would require the Secretary of Defense, not later than 90 days after the date of the enactment of this Act and every 90 days thereafter for 2 years, to provide the congressional defense committees a briefing on Department of Defense (DOD) efforts to address anomalous health incidents.

The committee notes that, since at least 2016, U.S. Government personnel have reported anomalous health incidents at diplomatic missions across the world. Some of those impacted by such incidents are facing permanent, life-altering effects that have disrupted lives and ended careers.

The committee believes anomalous health incidents are a matter of urgent concern and deserve the full attention of the U.S. Government. In particular, personnel afflicted by such anomalous health incidents deserve equitable, accessible, and high-quality medical assessment and care, regardless of their employing agency. Furthermore, information sharing and interagency coordination is essential for the comprehensive investigation, attribution, and mitigation of such incidents in the future. To that end, the committee

urges the President to designate an appropriate senior administration official to lead an interagency working group for the purposes of coordinating the U.S. Government response to anomalous health incidents.

Additionally, the committee believes that relevant departments and agencies should seek to provide the Congress and the American public with informative and, to the extent possible, unclassified updates on anomalous health incidents and the threat posed to U.S. Government personnel. The committee is concerned that at-risk U.S. Government personnel have not been adequately informed about this threat, due in part to a lack of internal workforce guidance across Federal agencies. Therefore, the committee urges the Secretary of Defense to ensure appropriate guidance is developed and disseminated to civilian and uniformed personnel on the threat, known defensive measures, and processes to report suspected incidents. Lastly, the committee believes the perpetrators of attacks on U.S. Government personnel that result in anomalous health incidents should be publicly identified and held accountable.

Given the seriousness and urgency associated with this threat, not later than October 15, 2021, the committee directs the Secretary of Defense to provide the congressional defense committees a briefing on DOD efforts to address anomalous health incidents. At a minimum, the briefing shall include:

(1) An explanation of DOD efforts to investigate, attribute, and mitigate the cause of anomalous health incidents, including any additional resources or authorities needed to enhance such efforts;

(2) A description of the process used to ensure timely assessment and treatment of U.S. Government personnel that have suffered from an anomalous health incident, including any additional resources or authorities necessary to ensure adequate care for such personnel and their families;

(3) An articulation of efforts to improve training of personnel most at risk of experiencing anomalous health incidents and to encourage reporting of such incidents when they occur;

(4) Any other matters deemed relevant by the Secretary.

Subtitle G—Other Matters

Commission on the National Defense Strategy (sec. 1061)

The committee recommends a provision that would establish a Commission on the National Defense Strategy (NDS), which would be tasked with providing an independent review and assessment of the forthcoming NDS. The provision would replicate the same structure of the last NDS commission with minor changes.

The 2018 Commission on the National Defense Strategy, which was authorized by the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328), has been a crucial resource for this committee. Specifically, the commission's report, "Providing for the Common Defense," provided bipartisan and independent analysis that has aided the committee as it conducts oversight of the NDS issued in 2018. Furthermore, the commission's work identified additional policy areas that required attention from senior leadership within the Department of Defense, including the devel-

opment of new operational concepts and the need to reinvigorate civil-military relations.

In addition, the provision would authorize the commission to draw on an independent, non-governmental institution to augment the analytical capability available to the commission. The committee notes the use of the United States Institute of Peace as a coordinating agent of commission reports over the last decade. In selecting a potential facilitator for the commission under this provision, the Department should give full consideration to the past performance of independent entities and relevant expertise in national security and military affairs.

Finally, in light of the valuable contribution of the previous commission, the committee expects the Department to fully cooperate with the commission that would be established under this provision during its review of the next NDS and ensure it has the support necessary to fulfill its mandate.

Assessment of requirements for and management of Army three-dimensional terrain data (sec. 1062)

The committee recommends a provision that would require an assessment of joint force requirements for three-dimensional (3D) terrain data to achieve Combined Joint All-Domain Command and Control, a determination of whether One World Terrain 3D geospatial data meets requirements for precision targeting, and a determination of the optimum management and funding structure for 3D terrain data. The provision would also require the Vice Chairman of the Joint Chiefs of Staff, the Under Secretary of Defense for Intelligence and Security, and the Secretary of the Army to provide a briefing to the congressional defense committees not later than 180 days after the enactment of this Act on the assessment and determinations.

Modification to Regional Centers for Security Studies (sec. 1063)

The committee recommends a provision that would amend section 342(b)(2) and section 2611(a)(2) of title 10, United States Code, related to regional centers for security studies. The committee notes that section 1089 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) directed the Secretary of Defense to submit to the congressional defense committees a plan to establish a Department of Defense Regional Center for Security Studies for the Arctic, also known as the Ted Stevens Center for Arctic Security Studies, and, not earlier than 30 days after the submission of such plan and subject to the availability of appropriations, authorized the Secretary to establish and administer the Center. The committee notes that the Secretary made a determination in 2021 to establish the Ted Stevens Center for Arctic Security Studies. The committee believes the authority pursuant to subsection (b) of section 1089, specifically the authority of the Secretary to establish and administer such a Center, includes the authority to hire or appoint personnel necessary to establish and administer the Center in a timely manner, to include the hiring or appointment of an interim Director.

Items of Special Interest

Access to Sensitive Compartmented Information

The committee notes that, under current Senate policy, members of a Senator's personal staff are not eligible for access to Sensitive Compartmented Information (SCI). The committee believes that access to highly classified information is an important part of fulfilling a Senator's legislative and oversight responsibilities. Accordingly, the committee recommends that the Office of Senate Security review the Senate Security Manual and consider revisions that would allow one member of each Senator's personal office to be granted access to SCI and establish procedures and arrangements with executive branch departments and agencies to conduct these personnel security clearance investigations and adjudications.

Appreciation for Department of Defense response to the coronavirus pandemic

The committee expresses its deep condolences for the tragic loss of hundreds of thousands of American lives due to the devastating impact of the COVID–19 pandemic. This deadly disease profoundly affected our lives as individuals, as a Nation, and as part of the international community.

The committee expresses its sincere appreciation for the Department of Defense's (DOD) significant contributions to the response to COVID–19. As part of this response, over 47,000 National Guard members mobilized to staff testing centers, deliver food, and provide medical and vaccination support. The U.S. Army Corps of Engineers constructed 38 new alternate care facilities, adding over 17,000 hospital beds to handle the surge in patients. DOD personnel assigned to the Countermeasures Acceleration Group (CAG), formerly known as Operation Warp Speed, and General Gustave F. Perna, who provided critical leadership of that group, worked with the private sector to scale up the research, development, testing, production, and distribution of vaccines throughout the entire U.S. population.

By supporting the production of COVID–19 vaccines and expediting their distribution, the CAG's unprecedented efforts were critical to ensuring that more than 370 million COVID–19 vaccine doses were distributed within 6 months of the vaccines' emergency use authorizations, saving many thousands of American lives. Indeed, as of June 2021, more than half of all American adults were fully vaccinated, including more than 75 percent of all senior citizens. From the peak of the pandemic in early January 2021 through mid-June 2021, COVID–19 case numbers dropped by nearly 95 percent nationwide.

The committee recognizes the efforts of the U.S. Army Contracting Command and the Joint Program Office for Chemical, Biological, Radiological and Nuclear Defense (JPEO–CBRND), which procured the vaccines that are now being administered across the United States.

The committee further recognizes that there is still more work to be done, including inoculating more Americans, responding to viral variants, and helping other nations suppress the virus. Nevertheless, due to the efforts of the Department and, in particular, the

CAG significant progress has been made and Americans are beginning to return to more familiar daily routines.

The committee encourages the Secretary of Defense to appropriately and fully recognize the extraordinary contributions of the personnel of the Department of Defense to the COVID–19 response, including the National Guard, the U.S. Army Corps of Engineers, the Army Contracting Command, the JPEO–CBRND, the personnel assigned to the CAG, and General Perna for his leadership of that group.

Arctic weather observations

The committee notes that the 2020 Air Force Arctic Strategy highlighted that domain awareness can be improved by expanding environmental observations in areas of sparse coverage. To achieve this in a cost-effective manner in the domestic Arctic, the committee strongly encourages the Air Force to join the interagency efforts to enhance and sustain observation of long-term environmental changes with the Arctic Observing Network–USArray network partnership.

Assessment of hostile respiratory diseases

The committee is concerned about the potential threat from adversaries seeking to use respiratory diseases in an effort to harm servicemembers and civilians. Weaponized respiratory diseases are effective at low dosage, have a short incubation period in a population of low immunity, are difficult to treat, can easily be produced in bulk, are stable in terms of storage, and are easily disseminated. Some examples that are frequently mentioned include smallpox, tularemia, pneumonic plague, and coronaviruses. Additionally, clustered regularly interspaced short palindromic repeats (CRISPR) gene-editing technology has been available since 2012 and can be used to edit DNA in order to enhance the infectivity or lethality of viruses, making viruses such as influenza potential weapons as well.

Therefore, the committee directs the Secretary of Defense to provide a briefing to the congressional defense committees not later than March 31, 2022. The briefing shall focus on the threats associated with the weaponization of respiratory diseases in an attempt to cause serious harm to servicemembers and their families, both at home and abroad, and the role of the Department of Defense in responding to such threats.

Assessment of hostile use of zoonotic diseases

The committee is concerned about the potential threat from adversaries seeking to use foot-and-mouth disease or other zoonotic diseases in an effort to disrupt the food supply and harm servicemembers and civilians. The committee notes that the Army's Veterinary Corps, which is one the Nation's largest provider of veterinarians to agencies such as the Department of Agriculture in an emergency, is responsible for maintaining food safety and animal control at all Department of Defense bases. In some overseas locations, the Veterinary Corps conducts regular sampling of food and water for monitoring and detection of the intentional introduction of diseases. Therefore, the committee directs the Secretary of De-

fense, in consultation with the Secretary of Agriculture and the Secretary of Homeland Security, to provide a briefing to the congressional defense committees, not later than March 31, 2022. The briefing shall focus on the threats associated with the intentional introduction of foot-and-mouth disease, or other zoonotic or biological pathogens, into the food supply, in an attempt to cause serious harm to servicemembers and their families, both at home and abroad, and the role of the Department of Defense in responding to such threats.

Assessment of missile salvo defense capabilities and capacity

The committee remains concerned about the threat of high-volume missile salvo attacks on Joint force critical fixed sites and high-value assets. Complex, high-volume, advanced missiles salvo attacks are one of the greatest threats to U.S. military forces. Strategic competitors are aggressively investing in advanced ballistic, supersonic, and hypersonic missiles and continue to expand their already large stockpiles of these munitions.

The committee directs the Vice Chairman of the Joint Chiefs of Staff, in coordination with the military service chiefs and the Commanders of U.S. Indo-Pacific Command (INDOPACOM) and U.S. European Command (EUCOM), to conduct an assessment of Joint force capability and capacity to defend against anticipated complex, high-volume, advanced missiles salvo attacks. The assessment shall be based on a fully informed threat assessment of strategic competitor current and emerging advanced missiles of anticipated types, numbers, and concepts of employment against critical fixed sites, and high-value land-based and naval assets.

Joint force capabilities to be considered in the assessment shall include current and developmental missile defense systems and advanced emerging capabilities including the hypervelocity gun weapon systems, electronic warfare systems, and directed energy. The assessment shall analyze specific cases in both the INDOPACOM and EUCOM theaters of operation in the context of the emerging global Joint Warfighting Concept and the respective theater's Joint operational concept. The Vice Chairman shall provide a briefing to the Senate Armed Services Committee on the assumptions, conduct, and conclusions of the assessment not later than January 15, 2022.

Comparative assessment of naval shipbuilding costs

The committee believes that one aspect of defense strategy implementation is a detailed understanding of the relative purchasing power for similar weapons systems among the great power competitors. To this end, the committee desires a better understanding of the comparative costs of naval shipbuilding in the United States, China, and Russia.

Therefore the committee directs the Secretary of the Navy to submit, not later than March 1, 2022, a report to the congressional defense committees on the comparative costs of naval shipbuilding in the United States, China, and Russia. The report shall include a comparison of the following costs in the United States, China, and Russia:

(1) The approximate end cost to construct an aircraft carrier, attack submarine, ballistic missile submarine, large surface combatant, small surface combatant, and amphibious ship. For each category of vessel, a description of the key quantitative and qualitative differences of the vessels being assessed with associated cost implications shall be included;

(2) The approximate cost of key commodities used in naval shipbuilding, including one ton of steel;

(3) The approximate cost of key labor resources used in naval shipbuilding, including one production labor hour, one electrician labor hour, and one design labor hour;

(4) The approximate cost of key combat subsystems used in naval vessels, including air and missile defense radars, electronic warfare suites, anti-submarine capabilities, and shipboard combat system software. For each category of subsystem, a description of the key quantitative and qualitative differences of the subsystems being assessed with associated cost implications shall be included;

(5) The approximate cost of key hull, mechanical, and electric subsystems used in naval vessels, including main engines, electrical generators, shafting, and air conditioning systems. For each category of subsystem, a description of the key quantitative and qualitative differences of the subsystems being assessed with associated cost implications shall be included; and

(6) Other cost drivers in naval shipbuilding, as identified by the Secretary, with the associated costs.

The report shall be submitted in unclassified form and may include a classified annex.

Maritime domain information sharing

The committee understands that the Department of Defense may possess maritime and oceanographic information that may be useful to other executive branch agencies. Therefore, the committee directs the Secretary of Defense to provide a report to the congressional defense committees, not later than April 1, 2022, on the extent to which: (1) The Department is sharing maritime domain awareness and oceanographic information with other executive branch agencies; (2) There are additional opportunities to share such information, including on a routine basis; and (3) The Congress could provide additional authorities to allow greater sharing of information.

Navy capabilities in the Arctic region

In the January 2021 strategic blueprint for the Arctic, titled "A Blue Arctic," the Department of the Navy noted, "Without sustained American naval presence and partnerships in the Arctic Region, peace and prosperity will be increasingly challenged by Russia and China, whose interests and values differ dramatically from ours."

The committee therefore directs the Secretary of the Navy to provide a briefing to the Senate Armed Services Committee on the capabilities of the Navy in the Arctic region not later than December 1, 2021. The briefing should include: (1) An analysis of the naval capabilities of the Department of Defense in the Arctic, with a par-

ticular emphasis on surface capabilities; (2) An analysis of any gaps that exist between the Navy's existing capabilities and the ability of the Department to fully execute its strategy for the Arctic region; (3) An analysis of any gaps in existing naval capabilities that require ice-hardening of existing vessels or the construction of new vessels to preserve freedom of navigation in the Arctic region; (4) An analysis and recommendation regarding which naval vessels could be ice-hardened to effectively preserve freedom of navigation in the Arctic region, where necessary; and (5) An analysis, with particular focus on Navy surface ships undergoing design, of the cost increases or schedule adjustments that may result from ice-hardening naval vessels.

Navy surface warfare training

The committee continues to believe that the Navy should replace the six YP–676 class yard patrol (YP) craft slated for disposal with upgraded YP–703 class craft that incorporate modernization, training, and habitability improvements in order to increase training opportunities for surface warfare officer candidates from all accession sources. Accordingly, the committee urges the Secretary of the Navy to release a request for proposals for the detail design and construction of upgraded YP–703 class craft not later than fiscal year 2023.

Additionally, the committee believes that significant training value may be derived through establishing surface warfare training squadrons in fleet concentration areas on the East and West Coasts. Accordingly, the committee directs the Secretary of the Navy to submit to the congressional defense committees, not later than February 1, 2022, a report comparing potential costs and benefits of establishing such training squadrons in Norfolk, Virginia, and San Diego, California. This report shall include the following elements:

(1) An overview of current methods for training surface warfare officers and sailors in shiphandling, navigation, and seamanship skills, with particular focus on the current balance between simulated and real-world experiences during individual (e.g., Basic and Advanced Division Officer Courses), basic, intermediate, and advanced training phases;

(2) An analysis of the advantages and limitations of the Navy's current preference for simulators for formal training courses in shiphandling, navigation, and seamanship skills;

(3) A cost estimate, including procurement, operations, and maintenance costs, for each of the following options for increasing real-world experience during surface warfare officer training:

(a) re-designating warships scheduled for decommissioning as training vessels;

(b) shifting some YP craft from Annapolis, Maryland, to Norfolk, Virginia, and San Diego, California; and

(c) new platforms designed specifically to serve as training vessels.

(4) A cost estimate for establishing one or more training squadrons dedicated to providing shiphandling, navigation, and

seamanship training for each of the options described in (3)(a), (3)(b), and (3)(c); and

(5) Recommendations on how to improve the balance between simulated and real-world training evolutions during the various surface warfare training phases.

Overseas contingency operations budget exhibits

The committee notes that the Department of Defense (DOD) did not include the Overseas Contingency Operations account in the budget request for fiscal year 2022 and instead requested funding for direct and enduring war-related costs in the base budget. This resulted in difficulties in preparing the annual congressional justification books due to uncertainty regarding the presentation of funding lines previously delivered in the Overseas Contingency Operations budget. The inclusion of both direct and enduring war-related costs organized by appropriation account in the justification books does not provide the Congress and the public with the appropriate level of detail and transparency regarding war-related costs.

Therefore, the committee encourages the Under Secretary of Defense (Comptroller) to provide separate budget exhibits for direct war-related costs and for enduring war-related costs, not separated by appropriations account, as the Department of Defense prepares the budget request for fiscal year 2023.

TITLE XI—CIVILIAN PERSONNEL MATTERS

Civilian personnel management (sec. 1101)

The committee recommends a provision that would amend section 129 of title 10, United States Code, to make technical clarifications concerning the management of civilian personnel of the Department of Defense.

Consideration of employee performance in reductions in force for civilian positions in the Department of Defense (sec. 1102)

The committee recommends a provision that would amend section 1597 of title 10, United States Code, to require that employee performance be among the factors considered by the Department of Defense in the case of employee reductions, rather than the primary factor.

Enhancement of recusal for conflicts of personal interest requirements for Department of Defense officers and employees (sec. 1103)

The committee recommends a provision that would prohibit Department of Defense officers and employees from participating personally and substantially in matters that the officer or employee knows, or reasonably should know, is likely to have a direct and predictable effect on the financial interests of (1) Any organization for which the officer or employee has served in the past 4 years; (2) A former direct competitor or client of any organization for which the officer or employee has served in the past 4 years; or (3) Any employer with whom the officer or employee is seeking employment.

Authority to employ civilian faculty members at the Defense Institute of International Legal Studies (sec. 1104)

The committee recommends a provision that would amend section 1595 of title 10, United States Code, to authorize the Secretary of Defense to employ and pay faculty at the Defense Institute of International Legal Studies as the Secretary considers necessary.

Extension of temporary increase in maximum amount of voluntary separation incentive pay authorized for civilian employees of the Department of Defense (sec. 1105)

The committee recommends a provision that would amend section 1107 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) to extend the temporary increase in the maximum amount of voluntary separation incentive pay authorized to be paid to civilian employees of the Department of Defense.

One-year extension of temporary authority to grant allowances, benefits, and gratuities to civilian personnel on official duty in a combat zone (sec. 1106)

The committee recommends a provision that would extend by 1 year the discretionary authority of the head of a Federal agency to provide allowances, benefits, and gratuities comparable to those provided to members of the Foreign Service to the agency's civilian employees on official duty in a combat zone.

One-year extension of authority to waive annual limitation on premium pay and aggregate limitation on pay for Federal civilian employees working overseas (sec. 1107)

The committee recommends a provision that would amend section 1101 of the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009 (Public Law 110–417), as most recently amended by section 1105 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283), to extend through 2022 the authority of heads of executive agencies to waive the limitation on the aggregate of basic and premium pay of employees who perform work in an overseas location that is in the area of responsibility of the Commander, U.S. Central Command (CENTCOM), or in a location that was formerly in CENTCOM but has been moved to the area of responsibility of the Commander, U.S. Africa Command, in support of a military operation or an operation in response to a declared emergency.

Pilot program on direct hire authority for spouses of members of the uniformed services at locations outside the United States (sec. 1108)

The committee recommends a provision that would authorize the Secretary of Defense to conduct a pilot program to appoint, without regard to the provisions of subchapter I of chapter 33 of title 5, United States Code (other than sections 3303 and 3328 of such chapter), certain dependents of members of the uniformed services stationed at a duty station outside of the United States to a competitive position within the Department of Defense.

Civilian Cybersecurity Reserve pilot project at United States Cyber Command (sec. 1109)

The committee recommends a provision that would require the Commander, U.S. Cyber Command, to conduct a temporary pilot program establishing a civilian cybersecurity reserve, to include the exercise of alternative employment authority, not subject to the Office of Personnel Management, to establish qualification requirements for, recruitment of, and appointment to positions, and classifying positions.

Items of Special Interest

Limiting the number of local wage areas defined within a pay locality

The committee notes that the Office of Personnel Management (OPM) is responsible for overseeing the implementation and administration of the Federal Wage System (FWS) in consultation with

other agencies, appropriate labor organizations, and the advice of the Federal Prevailing Rate Advisory Committee (FPRAC). Since 2010, the FPRAC has voted three times to recommend that OPM align FWS wage areas with General Schedule locality pay areas across the country. OPM has not implemented these recommendations. The committee encourages the administration and OPM to address this longstanding issue as soon as possible.

TITLE XII—MATTERS RELATING TO FOREIGN NATIONS

Subtitle A—Assistance and Training

Authority to build capacity for additional operations (sec. 1201)

The committee recommends a provision that would modify the authority under section 333 of title 10, United States Code, to clarify that the purposes for which security assistance may be provided include building the capacity of foreign national security forces to conduct counter-illicit trafficking operations.

The committee notes the potential impact of extreme weather and changing environmental conditions on building and sustaining partner capacity and encourages the Department of Defense to take environmental resiliency into consideration in the development and execution of small-scale construction programs under the section 333 authority.

Administrative support and payment of certain expenses for covered foreign defense personnel (sec. 1202)

The committee recommends a provision that would add a new section 334 to title 10, United States Code, to authorize the Secretary of Defense to provide administrative services and support to foreign personnel assigned to the United Nations Command in the Republic of Korea.

Authority for certain reimbursable interchange of supplies and services (sec. 1203)

The committee recommends a provision that would modify section 2571 of title 10, United States Code, for purposes of providing assistance to a foreign partner under certain specified security cooperation authorities. Existing law under section 2571 allows a department or organization within the Department of Defense (DOD) to perform work or services for, or furnish supplies to, any other DOD department or organization, without reimbursement or transfer of funds. The provision would allow for the interchange of supplies and services under section 2571 with reimbursement for purposes of providing assistance to a foreign partner pursuant to section 333 or section 345 of title 10, United States Code, and such a reimbursable order would be deemed an obligation in the same manner as an order placed under section 6307 of title 41, United States Code.

Extension and modification of Department of Defense support for stabilization activities in national security interest of the United States (sec. 1204)

The committee recommends a provision that would extend through December 31, 2023, the authority under section 1210A of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92) for Department of Defense support to stabilization activities in the national security interest of the United States. The provision would also modify the section 1210A authority to allow the Department of Defense to provide support to stabilization activities in countries or regions that were prioritized under the Global Fragility Act of 2019.

Temporary authority to pay for personnel expenses of foreign national security forces participating in the training program of the United States-Colombia Action Plan for Regional Security (sec. 1205)

The committee recommends a provision that would temporarily, for fiscal year 2022, authorize the Secretary of Defense to pay the personnel expenses of foreign national security forces to participate in the training program of the United States-Colombia Action Plan (USCAP) for Regional Security conducted at institutions in Colombia.

The committee notes that the USCAP for Regional Security has contributed to U.S. national security interests by building the capacity of friendly foreign security forces to conduct missions for countering transnational criminal organizations. By covering the costs for foreign security forces to attend Colombian training programs, the Department of Defense is able to leverage these partner institutions to certify the capabilities of third country forces at lower cost than if the United States were undertaking the training of these forces itself.

The Commander, U.S. Southern Command (SOUTHCOM), has indicated that the Department of Defense currently lacks a permanent authority to pay the expenses of foreign security forces to attend training programs at non-U.S. institutions. While this provision would temporarily address this gap for the USCAP, the committee urges the Department to consult with the Committees on Armed Services of the Senate and the House of Representatives on how to address this situation in the SOUTHCOM area and potentially in other geographic combatant commands as well.

Security cooperation strategy for certain combatant commands (sec. 1206)

The committee recommends a provision that would require the Secretary of Defense, in coordination with the Secretary of State, to develop and implement security cooperation strategies for each geographic combatant command. Each security cooperation strategy would include: (1) A statement of strategic objectives; (2) The primary lines of effort of the combatant command; (3) The key authorities of the Department of Defense (DOD) used for each line of effort; (4) The institutional capacity-building programs and activities within the combatant command; and (5) A description of how the development, planning, and implementation of DOD security

cooperation programs are being coordinated and deconflicted with the security assistance authorities of the Department of State and other civilian agencies. The initial security cooperation strategies would be submitted to the appropriate committees of the Congress 180 days after the date of the enactment of this Act, and then submitted annually through 2027, concurrently with the report required pursuant to section 386(a) of title 10, United States Code.

Plan for enhancing Western Hemisphere security cooperation (sec. 1207)

The committee recommends a provision that would require, not later than 180 days after the date of the enactment of this Act, that the Secretary of Defense, in coordination with the Secretary of State, submit to the appropriate committees of the Congress a detailed plan for enhancing security cooperation in the Western Hemisphere.

Pilot program to support the implementation of the Women, Peace, and Security Act of 2017 (sec. 1208)

The committee recommends a provision that would require the Secretary of Defense, in consultation with the Secretary of State, to carry out a pilot program to conduct assessments on the barriers and opportunities with respect to strengthening recruitment, employment, development, retention, and promotion of women in the military forces of various partner countries during the course of security assistance activities.

Limitation on support to military forces of the Kingdom of Morocco for bilateral or multilateral exercises (sec. 1209)

The committee recommends a provision that would prohibit the use of Department of Defense funds to support the participation of the military forces of the Kingdom of Morocco for bilateral or multilateral exercises, unless the Secretary determines and certifies to the congressional defense committees that the Kingdom of Morocco has taken steps to support a final peace agreement with Western Sahara. The provision would also include the authority for the Secretary to waive the limitation, if such participation is determined to be important to the national security interests of the United States.

Subtitle B—Matters Relating to Afghanistan and Pakistan

Extension and modification of authority for support for reconciliation activities led by the Government of Afghanistan and prohibition on use of funds for the Taliban and other terrorist groups (sec. 1211)

The committee recommends a provision that would extend the authorization for the Department of Defense to provide support for Government of Afghanistan-led reconciliation activities. The provision would modify the existing authority to allow for covered support to be provided both inside Afghanistan and in Afghanistan's near abroad if the Secretary of Defense determined in coordination with the Secretary of State that it was in the national security in-

terests of the United States. The provision modifies reporting with regards to the authority to be initiated only if the covered support is provided.

Extension and modification of authority for reimbursement of certain coalition nations for support provided to United States military operations (sec. 1212)

The committee recommends a provision that would extend the authority for reimbursement of certain coalition nations for support provided to U.S. military operations through December 31, 2022.

Afghanistan Security Forces Fund (sec. 1213)

The committee recommends a provision that would authorize the appropriation of funds for the Afghanistan Security Forces Fund for fiscal year 2022. The committee believes that continued support for the Afghan security forces, even beyond the transition of United States and coalition nations from the country, is vital to achieving stability and security in Afghanistan and preventing another major terrorist attack emanating from Afghanistan. The committee further recommends that the Secretary of Defense report to the congressional defense committees regarding plans for providing support to the Afghan security forces once United States and coalition partner nations transition from the country. In addition, the provision would require that not more than $1.0 billion of the funds authorized be expended until the Secretary of Defense, in consultation with the heads of other appropriate agencies, reports on certain metrics regarding the delivery of assistance and that not more than $2.5 billion of assistance be expended until indicators of progress are certified.

The committee notes its strong support for the Special Immigrant Visa (SIV) program for Afghans and is concerned about the safety and security of applicants once United States forces transition from the country. The committee is further concerned about ensuring the military has the capability to conduct evacuations of Afghans who are vulnerable because of their association with the United States if security conditions deteriorate rapidly. The committee recommends that, if it is determined to be necessary, the Secretary of Defense, in coordination with the Secretary of State, should have the authority to provide transportation, security, and life support, or to reimburse coalition or partner nations for the provision of such support and services to certain Afghan citizens and their dependents who have been targeted as a result of their association with the United States or a coalition partner.

Quarterly security briefings on Afghanistan (sec. 1214)

The committee recommends a provision that would direct the Under Secretary of Defense for Policy to provide quarterly briefings on the security situation in Afghanistan and the Department of Defense's efforts to counter terrorist groups beginning not later than January 15, 2022.

Sense of Senate and briefing on counterterrorism posture of the United States after transition of United States Armed Forces from Afghanistan (sec. 1215)

The committee recommends a provision that would express the sense of the Senate on the United States' presence in the region after the transition of United States and coalition forces from Afghanistan and would require the Secretary of Defense to provide a briefing regarding additional intelligence, surveillance, and reconnaissance requirements in order to continue to conduct counterterrorism operations beyond September 11, 2021, by January 15, 2022.

Subtitle C—Matters Relating to Syria, Iraq, and Iran

Extension and modification of authority to provide assistance to vetted Syrian groups and individuals (sec. 1221)

The committee recommends a provision that would extend the authority to provide assistance to vetted Syrian groups through 2022 under section 1209 of the Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113–291), as amended. The provision would also further streamline reporting by eliminating the requirement upon meeting each 25 percent threshold expenditure increment.

Extension and modification of authority to support operations and activities of the Office of Security Cooperation in Iraq (sec. 1222)

The committee recommends a provision that would extend the authorization for the Office of Security Cooperation in Iraq through fiscal year 2022. The committee expects to see continued progress on the Office of Security Cooperation in Iraq's efforts to transition to a normalized security cooperation office and directs the Department of Defense to provide an update on progress in implementing this transition before obligating or expending more than $10.0 million. The committee notes the intent to transition to a normalized security cooperation office is consistent with the decrease in funding levels in fiscal years 2021 and 2022.

Extension and modification of authority to provide assistance to counter the Islamic State of Iraq and Syria (sec. 1223)

The committee recommends a provision that would extend the authority to provide assistance to Iraq to counter the Islamic State of Iraq and Syria (ISIS) through December 31, 2022. The committee supports continued assistance to the Iraqi Security Forces, including the Counter Terrorism Service (CTS) and the Ministry of Peshmerga, in order to continue operations to ensure the lasting defeat of ISIS.

Subtitle D—Matters Relating to Europe and the Russian Federation

Extension of limitation on military cooperation between the United States and the Russian Federation (sec. 1231)

The committee recommends a provision that would modify section 1232(a) of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) to extend through fiscal year 2022 the limitation on military cooperation between the United States and the Russian Federation.

Extension of prohibition on availability of funds relating to sovereignty of the Russian Federation over Crimea (sec. 1232)

The committee recommends a provision that would state that none of the funds authorized to be appropriated by this Act for fiscal year 2022 for the Department of Defense may be obligated or expended to implement any activity that recognizes the sovereignty of the Russian Federation over Crimea.

Extension of Ukraine Security Assistance Initiative (sec. 1233)

The committee recommends a provision that would extend through December 31, 2024, the authority under section 1250 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114–92), as amended by section 1244 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92), for the Secretary of Defense, with the concurrence of the Secretary of State, to provide security assistance, including defensive lethal assistance, and intelligence support to military and other security forces of the Government of Ukraine. The provision would authorize up to $300.0 million in fiscal year 2022 to provide security assistance to Ukraine, of which $75.0 million would be available only for lethal assistance.

The committee continues to believe that defense institutional reforms are critical to sustaining capabilities developed using security assistance provided under this and other authorities. Moreover, defense institutional reforms will ultimately enable a more effective defense of Ukraine's sovereignty and territorial integrity and allow Ukraine to achieve its full potential as a strategic partner of the United States. Therefore, the provision would prohibit the obligation or expenditure of 50 percent of the funds authorized to be appropriated in fiscal year 2022 under this authority until the Secretary of Defense, in coordination with the Secretary of State, certifies that Ukraine has taken substantial action to make defense institutional reforms.

The committee notes that Ukraine has significant organic capabilities in its defense industrial base, which should be leveraged and enhanced for the purposes of providing for Ukraine's self-defense. The committee believes that, in developing a program of security assistance for Ukraine, more consideration should be given to striking the appropriate balance between capabilities that are resident or could be developed within Ukraine's organic industrial base and those that are most appropriate for United States and

other multinational partners to provide. As such, the committee directs the Secretary of Defense to provide a report by March 31, 2022, on the Department's approach to whether and how consideration is given to the organic sourcing of defense articles necessary for Ukraine's security via the Ukrainian defense industrial base and, in those instances in which the determination was made to provide United States-funded articles for which there are the same or equivalent items resident in the Ukrainian defense industrial base, the process and the criteria by which such determinations were made.

Extension of authority for training for Eastern European national security forces in the course of multilateral exercises (sec. 1234)

The committee recommends a provision that would extend through December 31, 2024, the authority provided in section 1251 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114–92), as amended by section 1247 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92), for the Secretary of Defense, with the concurrence of the Secretary of State, to provide multilateral or regional training, and pay the incremental expenses of participating in such training, for countries in Eastern Europe that: (1) Are signatories to the Partnership for Peace Framework Documents but not members of the North Atlantic Treaty Organization (NATO); or (2) Became NATO members after January 1, 1999.

Sense of Senate on the North Atlantic Treaty Organization (sec. 1235)

The committee recommends a provision that would express the sense of the Senate that the United States' commitment to the North Atlantic Treaty Organization is ironclad and would emphasize the importance of expanding cooperation on shared security challenges.

Sense of Senate on continuing support for Estonia, Latvia, and Lithuania (sec. 1236)

The committee recommends a provision that would express the sense of the Senate that the United States should continue to prioritize support for the Baltic states of Estonia, Latvia, and Lithuania as they build and invest in critical security areas. The committee encourages the Department of Defense to continue to assess whether any statutory changes, such as the authorization of a Baltic Security Initiative, would be advisable to address priority capability gaps.

Subtitle E—Matters Relating to the Indo-Pacific Region

Extension and modification of Indo-Pacific Maritime Security Initiative (sec. 1241)

The committee recommends a provision that would extend the authority provided by section 1263 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114–92), as amended, known as the Indo-Pacific Maritime Security Initiative, through

2027. The provision would also make various modifications to the authority intended to focus activities and support provided under the authority on multilateral maritime security cooperation and maritime domain awareness.

Extension and modification of Pacific Deterrence Initiative (sec. 1242)

The committee recommends a provision that would extend the Pacific Deterrence Initiative (PDI), authorized by section 1251 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283), through fiscal year 2022.

The committee reiterates its strong support for the PDI as means to prioritize Department of Defense efforts in support of enhancing U.S. deterrence and defense posture, reassuring allies and partners, and increasing readiness and capability in the Indo-Pacific region, primarily west of the International Date Line. The committee notes that the PDI budget request for fiscal year 2022 was overly focused on platforms, including the DDG–51, T–AO fleet oiler, and F–35, as opposed to improving the joint posture and enabling capabilities necessary to enhance deterrence in the Indo-Pacific region. The committee looks forward to continuing to work with the Department of Defense to ensure congressional intent is more appropriately reflected in future budget requests.

Extension of authority to transfer funds for Bien Hoa dioxin cleanup (sec. 1243)

The committee recommends a provision that would extend the authority of the Secretary of Defense to transfer up to $15.0 million to the Secretary of State for the Bien Hoa dioxin cleanup in Vietnam through fiscal year 2022.

Cooperative program with Vietnam to account for Vietnamese personnel missing in action (sec. 1244)

The committee recommends a provision that would authorize the Secretary of Defense, in coordination with the heads of other relevant Federal departments and agencies, to carry out a cooperative program with the Government of Vietnam to assist in accounting for Vietnamese personnel missing in action. The authority to carry out such a program would expire on October 1, 2026.

Assessment of and plan for improving the defensive asymmetric capabilities of Taiwan (sec. 1245)

The committee recommends a provision that would require the Secretary of Defense, in coordination with the heads of other relevant Federal departments and agencies, to provide the appropriate committees of the Congress an assessment of Taiwan's defensive asymmetric capabilities and a plan for assisting Taiwan with the improvement of such capabilities.

Annual feasibility briefing on cooperation between the National Guard and Taiwan (sec. 1246)

The committee recommends a provision that would require the Secretary of Defense to provide the congressional defense commit-

tees with an annual briefing on the feasibility and advisability of enhanced cooperation between the National Guard and Taiwan.

Defense of Taiwan (sec. 1247)

The committee recommends a provision that would state that it shall be the policy of the United States to maintain the ability of the United States Armed Forces to deny a fait accompli against Taiwan in order to deter the People's Republic of China from using military force to unilaterally change the status quo with Taiwan.

Comparative analyses and report on efforts by the United States and the People's Republic of China to advance critical modernization technology with respect to military applications (sec. 1248)

The committee recommends a provision that would direct the Under Secretary of Defense for Research and Engineering to: (1) Develop procedures to enable the Department of Defense to establish comparative analysis capabilities; and (2) Complete a comparative analysis assessment of critical modernization technology in five specified areas.

The committee believes that development of critical technologies with military applications is a key component of strategic competition with China. Furthermore, the committee believes that a comparative analysis of United States and Chinese efforts to determine whether the United States has a competitive advantage, or alternatively a competitive disadvantage, as it relates to efforts of research, development, and application of critical technologies for military applications will help to underpin Department of Defense efforts and investments in this critical dimension of competition with China.

The committee notes the expertise of the Strategic Intelligence Analysis Cell (SIAC) within the office of the Deputy Director for Engineering in conducting technological comparative analyses. The committee also believes the Office of Net Assessment, Defense Advanced Research Projects Agency, and federally funded research development and engineering centers have relevant experience and expertise to support this effort.

The committee understands there are cultural and organizational constraints to the execution of such an analysis and intends for the directed reports to be an initial effort in what should be a longer-term effort of continuous evaluation.

The committee acknowledges the difficulty of fully assessing such a comprehensive topic, but believes the value of a comparative analysis to help inform future efforts is critical to winning the strategic competition with China. The committee recognizes in-depth comparative analysis may require additional resources for proper execution over the longer term.

Modification of annual report on military and security developments involving the People's Republic of China (sec. 1249)

The committee recommends a provision that would extend the requirement for the Secretary of Defense to produce an annual report on military and security developments involving the People's Re-

public of China, established by section 1202(a) of the National Defense Authorization Act for Fiscal Year 2000 (Public Law 106–65), as amended, through January 31, 2027, and streamline the elements of the required report.

Feasibility report on establishing more robust military-to-military crisis communications with the People's Republic of China (sec. 1250)

The committee recommends a provision that would require the Secretary of Defense, in coordination with the heads of other relevant Federal departments and agencies, to provide the appropriate committees of Congress a report, not later than 180 days after the date of the enactment of this Act, on the feasibility and advisability of establishing more robust military-to-military communications with China to enable clear transmission of messages, avoid misunderstandings, reduce the possibility of miscalculation, and manage potential escalation in crisis situations.

Semiannual briefings on efforts to deter Chinese aggression and military coercion (sec. 1251)

The committee recommends a provision that would require the Secretary of Defense, not later than January 15, 2022, and every 180 days thereafter through 2024, to provide a briefing to the congressional defense committees on Department of Defense (DOD) efforts to deter Chinese aggression and military coercion.

The committee notes that the DOD announced a new directive implementing the recommendations of the DOD China Task Force on June 9, 2021. The committee supports changes by the Department to better focus its efforts to counter Chinese aggression and military coercion and more effectively contribute to the whole-of-government strategy. The committee looks forward to working collaboratively with the Department on these efforts.

Sense of Congress on defense alliances and partnerships in the Indo-Pacific region (sec. 1252)

The committee recommends a provision that would express the sense of the Congress on the importance of defense alliances and partnerships in the Indo-Pacific region.

Subtitle F—Reports

Report on security cooperation authorities and associated resourcing in support of the Security Force Assistance Brigades (sec. 1261)

The committee recommends a provision that would require the Secretary of Defense to submit, not later than 90 days after the date of the enactment of this Act, to the Committees on Armed Services of the Senate and the House of Representatives a report assessing the adequacy of existing Department of Defense security cooperation authorities and associated resources for supporting the ability of the Army's Security Force Assistance Brigades to meet the security cooperation requirements of the combatant commands, and identifying any gaps in those authorities or associated resourcing.

Independent assessment with respect to Arctic region and establishment of Arctic Security Initiative (sec. 1262)

The committee recommends a provision that would require, not later than February 15, 2022, an assessment with respect to the activities and resources required to integrate and implement the Department of Defense-wide and military service-specific strategies with respect to the Arctic region. The provision would also require the Secretary of Defense to submit a plan for the establishment of an Arctic Security Initiative (ASI) to support such strategies, and to establish an ASI not later than fiscal year 2023.

Annual report and briefing on Global Force Management Allocation Plan (sec. 1263)

The committee recommends a provision that would require the Secretary of Defense to provide an annual classified report summarizing the Global Force Management Allocation Plan for the year in which the report is submitted. The provision would also require an annual classified briefing describing the major modifications to global force allocation for each fiscal year. The provision would require the Secretary to submit the report and provide the briefing to the Committees on Armed Services of the Senate and the House of Representatives not later than October 31, 2022, and annually thereafter through 2024.

Subtitle G—Others Matters

Modification of United States-Israel Operations-Technology cooperation within the United States-Israel Defense Acquisition Advisory Group (sec. 1271)

The committee recommends a provision that would amend section 1299M of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) to require the Secretary of Defense, in consultation with the Secretary of State, to take actions within the United States-Israel Defense Acquisition Advisory Group to provide a standing forum in which the United States and Israel can share intelligence, identify military capability requirements common to the Department of Defense and the Ministry of Defense of Israel, assist defense suppliers in the United States and Israel, develop combined United States-Israel plans for weapon systems and military capabilities, and seek ways to broaden Israeli cooperation with signatories to the Abraham Accords, Egypt, and Jordan.

Prohibition on support for offensive military operations against the Houthis in Yemen (sec. 1272)

The committee recommends a provision that would prohibit support for the Saudi-led coalition's offensive operations against Ansar Allah, generally known as the Houthis, in Yemen, including for coalition strikes, which is consistent with President Biden's February 2021 announcement ending all American support for offensive operations in the war in Yemen. The committee also condemns Ansar Allah's destabilizing tactics including the use of missiles and unmanned aerial vehicles against the Kingdom of Saudi Arabia and their military assault on Marib. The provision would ensure that

the President maintains the authority to support counterterrorism efforts in Yemen by Saudi Arabia and the United Arab Emirates, as well as the authority to protect civilians, including United States citizens, from attacks. The provision would also require a report on the role of both Ansar Allah and Saudi Arabia in the obstruction of humanitarian aid in Yemen.

Repeal of authorization of non-conventional assisted recovery capabilities; modification of authority for expenditure of funds for clandestine activities that support operational preparation of the environment (sec. 1273)

The committee recommends a provision that would repeal section 943 of the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009 (Public Law 110–417), as amended, on December 31, 2022, and require a plan for transitioning the funding for non-conventional assisted recovery capabilities to the authority provided by section 127f of title 10, United States Code, for activities that support operational preparation of the environment.

The committee continues to support the requirement for non-conventional assisted recovery activities by the geographic combatant commands but believes the authority provided by section 127f of title 10, United States Code, is more appropriate for such purposes. Furthermore, the committee believes a deliberate transition of such activities to a standing title 10 authority will provide the Department of Defense with more predictability and improve congressional oversight of the range of activities contributing to operational preparation of the environment. The committee expects that regular reporting on non-conventional assisted recovery activities will continue unchanged, including the level of specificity required by section 943 of the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009.

Extension and modification of authority for certain payments to redress injury and loss (sec. 1274)

The committee recommends a provision that would extend section 1213 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92) through December 31, 2023, and require the Secretary of Defense to establish procedures to receive, evaluate, and respond to allegations of civilian harm not later than 180 days after the date of the enactment of this Act.

As the Department of Defense works to establish such procedures, the committee encourages the Secretary to continue the past practice of robust engagement with nongovernmental organizations that focus on addressing civilian harm in conflict. The Secretary should also consider whether there is a need for a federally funded research and development center to study past practices and assess options for the U.S. response to incidents of civilian harm.

Secretary of Defense Strategic Competition Initiative (sec. 1275)

The committee recommends a provision that would establish an initiative, to be known as the Secretary of Defense Strategic Competition Initiative, that the Secretary of Defense may use to fund Department of Defense (DOD) activities and programs that ad-

vance U.S. national security objectives in the strategic competition with near-peer rivals China and Russia. The purpose of the initiative is to support DOD efforts to compete at the strategic level across domains with near-peer rivals, including emergent or unanticipated requirements; counter coercion by near-peer rivals targeting U.S. allies and partners in competition short of armed conflict; and integrate with, support, and enable other Federal departments and agencies to advance U.S. influence and interests.

The committee notes that elsewhere in this Act is a recommended increase of $20.0 million in Operation and Maintenance, Defense-Wide, for the Office of the Secretary of Defense for the Secretary of Defense Strategic Competition Initiative.

Strategic competition initiative for United States Southern Command and United States Africa Command (sec. 1276)

The committee recommends a provision that would authorize the Secretary of Defense to develop and carry out an initiative to support programs and activities for long-term strategic competition with near-peer rivals the People's Republic of China and the Russian Federation in the areas of responsibility of U.S. Southern Command (SOUTHCOM) and U.S. Africa Command (AFRICOM). The provision would require the Secretary of Defense, in consultation with the Commanders of SOUTHCOM and AFRICOM, to develop and submit to the congressional defense committees a plan for the initiative. The initiative would be implemented through the Department's security cooperation and other existing authorities.

Modification of notification requirements for sensitive military operations (sec. 1277)

The committee recommends a provision that would modify the notification requirements for sensitive military operations contained in section 130f of title 10, United States Code, to include operations conducted by the Armed Forces to free an individual from the control of hostile foreign forces.

The committee appreciates the Department of Defense's efforts to refine and improve the process required for notification of sensitive military operations to the Congress. The committee intends to continue to work with the Department to balance the need for timely and substantive notifications of sensitive military operations with operational and personnel limitations. The committee notes that sensitive military operations in Afghanistan, Iraq, and Syria remain exempt from the notification requirements under section 130f of title 10, United States Code. However, given changes to the nature and pace of operations and force levels in Afghanistan, Iraq, and Syria, the committee believes that the Department should provide notifications for significant sensitive military operations in such countries that are consistent with the requirements of 130f of title 10, United States Code. Examples of significant sensitive military operations include those intended to kill or capture high value individuals, to free individuals from the control of hostile foreign forces, or high operational tempo events to disrupt identified threats.

Special Operations Forces joint operating concept for competition and conflict (sec. 1278)

The committee recommends a provision that would require the Assistant Secretary of Defense for Special Operations and Low Intensity Conflict and the Commander of U.S. Special Operations Command to jointly submit to the congressional defense committees a special operations forces joint operating concept for competition and conflict not later than 180 days after the date of enactment of this Act.

Plan for provision of information support to commanders of the combatant commands (sec. 1279)

The committee recommends a provision that would require, not later than 90 days after the date of the enactment of this Act, the Under Secretary of Defense for Intelligence and Security, in coordination with the Director of National Intelligence, to develop a plan for more effectively fulfilling the intelligence and information requirements of the combatant commands in support of efforts to expose and counter foreign malign influence, coercion, and subversion. The provision would also require the Comptroller General of the United States, within 45 days of the submission of the required plan, to conduct an assessment of the sufficiency of the plan for meeting the requirements of the combatant commands.

Independent review of and report on the Unified Command Plan (sec. 1280)

The committee recommends a provision that would require the Secretary of Defense to provide for an independent review of the current Unified Command Plan. The review shall consider current and anticipated threats and an evaluation of the missions and responsibilities of each geographic and functional combatant command. The Secretary shall submit the review to the Committees on Armed Services of the Senate and the House of Representatives not later than October 1, 2022.

Establishment of mission-oriented pilot programs to close significant capabilities gaps (sec. 1281)

The committee recommends a provision that would require the Secretary of Defense to establish, within the Strategic Capabilities Office, mission integration pilot programs with the objective of closing significant capabilities gaps by synchronizing and integrating missions across services and Field agencies. The pilot programs would be aligned to high importance operational challenges for U.S. European Command and U.S. Indo-Pacific Command and would be designed to leverage industry cost sharing, including private equity and venture capital, to develop underlying technology and overall capability for delivery to the joint force within 5 years. The provision would require the head of the Strategic Capabilities Office to provide reports every 180 days, beginning 10 days after the date of the enactment of this Act, to the congressional defense committees on the pilot programs. Finally, the provision would require the Secretary of Defense to submit a recommendation to the congressional defense committees with respect to continuing or expanding the pilot program not later than 2 years after the date of the enact-

ment of this Act and would allow the Secretary to transition responsibility for the pilot programs to another organization beginning in fiscal year 2025.

Limitation on availability of certain funding for operation and maintenance (sec. 1282)

The committee recommends a provision that would prohibit the obligation or expenditure of more than 75 percent of the funds authorized to be appropriated by this Act for the Office of the Secretary of Defense until 15 days after the Secretary submits the following to the congressional defense committees:

(1) The report on the comprehensive Department of Defense policy on collective self-defense required by section 1754 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92);

(2) The first quarterly report on Department of Defense Execute Orders required by section 1744 of the National Defense Authorization Act for Fiscal Year 2020; and

(3) The report on the policy of the Department of Defense relating to civilian casualties resulting from U.S. military operations required by section 936 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115–232).

Items of Special Interest

Assessment of China-Russia Security Cooperation

The committee directs the Director of the Defense Intelligence Agency, in coordination with the heads of other relevant Federal departments and agencies, to complete a qualitative and, to the degree practicable, a quantitative assessment of the extent to which China and Russia have engaged in security cooperation over the last five years.

Additionally, the committee directs the Director of the Defense Intelligence Agency to provide the congressional defense and intelligence committees a briefing on the results of the required assessment not later than April 1, 2022. At a minimum, the required briefing shall include an analysis of:

(1) The size and duration of combined military exercises involving both Chinese and Russian forces;

(2) Sales of arms and provision of military services between China and Russia;

(3) Exchanges of military personnel or attendance at professional education courses or training facilities;

(4) Cooperative research and development on technologies with military applications;

(5) Defense planning at the strategic, operational, or tactical level;

(6) The results of any security dialogues or agreements, including any notable changes in information sharing or troop posture;

(7) The expected general trajectory of security cooperation between China and Russia over the next five years and the objectives of such security cooperation for each nation; and

(8) Any other matters the Director deems appropriate.

Briefing on efforts to provide credible options to respond to the use of force by China to alter the status quo with respect to Taiwan

The committee believes that the Department of Defense has appropriately identified China as the pacing threat for the U.S. military. The committee also believes the U.S. military should be appropriately postured and possess capabilities required to deter and, if necessary, respond to the use of force by China to alter the status quo with respect to Taiwan, including to prevent a so-called "fait accompli" scenario. Given the rapid pace of Chinese investment in advanced military technology and technology with significant military applications, the Department of Defense must develop and field the capabilities necessary to maintain a qualitative edge with respect to China, deter aggression, and provide credible response options in the event of a contingency with respect to Taiwan.

Therefore, the committee directs the Secretary of Defense, not later than October 1, 2021, to provide the congressional defense committees a briefing on Department of Defense efforts to deter and, if necessary, provide the President with credible options to respond to the use of force by China to alter the status quo with respect to Taiwan. At a minimum, the briefing shall include:

(1) An explanation of current U.S. military force posture in the Indo-Pacific region west of the International Date Line and planned enhancements that will improve the resilience of U.S. forces to Chinese aggression, including through dispersal and disaggregation, while preserving options to respond;

(2) An evaluation of the adequacy of the combat capability and capacity of extant and planned major U.S. weapons system platforms to compete against current and anticipated Chinese weapons systems between now and 2035;

(3) An assessment of the current logistics capabilities and capacities that identifies any gaps or vulnerabilities, including in the areas of:

(a) pre-positioned forward stocks of munitions;

(b) pre-positioned forward stocks of fuel as well as storage and distribution;

(c) distributed maintenance; and

(d) logistics command and control; and

(4) Any other matters the Secretary deems appropriate.

Comptroller General review of European Deterrence Initiative

The committee remains strongly in support of the objectives of the European Deterrence Initiative (EDI), which include: enhancing the United States' deterrence posture, increasing the readiness and responsiveness of U.S. forces in Europe, supporting the collective defense and security of North Atlantic Treaty Organization (NATO) allies, and bolstering the security and capacity of U.S. allies and partners. The committee notes that it has been 7 years since the EDI was first proposed and believes it is appropriate to review the Initiative's progress in fulfilling its mission and programmatic objectives. Therefore, the committee directs the Comp-

troller General of the United States to conduct a review of the EDI. At a minimum, the review should:

(1) Outline the EDI's stated objectives, including any changes in those stated objectives over the course of the Initiative;

(2) Assess the extent to which EDI funding has aligned with those objectives and describe the extent to which the stated objectives have been fulfilled;

(3) Describe changes to U.S. military posture in Europe since 2014 and evaluate the extent to which the Department of Defense (DOD)'s planning for posture initiatives funded under the EDI adequately estimates their long-term costs and communicates their estimated costs to the Congress;

(4) Describe the mechanisms, if any, the DOD has established to maintain oversight of funding for EDI efforts in the event of the transition from Overseas Contingency Operations funding to base budget funding;

(5) Assess the extent to which DOD programming under the EDI has shifted to account for the reemergence of long-term strategic competition with China and Russia; and

(6) Any other matters deemed relevant by the Comptroller General.

The committee further directs the Comptroller General to brief the Senate Armed Services Committee on the results of the review not later than March 1, 2022, and issue a report to follow at a time agreed to subsequent to the briefing.

Comptroller General review of logistics in the European theater

The committee notes that in the event of a conflict in Europe, it will be necessary to rapidly move reinforcements and materiel from the United States or elsewhere to the European theater. The joint force will likely be called upon to open ports or airfield locations; establish staging bases; conduct reception, staging, onward movement, and integration operations (RSOI) for forces entering the theater; and coordinate with North Atlantic Treaty Organization (NATO) allies and partners for transit and synchronization of transportation assets. In September 2019, NATO established a new Joint Support and Enabling Command (JSEC) in Ulm, Germany, responsible for coordinating and safeguarding the movement of Allied forces and equipment across European borders. However, the committee is concerned that further work is necessary to build, train, and integrate these capabilities. Therefore, the committee directs the Comptroller General of the United States to conduct a review of plans, training, and integration of efforts to ensure fast and efficient movement of forces and equipment to and within the European theater. At a minimum, the review should assess:

(1) The extent to which the Department of Defense has integrated its planning and operations with the new NATO JSEC;

(2) Any actions the Department is taking to address concerns about the availability of transportation assets, to include contracted commercial trucking, in the event of a conflict in Europe;

(3) The Army's current capacity to meet potential wartime demands for port opening and RSOI missions;

(4) The Army's efforts to increase the overall readiness of its early deploying sustainment forces since fiscal year 2018, in particular for port opening, RSOI, and other missions performed early in a conflict;

(5) The extent to which early deploying sustainment forces train to perform wartime missions under conditions reflecting high intensity combat, including training on functions required early in combat;

(6) The planning, training, and equipping across the joint force for deploying a combat force through austere ports or airfield locations; and

(7) Any other matters deemed relevant by the Comptroller General.

The committee further directs the Comptroller General to provide an interim briefing to the Senate Armed Services Committee on the results of the review not later than May 1, 2022, and issue a report to follow at a time agreed to subsequent to the briefing.

Comptroller General review of the approval process for contact between Department of Defense personnel and Chinese government officials

The committee directs the Comptroller General of the United States to review the process used by the Department of Defense (DOD) to evaluate, and approve or deny, proposals for contact between DOD personnel and Chinese government officials. At a minimum, the review shall include:

(1) An identification of the laws and policies governing contacts between DOD personnel and Chinese government officials, including those contacts made in pursuit of official responsibilities and under any other circumstances;

(2) An articulation of the current process used by the Department of Defense to evaluate, approve, or deny proposals for contact between Department of Defense personnel and Chinese government officials; and

(3) Any other matters deemed relevant by the Comptroller General.

The committee further directs the Comptroller General to brief the congressional defense committees on the results of the review, not later than March 1, 2022, and issue a report to follow at a time agreed to subsequent to the briefing.

Cyber cooperation with Vietnam, Thailand, and Indonesia

The committee notes that the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) authorized the Secretary of Defense, in consultation with the Secretary of State, to establish a pilot program in Vietnam, Thailand, and Indonesia to enhance their cyber security, resilience, and readiness through December 31, 2024. Additionally, the committee understands that U.S. Indo-Pacific Command (INDOPACOM) is working with the Defense Security Cooperation Agency (DSCA) and the Department of State to design and implement this program. The committee continues to believe this pilot

project is a worthwhile endeavor and opportunity to strengthen bilateral and multilateral engagement with partners in the Indo-Pacific region. Lastly, the committee notes that the budget request includes more than $2.0 billion for this and other security cooperation activities administered by DSCA, and the committee looks forward to continued engagement with the Department of Defense as spending priorities are established for these funds.

Defense cooperation with Taiwan

The committee directs the Secretary of Defense, not later than March 1, 2022, to provide a briefing to the congressional defense committees on the advisability and feasibility of increasing United States defense cooperation with Taiwan, including increasing Taiwan's military readiness through the participation of Taiwan military personnel in joint military exchanges and exercises including, but not limited to, humanitarian assistance and disaster relief; enhancing academic and professional military education opportunities; supporting key leader engagements and senior leader visits; and other efforts deemed relevant by the Secretary.

Developing country definition

The National Defense Strategy highlights strengthening alliances and partnerships as a critical element of the U.S. approach to long-term strategic competition with near-peer rivals. A critical tool for building these security relationships is the set of Department of Defense (DOD) security cooperation authorities, including military-to-military engagements, professional military education, and joint training and exercises. The committee understands that concerns have been raised within DOD that the definition of "developing country" traditionally used to determine country eligibility for assistance under certain security cooperation authorities may be outdated. The committee notes that under chapter 16 of title 10, United States Code, the Secretary of Defense has broad latitude to prescribe and revise the term's meaning for purposes of DOD security cooperation authorities. The committee is concerned that the current definition overly constrains the flexibility of the combatant commanders to build defense relationships with key security partners that lack the resources to cover the incremental costs of participating in security cooperation activities. The committee urges the Secretary of Defense to review the current definition of "developing country" and its impact on DOD security cooperation programs and activities, and determine whether revising that definition would be better aligned with U.S. strategic objectives in building alliances and partnerships for strategic competition. The Secretary of Defense should consult closely with the Committees on Armed Services of the Senate and the House of Representatives in conducting this review.

Distributed airfields and ports for dispersed operations

The committee notes that U.S. military access to distributed basing locations, airfields, and ports in the Indo-Pacific region will be critical to operations under the developing Joint Warfighting Concept. A network of infrastructure with the capability and capacity to support military operations is both supported by and reinforces

bilateral partnerships and alliances that remain a critical comparative advantage for the United States over China in long-term strategic competition.

Therefore, the committee expects that future investments under the Pacific Deterrence Initiative in airfields, ports, and other operating locations, including fuel and munitions storage and distribution capacity, will be designed to facilitate dispersed operations. Furthermore, the committee believes investments in distributed military infrastructure should also be complemented by other non-military infrastructure and development investments using all financing options available. These investments would help to counter predatory infrastructure development practices of the People's Republic of China that seek to undermine the United States' network of allies and partners.

Ensuring the safety of America's Afghan allies

The committee notes the valuable and courageous contributions of many Afghan civilians and officials who supported United States counterterrorism and stability efforts in Afghanistan since 2001. Their efforts saved the lives of many U.S. servicemembers and diplomatic personnel, and the committee is eternally grateful to them and eager to ensure their safety after the withdrawal of U.S. troops.

The committee is deeply concerned that America's Afghan allies will face retaliation after the drawdown is completed. There are already reports of Taliban threats targeting those who helped the United States, and these threats cannot be ignored. As such, the committee encourages and supports the Special Immigrant Visa (SIV) program for Afghans. This critical program has already brought to the United States over 15,500 Afghans who served with bravery and honor alongside United States troops in support of United States missions in Afghanistan.

In order to best protect the Afghans whose lives remain at risk, the committee urges the Biden Administration to implement a strategy for ensuring the safety of America's Afghan allies as soon as possible, whether through the SIV program or through other authorities.

Forward deployed naval forces in Europe

The committee continues to support additional forward-basing of U.S. Navy destroyers in Rota, Spain. The ships currently stationed in Spain are among the most dynamically-employed assets of U.S. global maritime presence—performing ballistic missile defense missions; carrying out strikes in Syria; boosting U.S. presence across the European theater in support of allies and partners; and monitoring increasing Russian naval activities. At the same time, these ships have maintained some of the highest readiness rates of ships in the Navy, in part due to rigorous maintenance practices.

The committee is concerned that increasing Russian naval activity in the European theater, which is at its highest level since the Cold War, presents a significant challenge to the implementation of the National Defense Strategy in the European theater. The committee is also aware of the significant advances in Russian naval capability, especially in undersea warfare.

Due in part to these developments, the Commander, U.S. European Command, testified to the committee in February 2020 that he supports increasing from four to six the number of destroyers based in Rota, Spain. The Commander said that, based on the European Deterrence Initiative investments, Rota, Spain, facilities could support two more destroyers immediately. He also said that the two ships would "improve our ability to get indications and warnings in the potential battle space and also dramatically improve our ability to better command and control." In March 2020, the Chief of Naval Operations also endorsed the additional naval presence before the committee. The committee finds the arguments of senior defense leadership to increase naval presence in Europe, and the mission flexibility it would provide, compelling.

Therefore, the committee directs the Chief of Naval Operations and the Commander, U.S. European Command, not later than 15 days after the fiscal year 2023 budget request is submitted to the Congress, to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives on the plan to base two additional destroyers at Rota, Spain. This brief shall include a detailed explanation, by fiscal year, of actions and the associated funding that will lead to the forward stationing of six destroyers based in Rota as soon as practicable.

Medical support for Ukrainian soldiers

Section 1234 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) expanded the use of the Secretarial Designee Program to provide for Ukrainian soldiers' receipt of treatment at Department of Defense military treatment facilities when the necessary care cannot be provided in Ukraine.

The committee notes that implementation issues persist with regard to covering non-medical expenses in connection with such treatment. Such expenses include, but are not limited to, the cost of transportation, lodging, meals, and incidentals for the wounded and associated caregivers. The committee urges the Secretary of Defense to coordinate with the Secretary of State, Administrator of United States Agency for International Development, relevant non-governmental organizations, and senior Ukrainian officials to resolve these non-medical funding issues.

Further, the committee encourages the Secretary of Defense, in coordination with the Secretary of State, to continue efforts to develop Ukraine's capacity to care for wounded members of the Ukrainian Armed Forces within Ukraine, including building on notable progress in the areas of point-of-injury care, medical evacuation, and the establishment of a combat medic training program.

The Department of Defense should continue to consider Secretarial Designee Program requests to provide specialized care in U.S. military medical treatment facilities in the areas of polytrauma, amputations, burn treatment, prosthetics, and rehabilitation on a case-by-case basis.

Military mobility in Europe

The committee recognizes the importance of U.S. military mobility in Europe. It supports the ability of North Atlantic Treaty Orga-

nization and European partner forces to respond swiftly to crises and thereby undergird the Alliance's credible deterrent.

The committee directs the Secretary of Defense, in consultation with the Commander, U.S. European Command and the Supreme Allied Commander Europe, to submit to the Committees on Armed Services of the Senate and the House of Representatives not later than December 1, 2022, a report on U.S. military mobility in Europe. The report shall include an analysis of:

(1) Efforts thus far to implement a coherent approach to military mobility-related practices with European allies and partners with respect to regulations, funding, and training;

(2) Opportunities to harmonize legal and regulatory standards and risk-management practices to support and enhance military mobility;

(3) How Chinese investment in critical infrastructure, to include ports, railways, and roadways may impede or otherwise influence military mobility in Europe;

(4) Efforts the United States has undertaken with European partners and allies to incorporate military requirements into civilian infrastructure projects, including an identification of priority dual-use projects;

(5) The existing capacity of communications and energy infrastructure as well as potential choke points and vulnerabilities in a contested environment; and

(6) Any other matter the Secretary of Defense deems relevant.

Operational support to Afghanistan National Defense and Security Forces

The committee notes that the transition of U.S. and coalition military personnel from Afghanistan by mid-September 2021 does not constitute an end to counterterrorism operations in Afghanistan. The United States, working together with allies and partner nations, must continue to take actions to ensure that Afghanistan does not become a location from which the planning or projection of terrorist attacks against the Homeland or around the globe once again occurs. The committee expects that the Secretary of Defense will continue to provide operational support to the Afghanistan National Defense and Security Forces (ANDSF), including funding, equipment, military advice, intelligence support, and fire support in connection with:

(1) Counterterrorism operations against the Islamic State of Iraq and Syria, al-Qaeda, or other terrorist organizations in accordance with existing law and Department of Defense policy; or

(2) The collective self-defense of the ANDSF.

The committee directs the Secretary to provide a briefing on its plan to provide such support to the ANDSF to the congressional defense committees not later than November 15, 2021.

Participation by Taiwan in multilateral security dialogues and forums

The committee believes that it is the common interest of the United States and its allies and partners to strive for a Indo-Pacific

region that is free, open, inclusive, resilient, anchored by democratic values, and unconstrained by coercion. The committee also believes the United States should work closely with allies and partners to respond to the most urgent of global challenges, including economic and health impacts of COVID–19, as well as issues associated with cyberspace, critical technologies, humanitarian assistance and disaster relief, and the maritime domain. Lastly, the committee believes that Taiwan is a vital part of the free and open Indo-Pacific region based on rules-based order and democratic values, and it is in the political, security and economic interests of the United States to advocate for Taiwan's meaningful participation and contributions to multilateral dialogues and forums on issues of global concern.

Therefore, the committee directs the Secretary of Defense, not later than January 15, 2022, to provide the congressional defense committees a briefing on Department of Defense efforts to meaningfully engage Taiwan in multilateral dialogues or forums that shall, at a minimum, include:

(1) The feasibility and advisability of including Taiwan in various security dialogues or forums;

(2) An assessment of opportunities for increasing Taiwan's participation in multilateral security dialogues or forums related to specific issues, including:

(a) humanitarian assistance and disaster relief;

(b) supply chain security;

(c) cybersecurity; and

(d) maritime security; and

(3) Any other matters the Secretary deems appropriate.

Plan for maintaining oversight of funds and activities of Afghanistan Security Forces Fund

The committee notes the critical importance of continuing support to the Afghan National Defense and Security Forces, while conducting appropriate oversight of funds authorized after the transition of United States and coalition partner nation forces from Afghanistan. Therefore, the committee directs the Secretary of Defense to provide a briefing not later than December 15, 2021, regarding the plan to execute funds and activities authorized in the Afghan Security Forces Fund beyond the transition of United States forces from Afghanistan.

Public reporting of Chinese military companies operating in the United States

The committee notes that section 1260H of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) directs the Secretary of Defense to identify each entity the Secretary determines, based on the most recent information available, is operating directly or indirectly in the United States, or any of its territories and possessions, that is a Chinese military company.

The committee directs the Secretary, in implementing section 1260H of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, to ensure due consideration is given to Chinese major technology companies that are operating di-

rectly or indirectly in the United States or any of its territories and possessions.

Support to Kurdish Peshmerga for counterterrorism and border security operations

The committee strongly supports assistance to the Iraqi Security Forces including Kurdish Peshmerga forces, for the purposes authorized in the Counter Train and Equip Fund (CTEF), including for defending Iraq, its people, allies, and partner nations from the threat posed by the Islamic State of Iraq and Syria (ISIS) and groups supporting ISIS and securing the territory of Iraq. The committee commends the efforts of the Kurdish Peshmerga in ensuring the lasting defeat of ISIS and strongly supports continued efforts to sustain and build upon their partnership with other Iraqi Security Forces and the United States. As the campaign to counter ISIS moves into a new phase, the committee directs the Secretary of Defense, not later than November 1, 2021 to report on:

(1) An assessment of gaps in the capabilities of Iraqi Security Forces, including Kurdish Peshmerga forces, to conduct counterterrorism and border security operations in Iraq;

(2) Plans to provide Kurdish Peshmerga forces training and assistance focused on building counterterrorism and border security operations in coordination with the Government of Iraq; and

(3) A plan to support the Kurdish Peshmerga in coordination with the Government of Iraq, whether through CTEF, other authorities, or a memorandum of understanding.

United States support to partner military medical services

The committee recognizes that certain partner foreign security forces participating in U.S.-led coalition operations have a critical need to build their medical capacity to care for military and civilian personnel wounded in military operations in line with obligations under the law of armed conflict. The committee directs the Secretary of Defense to submit to the Committees on Armed Services of the Senate and the House of Representatives, not later than January 31, 2022, a report on Department of Defense (DOD) programs and activities to support and enhance the medical capacity of foreign national security forces receiving DOD assistance or support. The report shall include the following elements:

(1) A description of DOD programs and activities that currently support foreign medical corps capacity building, including a list of forces that have received such medical service capacity building support in the past 24 months and a description of such support provided to each recipient;

(2) An assessment of whether programs and activities currently authorized to support foreign medical corps capacity building are sufficient to provide combat casualty care treatment and equipment that meets or exceeds DOD treatment standards, including those recommended by the Committee on Tactical Combat Casualty Care;

(3) An assessment of the efficacy of DOD programs to support the medical capacities of foreign national security forces receiving DOD assistance or support and any recommendations

on whether further authorities or resources are needed to reach DOD standards; and

(4) A summary assessment of the capacity and key gaps within the military medical corps of Afghanistan and Iraq, with a focus on their ability to provide battlefield medical care to soldiers and wounded civilians in line with obligations under the law of armed conflict. The report shall be in unclassified form but may include a classified annex.

United States-Greenland strategic relationship

The committee notes the strategic importance of Greenland, a semi-autonomous territory within the Kingdom of Denmark, including its geostrategic location astride the transatlantic lines of communication, key role in the Arctic, hosting of Thule Air Base, and potential importance to rare earth material supply chains. The committee also notes the increase in activity of the People's Republic of China in the Arctic region. These geopolitical dynamics highlight the importance of United States investments in Greenland as evidenced by the September 17, 2018 "Statement of Intent on Defense Investments in Greenland."

Therefore, the committee directs the Secretary of Defense, not later than December 15, 2021, to provide the Senate Armed Services Committee a briefing on Department of Defense activities, plans, and investments related to Greenland. At a minimum, the briefing shall include a detailed description of:

(1) The current United States military force posture in Greenland and plans for future force posture changes;

(2) United States military and North Atlantic Treaty Organization military rotations of forces to Greenland conducted in the last 2 years and any planned rotations in the next 2 years;

(3) United States-funded infrastructure projects being executed or planned at Thule Air Base and other locations on the island, including projects associated with the 2018 "Statement of Intent on Defense Investments in Greenland";

(4) Whether current base operations and maintenance support arrangements at Thule Air Base are meeting mission requirements and what impact any anticipated changes to such arrangements would have on the ability to meet such requirements going forward; and

(5) Any other matters the Secretary deems appropriate.

TITLE XIII—COOPERATIVE THREAT REDUCTION

Funding allocations; specification of Cooperative Threat Reduction funds (sec. 1301)

The committee recommends a provision that would authorize $239.84 million for the Cooperative Threat Reduction (CTR) program, define the funds as authorized to be appropriated in section 301 of this Act, and authorize CTR funds to be available for obligation for fiscal years 2022, 2023, and 2024.

Items of Special Interest

Training for Weapons of Mass Destruction Civil Support Teams

The committee emphasizes the importance of regular training for weapons of mass destruction civil support teams (WMD–CSTs) to maintain readiness. The committee recognizes that such training opportunities are often only offered at facilities that are located at unreasonably far distances from National Guard units' home stations. The committee assesses that units may incur prohibitively high costs for the travel associated with participating in such training, which may risk diminishing units' activities and effectiveness. The committee thus determines that the Department of Defense and the Department of Energy may lack sufficient capacity to regularly train WMD–CSTs to a degree that maintains readiness.

The committee directs the Secretary of Defense, in consultation with the Chief of the National Guard Bureau and the Secretary of Energy, to study the feasibility of increasing training capacity for WMD–CSTs, including through the creation of new facilities and programs and through the augmentation of extant facilities and programs to provide such training. The study shall estimate the costs associated with increasing training capacity for WMD–CSTs and shall identify prospective facilities and programs that could provide such training. The Secretary shall provide a report on the study to the congressional defense committees not later than December 31, 2022.

TITLE XIV—OTHER AUTHORIZATIONS

Subtitle A—Military Programs

Working capital funds (sec. 1401)

The committee recommends a provision that would authorize the appropriations for the defense working capital funds at the levels identified in section 4501 of division D of this Act.

Chemical Agents and Munitions Destruction, Defense (sec. 1402)

The committee recommends a provision that would authorize the appropriations for Chemical Agents and Munitions Destruction, Defense, at the levels identified in section 4501 of division D of this Act.

Drug Interdiction and Counter-Drug Activities, Defense-wide (sec. 1403)

The committee recommends a provision that would authorize the appropriations for Drug Interdiction and Counter-drug Activities, Defense-wide, at the levels identified in section 4501 of division D of this Act.

Defense Inspector General (sec. 1404)

The committee recommends a provision that would authorize the appropriations for the Office of the Inspector General of the Department of Defense at the levels identified in section 4501 of division D of this Act.

Defense Health Program (sec. 1405)

The committee recommends a provision that would authorize appropriations for the Defense Health Program activities at the levels identified in section 4501 of division D of this Act.

Subtitle B—Armed Forces Retirement Home

Authorization of appropriations for Armed Forces Retirement Home (sec. 1411)

The committee recommends a provision that would authorize an appropriation of $75.3 million from the Armed Forces Retirement Home Trust Fund for fiscal year 2022 for the operation of the Armed Forces Retirement Home.

Subtitle C—Other Matters

Authorization to loan materials in National Defense Stockpile (sec. 1421)

The committee recommends a provision that would amend section 98e of title 50, United States Code, to authorize the loan of National Defense Stockpile materials to the Department of Energy or the military departments if certain criteria are met. The committee remains concerned that the National Defense Stockpile is still not agile enough to acquire and dispose of strategic and critical materials, including rare earth elements, in order to meet rapidly changing military requirements.

Accordingly, the committee directs the Director of the Defense Logistics Agency to provide a briefing to the Senate Armed Services Committee not later than March 1, 2022, on a plan to transition National Defense Stockpile acquisitions and disposals to a direct appropriations process.

Repeal of termination of biennial report on National Defense Stockpile requirements (sec. 1422)

The committee recommends a provision that would amend section 1061(i) of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) to ensure Congress continues to receive the biennial report on the National Defense Stockpile.

Authority for transfer of funds to joint Department of Defense-Department of Veterans Affairs Medical Facility Demonstration Fund for Captain James A. Lovell Health Care Center, Illinois (sec. 1423)

The committee recommends a provision that would authorize the Secretary of Defense to transfer $137.0 million from the Defense Health Program to the Joint Department of Defense-Department of Veterans Affairs Medical Facility Demonstration Fund, established by section 1704 of the National Defense Authorization Act for Fiscal Year 2010 (Public Law 111–84), for the operation of the Captain James A. Lovell Federal Health Care Center.

TITLE XV—SPACE ACTIVITIES, STRATEGIC PROGRAMS, AND INTELLIGENCE MATTERS

Subtitle A—Space Activities

Delegation of authorities to Space Development Agency (sec. 1501)

The committee recommends a provision that would, to the extent practicable, ensure delegation from the Secretary of the Air Force, through the Service Acquisition Executive for Space (SAE Space), to the Space Development Agency of head of contracting authority and milestone decision authority for middle tier acquisition programs. Elsewhere in this Act, the committee recommends delegation of Senior Procurement Executive authority to the SAE Space. In doing so, the committee stresses the importance of ensuring that as the SAE Space develops broad procurement policies consistent with the SAE Space's role as the Senior Procurement Executive across Space Force acquisition components and that SAE Space ensures the unique attributes of the Space Development Agency are accounted for in these policies.

In that regard, not later than 60 days after the formal transition of the Space Development Agency to the Space Force, the committee directs the Secretary of the Air Force to provide a report to the congressional defense committees on elements of the actions taken by the SAE that enable the Space Development Agency to perform its unique mission. These authorities will remain in place post transfer to Space Force.

Modification to Space Development Agency (sec. 1502)

The committee recommends a provision that would exempt the Space Development Agency (SDA) from the Joint Capabilities and Integration Development System process. Additionally, the provision would direct the SDA Director to convene a Combatant Commander and Warfighter Council at least twice annually to establish capability plans and recommend priorities for the SDA.

Disclosure of National Security Space Launch program contract pricing terms (sec. 1503)

The committee recommends a provision that would require the Air Force to provide the congressional defense committees with the pricing terms for any award to launch a national security payload under the National Security Space Launch program. Such data would be protected, as required by law under section 1905 of title 18, United States Code.

Extension and modification of Council on Oversight of the Department of Defense Positioning, Navigation, and Timing Enterprise (sec. 1504)

The committee recommends a provision that would amend section 2279b of title 10, United States Code, to include oversight of alternative positioning, navigation, and timing by the Council on Oversight of the Department of Defense Positioning, Navigation, and Timing Enterprise, consistent with section 1611 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283). The provision would also modify the Council's date of termination.

Senior Procurement Executive authority (sec. 1505)

The committee recommends a provision that would provide the Secretary of the Air Force the authority to delegate to the Assistant Secretary of the Air Force for Space Acquisition and Integration duties and authorities of the Senior Procurement Executive that relate to space systems and programs. The committee notes that elsewhere in this Act it recommends a provision that would transfer space acquisition projects from the Assistant Secretary of the Air Force for Space Acquisition and Integration to the Service Acquisition Executive for Space not later than October 1, 2022. The committee notes that the Secretary currently has a similar delegation authority for the Service Acquisition Executive of the Air Force.

Modifications to Space Force Acquisition Council (sec. 1506)

The committee recommends a provision that would amend section 9021 of title 10, United States Code, to change the name of the Space Force Acquisition Council to the Space Acquisition Council.

Modifications relating to the Assistant Secretary of the Air Force for Space Acquisition and Integration (sec. 1507)

The committee recommends a provision that would amend section 9021(c) of title 10, United States Code, to modify the role of the Assistant Secretary of the Air Force for Space Acquisition and Integration to include broader responsibilities for acquisition integration of space architectures across the Department of Defense (DOD). These responsibilities would transfer not later than October 1, 2022, when the Assistant Secretary of the Air Force for Space Acquisition and Integration becomes the Service Acquisition Executive for the Space Force. The provision would further ensure that the Assistant Secretary is responsible for overseeing all architecture and integration of DOD space programs with respect to their acquisition. The committee interprets the word "oversee" to mean "to see to officially, as one in charge of work done by others; or to have overall responsibility for." The provision would also designate the Chief of Space Operations as the force design architect for the Department's space programs.

The provision would additionally modify the role of the Space Force Acquisition Council to include certification of architecture determinations made by the Assistant Secretary. Upon certification, which would be forwarded to the congressional defense committees,

no further action could be taken for 60 days. The Secretary of Defense may waive this condition if they determine there is an exigent national security condition—a justification of which must be submitted to the congressional defense committees.

A principal aim of the creation of the Space Force was to establish an integrated and consolidated approach across the Department for the development of space architectures for the Department's satellite constellations performing national security missions. This was made clear in the report language accompanying the establishment of the Space Force in the National Defense Authorization Act for Fiscal Year 2020. The report language (H. Rept. 116–333) accompanying the subtitle in question stated that "The amendment would rename the Principal Assistant to the Secretary of the Air Force for Space as the Assistant Secretary for Space Acquisition and Integration (ASAF/SP), who would report directly to the Secretary of the Air Force and serve as the senior architect for space systems and programs across the Department of Defense." In the absence of the Department's action, this provision would implement that intent.

Modification to transfer of acquisition projects for space systems and programs (sec. 1508)

The committee recommends a provision that would modify the required transfer of space acquisition projects to the Assistant Secretary of the Air Force for Space Acquisition and Integration from October 1, 2022, to not later than October 1, 2022.

Extension and modification of certifications regarding integrated tactical warning and attack assessment mission of the Air Force (sec. 1509)

The committee recommends a provision that would extend section 1666 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328), as amended by section 1604 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283), through fiscal year 2026 and require the certification be made in consultation with the commanders of U.S. Strategic Command and U.S. Northern Command. The committee emphasizes that the ability to determine with high confidence whether an attack on the Homeland would involve a nuclear weapon should be one of the highest priorities for U.S. Space Command.

Prohibition on Missile Defense Agency production of satellites and ground systems associated with operation of such satellites (sec. 1510)

The committee recommends a provision that would prohibit the Missile Defense Agency from entering into a program of record to develop and field operational satellite constellation and ground systems. The provision would permit the Missile Defense Agency to field prototype satellites meeting Missile Defense Agency unique requirements. The committee has learned that the Missile Defense Agency cannot implement section 1645 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92) for hypersonic and ballistic missile tracking, which requires the Mis-

sile Defense Agency to place its Medium Field of View sensor on a Space Development Agency satellite, due to a misalignment of orbit requirements between those of the Space Development Agency and the Missile Defense Agency. This misalignment now requires the Missile Defense Agency to field two prototype satellites for hypersonic and ballistic missile tracking. The committee is acutely concerned that the Missile Defense Agency, which reports to the Undersecretary of Defense for Research and Engineering, could be fielding a program of record of satellite constellations and ground systems. The reason why the Congress created the Space Force was explicitly to consolidate space functions of the Department of Defense into the Space Force. Accordingly, the provision prohibits the Missile Defense Agency from developing satellite constellations and ground systems beyond a prototype stage. The Space Force will design, field, and operate the required program of record satellite constellation and ground systems for ballistic missile and hypersonic missile tracking.

Continued requirement for National Security Space Launch program (sec. 1511)

The committee recommends a provision that would require Launch Services providers to continue to meet Federal requirements, with respect to payload to reference orbits, for Phase Two National Security Space Launch.

Limitation, report, and briefing on use of commercial satellite services and associated systems (sec. 1512)

The committee recommends a provision that would ensure that critical defense functions do not solely rely on commercial satellite services and associated systems. These functions typically consist of nuclear command, control, and communications to disseminate Emergency Action Messages, Integrated Warning and Attack Assessment, mission- and time-critical targeting, and certain senior leadership communications associated with continuity of government.

The provision would also require the Secretary of Defense, on at least a quarterly basis, to provide to the congressional defense committees a report and briefing on the Department of Defense's reliance on commercial services and associated systems to provide capability and additional capacity and would detail certain required elements of the report and briefing.

Study on commercial systems integration into, and support of, Armed Forces space operations (sec. 1513)

The committee recommends a provision that would require the Secretary of the Air Force to enter into an arrangement with a federally funded research and development center (FFRDC) to conduct an assessment on the extent of reliance by the Department of Defense on commercial satellite systems.

The committee understands the importance of the use of commercial systems for communications, as well as other forms of sensor operations. It is not understood to what degree the Department should rely on such commercial systems. It should be well understood that critical functions such as emergency action messages to

direct nuclear forces should have, at their core, a system managed by the Department of Defense but complemented by commercial communications for the broadest form of resilience. Unknown is what risks this reliance poses to the Department and to the investors of the commercial companies, especially during a time of conflict. Further, the committee finds a lack of understanding on the risk of a commercial entity becoming a combatant, and whether that risk is represented to insurers and investors. It is essential that the Department and commercial entities understand this risk so that the Department can ascertain whether it obtained a fair and reasonable price for the services it is relying on now, rather than at some later date. The committee expects the Secretary and the FFRDC to obtain the widest set of viewpoints, including the national security community, commercial space companies, insurers, and a legal analysis of combatant and non-combatant status. This assessment would be due to the congressional defense committees not later than 270 days after the date of the enactment of this Act in unclassified form, with a classified annex if required.

Space policy review (sec. 1514)

The committee recommends a provision that would require the Secretary of Defense, in consultation with the Director of National Intelligence, to conduct reviews of the space policy of the Department of Defense to be submitted concurrently with the President's budget for fiscal years 2024 through 2026. The provision would detail required elements of each review, to include an assessment of recommended changes and supported funding over the succeeding 5 years.

Annual briefing on threats to space operations (sec. 1515)

The committee recommends a provision that would require the Chief of Space Operations, in consultation with the Director of the Defense Intelligence Agency, to provide an annual briefing through 2026 to the congressional defense and intelligence committees on the threats posed by the Russian Federation, the People's Republic of China, and any other relevant country to the conduct of United States operations in space.

Subtitle B—Defense Intelligence and Intelligence-Related Activities

Authority for Army counterintelligence agents to execute warrants and make arrests (sec. 1521)

The committee recommends a provision that would amend section 7377 of title 10, United States Code, to authorize Army counterintelligence civilian special agents to serve warrants and make arrests when conducting counterintelligence investigations.

Annual briefing by Director of the Defense Intelligence Agency on electronic warfare threat to operations of the Department of Defense (sec. 1522)

The committee recommends a provision that would require the Director of the Defense Intelligence Agency to provide to the congressional defense and intelligence committees an annual briefing

on the electronic warfare threats posed to the U.S. military from Russia, China, and other relevant nations through 2026.

Subtitle C—Nuclear Forces

Participation in United States Strategic Command strategic deterrence exercises (sec. 1531)

The committee recommends a provision that would require involvement from a number of senior civilian and military officials in nuclear command, control, and communications exercises, as well as the decision making with respect to them. The provision does not mandate complete involvement for the entire duration of the exercise, but sufficient involvement to assure familiarity with the processes, the systems in place, and the outcome of the decision process so that it can be improved. While the committee believes and hopes that such an exercise lies at the extreme end of the escalation spectrum, senior leaders must participate in the exercise so the outcomes and improvements in the quality of the decision making can impart lessons learned into more common escalation scenarios affecting the national security and well-being of the Nation. The committee notes that many of these same systems serve as a crisis communications backbone in the more common escalation scenarios referenced, hence the importance of using them in the most stressed scenarios. Finally, the committee believes that involving senior leaders in these exercises will import to them the importance of a robust, resilient and user oriented decision system in future acquisition planning the Department is responsible for, and the timely generation and fulfillment of the requirements associated with future senior leader communications and decision systems.

Modification to requirements relating to nuclear force reductions (sec. 1532)

The committee recommends a provision that would amend section 494 of title 10, United States Code, to extend the existing timeline for notifying Congress prior to any reductions in the number of deployed U.S. nuclear weapons; eliminate the previous sunset on a conditional net assessment by the Commander, U.S. Strategic Command, of the capability of the U.S. nuclear weapons stockpile to deter global nuclear threats; and update the date of effect for any changes to the U.S. stockpile. The provision would also adjust the existing requirements for the Secretary of Defense to include submission of an assessment to the congressional defense committees of whether any proposals by the President to reduce the size of the U.S. nuclear weapons stockpile would result in the size of the U.S. stockpile becoming a number less than that of the intelligence community's high-confidence assessment of the size of the Russian Federation's and the People's Republic of China's nuclear weapons stockpiles. The provision would further clarify that non-permanent reductions in the U.S. nuclear weapons stockpile—to ensure the safety, security, reliability, and credibility of U.S. nuclear forces—would not trigger the requirement for a net assessment. Finally, the provision would eliminate the Presidential cer-

tification and notification requirements relating to recommendations to reduce the size of the U.S. nuclear weapons stockpile.

Modifications to requirements relating to unilateral changes in nuclear weapons stockpile of the United States (sec. 1533)

The committee recommends a provision that would amend section 498 of title 10, United States Code, to clarify that nuclear force reductions pursuant to a treaty, to which the Senate has provided its advice and consent, are exempted from the existing reporting requirement. The provision would also expand the categories of covered changes to include the total number of deployed nuclear weapons as well as the total nuclear weapons stockpile; reduce the triggering threshold for reductions that require a Nuclear Posture Review to 15 percent; and make a conforming edit to the requirement for transmitting such Nuclear Posture Review to the Congress prior to enacting said reductions.

Deadline for reports on modification of force structure for strategic nuclear weapons delivery systems (sec. 1534)

The committee recommends a provision that would amend section 493 of title 10, United States Code, to extend the existing timeline for prior notification to the Congress of any modification of the force structure for the strategic nuclear weapons delivery systems of the United States.

Modification of deadline for notifications relating to reduction, consolidation, or withdrawal of nuclear forces based in Europe (sec. 1535)

The committee recommends a provision that would amend section 497 of title 10, United States Code, to extend the existing timeline for prior notification to the Congress of any reduction, consolidation, or withdrawal of the nuclear forces of the United States based in Europe.

Congressional Commission on the Strategic Posture of the United States (sec. 1536)

The committee recommends a provision that would create a congressional commission of 12 members to evaluate developments in the international security environment since the completion of the 2009 Congressional Commission on Strategic Posture report to the Congress, assess a variety of factors relating to U.S. nuclear weapons policies and factors shaping strategic stability, make recommendations as the committee deems necessary, and submit a report of its findings, conclusions, and recommendations to the President and the Committees on Armed Services of the Senate and the House of Representatives, not later than December 31, 2022.

The provision would also require the Department of Defense (DOD), the Department of Energy, the Department of State, and the Office of the Director of National Intelligence to provide the Commission with analyses, briefings, and other information necessary for the fulfillment of its responsibilities.

Over the previous decade, the Russian Federation, which maintains the world's largest nuclear arsenal, has modernized more

than 80 percent of its strategic nuclear forces, has expanded its already extensive theater-range nuclear capabilities, and is working to develop a wide array of novel nuclear weapons systems unlike any currently fielded. The People's Republic of China is in the midst of the world's most aggressive modernization and expansion of nuclear forces and nuclear weapons production capabilities. By the mid-2020s, the People's Republic of China is anticipated to complete its own strategic nuclear triad, and will continue its rapid modernization and expansion efforts as it seeks to be a strategic peer to the United States, possibly within the next decade. North Korea, while currently possessing a relatively modest nuclear arsenal when compared to the Russian Federation or the People's Republic of China, continues to pursue publicly announced plans to develop miniaturized nuclear warheads, tactical nuclear weapons, multiple independently targetable nuclear reentry vehicles for missiles, solid-fuel ballistic missiles of varying ranges, nuclear propulsion systems for submarines, and hypersonic boost-glide vehicles to threaten the United States and its allies in the region. Conversely, the U.S. is in the early stages of an effort to reestablish a complete nuclear weapons production capability and replace its existing nuclear forces, and has no plans to expand the size of its stockpile nor to develop a suite of exotic nuclear weapons systems.

The conclusions of the 2018 Nuclear Posture Review recognized the changes in the security environment and the risks of instability resulting from an international landscape where the United States must contend with two nuclear peers with modernized and diverse arsenals. As the Biden Administration begins its review of U.S. nuclear policies and works to craft its own approach to this complex and dangerous new reality, it is imperative that the Congress reestablish the Congressional Commission on the Strategic Posture of the United States to examine the developments in the international security environment since the last assessment in 2009 and to ensure the Administration has access to the recommendations of some of the most respected and esteemed experts in matters of strategic deterrence that the United States has to offer.

Revised Nuclear Posture Review (sec. 1537)

The committee recommends a provision that would require the Secretary of Defense, acting through the Under Secretary of Defense for Policy and the Vice Chairman of the Joint Chiefs of Staff, to conduct a comprehensive review of U.S. nuclear posture for the next 5 to 10 years. The provision details the contents to be included in such a review, and would require the Secretary of Defense to submit a report on the results of the review to Congress in 2022, along with the national defense strategy required under section 113(g) of title 10, United States Code.

Ground-Based Strategic Deterrent development program accountability matrices (sec. 1538)

The committee recommends a provision that would establish accountability matrices for the Ground-Based Strategic Deterrent (GBSD) program, similar to those required for the B–21 bomber program under section 238 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328).

The committee notes that the GBSD program is a complex Major Defense Acquisition Program. The use of this report format early in the program, combined with concurrent assessments by the Comptroller General of the United States, will establish the necessary congressional oversight of this program to ensure it is being executed as described by the Department of Defense in budget documents to the congressional defense committees.

Procurement authority for certain parts of Ground-Based Strategic Deterrent cryptographic device (sec. 1539)

The committee recommends a provision that would provide the Secretary of the Air Force the authority to use Air Force procurement funds to purchase Commercial-Off-The-Shelf (COTS) parts qualified for use in the Ground Based Strategic Deterrent's nuclear command and control cryptographic device (KS–75) supporting the life of the KS–75 program. This provision would provide authority for a single fiscal year 2022 life-of-type buy (LOTB) request for the KS–75 cryptographic device in the amount of $10.0 million. The committee notes that procurement of these parts in quantities to support production and spares is necessary to support the qualification, test, and National Security Agency (NSA) certification of COTS parts operating in the nuclear command and control environment. The Government's qualification and certification is limited to specific production lots due to variations in supplier processes and materials that can significantly change electronics performance. Parts available from the supplier in subsequent production lots or from other suppliers are required to undergo a delta or complete recertification process (depending on severity of design change) to obtain NSA approval for use in nuclear command and control weapon systems. If re-design is required, the parts would require a new part number and separate supply chain management activities associated with a second KS–75 configuration.

Mission-design series popular name for Ground-Based Strategic Deterrent (sec. 1540)

The committee recommends a provision that would direct the Secretary of the Air Force, in coordination with the Under Secretary of Defense for Acquisition and Sustainment, to establish a mission-design series popular name for the Ground-Based Strategic Deterrent not later than 30 days after the date of the enactment of this Act. The provision would also require the Secretary of the Air Force to notify the congressional defense committees of the completion of the requirement not later than 10 days after completion.

B–21 Raider nuclear capability and integration with Long-Range Standoff Weapon (sec. 1541)

The committee recommends a provision that would require the Secretary of the Air Force to ensure that the Long-Range Standoff Weapon is fully integrated with the B–21 not later than 2 years after the Long-Range Standoff Weapon achieves initial operational capability.

The committee believes that the B–21 Raider bomber represents a valuable future addition to the U.S. nuclear deterrent, one that,

when paired with the Long-Range Standoff Weapon, will ensure the continued effectiveness of the air leg of the strategic triad.

Comptroller General study and updated report on nuclear weapons capabilities and force structure requirements (sec. 1542)

The committee recommends a provision that would direct the Comptroller General of the United States to conduct a study on the nuclear capabilities, force structure, employment policy, and targeting requirements of the Department of Defense. The provision would further detail the contents of the report and direct the Comptroller General to provide a briefing on preliminary findings to the congressional defense committees not later than March 31, 2022, with the final report to follow on a date agreed upon by the Comptroller General and the congressional defense committees.

Following the completion of the Department of Defense's (DOD) 2010 Nuclear Posture Review, the administration concluded that the United States could reduce the role of nuclear weapons in the U.S. security strategy. At the time, the United States was believed to be facing a more benign nuclear threat environment, having recently concluded the New START Treaty with the Russian Federation. The administration also expected to continue to substantially reduce the size of its nuclear weapons stockpile, as had been the case since the end of the Cold War, and would need to adjust its targeting and planning requirements accordingly.

To better understand the implications of such changes in the U.S. nuclear weapons stockpile and to future targeting and planning requirements, the Congress directed the Comptroller General of the United States to update a September 27, 1991, Government Accountability Office (GAO) report on the nuclear weapons targeting process, titled "Strategic Weapons: Nuclear Weapons Targeting Process" (GAO/NSIAD–91–319FS), in section 1047 of the National Defense Authorization Act for Fiscal Year 2012 (Public Law 112–81). The resulting GAO report, published July 31, 2012, titled, "Strategic Weapons: Changes in the Nuclear Weapons Targeting Process Since 1991" (GAO–12–786R), found that the fundamental objectives of U.S. nuclear deterrence policy had remained largely consistent since 1991, even as the threat environment and size of the stockpile had changed.

Since GAO's 2012 report, the U.S. nuclear weapons stockpile has been further reduced in response to New START Treaty provisions, which were achieved in February 2018, and were recently extended through February 4, 2026. However, as noted in the 2018 Nuclear Posture Review, the global nuclear threat environment has become more complex and has deteriorated significantly over the past decade, as Russia, China, and North Korea took steps to add new nuclear capabilities to their arsenals and increase reliance on nuclear forces in their strategies and plans.

As the Department of Defense and the National Nuclear Security Administration continue their multi-decade effort to modernize the Nation's nuclear forces and preserve the existing deterrent capabilities, it is important that the Congress understand how the development of nuclear force requirements has evolved and how these

requirements inform investment decisions on the resulting programs.

Accordingly, the study recommended by the committee in the provision would, at a minimum, update the GAO's 2012 report, including any changes to:

(1) How the Department of Defense has assessed threats and modified its nuclear deterrence policy;

(2) Targeting and employment guidance from the President, the Secretary of Defense, the Chairman of the Joint Chiefs of Staff, and the Commander, U.S. Strategic Command;

(3) Nuclear weapons planning and targeting, including categories and types of targets;

(4) Strategic nuclear forces, including the stockpile, force posture, and modernization;

(5) The level of civilian oversight;

(6) The relationship between targeting and requirements; and

(7) Any other matters considered appropriate by the Comptroller General.

Finally, the committee notes that the Government Accountability Office's statutory right of access encompasses the information required for this review, including information, guidance, and other documentation related to nuclear planning, targeting, capabilities, and operations. Accordingly, the committee expects the Secretary of Defense, the Secretary of Energy, and the Administrator for Nuclear Security to provide the Comptroller General with full cooperation and access to appropriate officials, guidance, and other documentation.

Prohibition on reduction of the intercontinental ballistic missiles of the United States (sec. 1543)

The committee recommends a provision that would prohibit the obligation or expenditure of fiscal year 2022 funds to reduce deployed U.S. intercontinental ballistic missiles' responsiveness, alert level, or quantity to fewer than 400. The provision would provide an exception to this prohibition for activities related to maintenance, sustainment, and replacement, or activities to ensure safety, security, or reliability.

Limitation on use of funds until completion of analysis of alternatives for nuclear sea-launched cruise missile (sec. 1544)

The committee recommends a provision that would limit the amount obligated or expended for the operations of the Office of the Assistant Secretary of Defense for Strategy, Plans, and Capabilities to not more than 90 percent of the amount authorized by this Act until the Under Secretary of Defense for Policy provides a briefing on the analysis of alternatives for the nuclear sea-launched cruise missile. The provision would also require the Chairman of the Nuclear Weapons Council to provide a briefing to the congressional defense committees on the planned management structure for the joint missile and warhead development program not later than April 1, 2022.

Sense of the Senate on NATO security and nuclear cooperation between the United States and the United Kingdom (sec. 1545)

The committee recommends a provision that would express the sense of the Senate that the independent nuclear deterrents of the United States, the United Kingdom, and the French Republic are the supreme guarantee of the security of the North Atlantic Treaty Organization (NATO). The provision would further express the sense of the Senate that the United States and the United Kingdom face similar challenges in modernizing their aging nuclear deterrents and that continued nuclear cooperation between the United States and the United Kingdom is in the national security interests of the United States.

Sense of the Senate on maintaining diversity in the nuclear weapons stockpile (sec. 1546)

The committee recommends a provision that would express the sense of the Senate that a technologically diverse nuclear weapons stockpile that reduces the impact of technical issues in any single weapon type is in the national security interest of the United States and that the United States should maintain no fewer than two distinct types of deployed nuclear weapons per leg of the nuclear triad.

Sense of the Senate on the Ground-Based Strategic Deterrent (sec. 1547)

The committee recommends a provision that would outline a series of findings relating to the need to pursue the Ground-Based Strategic Deterrent (GBSD) program to replace the Minuteman III intercontinental ballistic missile weapon system and express the sense of the Senate that intercontinental ballistic missiles are a critical component of the U.S. nuclear deterrent; the continued development of the GBSD system is needed; modernization programs may increase opportunities for effective arms control; and that prioritizing execution of the GBSD program prior to the retirement of the Minuteman III system is in the national security interest of the United States.

Subtitle D—Missile Defense Programs

Authority to develop and deploy Next Generation Interceptor for missile defense of the United States homeland (sec. 1551)

The committee recommends a provision that would authorize the Director of the Missile Defense Agency, subject to the availability of appropriations, to develop a highly reliable missile defense interceptor for the Ground-based Midcourse Defense system using sound acquisition practices. The Director would also be required to develop a funding plan addressing certain features of the program, submit a report on the funding profile necessary for the program with the fiscal year 2023 budget request, and notify the Congress within 30 days of any final decisions to cancel the program.

The committee recognizes that the threat of long-range missile attacks against the United States continues to increase, with grow-

ing risks from adversary acquisition of greater numbers of more complex systems with the capability to hold the U.S. Homeland at risk. In order to pace this threat, the capabilities of the United States' Ground-based Midcourse Defense system must continue to evolve, even as the United States works to develop future defensive technologies.

Annual reliability testing for the Next Generation Interceptor (sec. 1552)

The committee recommends a provision that would require the Director of the Missile Defense Agency, to develop and execute a plan for conducting annual reliability testing for the Next Generation Interceptor (NGI) within 5 years of a declaration of initial operational capability and ensure at least one test a year is performed in an operational setting for the ground based mid-course missile defense. The provision would also require the Director to provide a report, not later than the date of approval for the NGI program to enter the production phase of its acquisition process, to the Committees on Armed Services of the Senate and the House of Representatives on the estimated costs for conducting said tests, including procurement of sufficient assets to accommodate testing of one interceptor per year over the life of the system.

Next Generation Interceptor program accountability matrices (sec. 1553)

The committee recommends a provision that would require the Director of the Missile Defense Agency to submit annually, with the President's budget request, a matrix that identifies, in 6-month increments, key milestones, development events, specific performance goals, cost tracking, and independent reviews for the technology and product development phases of the Next Generation Interceptor (NGI) program. The provision would also require the Director to update these annual matrices not later than 180 days after each submission and would direct the Comptroller General of the United States to review the annually submitted matrices and brief the congressional defense committees within 60 days of receipt. The requirements of the provision would terminate 1 year after the NGI achieves initial production.

Extension of period for transition of ballistic missile defense programs to military departments (sec. 1554)

The committee recommends a provision that would adjust the date on which the Secretary of Defense should transfer the acquisition authority and the total obligation authority for each missile defense program from the date on which the President's budget request for fiscal year 2023 is submitted under section 1105 of title 31, United States Code, to October 1, 2023.

The committee notes that the Department of Defense has a troubled track record of transitioning missile defense acquisition programs to the military services. However, successfully ensuring these programs efficiently move from Missile Defense Agency-led research and development to service-led system acquisition is crucial to the long term viability of the missile defense enterprise. The committee expects the Department to address this issue within the

context of the administration's review of U.S. missile defense policies over the coming months.

Iron Dome short-range rocket defense system and Israeli cooperative missile defense program co-development and co-production (sec. 1555)

The committee recommends a provision that would provide funding for the procurement of the Iron Dome short-range rocket defense system, David's Sling Weapon System, and Arrow 3 Upper Tier Interceptor Program as outlined under the Memorandum of Agreement between the United States and the Government of Israel for cooperative missile defense programs.

Semiannual updates on meetings held by the Missile Defense Executive Board (sec. 1556)

The committee recommends a provision that would require the Under Secretaries of Defense for Research and Engineering and Acquisition and Sustainment, as co-chairs of the Missile Defense Executive Board, to provide a semiannual update to the congressional defense committees on the meetings and decisions of the Board not later than March 1 and September 1 of each year. The co-chairs would not be required to provide an update on decisions of the Board relating to the budget of the President for a fiscal year if the budget for that fiscal year has not been submitted to the Congress as of the date of the semiannual update.

The co-chairs may submit the update to the committees as either a briefing or a written report.

Independent study of Department of Defense components' roles and responsibilities relating to missile defense (sec. 1557)

The committee recommends a provision that would require the Secretary of Defense to enter into a contract with the National Academy of Public Administration (NAPA) to provide a report to the congressional defense committees that assesses missile defense roles and responsibilities within the Department of Defense (DOD), identifies inefficiencies and opportunities for improvement in organizational relationships, and makes recommendations for improvements.

The provision would also require the Secretary to submit a separate report to the congressional defense committees on DOD's views on the findings of the NAPA report not later than 120 days after the date on which the NAPA report is submitted.

The committee notes that development of an effective, multi-tier missile defense capability to protect the United States, its allies, and U.S. forces in theater is a critical national security priority. Managing this capability, which requires a complex interplay of space-based, airborne, terrestrial, and maritime sensors, communications networks, and kinetic and non-kinetic defenses, is further complicated by the vast array of options available to adversaries for attacking U.S. and allied territory and assets. In order to be successful, all organizations that contribute to the missile defense mission must have a clear understanding of one another's roles and responsibilities, and confidence that all such organizations are effec-

tively executing said roles. Absent a clear understanding of missile defense roles and responsibilities, inefficiencies begin to inevitably plague the system, resulting in redundant or unproductive investments, unclear lines of authority, degradations in mission performance, and parochialism—all of which are unacceptable for such an important mission. As the Department of Defense undertakes a review of missile defense policies and strategies, whether as part of a stand-alone Missile Defense Review or as part of a larger assessment of defense strategy, the Department should thoroughly review its organizational structures for the missile defense mission, clarify roles and responsibilities across its components, and establish clear management relationships and processes.

In order to ensure a comprehensive assessment, the committee expects that the Office of the Under Secretary of Defense for Policy will serve as the focal point for facilitating DOD cooperation with NAPA in executing this independent assessment and ensuring robust participation by all DOD components. The committee also expects the Office of the Under Secretary of Defense for Policy, in coordination with Washington Headquarters Services, to expedite the conclusion of DOD's contractual arrangements with NAPA not later than February 1, 2022. Finally, the committee expects the Secretary to promptly notify the committee if the DOD will be unable to conclude a contract with NAPA by said timeline.

Items of Special Interest

Alternate position, navigation, and timing in space

Given the concern about the vulnerability of jamming of Global Positioning System (GPS) satellites, the committee directs the Secretary of the Air Force to provide a briefing to the congressional defense committees, not later than March 31, 2022, on an alternate Positioning, Navigation, and Timing (PNT) constellation that provides the capabilities for the rapid deployment of alternate PNT satellites to address emerging threats to GPS jamming and spoofing.

Briefing on advanced missile defense technology development

The committee believes that while the current kinetic hit to kill interceptor construct represents the most capable, cost-effective missile defense option in the near to mid-term, pursuing this approach alone is unlikely to remain a cost effective solution for protecting the U.S. Homeland, allies, and U.S. forces abroad from increasing missile threats. As such, the committee is concerned by the Missile Defense Agency's lack of sufficient investment in the fiscal year 2022 request for exploring and developing future, cost-effective missile defense technologies to address the range of hypersonic glide, ballistic, cruise missile, and shorter range rocket concerns.

Accordingly, the committee directs the Under Secretary of Defense for Research & Engineering and the Director of the Missile Defense Agency to provide a briefing to the congressional defense committees, not later than April 15, 2022, on Department of Defense efforts to prioritize development of new communication tech-

nologies and sensors critical to hypersonic, cruise, and ballistic missile strategies; adopt agile commercial-sector practices in developing next-generation missile-defense systems while incorporating proven technologies and methodologies into the warfighter integration process; incorporate directed energy technology on a transportable and/or mobile platforms; and provide the chief architect of the Missile Defense Agency with threat development and modeling and simulation tools that provide timely dynamic and reactive threat representations required for architecture assessment and design.

Briefing on Air Force efforts to facilitate intercontinental ballistic missile movements during the transition to the Ground-Based Strategic Deterrent

The committee recognizes that the Ground-Based Strategic Deterrent (GBSD) program is a complex undertaking, and the successful completion of which will require a large number of intercontinental ballistic missile (ICBM) movements across the Malmstrom, Minot, and F.E. Warren Air Force Bases to facilitate the successful transition from the existing Minuteman III weapon system. Such efforts will necessarily require the use of civilian roads and highways in adjacent communities in addition to on-base infrastructure. As such, the committee encourages the Air Force to closely consult with local civic leaders and community stakeholders as it finalizes planning for updating the ICBM force.

Further, the committee directs the Secretary of the Air Force to provide a briefing to the congressional defense committees, not later than March 1, 2022, on the status of its plans for managing ICBM movements during the transition from Minuteman III to the GBSD, including any expected roadway improvements required to facilitate the safe transport of ICBMs in and around the communities adjacent to the three ICBM bases.

Briefing on alignment of Missile Defense Agency's space development activities

The committee directs the Secretary of Defense to provide a briefing to the congressional defense committees on whether those personnel and programmatic activities performing space functions within the Missile Defense Agency should be aligned under the Space Force given that the development of such payloads is inherently a space mission. The briefing shall be due not later than March 31, 2022.

Briefing on protection of Air Force nuclear storage facilities

The committee notes that the Air Force is commencing recapitalization of nuclear weapons storage and generation facilities at select Air Force bases. The security of these storage facilities is paramount. Therefore, the committee directs the Secretary of the Air Force to brief the congressional defense committees on the security technology and associated procedures utilized on these planned facilities not later than March 31, 2022.

Commercial cloud computing in military space programs

The committee recognizes the importance of the collection, transport, processing, and dissemination of large quantities of data for

space operations as well as the range of challenges associated with these activities. The committee further recognizes and commends the efforts of the U.S. Space Force to build itself as a digital service, embracing the best of commercial and government technologies to remain a quick, agile organization. The committee believes that the use of commercial cloud services for military space programs merits further study and, as appropriate, rapid adoption.

Therefore, the committee directs the U.S. Space Force Chief Technology and Innovation Officer, in coordination with the Commander of the Space and Missile Systems Center and the Department of Defense Chief Information Officer, to provide a briefing to the congressional defense committees, not later than October 1, 2021, on how the Space Force will leverage modern cloud computing technologies for space programs and systems. The plan should include:

(1) An inventory of current space programs with a description of how the activities do or do not leverage cloud-based technologies;

(2) Opportunities to increase modern commercial cloud technology adoption, including full and open competitions for industry providers;

(3) Challenges or impediments related to adoption of such technology;

(4) Timelines and resources required to execute the plan for cloud-technology adoption for space programs; and

(5) Challenges and risks associated with relying on such commercial cloud technology for critical space systems.

Commercial Space Technologies

The committee recognizes that U.S. commercial remote sensing capabilities serve an important national security function for the Department of Defense and the Intelligence Community. Timely, accurate geospatial intelligence (GEOINT) and satellite imagery is integral to the safety and effectiveness of our Nation's warfighters. The committee supports programs and exercises that leverage commercial GEOINT satellites and automatic target recognition systems using the latest artificial intelligence capabilities. As such, the committee directs the Secretary of Defense, not later than March 31, 2022, to provide a briefing to the congressional defense committees that provides an assessment of opportunities to enhance the integration of commercial capabilities into current and planned Sensor-to-Shooter programs.

Cybersecurity of Missile Defense Systems

The committee believes that it is extremely important that the Department of Defense (DOD) is ensuring that the missile defense system is ready for warfighter use and is maintained in such a manner as to maximize day to day readiness in the event of an attack against the United States.

Operational cybersecurity testing is intended to identify cyber vulnerabilities, examine potential attack paths, evaluate operational cyber defense capabilities, and identify the potential operational mission effects (e.g., loss of critical operational capability) in a cyber-threat environment while conducting operational mis-

sions. Persistent Cyber Operations (PCO) consist of emulation of adversarial cyberattacks conducted by National Security Agency-certified cyber red teams over the lifetime of a system or network in order to find and fix mission critical cyber vulnerabilities. PCO assessments have found a number of previously undetected critical vulnerabilities, resulting in fixes that have reduced the potential for adverse mission effects.

The Missile Defense Agency (MDA) completed all fiscal year 2020 Operational Capability Baseline decisions without information from operational cybersecurity testing. Additionally, some elements of the Ballistic Missile Defense System (BMDS) have not undergone persistent cyber operations once fielded. Absent a clear understanding of the cyber vulnerabilities and potential operational mission effects of a cyberattack, the MDA cannot be certain that the system can successfully accomplish its mission in the hands of the warfighter under realistic cyber-threat conditions.

The Government Accountability Office, the DOD's Director of Operational Test and Evaluation (DOT&E), and the BMDS Operational Test Agency team (OTA) have previously identified shortfalls in MDA's cybersecurity testing for both planned and currently deployed capabilities. DOT&E and BMDS OTA have made recommendations to address shortfalls in MDA's cyber testing. The committee believes it is extremely important that these valuable national security assets are adequately protected against cyber-threats, and that the current cybersecurity testing approach is insufficient to ensure operational assurance. The committee strongly encourages the MDA to rectify these shortfalls in identifying and addressing cybersecurity vulnerabilities.

Accordingly, the committee directs the Director of the MDA, in consultation with the DOT&E, to provide a briefing to the congressional defense committees, not later than November 30, 2021, on the MDA's plan to conduct persistent cyber operations across all networks and systems supporting the BMDS, and to complete operational cybersecurity testing prior to the declaration of a new missile defense operational capability baseline. The plan shall include:

(1) An inventory of all networks and systems that support the BMDS;

(2) A strategy for coordinating with the applicable combatant commands on persistent cyber operations, and to have the DOT&E monitor and review these operations and provide independent assessments of their adequacy and sufficiency;

(3) A strategy to ensure that operational capability baseline decisions incorporate results from operational cybersecurity testing;

(4) How the MDA will respond to cybersecurity testing recommendations made by DOT&E and BMDS OTA; and

(5) The timeline required to execute the plan.

Detection Capability of Homeland Defense Radar–Hawaii

The committee directs the Director of the Missile Defense Agency, in consultation with the Commander, U.S. Indo-Pacific Command, to provide a briefing not later than January 31, 2022, to the congressional defense committees on the current threats, future

threats, and the capability that Homeland Defense Radar–Hawaii provides against future threats.

Geophysical detection of nuclear proliferation

The committee notes that there are four primary nuclear explosion monitoring technologies: radionuclide collection and seismic, hydroacoustic, and infrasound waveform detection and identification. Waveform data are derived from recording the movement of energy that certain events generate and propagate as seismic, hydroacoustic, or acoustic waves through the Earth, oceans, or atmosphere. Sensors are deployed globally and in strategic configurations to target specific regions of the Earth and atmosphere.

To escape international nuclear explosion monitoring detection, potential proliferators may explosively test smaller nuclear yields that remain below current monitoring detection thresholds in buried and sealed chambers that largely prevent radionuclide collection and definitive attribution. Ongoing efforts to detect lower yields often overwhelm existing data processing systems and human analytical capabilities, particularly with the incorporation of machine learning and "big data." Aside from nuclear explosions monitoring, sensors also typically process and analyze earthquake, volcanic activity, and other natural geophysical sources. Most other man-made seismic and acoustic detections are eliminated from the dataset as "noise," despite the potential of these datasets to help detect and identify relevant aircraft, missiles, and, potentially, vehicle traffic. Uncertainty associated with the detection and characterization of seismic acoustic events is also poorly understood, yet critical for successful implementation.

The committee therefore directs the Assistant Secretary of Defense for Nuclear, Chemical and Biological Defense Programs to provide a report on enhancing U.S. global nuclear detection capabilities to the Committees on Armed Services of the Senate and the House of Representatives, not later than September 30, 2022. The report should explore the following:

(1) Using new or existing local or regional seismic acoustic networks to increase detection probability and characterization of low-yield nuclear detonations;

(2) Developing artificial intelligence and machine learning tools to assist with data management and increase event analysis accuracy, specificity, and speed;

(3) Creating automated seismic acoustic detection and analytical solution linkages to existing and developing domain awareness and command and control systems; and

(4) Developing waveform catalogues that facilitate the detection, location, and characterization of global non-nuclear tactical or strategic events of interest.

Integrated satellite communications strategy

The committee directs the Secretary of the Air Force to provide to the congressional defense committees a briefing on the integrated satellite communications enterprise strategy integrating commercial and military satellite communications architectures to be submitted with the budget request for fiscal year 2023. The briefing on the enterprise strategy shall be provided to the commit-

tees not later than March 31, 2022. The briefing should outline requirements for an integrated commercial and military satellite communications infrastructure including:

(1) A quantifiable assessment of the requirements and capabilities commercial satellite providers must meet to supplement fixed military bandwidth needs and plans to institutionalize these requirements in future years;

(2) The Department of Defense's plans to ensure efficient acquisition of commercial satellite communications and incentivize commercial industry and international partners in their partnerships with the Department, including a review of which requirements can be met by commercial providers, or revised to allow commercial participation, in compliance with section 2377 of title 10, United States Code;

(3) A comparative evaluation of non-traditional or innovative methods for buying satellite communication capabilities based on demand. Such an evaluation shall consider both:

(a) Prior inefficiencies resulting from the Department's historical and inefficient practice of contracting with commercial providers on an ad hoc basis; and

(b) Various alternative satellite communications acquisition methods, including consumption-based models, as examined by previous pilot programs and pathfinders; and

(4) An investment plan across the future years defense program to implement the strategy, including ground infrastructure modernization.

Laser threats to low earth orbit constellations

The committee believes that stakeholders in the national security community need a coordinated strategy to counter the threat of lasers against space assets in low earth orbit (LEO) in order to secure the benefits of those assets. Accordingly, the committee directs the Secretary of Defense, in consultation with the Director of National Intelligence and supported by the Space Force, National Reconnaissance Office, and other stakeholders as may be identified, to provide a briefing, not later than March 31, 2022, to the congressional defense and intelligence committees that identifies: (1) Plans to collect, consolidate, and characterize laser activity data of potential U.S. adversaries; and (2) Plans to mitigate the effects of that activity to LEO space architectures.

Long-term oversight of the Department of Defense's efforts to deploy Overhead Persistent Infrared space-based architectures

Through fiscal year 2025, the Space Force plans to spend over $14.0 billion to acquire a follow-on to the Space Based Infrared System, called Next Generation Overhead Persistent Infrared (OPIR). The Air Force plans to use an accelerated middle-tier acquisition process to rapidly develop an initial block (Block 0) of five Next Generation OPIR satellites and associated ground capabilities, with fielding to begin in fiscal year 2025. Development of these satellites is to focus on core strategic missile warning requirements. The Space Force plans for a follow-on block (Block 1) that would begin fielding satellites in the 2030s, in a yet-to-be de-

termined architecture, to enhance and provide additional capabilities. Moreover, the Space Development Agency, Missile Defense Agency, and Defense Advanced Research Projects Agency are pursuing the development of low Earth orbit satellites with OPIR sensors that could detect and track additional threats, such as hypersonic missiles, with initial satellites to be launched over the next several years. Analysis is currently underway on integrating these efforts into the follow-on Block 1 architecture.

The Government Accountability Office (GAO) published a report on June 3, 2020, titled "Defense Acquisitions Annual Assessment: Drive to Deliver Capabilities Faster Increases Importance of Program Knowledge and Consistent Data for Oversight" (GAO–20–349), that stated the Block 0 Next Generation OPIR system is at high risk of schedule delays and consequent cost increases. Given the high cost of developing and fielding OPIR systems and the importance of the missions these systems are to support, it is important for the committee to understand the extent to which the Department of Defense (DOD) is effectively coordinating and executing its OPIR acquisition efforts, including how DOD is addressing risks that imperil meeting cost, schedule, and performance goals.

Therefore, the committee directs the Comptroller General of the United States to periodically review: (1) The status of DOD OPIR programs to determine the extent to which they are on-track for delivering needed capabilities and meeting schedule milestones and cost estimates; and (2) How DOD is identifying and mitigating risks within and across the efforts to help ensure mission success. To facilitate GAO's reviews, DOD shall provide to the Comptroller General quarterly, or other timely, periodic component, systems, or program-wide risk assessments for each OPIR program, to include risk items the program is tracking; risk likelihood and consequence ratings; and risk mitigation and specific plans, schedules, and updates for addressing, mitigating, or resolving these risks. To mitigate any burden this may pose, the Department is encouraged to work with the Comptroller General, or designee, to identify existing documentation that can be shared to meet these purposes. For each review, the Comptroller General shall provide GAO's findings to the congressional defense committees in a briefing on a date mutually agreed on by the Comptroller General and the congressional defense committees and, as deemed appropriate, provide a report to the congressional defense committees.

Mix of media study audit

The Department of Defense (DOD) relies on satellite communications (SATCOM) to support a variety of critical mission needs such as surveillance performed by unmanned aerial vehicles and communications between commanders and field units. DOD meets its SATCOM needs through a mix of military and commercial SATCOM to support land, sea, air, and space operations. In 2014, the Defense Information Systems Agency completed a SATCOM Mix-of-Media (MoM) study to examine the planned mix of wideband, narrowband, protected, and commercial SATCOM to meet user requirements in the 2018–2030 time frame and to inform future investments. This was a follow-up to a prior MoM study com-

pleted in 2010. Given changes in the DOD's planned SATCOM needs since 2014, it is unclear whether data resulting from the 2014 study are still relevant in helping the DOD prioritize SATCOM investments and plan for future requirements. Further, it is unknown whether the DOD has plans to update the previous study with more recent SATCOM usage and requirements inputs to reflect current and anticipated warfighter needs.

The committee believes it is important for the DOD to have an accurate representation of current and planned SATCOM capabilities and estimates of warfighter needs to enable the DOD to determine how best to satisfy such needs. Consequently, the committee directs the Comptroller General of the United States to: (1) Determine the extent to which the DOD uses data from its 2014 study and whether such data remain relevant for the DOD's SATCOM planning efforts; (2) Identify whether the DOD has plans to update the existing study or use other forecasting methodologies in its place, and if so, review the planned inputs and rationales the DOD plans to use in its update; and (3) Review any other relevant issues the Comptroller General deems appropriate.

The committee directs the Comptroller General to brief preliminary observations to the congressional defense committees not later than March 31, 2022, with final report to be delivered on a date agreed upon with the committees.

Responsive launch prize

The committee directs the Chief of Space Operations to provide a briefing to the congressional defense committees, not later than February 28, 2022, on the feasibility of using the prize authority found under section 2374a of title 10, United States Code, for launch responsiveness to replace key national security satellites and reconstitute essential constellations during a conflict. The briefing shall include options that push existing launch capabilities to the technological limit in areas of payload size, number of payloads, and launch sites, with an emphasis on varied and survivable locations.

Review of Ballistic Missile Defense Readiness and Sustainment

For over half a century, the Department of Defense (DOD) has funded efforts to defend the United States from ballistic missile attacks. From 2002 to 2019, the Missile Defense Agency (MDA) received approximately $162.0 billion to develop the Ballistic Missile Defense System (BMDS). The BMDS—recently renamed the Missile Defense System (MDS)—consists of diverse and highly complex land-, sea-, and space-based systems and assets located across the globe. For years, the Government Accountability Office (GAO) has annually reviewed the cost, schedule, testing, and performance of the BMDS and its varied elements. However, it has been more than 10 years since GAO last assessed the sustainment and readiness of the BMDS.

The committee believes that it is extremely important that the DOD is ensuring that the MDS is ready for warfighter use and has been maintained in such a manner as to maximize day to day readiness in the event of an attack against the United States.

Therefore, the committee directs the Comptroller General of the United States to undertake a review of MDA programs and activities for sustaining the MDS and maintaining system readiness. At a minimum, the Comptroller General's review shall address the following questions:

(1) To what extent has DOD identified and addressed readiness challenges affecting the MDS;

(2) To what extent has DOD identified and addressed sustainment challenges with major elements of its MDS; and

(3) To what extent has DOD identified, addressed, and budgeted for the maintenance and sustainment of its future MDS force structure needs?

The Comptroller General shall provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives on the status of this review not later than June 1, 2022, with a report to be provided at a time mutually agreed upon by the committees and the Comptroller General.

Space Force Combatant Commander Integrated Command and Control System

The Space Force's Combatant Commanders' Integrated Command and Control System (CCIC2S) was a program intended to modernize and integrate existing and legacy systems for air, missile, and space warning capabilities. These capabilities are critical to ensuring the safety and security of the U.S. Homeland. Started in 2000, the CCIC2S program experienced significant challenges leading to large cost increases and performance shortfalls, similar to challenges faced by programs that were predecessors to CCIC2S. More recently, the Space Force has been planning how to modernize and enhance the CCIC2S capabilities, including conducting an analysis of alternatives to help determine the best way forward.

Considering the Department of Defense's past challenges in modernizing its command and control system capabilities, the committee directs the Comptroller General of the United States to review: (1) The status of planning for and implementing efforts to modernize and enhance CCIC2S capabilities; (2) Key challenges these efforts face and how the Space Force is addressing them; and (3) How the U.S. Space Command is validating the requirements and planning efforts of the Space Force to modernize and enhance CCIC2S capabilities. The committee directs the Comptroller General to brief its preliminary observations to the congressional defense committees not later than March 31, 2022.

Tactical satellite commutations capability

The committee recognizes that space is an increasingly contested domain and that large geostationary satellites are vulnerable to interference or destruction. The committee is encouraged that the Department of Defense is researching and developing tactical satellite communications capabilities that are resilient, inexpensive, and can provide high-throughput communications across a wide range of frequencies on demand. The committee encourages the U.S. Space Force to consider the development and deployment of small, flexible communications satellites that meet connectivity and reconstitution objectives.

Tactically Responsive Space Launch

The committee continues to emphasize the critical need for the Department of Defense (DOD) to develop an enduring, robust program to execute tactically responsive space launch. The committee notes that in the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283), the Congress directed DOD to establish a Tactically Responsive Space Launch program to enable space responsiveness and to fund it over the future years defense program. To facilitate the implementation of tactically responsive launch operations, the committee recommends the Department implement and conduct multiple tactically responsive launch demonstrations missions to support both unclassified and classified mission areas that would benefit from rapid space reconstitution, space augmentation, and the ability to launch without dependence on fixed launch sites.

The committee directs the Secretary of Defense and the Director of National Intelligence, not later than January 31, 2022, to provide a briefing to the congressional defense and intelligence committees on a plan, including an acquisition strategy, to operationalize the ability of the United States to rapidly respond to threats to satellites, launch sites, and launch systems within operational timeframes, leveraging the commercial launch and space industry in support of national security space objectives. Additionally, the briefing shall include manufacturing capabilities necessary to integrate tactically responsive space launch with large-scale digital manufacturing techniques capable of producing rapid, on demand custom solutions.

Use of commercial space-based Intelligence, Surveillance, and Reconnaissance by the combatant commands

The committee directs the Secretary of Defense, in coordination with the Chairman of the Joint Chiefs of Staff and the U.S. Space Force Chief of Space Operations, to provide to the congressional defense committees, not later than March 31, 2022, a detailed briefing on the commercial space-based Intelligence, Surveillance, and Reconnaissance (ISR) needs of the combatant commands including through various weather phenomenon. The briefing shall include, but not be limited to: (1) A description of current space-based ISR requirements of the combatant commands and what subset of the requirements could be met with commercial capability; (2) An analysis of how the Department is or will be leveraging commercial space-based solutions to meet combatant commanders' requirements over the next 5 years; (3) What in the Department's strategy to address these needs is similar to the Mix-of-Media Study performed for the purchase of commercial satellite communications (SATCOM); (4) An assessment of risks of over-reliance on commercial space-based ISR in a time of conflict in space and other domains; (5) An assessment of combatant commands' ability to directly task space-based ISR for their respective areas of interests; and (6) An assessment as to whether the Chief of Space Operations of the Space Force, in consultation with the Commander of U.S. Space Command, can economically and competitively make bulk purchases of commercial spaced-based ISR for the combatant commands similar to bulk purchases of commercial SATCOM.

B–52 Commercial Engine Replacement Program (CERP)

The committee is aware that the B–52H bomber fleet's TF33–09PW–103 engines are becoming increasingly difficult to sustain due to obsolete technologies and will become unsustainable by 2030. Accordingly, replacing the engines with a modern system is necessary to achieve the Air Force's long-term plans for the B–52 to remain in service through 2050. Moreover, the installation of new engines and subsystems will improve reliability, maintainability, and supply additional electrical power generation capabilities with application for emerging requirements. Additionally, while the replacement engines are expected to have similar size, weight, and thrust characteristics, the incorporation of modern technology will provide operational benefits, including extended range and loiter capabilities as well as increased fuel efficiency. The committee expects the Air Force to keep it fully informed of developments relating to cost, schedule, and program execution for this effort.

Multi-actor deterrence methodology

As the global security landscape becomes more challenging, competitive, and characterized by multipolarity, the committee believes new methodologies and models to assess complex multi-actor interactions will be of increasing value and have particular application to deterrence frameworks. Further, the committee is aware of a growing body of academic work in this field that could benefit policymakers. Therefore, the committee directs the Secretary of Defense to provide a report to the congressional defense committees not later than March 31, 2022, on the development of new tools to enhance the Department's ability to assess and understand multi-actor relationships related to deterrence, including the use of, where appropriate, university affiliated research centers with expertise in this area.

Intelligent electronic protection technologies

The committee notes that ensuring reliable and resilient positioning, navigation, and timing systems is critical to national security. The committee encourages the Secretary of the Army to continue to leverage artificial intelligence and machine learning to provide real time situational awareness data to maintain operational capabilities.

Global Nuclear Landscape

The committee believes the Defense Intelligence Agency's (DIA's) 2018 Global Nuclear Landscape report provides unique value as an unclassified summary of foreign nations' nuclear weapons-related capabilities. Additionally, the committee notes with concern the rapid changes occurring in foreign nuclear weapons programs and believes there is a sustained need for unclassified assessments in this regard. Accordingly, the committee directs the Director of the DIA to submit to the congressional defense committees and congressional intelligence committees, not later than December 1, 2022, and biennially thereafter for the following 6-year period, an unclassified report on the nuclear weapons-related capabilities, programs, infrastructure, and doctrine of the Russian Federation, the

People's Republic of China, and the Democratic People's Republic of Korea, as well as any other nations the Director deems appropriate.

Report on mitigating the impact of space debris

In 2007, China conducted an anti-satellite test against an inoperable Chinese satellite in low earth orbit (below 1,000 Km) generating over 3,000 pieces of debris, some of which will remain in orbit for centuries. In 2013, one of the pieces of debris collided with a Russian satellite severely damaging it. In 2017, another piece of debris passed within 6 Km of the International Space Station. In 2009, a Russian military communications satellite collided with an Iridium satellite at 11,700 meters per second, generating over 2,000 pieces of debris greater than 10 cm into a low earth orbit. On March 24, 2012, one of those pieces of debris passed within 120 meters of the International Space Station causing six crew members to take refuge inside the two docked Soyuz rendezvous spacecraft. During a May 26, 2021, Strategic Forces Subcommittee hearing on "space force, military space operations, policy and programs," the Acting Assistant Secretary of Defense for Space Policy stated that while most countries respond to inquiries for possible space conjunction, "there are two countries that often do not pick up the phone or answer the email, and what we are trying to focus on is your basic safety." When asked which two countries did not pick up the phone, the answer was "our good friends Russia and China."

Therefore, the committee directs the Secretary of Defense, in consultation with other elements of the Executive Branch, as needed, to report to the congressional defense committees not later than April 31, 2022, on efforts to ensure adequate communications are present between the United States and Russia and China to mitigate future conjunctions on a timely basis. The report shall include actions by both official and non-governmental efforts to date with recommendations that can be taken in the short and long term to avoid conjunctions and in particularly U.S. national security satellites.

National Security Space Launch emerging requirements

Over the past 10 years the committee has worked with the Department of Defense and the Air Force in particular to re-structure what was once a sole source program into one that is competitive and consistent with the foundations of section 2273 of title 10, United States Code, "Policy regarding assured access to space national security payloads," which requires "at least two space launch vehicles (or families of space launch vehicles) capable of delivering into space any payload designated by the Secretary of Defense or the Director of National Intelligence as a national security payload." This has resulted in two phases of the National Security Space Launch program with hundreds of millions of dollars in savings to the taxpayer for inserting critical national security payloads into space with high mission assurance. Based on the Phase II National Security Space Launch Program, the Department of the Air Force is now developing a Phase III launch solicitation in the 2025 timeframe. Accordingly, the committee believes it is important for

the Department to consider the next steps in transformational heavy launch based on the lessons and success—and savings to the taxpayer of Phases I and II of the National Security Space Launch Program.

Therefore, the committee directs the Secretary of the Air Force submit to the congressional defense committees a report, not later than April 30, 2022, detailing the following elements: an analysis of the benefits of competing national security space launches to accelerate the rapid development and on-orbit deployment of the technologies required to address emerging requirements that include new payloads larger than currently deployed under Phase II; innovative solutions to accelerate national security space launch heavy-lift capability; satellite ride-sharing or mixed manifest payloads; other new missions outside the parameters of the existing nine design reference missions in Phase II; and other requirements the Secretary of the Air Force considers appropriate. In addition, the report shall include a discussion on potential acquisition frameworks to enable a path that could allow new launch providers to seek national security launch certification; promote open and sustainable competition for Phase III of an acquisition strategy for the National Security Space Launch Program; and reduce the timeline for capability development and on-orbit deployment by prioritizing processes that encourage smart risk taking. Finally, the report shall include an analysis of the extent to which the Phase III program would contribute to a continued reduction in the cost per launch of national security payloads.

The committee notes that the heavy lift launch market is now undergoing a transformational shift and expects the Air Force and the Department of Defense as a whole to promote this transformation and reap the benefits that are occurring now and in the future. The committee hopes that this report will lay the ground work for the path the Air Force will begin to undertake as it shapes the Phase III National Security Space Launch Program.

High energy laser technology integration

The committee recognizes that the Department of Defense is making gains in the use of various high energy laser technologies such as fiber and slab lasing mediums for high power coherent beams. Given these recent improvements in lasing technologies, and the concomitant potential for improving the cost effectiveness of future air and missile defense systems—particularly in counter-raid scenarios—the committee believes that the Secretary of Defense should emphasize, where appropriate, the integration of high-energy laser technology in carrying out the planning for, and execution of, research and development activities for future air and missile defense systems.

Leveraging commercial space domain awareness capability, data, products and services

The committee notes that with the rapid increase in commercial activities in space, there has been a corresponding increase in the commercial capability to track objects in space. Previous National Defense Authorization Acts have provided direction to leverage these commercial space domain awareness capabilities. Therefore,

the committee directs the Commander, U.S. Space Command, to provide a briefing to the congressional defense committees, not later than March 31, 2022, on progress made to use commercial space domain awareness capabilities.

TITLE XVI—CYBERSPACE–RELATED MATTERS

Matters concerning cyber personnel requirements (sec. 1601)

The committee recommends a provision that would require the Secretary of Defense to conduct an assessment to determine the overall cyber and information operation civilian and military personnel and education requirements of the Department of Defense. The provision would require a briefing not later than November 1, 2022, and a report not later than January 1, 2023, to the Committees on Armed Services of the Senate and the House of Representatives on the findings of the assessment required by the provision, an implementation plan to achieve the civilian and military personnel requirements of the Department, such recommendations as the Secretary may have for meeting personnel needs in the cyber and information operation domain, and such legislative or regulatory action as the Secretary considers necessary to meet personnel requirements.

Cyber data management (sec. 1602)

The committee recommends a provision that would require the Secretary of Defense, acting through the Principal Cyber Advisor to the Secretary and the Department of Defense (DOD) Chief Information Officer, to develop a cyber data management strategy not later than 180 days after the date of the enactment of this Act. The strategy would cover data acquired from DOD intelligence and counterintelligence components, including the National Security Agency and U.S. Cyber Command (CYBERCOM), as well as DOD cybersecurity service providers, cyber threat information from industry and other Government agencies, and data gathered from comprehensive collection within the DOD Information Network (DODIN). The provision would require the Secretary to develop processes or operating procedures governing the ingest, structuring, and storage of such intelligence data, cyber threat information and DODIN sensor, tool, routing infrastructure, and endpoint data in Big Data Platform instances, relevant Cyber Operations Force systems, relevant CYBERCOM commercial cloud enclaves, and other DOD data lakes containing information pertinent to CYBERCOM missions. The Secretary would also be required to develop a strategy for piloting efforts, operational workflows, and tactics, techniques, and procedures for the operational use of mission data by the Cyber Operations Force.

In addition, the provision would require the Secretary to establish, not later than 270 days after the date of the enactment of this Act, the specific roles and responsibilities of DOD officials and components in implementing each of the provision's enumerated tasks

and to provide a briefing to the congressional defense committees not later than 300 days after the date of the enactment of this Act.

Assignment of certain budget control responsibilities to Commander of United States Cyber Command (sec. 1603)

The committee recommends a provision that would assign to the Commander, U.S. Cyber Command, responsibility for directly controlling and managing the planning, programming, budgeting, and execution of the resources to train, equip, operate, and sustain the Cyber Mission Forces, subject to the authority, direction, and control of the Principal Cyber Advisor of the Department of Defense. The provision would not assign to the Commander responsibility for military pay and allowances and funding for facility support provided by the military services. The provision would also require various elements of the Department to develop an implementation plan for the transition of budgetary responsibilities described in the provision to the Commander, U.S. Cyber Command. Finally, the provision would require the Secretary of Defense to provide a briefing to the congressional defense committees on the implementation plan, not later than 90 days after the enactment of this Act or the date on which the implementation plan is completed, whichever is earlier.

Coordination between United States Cyber Command and private sector (sec. 1604)

The committee recommends a provision that would require the Commander, U.S. Cyber Command, to establish a voluntary process for engaging with the commercial information technology and cybersecurity companies to explore and develop methods of assistance or coordination to protect against foreign malicious cyber actors. The provision would require the Commander to provide briefings, at least annually through March 1, 2026, on the status of any activities conducted under this section to the Committees on Armed Services of the Senate and the House of Representatives.

Pilot program on public-private partnerships with internet ecosystem companies to detect and disrupt adversary cyber operations (sec. 1605)

The committee recommends a provision that would require the Secretary of Defense to establish and commence a pilot program to assess the feasibility and advisability of entering into voluntary public-private partnerships with internet ecosystem companies to facilitate actions by such companies to discover and disrupt the use of the platforms, systems, services, and infrastructure of such companies by malicious cyber actors. The provision would also require the Secretary of Defense to provide two briefings, not later than 1 year and 540 days, respectively, to the Committees on Armed Services of the Senate and the House of Representatives on the pilot program.

The committee is concerned that foreign cyber actors and major cyber criminal organizations are operating with near impunity on cyber infrastructure and services provided by U.S. internet and information technology companies. The committee notes that compo-

nents of the Department of Defense (DOD) have unique and extensive technical and operational expertise regarding the ways in which such threat actors utilize such platforms and services to threaten the Department of Defense, the Government as a whole, and critical infrastructure supporting national security. The committee also believes that the companies providing this information technology infrastructure and services are also quite sophisticated in their understanding of the ways in which their platforms and services are being utilized for malicious cyber activities. The committee believes that partnerships between the Department and leading service providers could substantially improve the Nation's cybersecurity by making it much harder for foreign cyber actors to conduct operations on this infrastructure. The committee stresses that the DOD's role would be limited to sharing information and technical insights with partner companies.

Zero trust strategy, principles, model architecture, and implementation plans (sec. 1606)

The committee recommends a provision that would require the Chief Information Officer (CIO) of the Department of Defense (DOD) and the Commander, Joint Forces Headquarters-Department of Defense Information Network (JFHQ–DODIN), to jointly develop a zero trust strategy and a model architecture for the DODIN, including classified networks, operational technology, and weapon systems.

The provision would also require the heads of the military departments and DOD Components to develop detailed implementation plans for the zero trust strategy and model architecture and submit the plans to the DOD CIO and the Commander, JFHQ–DODIN, for certification.

The provision would also require briefings on the zero trust architecture and strategy and implementation plans to the congressional defense committees and updates on the implementation of zero trust architecture by the DOD and service CIOs during the annual cybersecurity budget review briefings.

The committee remains concerned about the Department's slow adoption of zero trust principles and supports efforts to engender a Department-wide cybersecurity paradigm shift towards embracing critical elements of a zero trust architecture, including identity, credential, and access management; macro and micro network segmentation; least privilege access controls; and endpoint cybersecurity.

Demonstration program for automated security validation tools (sec. 1607)

The committee recommends a provision that would require the Chief Information Officer (CIO) of the Department of Defense (DOD), acting through the Director of the Defense Information Systems Agency, to complete a demonstration program to demonstrate and assess an automated security validation capability to assist the DOD by: (1) Mitigating cyber hygiene challenges; (2) Supporting DOD efforts to assess weapon system resiliency; (3) Quantifying enterprise security effectiveness of enterprise security controls to inform future acquisition decisions; (4) Assisting portfolio managers

with balancing capability costs and coverage; and (5) Supporting the DOD Cybersecurity Analysis and Review threat framework. The provision would also require the CIO to provide briefings to the Committees on Armed Services of the Senate and the House of Representatives on the demonstration pilot. The committee encourages the Department to build advanced capabilities to test the cybersecurity vulnerabilities of the DOD information networks.

Improvements to consortium of universities to advise Secretary of Defense on cybersecurity matters (sec. 1608)

The committee recommends a provision that would amend section 1659 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92) to designate the National Defense University College of Information and Cyberspace as the administrative chair of the consortium to advise the Secretary of Defense on cybersecurity matters and allow the Secretary to form an executive committee for the consortium.

The provision would also require the Secretary to consult with the consortium not less than twice annually, or as regularly as agreed by the Secretary and the consortium, and the provision makes conforming amendments.

The committee commends the Department of Defense on its efforts to advance the University Consortium for Cybersecurity as required by the National Defense Authorization Act for Fiscal Year 2020. The committee believes that the Department has made significant progress on a path forward to achieve the committee's intent for the Department to leverage the capabilities of academic institutions to help gain and maintain cutting edge cybersecurity information and products. The committee encourages the Department to continue progress on its envisioned use of a university consortium to leverage the broadest possible subset of academic institutions in support of Department cybersecurity requirements, to include its envisioned use of a university to perform consortium support activities.

The committee continues to recognize that an increase in national cybersecurity education, training, and workforce development efforts is necessary to counter the growing threats posed by advanced persistent cyber actors. The committee strongly supports the education and research programs in cybersecurity and critical infrastructure protection that exist at the academic institutions that have been designated as Cyber Centers of Academic Excellence for cyber operations, cyber research, and cyber defense. The committee believes that these institutions can provide a diverse workforce pipeline to meet the Nation's cybersecurity needs and encourages the Department of Defense to continue looking for opportunities to utilize these academic institutions further.

Quarterly reports on cyber operations (sec. 1609)

The committee recommends a provision that would amend section 484 of title 10, United States Code, to require the Secretary of Defense to submit a quarterly report, in addition to a quarterly briefing, on all offensive and significant defensive military operations in cyberspace carried out by the Department of Defense to the congressional defense committees.

The committee believes that the ability to conduct regular and continuous oversight of sensitive military cyber operations rests on timely and appropriately detailed information from the Department. Recent quarterly operations briefings have covered only a portion of the information required in section 484 of title 10, United States Code. As a result, the committee believes that receiving an accompanying report containing all of the required information is necessary to enable the committee to understand the risks, benefits, and consequences of sensitive military operations.

Assessment of cybersecurity posture and operational assumptions and development of targeting strategies and supporting capabilities (sec. 1610)

The committee recommends a provision that would require an assessment, not later than 1 year after the date of the enactment of this Act, by the Commander, U.S. Cyber Command, Under Secretary of Defense for Policy, and the Under Secretary of Defense for Intelligence and Security of the current and emerging offensive cyber posture of adversaries of the United States and the current operational assumptions and plans of the military services for offensive cyber operations during potential crises or conflict.

The provision would also require the Commander to develop targeting strategies, supporting capabilities, and operational concepts and to provide a briefing to the congressional defense committees, not later than 30 days after completing the activities. Finally, the provision would require, not later than 1 year after the previous activities are completed, country-specific access strategies for the Russian Federation, the People's Republic of China, the Democratic People's Republic of Korea, and the Islamic Republic of Iran. The Commander would provide briefings of these strategies to the Deputy Secretary of Defense, the Vice Chairman of the Joint Chiefs of Staff, and the Committees on Armed Services of the Senate and the House of Representatives.

Assessing capabilities to counter adversary use of ransomware tools, capabilities, and infrastructure (sec. 1611)

The committee recommends a provision that would require the Secretary of Defense to conduct a comprehensive assessment of the policy, capacity, and capabilities of the Department of Defense (DOD) to diminish and defend the United States from ransomware threats. The provision would also require a briefing to the congressional defense committees on the results of the assessment not later than April 1, 2022.

The committee notes that the 2018 DOD Cyber Strategy states "the Department seeks to preempt, defeat, or deter malicious cyber activity targeting U.S. critical infrastructure that could cause a significant cyber incident regardless of whether that incident would impact DoD's warfighting readiness or capability. Our primary role in this homeland defense mission is to defend forward by leveraging our focus outward to stop threats before they reach their targets. The Department also provides public and private sector partners with indications and warning (I&W) of malicious cyber activity, in coordination with other Federal departments and agen-

cies." The committee encourages DOD to think broadly about how its expansive cyber capabilities could be applied to the growing ransomware threat.

Comparative analysis of cybersecurity capabilities (sec. 1612)

The committee recommends a provision that would require the Principal Cyber Advisor to the Secretary of Defense and the Director of Cost Assessment and Program Evaluation, in consultation with the Chief Information Officers and Principal Cyber Advisors of each of the military departments, to jointly sponsor a comparative analysis, conducted by the Director of the National Security Agency and the Director of the Defense Information Systems Agency, of various tools, applications, and capabilities offered as options on enterprise software agreements for cloud-based productivity and collaboration suites compared to similar tools, applications, and capabilities currently deployed in Department of Defense (DOD) Components or required under the DOD zero trust reference model. The provision would also specify a set of criteria for the comparative analysis and require a briefing to the congressional defense committees not later than 30 days after the completion of the assessment.

Report on the Cybersecurity Maturity Model Certification program (sec. 1613)

The committee recommends a provision that would require the Secretary of Defense to submit a report, not later than January 15, 2022, to the Committees on Armed Services of the Senate and the House of Representatives on the plans of the Secretary for the Cybersecurity Maturity Model Certification program in consideration of the recent internal review of the program and recent efforts by the Secretary to improve the cybersecurity of the defense industrial base.

The committee is concerned that previous efforts of the Department of Defense to improve Defense Industrial Base (DIB) cybersecurity have focused primarily on assessing the compliance of the DIB companies with standards, while devoting insufficient attention and resources on other essential actions required to improve DIB cybersecurity. The committee continues to encourage the Department to adopt a comprehensive approach to DIB cybersecurity, as required by section 1648 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92), particularly in addressing how to improve the cybersecurity of small and medium businesses. The committee believes that approaches to improve DIB cybersecurity should take into account the mission-critical supply chains that require the highest level of cybersecurity.

The committee also believes that the approach should address methods to assist DIB companies with improving their cybersecurity protections, including assistance with the development, deployment, and operation of automated cybersecurity tools suitable for actively monitoring their networks, systems and data. The committee notes in this regard the Army's prototype cybersecurity operations center that is directly helping a large cross-section of DIB suppliers for critical Army programs.

Report on potential Department of Defense support and assistance for increasing the awareness of the Cybersecurity and Infrastructure Security Agency of cyber threats and vulnerabilities affecting critical infrastructure (sec. 1614)

The committee recommends a provision that would require the Secretary of Defense to provide a report to the Committees on Armed Services of the Senate and the House of Representatives, not later than 270 days after the date of the enactment of this Act, that provides recommendations on how the Department of Defense can improve support and assistance to the Cybersecurity and Infrastructure Security Agency to increase awareness of threats and vulnerabilities affecting domestic networks that are critical infrastructure, including infrastructure that is critical to the Department and to the defense of the United States.

Deadline for reports on assessment of cyber resiliency of nuclear command and control system (sec. 1615)

The committee recommends a provision that would amend section 499(c) of title 10, United States Code, to clarify the submission process and timeline of the required reports.

Items of Special Interest

Advanced capabilities for Department of Defense red teams

The committee believes that it is important for the Department of Defense (DOD) to build advanced capabilities to test the cybersecurity vulnerabilities of the Department through the use of cyber red teams. The committee is also aware that there is a current shortage of appropriately skilled cyber red teams within the Department to meet the growing needs for these vulnerability assessments. Therefore, the committee believes that the Department should take actions to increase the supply of qualified cyber red team operators to meet the needs of the Department.

The committee is aware of the findings and recommendations identified by the Department from the assessment required by section 1660 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92). The provision required the Department to conduct a joint assessment of cyber red team capabilities, capacity, demand, and future requirements that affect the Department's ability to develop, test, and maintain secure systems. The committee encourages the Department to ensure that the findings and associated recommendations from the assessment are quickly adopted.

Accordingly, the committee directs the DOD Principal Cyber Advisor and the Principal Cyber Advisors of each military department to provide a briefing to the congressional defense committees, not later than March 1, 2022, on the status of the actions taken to address the recommendations from the assessment. The briefing should also include an update from each military department providing: (1) Plans to improve the capabilities of their respective cyber red teams; (2) Plans to sustain and grow their cyber red teams, as necessary; and (3) A complete breakout of all funding

designated for cyber red team efforts within their department, including funding for development and training of cyber red teams.

Application of commercial off-the-shelf solutions to address intelligence and operations gaps

The committee is encouraged by Joint Force Headquarters—Department of Defense Information Network's (JFHQ–DODIN) rapid adoption of a commercial off-the-shelf (COTS) solution for the continuous monitoring and management of DOD internet-facing systems and assets and the rapid discovery of anomalies in or threats to their activities on the internet. The COTS solution enabled JFHQ–DODIN to observe DOD networks from the outside as assets communicate on the internet, enabling network managers to understand what their external attack surfaces look like and how elements of their networks behave externally. This has significantly contributed to JFHQ–DODIN's abilities to conduct defensive cyber operations and secure the DODIN.

The committee notes that U.S. Cyber Command (CYBERCOM) lacks a similar capability for continuous, near real-time visibility and attribution of foreign adversary internet-connected systems and assets and their activities. This lack of visibility limits CYBERCOM's ability to effectively plan, prepare, and conduct cyber operations. COTS solutions, like those adopted by JFHQ–DODIN and the U.S. Navy's Fleet Cyber Command, could immediately provide CYBERCOM with the situational awareness to continuously enumerate the cyber infrastructure of foreign adversaries and enable CYBERCOM to plan and conduct operations to disrupt, deny, or degrade adversary operations as necessary. These COTS solutions can provide continuously refreshed internet landscape data and machine learning-enabled graphing algorithms to attribute the cyber infrastructure with the adversary organizations to which they belong. The committee encourages CYBERCOM to explore the further application of these COTS solutions across the command's mission space as a solution for rapidly addressing urgent intelligence and operations gaps.

Assessment of need for Cyber Intelligence Center and War Game Center

The committee is concerned that the cyberspace domain, unlike the well-established land, maritime, air, and space warfighting domains, does not have a dedicated technical intelligence center nor a principal joint wargaming center. Regarding the potential need for a dedicated entity to gather and analyze foundational and scientific and technical (S&T) intelligence for cyberspace, the committee notes that the cyberspace domain is as technically complex as other domains and remains less understood. With respect to wargaming, the lessons of history suggest that without imaginative war gaming and exercises, new warfighting means, such as armored vehicles, carrier aviation, and submarines, have often been mistakenly applied to supporting existing forces and operational concepts rather than perceived as the basis for new types of independent operations.

The Cyber Mission Force (CMF) requires intelligence and analysis support to enable access development. The committee believes

that a Cyberspace Technical Intelligence Center could provide the resources for order of battle development, target system analysis, and vulnerability analysis for targets that use or are wholly located within the cyberspace domain. Unlike other domains, which have dedicated intelligence organizations, intelligence production required to support global and regional Department of Defense cyberspace operations is distributed amongst numerous intelligence and analysis centers. Each center suffers from competing priorities for resources to meet the requirements of its respective service, service acquisition customers, combatant commands, and Defense and national-level policy-makers. As adversaries continue to take advantage of new technology, the committee is concerned that the distributed production of cyberspace intelligence and analysis is limiting the Department's ability to understand and take action in the global and regional security environment.

There are a large number of wargaming centers across the military departments' war colleges and intelligence and research and development laboratories, the Office of the Secretary of Defense, and the federally funded research and development centers and university-affiliated research centers. Many of these existing centers conduct war games with various aspects of cyberspace operations based on the war game sponsor. The committee is concerned about duplication of effort and believes that the Department of Defense may need to establish a center of gravity for joint cyberspace and information warfare wargaming, modeling, and simulations that will better inform future cyberspace operations forces design and development.

The committee, therefore, directs the Deputy Secretary of Defense and the Vice Chairman of the Joint Chiefs of Staff to assess and make recommendations on whether there is a need to (1) Establish a cyberspace foundational and S&T intelligence center; (2) Focus the Department's cyberspace wargaming activities and capabilities; and (3) Enhance the Department's cyberspace operations models and simulations. In conducting these assessments, the Deputy Secretary and the Vice Chairman shall consult with the offices of the Under Secretaries of Defense for Policy, Intelligence and Security, Acquisition and Sustainment, and Personnel and Readiness; the Commander of U.S. Cyber Command; the Chief Information Officer, and the Director of Cost Assessment and Program Evaluation. The Deputy Secretary and the Vice Chairman shall provide a briefing to the congressional defense and intelligence committees on the conclusions and recommendation of the assessments not later than January 31, 2022.

Comptroller General assessment of the Department of Defense information technology supply chain

The committee notes that recent cyber incidents adversely impacting government and private sector networks demonstrate the serious threat that sophisticated adversaries pose to the supply chains associated with information and communications technology (ICT) products and services, including software updates.

The committee understands that supply chain risk management (SCRM) is the process of identifying, assessing, and mitigating the risks associated with the global and distributed nature of ICT prod-

uct and service supply chains. In December 2020, the Government Accountability Office (GAO) released a report, titled "Federal Agencies Need to Take Urgent Action to Manage Supply Chain Risks" (GAO–21–171), that found non-DOD Federal agencies had not implemented foundational practices for managing ICT supply chain risks. In March 2021, GAO also issued a report, titled "Federal Government Needs to Urgently Pursue Critical Actions to Address Major Cybersecurity Challenges" (GAO–21–288), on 5G national security issues, to include 5G supply chain issues.

In view of recent cyber incidents and GAO's findings for non-Department of Defense (DOD) agencies, the committee is concerned about the extent to which DOD is addressing ICT supply chain risks in a timely manner. Therefore, the committee directs the Comptroller General of the United States to provide the congressional defense committees with an assessment of DOD's efforts to address ICT supply chain risks. The assessment shall:

(1) Identify and highlight threats and risks to DOD's ICT supply chain;

(2) Assess the extent to which DOD is implementing foundational ICT SCRM practices;

(3) Assess the extent to which DOD is leading or supporting government-wide efforts to protect the ICT supply chain; and

(4) Include any other matters the Comptroller General determines to be relevant.

The committee further directs the Comptroller General to provide a briefing to the congressional defense committees on preliminary findings not later than June 15, 2022, and to submit a final report to the congressional defense committees at a date agreed to at the time of the briefing.

Cybersecurity training at Critical Training Centers

The committee recognizes the critical role that the Army Interagency Training and Education Center (AITEC) plays in training both military and civilian personnel in protecting critical infrastructure. The committee also recognizes that cyber is part of the Nation's critical infrastructure. With the increase of cyber threats, the Department of Defense must utilize all available resources to enhance cybersecurity efforts, which includes bolstering the role that the National Guard plays in this field. The committee encourages the Department to examine expanding the role of existing critical infrastructure training centers, such as AITEC, to include cybersecurity in their training program. It is important that the Department continues to further the cybersecurity capabilities and training of the National Guard in order to help mitigate and prevent cyber-attacks on domestic soil.

Improving Department of Defense guidance for weapon system acquisitions cybersecurity requirements

The committee believes that strengthening the cybersecurity of Department of Defense (DOD) weapon systems in the face of increasingly sophisticated cyber threats is critical to the DOD's ability to achieve its mission across all warfighting domains. The committee is aware that in December 2020, the DOD issued a new acquisition policy, DOD Instruction 5000.90, that outlines cybersecu-

rity requirements for acquisition programs across the DOD's acquisition pathways and directs DOD organizations to ensure that cybersecurity requirements are incorporated throughout an acquisition program's life cycle, from high-level capabilities to detailed specifications.

While this policy is an important component of the DOD's efforts to strengthen the cybersecurity of its weapon systems and acquisition programs, the committee is aware of a Government Accountability Office (GAO) report, titled "Weapon System Cybersecurity: Guidance Would Help DOD Programs Better Communicate Requirements to Contractors" (GAO–21–179), published March 4, 2021, that indicated that more detailed instruction is needed to assist acquisition program offices in meeting these requirements. The report found that the DOD lacked specificity on how weapon systems acquisition programs should develop cybersecurity requirements and incorporate them in acquisition contracts and recommended that the DOD include in its acquisition program contracts well-defined cybersecurity requirements with clear criteria and mechanisms for how the Government will verify that a system meets its needs.

Based on GAO's findings and the critical need to protect DOD weapon systems from cyber threats, the committee is concerned that existing cybersecurity and requirements guidance for acquisition program officials is insufficient. Therefore, the committee directs the Secretary of Defense to establish a working group to review and propose updates to DOD and component acquisition policy and guidance on cybersecurity requirements for weapon systems acquisitions. The working group shall be chaired by the Office of the Under Secretary Defense for Acquisition and Sustainment and include representatives from the DOD's operational and developmental testing organizations and military service acquisition and cybersecurity organizations. Consistent with GAO's findings, the working group should propose updates that would assist weapon systems acquisition programs in determining how to incorporate cybersecurity requirements, acceptance criteria, and verification processes in contracts. These updates should seek to define a baseline level of consistency, while ensuring components have flexibility to tailor policies and guidance to the needs of their acquisition communities. The Secretary of Defense shall provide a report to the Committees on Armed Services of the Senate and the House of Representatives not later than December 31, 2021, on the status of these efforts, including specific proposals for updating policy and guidance.

Prioritizing cyber vulnerability remediations

The Department of Defense (DOD) continuously monitors its networks to detect known vulnerabilities, associated with a known set of severity criteria, in hosts, nodes, systems, and applications. DOD also has tools: to discover assets on its networks and determine their patching and configuration status; for quarantining devices and applications that are not in compliance; and for remediating non-compliant assets. However, the pace of discovery of vulnerabilities exceeds the Department's capacity for remediation, and the Department lacks an effective capability for judging the

relative importance of its network assets to enable risk-based decisions about remediation priorities.

The committee believes that network mapping and mission thread analyses are essential for situational awareness and to make risk-based decisions about vulnerability remediation. However, the committee understands that the DOD does not routinely perform either of these activities. The committee is aware that commercial network management tools are available to map networks and to trace packets, while identifying devices and assets and their latency encountered on network paths. The committee believes that such capabilities could materially assist in mission thread definition and asset prioritization.

The committee directs the Commander, of Joint Force Headquarters, DOD Information Network (JFHQ–DODIN), who serves simultaneously as the Director of the Defense Information Systems Agency (DISA), to identify and partner with the head of a DOD component whose network enclave can access commercial network management tools such as those described above for network mapping and mission path traceroute. The Commander JFHQ–DODIN/Director DISA and the participating component head shall jointly assess the utility and cost-benefits of using these capabilities to make risk-based vulnerability remediation decisions, identify key cyber terrain and assets, identify single-node mission dependencies, and monitor for changes in mission thread execution.

The committee directs that the Commander/Director to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives on the plan for the assessment by September 30, 2021, and on the commencement of the assessment by November 4, 2021. The Commander/Director and the participating component head shall jointly brief the committees on the results of the assessment by February 1, 2022.

DIVISION B—MILITARY CONSTRUCTION AUTHORIZATIONS

Summary and explanation of funding tables

Division B of this Act authorizes funding for military construction projects of the Department of Defense (DOD). It includes funding authorizations for the construction and operation of military family housing as well as military construction for the reserve components, the Defense Agencies and Field Activities, and the North Atlantic Treaty Organization Security Investment Program. It also provides authorization for the base closure accounts that fund military construction, environmental cleanup, and other activities required to implement the decisions made in prior base closure rounds. It prohibits any future base realignment closure rounds.

The tables contained in this Act provide the project-level authorizations for the military construction funding authorized in division B of this Act and summarize that funding by account.

The fiscal year 2022 budget requested $9.8 billion for military construction and housing programs. Of this amount, $7.9 billion was requested for military construction, $1.4 billion for the construction and operation of family housing, $284.6 million for base closure activities, and $205.9 million for the North Atlantic Treaty Organization Security Investment Program.

The committee recommends the authorization of appropriations for military construction, housing programs, and base closure activities totaling $9.8 billion. The total amount authorized for appropriations reflects the committee's continued commitment to investing in the recapitalization of DOD facilities and infrastructure.

Short title (sec. 2001)

The committee recommends a provision that would designate division B of this Act as the "Military Construction Authorization Act for Fiscal Year 2022."

Expiration of authorizations and amounts required to be specified by law (sec. 2002)

The committee recommends a provision that would establish the expiration date for authorizations in this Act for military construction projects, land acquisition, family housing projects and facilities, and contributions to the North Atlantic Treaty Organization Security Investment Program as October 1, 2024, or the date of the enactment of an Act authorizing funds for military construction for fiscal year 2025, whichever is later.

Effective date (sec. 2003)

The committee recommends a provision that would provide an effective date for titles XXI through XXVII of October 1, 2021, or the date of the enactment of this Act, whichever is later.

TITLE XXI—ARMY MILITARY CONSTRUCTION

Summary

The budget request included authorization of appropriations of $834.7 million for military construction and $398.8 million for family housing for the Army for fiscal year 2022.

The committee recommends authorization of appropriations of $910.4 million for military construction for the Army and $398.8 million for family housing for the Army for fiscal year 2022.

Further details on projects authorized can be found in section 2101 and section 4601 of this Act.

Authorized Army construction and land acquisition projects (sec. 2101)

The committee recommends a provision that would authorize military construction projects for the active component of the Army for fiscal year 2022. The committee recognizes the Department of Defense's significant unfunded military construction requirements and has included an additional $753 million for many of these projects here. The authorized amount is listed on an installation-by-installation basis.

Family housing (sec. 2102)

The committee recommends a provision that would authorize new construction, planning, and design of family housing units for the Army for fiscal year 2022. This provision would also authorize funds for facilities that support family housing, including housing management offices, housing maintenance, and storage facilities.

Authorization of appropriations, Army (sec. 2103)

The committee recommends a provision that would authorize appropriations for the active component military construction and family housing projects of the Army authorized for construction for fiscal year 2022. This provision would also provide an overall limit on the amount authorized for military construction and family housing projects for the active component of the Army. The state list contained in this report is the binding list of the specific projects authorized at each location.

Extension of authorization of fiscal year 2017 project at Wiesbaden Army Airfield (sec. 2104)

The committee recommends a provision that would extend the authorization contained in section 2101(b) of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) for a project at Wiesbaden Army Airfield, Germany, until October 1, 2023, or the date of the enactment of an Act authorizing funds for military construction for fiscal year 2024, whichever is later.

Additional authority to carry out fiscal year 2018 project at Fort Bliss, Texas (sec. 2105)

The committee recommends a provision that would allow the Secretary of the Army to carry out a military construction project to construct a defense access road at Fort Bliss, Texas, using funds appropriated under section 131 of the Military Construction, Veterans Affairs, and Related Agencies Appropriations Act, 2018 (title I of division J of Public Law 115–141) for the Defense Access Road Program.

Modification of authority to carry out fiscal year 2021 project at Fort Wainwright, Alaska (sec. 2106)

The committee recommends a provision that would modify the authorization contained in section 2101(a) of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) for the construction of an unaccompanied enlisted personnel housing building at Fort Wainwright, Alaska, to include 104,300 square feet to incorporate a modified standard design as well as an outdoor recreational shelter, sports fields and courts, a barbecue and leisure area, and fitness stations associated with the unaccompanied enlisted personnel housing.

Additional authority to carry out fiscal year 2022 project at Aberdeen Proving Ground, Maryland (sec. 2107)

The committee recommends a provision that would allow the Secretary of the Army to carry out a military construction project to construct a 6,000-square-foot recycling center to meet the requirements of a qualified recycling program at Aberdeen Proving Ground, Maryland. The provision would allow the Secretary to use funds generated pursuant to section 2667 of title 10, United States Code, as well as funds appropriated for unspecified minor military construction.

TITLE XXII—NAVY MILITARY CONSTRUCTION

Summary

The budget request included authorization of appropriations of $2.4 billion for military construction and $435.0 million for family housing for the Department of the Navy for fiscal year 2022.

The committee recommends authorization of appropriations of $2.3 billion for military construction for the Navy and $435.0 million for family housing for the Navy for fiscal year 2022.

Further details on projects authorized can be found in section 2201 and section 4601 of this Act.

Authorized Navy construction and land acquisition projects (sec. 2201)

The committee recommends a provision that would authorize Navy and Marine Corps military construction projects for fiscal year 2022. The committee recognizes the Department of Defense's significant unfunded military construction requirements and has included an additional $1.7 billion for many of these projects here. The authorized amounts are listed on an installation-by-installation basis.

Family housing (sec. 2202)

The committee recommends a provision that would authorize new construction, planning, and design of family housing units for the Navy for fiscal year 2022. This provision would also authorize funds for facilities that support family housing, including housing management offices, housing maintenance, and storage facilities.

Improvements to military family housing units (sec. 2203)

The committee recommends a provision that would authorize the Secretary of the Navy to improve existing family housing units of the Department of the Navy in an amount not to exceed $71.9 million.

Authorization of appropriations, Navy (sec. 2204)

The committee recommends a provision that would authorize appropriations for the active component military construction and family housing projects of the Department of the Navy authorized for construction for fiscal year 2022. This provision would also provide an overall limit on the amount authorized for military construction and family housing projects for the active components of the Navy and the Marine Corps. The state list contained in this report is the binding list of the specific projects authorized at each location.

TITLE XXIII—AIR FORCE MILITARY CONSTRUCTION

Summary

The budget request included authorization of appropriations of $2.1 billion for military construction and $441.2 million for family housing for the Air Force in fiscal year 2022.

The committee recommends authorization of appropriations of $2.0 billion for military construction for the Air Force and $441.2 million for family housing for the Air Force for fiscal year 2022.

Further details on projects authorized can be found in section 2301 and section 4601 of this Act.

Authorized Air Force construction and land acquisition projects (sec. 2301)

The committee recommends a provision that would authorize Air Force military construction projects for fiscal year 2022. The committee recognizes the Department of Defense's significant unfunded military construction requirements and has included an additional $538.3 million for many of these projects here. The authorized amounts are listed on an installation-by-installation basis.

Family housing (sec. 2302)

The committee recommends a provision that would authorize new construction, planning, and design of family housing units for the Air Force for fiscal year 2022. This provision would also authorize funds for facilities that support family housing, including housing management offices, housing maintenance, and storage facilities.

Improvements to military family housing units (sec. 2303)

The committee recommends a provision that would authorize the Secretary of the Air Force to improve existing family housing units of the Department of the Air Force in an amount not to exceed $105.3 million.

Authorization of appropriations, Air Force (sec. 2304)

The committee recommends a provision that would authorize appropriations for the active component military construction and family housing projects of the Air Force authorized for construction for fiscal year 2022. This provision would also provide an overall limit on the amount authorized for military construction and family housing projects for the active component of the Air Force. The state list contained in this report is the binding list of the specific projects authorized at each location.

Extension of authorizations of certain fiscal year 2017 projects (sec. 2305)

The committee recommends a provision that would extend the authorization contained in section 2301 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) for seven projects until October 1, 2023, or the date of the enactment of an Act authorizing funds for military construction for fiscal year 2024, whichever is later.

Extension of authorizations of fiscal year 2017 projects at Spangdahlem Air Base, Germany (sec. 2306)

The committee recommends a provision that would extend the authorization contained in section 2902 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) for two projects at Spangdahlem Air Base, Germany, until October 1, 2023, or the date of the enactment of an Act authorizing funds for military construction for fiscal year 2024, whichever is later.

Extension of authorization of fiscal year 2017 project at Hanscom Air Force Base, Massachusetts (sec. 2307)

The committee recommends a provision that would extend the authorization contained in section 2301 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) for a project at Hanscom Air Force Base, Massachusetts, until October 1, 2022, or the date of the enactment of an Act authorizing funds for military construction for fiscal year 2023, whichever is later.

Modification of authority to carry out fiscal year 2018 project at Tyndall Air Force Base, Florida (sec. 2308)

The committee recommends a provision that would modify the authority contained in section 2301(a) of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) for the construction of a fire station at Tyndall Air Force Base, Florida, to include up to 3,588 square meters of crash rescue or structural fire station.

Modification of authority to carry out fiscal year 2020 projects at Tyndall Air Force Base, Florida (sec. 2309)

The committee recommends a provision that would modify the authorization contained in section 2912(a) of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92) for the construction of certain projects at Tyndall Air Force Base, Florida.

TITLE XXIV—DEFENSE AGENCIES MILITARY CONSTRUCTION

Summary

The budget request included authorization of appropriations of $2.0 billion for military construction for the Defense Agencies for fiscal year 2022.

The committee recommends authorization of appropriations of $2.0 billion for military construction for the Defense Agencies for fiscal year 2022.

Authorized Defense Agencies construction and land acquisition projects (sec. 2401)

The committee recommends a provision that would authorize military construction projects for the Defense Agencies for fiscal year 2022. The committee recognizes the Department of Defense's significant unfunded military construction requirements and has included an additional $66.0 million for many of these projects here. The authorized amounts are listed on an installation-by-installation basis.

Authorized Energy Resilience and Conservation Investment Program projects (sec. 2402)

The committee recommends a provision that would authorize the Secretary of Defense to carry out energy conservation projects. The committee recognizes the Department of Defense's significant unfunded military construction requirements and has included an additional $161.7 million for many of these projects here. The authorized amounts are listed on an installation-by-installation basis.

Authorization of appropriations, Defense Agencies (sec. 2403)

The committee recommends a provision that would authorize appropriations for the military construction and family housing projects of the Defense Agencies authorized for construction for fiscal year 2022. This provision would also provide an overall limit on the amount authorized for military construction and family housing projects for the Defense Agencies. The state list contained in this report is the binding list of the specific projects authorized at each location.

Extension of authorization of fiscal year 2017 project at Yokota Air Base, Japan (sec. 2404)

The committee recommends a provision that would extend the authorization contained in section 2401 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114–328) for a project at Yokota Air Base, Japan, until October 1, 2023, or the

date of the enactment of an Act authorizing funds for military construction for fiscal year 2024, whichever is later.

TITLE XXV—INTERNATIONAL PROGRAMS

Summary

The Department of Defense requested authorization of appropriations of $599.1 million for military construction in fiscal year 2022 for the North Atlantic Treaty Organization Security Investment Program and in-kind contributions from the Republic of Korea and the Republic of Poland. The committee recommends authorization of appropriations for the requested amount.

Subtitle A—North Atlantic Treaty Organization Security Investment Program

Authorized NATO construction and land acquisition projects (sec. 2501)

The committee recommends a provision that would authorize the Secretary of Defense to make contributions to the North Atlantic Treaty Organization Security Investment Program in an amount equal to the sum of the amount specifically authorized in section 2502 of this title and the amount of recoupment due to the United States for construction previously financed by the United States.

Authorization of appropriations, NATO (sec. 2502)

The committee recommends a provision that would authorize appropriations of $205.9 million for the U.S. contribution to the North Atlantic Treaty Organization (NATO) Security Investment Program (NSIP) for fiscal year 2022.

This provision would also allow the Department of Defense construction agent to recognize the NATO project authorization amounts as budgetary resources to incur obligations when the United States is designated as the host nation for the purposes of executing a project under the NSIP.

Subtitle B—Host Country In-Kind Contributions

Republic of Korea funded construction projects (sec. 2511)

The committee recommends a provision that would authorize the Secretary of Defense to accept five military construction projects totaling $356.2 million from the Republic of Korea as in-kind contributions.

Republic of Poland provided infrastructure projects (sec. 2512)

The committee recommends a provision that would authorize the Secretary of Defense to accept two military construction projects totaling $37.0 million from the Republic of Poland as in-kind contributions.

Authorization to accept contributions from the Republic of Korea in the form of an irrevocable letter of credit (sec. 2513)

The committee recommends a provision that would authorize the Secretary of Defense to accept contributions from the Republic of Korea in the form of an irrevocable letter of credit for the construction of the Black Hat Intelligence Fusion Center, Camp Humphreys, Republic of Korea, and for other military construction projects within the Republic of Korea.

TITLE XXVI—GUARD AND RESERVE FORCES FACILITIES

Summary

The Department of Defense requested authorization of appropriations of $670.0 million for military construction in fiscal year 2022 for facilities for the National Guard and reserve components.

The committee recommends authorization of appropriations of $806.1 million for military construction in fiscal year 2022 for facilities for the National Guard and reserve components. The detailed funding recommendations are contained in the state list table included in this report.

Further details on projects authorized can be found in the tables in this title and section 4601 of this Act.

Authorized Army National Guard construction and land acquisition projects (sec. 2601)

The committee recommends a provision that would authorize military construction projects for the Army National Guard for fiscal year 2022. The committee recognizes the Department of Defense's significant unfunded military construction requirements and has included an additional $182.3 million for many of these projects here. The authorized amounts are listed on an installation-by-installation basis.

Authorized Army Reserve construction and land acquisition projects (sec. 2602)

The committee recommends a provision that would authorize military construction projects for the Army Reserve for fiscal year 2022. The committee recognizes the Department of Defense's significant unfunded military construction requirements and has included an additional $58.4 million for one project. The authorized amounts are listed on an installation-by-installation basis.

Authorized Navy Reserve and Marine Corps Reserve construction and land acquisition projects (sec. 2603)

The committee recommends a provision that would authorize military construction projects for the Navy Reserve and Marine Corps Reserve for fiscal year 2022. The authorized amounts are listed on an installation-by-installation basis.

Authorized Air National Guard construction and land acquisition projects (sec. 2604)

The committee recommends a provision that would authorize military construction projects for the Air National Guard for fiscal year 2022. The committee recognizes the Department of Defense's significant unfunded military construction requirements and has

included an additional $182.2 million for many of these projects here. The authorized amounts are listed on an installation-by-installation basis.

Authorized Air Force Reserve construction and land acquisition projects (sec. 2605)

The committee recommends a provision that would authorize military construction projects for the Air Force Reserve for fiscal year 2022. The committee recognizes the Department of Defense's significant unfunded military construction requirements and has included an additional $85.7 million for one project here. The authorized amounts are listed on an installation-by-installation basis.

Authorization of appropriations, National Guard and Reserve (sec. 2606)

The committee recommends a provision that would authorize appropriations for the reserve component military construction projects authorized for construction for fiscal year 2022 in this Act. This provision would also provide an overall limit on the amount authorized for military construction projects for each of the reserve components of the military departments. The state list contained in this report is the binding list of the specific projects authorized at each location.

TITLE XXVII—BASE REALIGNMENT AND CLOSURE ACTIVITIES

Summary and explanation of tables

The budget request included $284.6 million for the ongoing cost of environmental remediation and other activities necessary to continue implementation of the 1988, 1991, 1993, 1995, and 2005 base realignment and closure rounds. The committee recommends $284.6 million for these efforts. The detailed funding recommendations are contained in the state list table included in this report.

Authorization of appropriations for base realignment and closure activities funded through Department of Defense Base Closure Account (sec. 2701)

The committee recommends a provision that would authorize appropriations for fiscal year 2022 for ongoing activities that are required to implement the decisions of the 1988, 1991, 1993, 1995, and 2005 base realignment and closure rounds.

Prohibition on conducting additional base realignment and closure (BRAC) round (sec. 2702)

The committee recommends a provision that would prohibit the Department of Defense from conducting another base realignment and closure (BRAC) round.

The committee notes that, although the Department of Defense did not request authorization to conduct a BRAC round in the request for fiscal year 2022, the Department continues to focus its efforts on studying facility optimization. The committee is encouraged by these efforts and looks forward to reviewing these results prior to the request for any future BRAC round.

TITLE XXVIII—MILITARY CONSTRUCTION AND GENERAL PROVISIONS

Subtitle A—Military Construction Program

Clarification of establishment of the Office of Local Defense Community Cooperation as a Department of Defense Field Activity (sec. 2801)

The committee recommends a provision that would amend section 146 of title 10, United States Code, to clarify that the Office of Local Defense Community Cooperation (OLDCC) is a Field Activity within the Department of Defense.

Use of amounts available for operation and maintenance in carrying out military construction projects for energy resilience, energy security, or energy conservation (sec. 2802)

The committee recommends a provision that would amend section 2914 of title 10, United States Code, to clarify that operation and maintenance funding can be used for the Energy Resilience and Conservation Investment Program, similar to Military Installation Resilience projects enacted in the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283).

Subtitle B—Military Family Housing

Command oversight of military privatized housing as element of performance evaluations (sec. 2811)

The committee recommends a provision that would require the Secretaries of the military departments to ensure that performance evaluations indicate the extent to which the following individuals have or have not exercised effective oversight and leadership of military privatized housing: (1) Commanders of military installations with privatized military housing; (2) Each officer or senior enlisted member whose duties include facilities or housing management at such installations; and (3) Any other officer or enlisted member as specified by the secretary concerned.

Clarification of prohibition against collection from tenants of privatized military housing units of amounts in addition to rent and application of existing law (sec. 2812)

The committee recommends a provision that would amend section 2891a of title 10, United States Code, to ensure that privatized military housing providers cannot charge out-of-pocket costs to servicemembers for housing unit upgrades needed to comply with standards under the Americans with Disabilities Act (ADA) (42 U.S.C. 12101 et seq.) for future projects.

Additionally, the committee directs the Secretary of Defense to provide a briefing not later than March 1, 2022, on how the Department of Defense determines in privatized housing legal agreements that five percent of newly constructed housing units are ADA accessible or adaptable and whether or not the Department believes this percentage should be changed in future agreements.

Modification of calculation of military housing contractor pay for privatized military housing (sec. 2813)

The committee recommends a provision that would amend section 606 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115–232) to revise the calculation for payments for privatized housing projects so that the payments are based on national average rates, which would be consistent with the calculation for the Basic Allowance for Housing rate reduction applied to servicemembers.

Modification of requirements relating to window fall prevention devices at military family housing (sec. 2814)

The committee recommends a provision that would direct the Department of Defense to begin retrofitting windows at existing military family housing units with window fall prevention devices or replace windows with ones that can be equipped with such devices. The provision would also amend section 2879(a)(3) of title 10, United States Code, to clarify that the approved type of window fall prevention device is not a window opening control device that can be disengaged.

Subtitle C—Land Conveyances

Land conveyance, St. Louis, Missouri (sec. 2821)

The committee recommends a provision that would grant permissive authority to the Secretary of the Air Force to convey approximately 24 acres of land in the City of St. Louis, Missouri, to the Land Clearance for Redevelopment Authority of the City of St. Louis.

The committee notes that the exact acreage and legal description of the property to be conveyed shall be determined by a survey satisfactory to the Secretary of the Air Force and the Land Clearance for Redevelopment Authority of the City of St. Louis.

Land conveyance, Saint Joseph, Missouri (sec. 2822)

The committee recommends a provision that would grant permissive authority to the Secretary of the Air Force to convey to the City of Saint Joseph, Missouri, approximately 54 acres of land at the Rosecrans Air National Guard Base for the purposes of accommodating the operations and needs of the Rosecrans Memorial Airport as well as development of the parcels and buildings for economic purposes. The committee notes that this permissive authority only takes effect at such time that the Missouri Air National Guard vacates their existing location on the southern end of the airfield at Rosecrans Memorial Airport.

Land conveyance, Marine Corps Air Station, Cherry Point, North Carolina (sec. 2823)

The committee recommends a provision that would grant permissive authority to the Secretary of the Navy to convey approximately 30 acres of land to the city of Havelock, North Carolina.

Land conveyance, Naval Air Station Oceana, Virginia Beach, Virginia (sec. 2824)

The committee recommends a provision that would grant permissive authority to the Secretary of the Navy to convey approximately 8 acres of land to the city of Virginia Beach, Virginia.

Subtitle D—Other Matters

Consideration of public education when making basing decisions (sec. 2831)

The committee recommends a provision that would amend section 2883 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) to add certain public education criteria as an additional military family readiness issue that must be considered in making basing decisions associated with certain military units and major headquarters.

Designation of facility at Rock Island Arsenal, Illinois (sec. 2832)

The committee recommends a provision that would require the Secretary of the Army to designate a facility located in Rock Island Arsenal, Illinois, to be named after Mr. Charles Carroll Smith, in recognition of his significant public service contributions. The committee notes that Mr. Smith, who passed away on November 27, 2020, was a dedicated public servant and an Army veteran. The committee further notes that Mr. Smith was also a lifelong advocate for the State of Illinois, and in particular, can be among those credited for the tremendous growth at Rock Island Arsenal over the past decade.

Improvement of security of lodging and living spaces on military installations (sec. 2833)

The committee recommends a provision that would require the Secretary of Defense to assess and improve the security of lodging and living spaces at military installations. The provision would also require the Secretary to submit a report to the congressional defense committees, not later than 270 days after the date of the enactment of this Act, on the results of the assessment, including a cost estimate to make any improvements recommended and an estimated schedule for making such improvements.

Expansion of authority of Secretary of the Navy to lease and license Navy museum facilities to generate revenue to support museum administration and operations (sec. 2834)

The committee recommends a provision that would amend section 2852 of the Military Construction Authorization Act for Fiscal

Year 2006 (division B of Public Law 109–163) to expand the authority of the Secretary of the Navy to lease and license Navy museum facilities to generate revenue to support museum administration and operations.

Pilot program on establishment of account for reimbursement for use of testing facilities at installations of the Department of the Air Force (sec. 2835)

The committee recommends a provision that would require the Secretary of the Air Force to establish a pilot program, not later than 180 days after the date of the enactment of this Act, to authorize not more than two Air Force installations that are part of the Air Force Flight Test Center construct and are currently funded for Facilities Sustainment, Restoration, and Maintenance (FSRM) through Research, Development, Testing, and Evaluation (RDT&E) accounts, to establish a reimbursable account for the purpose of being reimbursed for the use of testing on said installations.

The committee understands that certain Air Force testing centers, such as the Arnold Engineering Development Complex at Arnold Air Force Base, are being forced to forgo crucial installation repairs to ensure that requested testing is conducted. The committee further notes that the FSRM accounts are historically underfunded and believes that the use of FSRM out of RDT&E accounts could cause irreparable damage to the facilities if maintenance is not addressed.

Items of Special Interest

Army mobilization and training infrastructure

Section 1712 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92) required the Commander, U.S. Transportation Command to produce an updated Mobility Capability Requirements Study and submit a report on his or her analysis. The committee understands that the Commander will submit the report later this year. Section 1712 required the Commander to assess associated risks with respect to the ability to conduct operations, considering programmed forces and infrastructure.

According to Army officials and doctrine, rail is the most cost-effective and expeditious means of moving large quantities of materiel, such as tanks and ammunition, over long distances. Further, Army officials also state that, during contingencies, approximately 67 percent of Army unit equipment would move from its fort or base of origin to a shipping port by rail. The resources required to effect such a movement are sizeable as well. The committee understands that an Army 2020 simulation of deployment from a single fort in support of a large-scale combat operation demonstrated: (1) The need for having more than 2,200 rail cars available over a 3-day period; (2) The need for more than 600 rail cars to move a single armored brigade combat team; and (3) The need to have a sufficient number of qualified rail operating crews and the availability of well-maintained rail track over which the trains would travel.

The committee expects the Army to program infrastructure improvements to address any deficiencies identified in the Mobility Capability Requirements Study and to consider any base infra-

structure improvements needed to support training for National Guard armored and mechanized infantry personnel that would be deployed in support of mobilization.

Army National Guard readiness centers

The committee notes that according to the Army National Guard's Readiness Center Transformation Master Plan, the Army National Guard relies on an inventory of over 2,500 Readiness and Reserve Centers spread over all 54 States and territories in local communities as the primary facilities to support unit training and local State operations. To date, over 40 percent of National Guard facilities are over 50 years old, and about 40 percent of readiness centers do not adequately meet requirements for the support of training for the full range of mission essential tasks. In addition, based on the current force structure of the National Guard, there exists a deficit in readiness centers of 19.5 million square feet, 30 percent of the total current inventory. Finally, many readiness centers are located in areas that are not ideally positioned for current populations and demographic trends, which could adversely affect recruiting and retention. All of these factors have a detrimental impact on the readiness of the National Guard at a time when the high operations tempo of deployments is already taking a significant toll.

Accordingly, the committee directs the Secretary of the Army to provide a briefing to the Senate Armed Services Committee, not later than March 1, 2022, that includes:

(1) A review of standards for facility size, configuration, and equipment for the range of missions and training supported by readiness centers;

(2) An assessment of readiness centers to objectively measure and determine the current facility condition and capability to support authorized manpower, unit training, and operations;

(3) An assessment of supporting facilities and functions, to include equipment storage, classrooms, force protection, utilities, maintenance, administration, and proximity of support and training facilities;

(4) Recommendations for the placement of new readiness centers, the relocation of existing readiness centers, or a change in the mission of units assigned to readiness centers to ideally position the National Guard in current or projected population centers;

(5) Recommendations for enhanced use of readiness centers to facilitate National Guard family support programs during deployments;

(6) An analysis of the feasibility, potential costs, and benefits of shared use of National Guard readiness centers with other local, State, or Federal agencies to improve response to local emergencies as well as the community support provided by readiness centers; and

(7) An investment strategy and proposed funding amounts in a prioritized project list to correct the most critical facility shortfalls across the inventory of National Guard readiness centers.

Army Training Land Retention Program

The committee supports the decision by the U.S. Army Pacific to establish a program office, the Army Training Land Retention (ATLR) Program, that would provide the necessary continuity and expertise to ensure successful training land management effort in Hawaii. The committee supports the proposed structure of the ATLR program office, to be staffed with a career civil servant(s), to coordinate the Army's land acquisition efforts in the State of Hawaii, which will require coordination and assistance from multiple entities across the Army, the State of Hawaii, U.S. Indo-Pacific Command, and the local communities.

Accordingly, the committee directs the ATLR to brief the Senate Armed Services Committee on the progress of this effort as well as any changes to the structure or resource support for the ATLR program with a 6-month update not later than September 30, 2021, and a 1-year update not later than March 15, 2022.

Briefing on feasibility of integrated project delivery for military construction

The committee is aware of construction projects utilizing an integrated project delivery (IPD) approach that incentivizes collaboration between the owner, architecture/engineering firm, constructor, subcontractors, and trade partners, in which parties seek to jointly share risk, reward, and align interests via a single multi-party agreement. This approach can disincentivize claims or litigation between parties. The committee understands that IPD is commonly used in the international market, and its use is expanding in North America, with a track record of delivering projects on time and on budget.

Accordingly, the committee directs the Assistant Secretary of Defense for Energy, Installations, and Environment to brief the Senate Armed Services Committee not later than March 1, 2022, on the Department of Defense's construction contract approaches and determination if changes in project delivery methods could improve project performance.

The briefing shall include, but not be limited to:

(1) A review of best practices in the construction market from around the world with a special emphasis on delivering large or complex projects;

(2) A summary of IPD's effectiveness in delivering large and/or complex projects;

(3) An identification of construction projects, by type, where an IPD approach would be feasible and advantageous;

(4) A review of legislative and regulatory obstacles to IPD and any associated recommendations; and

(5) A review of the training and experience of the government managers responsible for delivery of complex projects and identify shortfalls.

Child development centers

The committee notes that according to Department of Defense Instruction 6060.02, installation Child Development Programs, which includes Child Development Centers (CDCs), must be certified to operate through inspections occurring not less than 4 times a year.

These inspections are unannounced and include three local inspections and one higher headquarters inspection. The local inspections include a multidisciplinary inspection, annual comprehensive health and sanitation inspections, and annual comprehensive fire and safety inspections. The committee also notes that while life-threatening violations must be remediated immediately, non-life-threatening violations are eligible for a waiver that waives the requirement that the violation is remedied immediately for up to 90 days beginning on the date of discovery of the violation. There is also a waiver to authorize the program to remain open if the violation cannot be reasonably be remedied within the 90-day period or in which major facility reconstruction is required.

The committee directs the Secretary of Defense, in coordination with the Secretaries of the military departments, to provide a briefing to the Senate Armed Services Committee on the results of the CDC program inspections. The briefing shall be provided not later than March 1, 2022, and include, at a minimum, the following:

(1) A list of life-threatening and non-life-threatening violations recorded at CDCs over the last three years, to include the installation where the violation occurred and date of inspection;

(2) A list of what is considered a life-threatening and non-life-threatening violation;

(3) How often the 90-day remediation requirement has been waived and at which CDCs; and

(4) Data on CDC closures due to a non-life-threatening violation not remedied within 90 days.

Additionally, the committee directs the Secretary of Defense, in coordination with the Secretaries of the military departments, to provide the congressional defense committees with a report listing CDCs considered to be in "poor" or "failing" condition. The report shall include a remediation plan for each CDC by the respective military service and delivered not later than March 1, 2022. The remediation plan shall include:

(1) An estimate of the funding required to complete the remediation plan;

(2) The Department's funding strategy to complete the plan;

(3) Any additional statutory authorities the Department needs to complete the remediation plan; and

(4) A plan to execute preventive maintenance on other CDC facilities to prevent more from degrading to poor or failing condition.

Comptroller General review of excess infrastructure

The committee understands that the Department of Defense (DOD) has faced longstanding challenges in reducing infrastructure that is excess to its needs. The committee notes that operating and maintaining only those facilities needed to meet mission requirements, and avoiding sustainment costs for those that do not, help to conserve resources. Further, to the extent that DOD has unneeded facilities not yet identified as excess, consolidation or disposal of these facilities could realize additional cost savings.

The committee appreciates the Government Accountability Office's (GAO) work on excess property. This work includes a series

of reports with several recommended actions for DOD that could improve its management of excess infrastructure, such as improving the quality of its real property utilization and condition data, demolition program planning, and excess capacity estimates. While the Department acted to address most of these recommendations, the committee is concerned that it still needs to improve the accuracy of its real property data to effectively inform future space consolidation, disposal, and infrastructure investment decisions. Further, it is not clear how well DOD has been using its existing authorities to consolidate or dispose of excess facilities. DOD continues to report excess facilities it does not fully use or need, spending valuable resources that could be eliminated from its budget or used for other purposes. As the committee believes a Base Realignment and Closure round is not appropriate at this time as the Department has not shown that the estimated savings justify the actual costs, the Department should be using its existing authorities to consolidate or dispose of excess infrastructure when appropriate. The committee would like to better understand how DOD uses these authorities to ensure that its infrastructure is adequately sized to support its assigned missions while minimizing the likelihood of unnecessary costs to support excess capacity.

Accordingly, the committee directs the Comptroller General of the United States to review the Department's approach to reducing its excess infrastructure. The findings of the review shall be submitted to the committee not later than March 1, 2022, and answer, at a minimum, the following questions: (1) What criteria and processes does DOD use to identify potential and existing underutilized or excess infrastructure; (2) To what extent does DOD plan for, manage, or dispose of underutilized or excess space and to what extent is DOD meeting any reduction goals; and (3) To what extent has DOD evaluated the cost and mission impact of maintaining underutilized or excess infrastructure?

Comptroller General review of military barracks

The committee notes its continued interest in the quality of housing for servicemembers. While housing varies by rank, location, and family situation, most Active Duty, Reserve, and National Guardsmen and women start their military careers living in barracks that consist of shared bunks and bathroom facilities. Further, all of the military services require single servicemembers with pay grades E–4 and below and with less than 3 years of service to live in barracks, and the Army and Marine Corps extend that requirement to the E–5 pay grade. The committee also notes that when the Government Accountability Office last reviewed the physical condition of military barracks almost 20 years ago, it reported that most barracks were in need of significant repair and suffered from inadequate heating and air conditioning, inadequate ventilation, and plumbing-related deficiencies. The committee would like to better understand the current condition of military barracks as well as the ongoing and planned initiatives to maintain them.

Accordingly, the committee directs the Comptroller General of the United States to evaluate the condition of military barracks operated and maintained by each of the military services and to provide a report on such findings to the Senate Armed Services Com-

mittee not later than March 1, 2022. The report shall address, at a minimum, the following questions:

(1) How does the Department of Defense (DOD) determine its military barracks requirements, including construction, sustainment, and recapitalization requirements;

(2) To what extent is the DOD achieving its military barracks requirements, including construction, sustainment, and recapitalization requirements;

(3) To what extent is the DOD assessing the effect of its military barracks resource investment decisions on individual and collective readiness and other performance goals, such as reenlistment targets; and

(4) To what extent is the DOD pursuing alternative design, construction, and management approaches for its military barracks programs?

Disaster recovery at Offutt Air Force Base and Tyndall Air Force Base

The committee understands that the Department of Defense is still evaluating funding requirements associated with recovery efforts at both Offutt Air Force Base and Tyndall Air Force Base. The committee notes that no money was requested for such efforts in fiscal year 2022 as a result of significant appropriations in prior years, though additional funds will be necessary to complete these multi-year projects. The committee encourages the Department to continue to develop its requirements, plans, and cost estimates in connection with recovery activities and expects the Department to continue to keep it fully apprised of progress relating to both projects.

Feasibility of relocating Yuma community site

The committee is concerned about a potential safety risk posed by the significant overlap of the flight path for Marine Corps Air Station Yuma and a public fairgrounds property that frequently hosts large crowds throughout the year, including the simultaneously scheduled weapons instructor course and annual fair. The committee notes that current operations are occurring in areas that may be inadvisably close to public and commercial activity and is concerned this challenge may be exacerbated by the added demand for airspace presented by 5th generation fighters.

Accordingly, the committee directs the Assistant Secretary of the Navy for Energy, Installations, and Environment to provide a briefing to the committee, not later than March 1, 2022, capturing any flight safety incidents or accidents in and around the fairgrounds in the last 10 years. The briefing shall include an assessment of the feasibility of relocating the community fairgrounds to a location outside the flight path, potential risk management benefits of such a move, and whether the move could support future airspace needs of the installation.

Fleet Readiness Center East and Marine Corps Air Station Cherry Point facilities brief

The committee notes that the Department of the Navy has primary responsibility for Fleet Readiness Center (FRC) East military

construction requirements because of the facility's status as a Navy tenant command aboard a Marine Corps installation. FRC East is the depot-level repair and overhaul facility that employs over 4,000 Federal civilians and contractors. The committee further notes that Marine Corps Air Station (MCAS) Cherry Point is the headquarters for the Second Marine Aviation Wing. The committee understands that together Cherry Point and FRC East generate nearly $2.0 billion in regional annual economic impact.

The committee is concerned that the Navy has not prioritized military construction projects at FRC East and MCAS Cherry Point, which could lead to degraded readiness levels and operational impacts. The committee understands that there are discussions underway between the Department of the Navy and local and State authorities on the creation of a public-private partnership to construct a 1.5 million-square-foot Industrial Production compound at FRC East. The committee further understands that due to a depot service gap, additional temporary hangars are needed for the F–35 depot program but are not budgeted until fiscal year 2025.

Accordingly, the committee directs the Assistant Secretary of the Navy for Energy, Installations and Environment to provide a briefing to the Senate Armed Services Committee, not later than March 1, 2022, on areas of required improvements for FRC East and MCAS Cherry Point by conducting:

(1) An assessment of the plan to use a public-private partnership of FRC East, Marine Corps Installations East, the State of North Carolina, and private investors to construct a 1.5 million-square-foot Industrial Production Compound at the FRC East campus aboard Cherry Point that includes, but is not limited to, a cost-benefit analysis, any legal concerns that the public-private partnership could create, and an analysis of alternatives and associated costs; and

(2) A review of the current requirement for F–35 hangars at MCAS Cherry Point, to include additional temporary hangar facilities to cover a depot service gap from fiscal year 2023 to fiscal year 2025. The committee notes that Military Construction P–993 has an operational need date of fiscal year 2023. Additionally, current project objective memorandum schedules have projected into fiscal year 2025. The review shall include the location on the airfield and determine what additional projects would be needed for utilities, the size of temporary structure, and the recommended structure and equipment costs.

General Mitchell International Airport pipeline project

The committee notes that the Defense Logistics Agency (DLA) received $28.0 million for a fuel facility for the 128th Air Refueling Wing at General Mitchell International Airport in fiscal year 2019. In addition to the fuel facility, the Congress also provided $2.4 million in Air National Guard Facilities, Sustainment, Restoration, and Modernization (FSRM) funds to complete a pipeline enabling the fuel facility to access over 1 million gallons of fuel from a pipeline approximately 50 yards from the fuel facility. The committee notes that the pipeline tap was funded separately by the Congress due to the beneficial mission impact access to the fuel reserves the

pipeline connection brings to the Air Force and the 128th Air Refueling mission.

The committee understands that delays in DLA's ability to complete a construction contract for the fuel facility would have resulted in the expiration of the FSRM funds. The committee further understands that the fuel project was originally slated for delivery in 2019 but is now scheduled for fiscal year 2023 and that the delay was caused by receipt of pricing proposals well in excess of the budget amount for fuel facility. The committee notes that the National Guard obligated the $2.4 million in fiscal year 2019 FSRM funds slated for the pipeline tap with assurances that they would proceed with this element of funding as the DLA construction schedule became more firm.

The committee notes that obligation of those funds for this purpose in the National Guard's FSRM account and the project's completion remains an item of special interest.

Hawaii Infrastructure Readiness Initiative

The Hawaii Infrastructure Readiness Initiative (HIRI) is the Army's long-term effort to modernize installations in Hawaii through military construction funds. The U.S. Army Pacific created HIRI to address readiness shortfalls in aviation, operations, training, and munitions facilities at Schofield Barracks, Wheeler Army Airfield, Pohakuloa Training Area, and West Loch Ammunition Storage in Hawaii. The Army committed to allocating $1.1 billion through fiscal year 2030 to address these priorities established in military construction submissions and major restoration and maintenance programming requests. The committee is concerned that competing demands within the Army military construction plan may have caused the deferral of several HIRI projects until later years. Continued and consistent funding is needed for the Army to continue to meet critical national defense missions in the Indo-Pacific region.

Accordingly, the committee directs the Secretary of the Army to provide a briefing to the Senate Armed Services Committee, not later than March 1, 2022, with a list of HIRI projects for the next 5 fiscal years, the timeline for completing these projects, and associated planning, programming, and budgeting documents. The briefing shall also assess the risk to the Army's readiness in the Indo-Pacific region as well as those for the Commander of U.S. Indo-Pacific Command if these HIRI projects are not funded.

Improving budgeting for barracks and dormitory in failing conditions

The committee notes that in recent years, an overdue, renewed focus has been placed on the welfare and safety of servicemembers and their families as it pertains specifically to their living conditions. The committee drafted Title XXX in the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92) to begin to rectify the years of negligence by both the military departments and private housing contractors. The committee notes that enlisted barracks account for roughly 60 percent of the housing for junior servicemembers. While the Department of Defense has taken certain steps to resolve the concerns about privatized housing,

there remain other living quarters, such as barracks and dormitories, that are in disrepair. Upon review of the President's budget request for fiscal year 2022, the committee is concerned that the Department is not making the necessary infrastructure improvements to barracks and dormitories in the base budget. The committee is further concerned that the services are either heavily relying upon their respective unfunded requirements lists to fund these items or have not made them a priority at all.

The committee notes that one example of this obvious need is at Vance Air Force Base, where the existing dormitory facilities B421 and B423 were constructed in the 1950s and are known to be contaminated with lead-based paint and asbestos-containing material. The committee understands that the floor-to-floor height of the existing facility does not have enough vertical space to integrate contemporary building support systems. As a result, the committee understands that the limited interstitial space leads to difficulty in maintaining and replacing mechanical components as well as issues with condensation. The committee notes that condensation issues were prevalent in many privatized housing work orders, which led to repeated mold remediation calls at a high cost financially and to the detriment of military families' health and well-being. The committee also understands maintenance costs for B421 and B423 exponentially increased by more than 500 percent from fiscal year 2016 to fiscal year 2020. The committee further notes that the fiscal year 2020 maintenance costs of these facilities were almost double their planned sustainment requirement.

Accordingly, the committee directs the Secretary of each military department to submit to the Senate Armed Services Committee, not later than February 1, 2022, a report outlining the unfunded requirements for all barracks and dormitories scheduled to be replaced through 2030. The Secretaries shall provide the list in priority order by service and include for each facility: (1) Current facility readiness or quality index rating, along with an estimate of cost to repair versus cost of replacement; (2) Annual sustainment costs by facility; (3) Cost to replace the facility; and (4) Anticipated replacement date.

The report shall also: (1) Include the quantifiable backlog of repair and modernization projects for barracks and dormitories; and (2) Quantify the average completion time for barracks maintenance requests.

Improving on-base housing waitlists

The committee understands that many military families have undergone significant delays in conducting their permanent change of station (PCS) due to COVID–19. Additionally, the committee notes that there has been a significant housing shortage exacerbated by the pandemic leading to extremely long wait times for on-base military housing.

The committee recognizes the strides the Department of Defense (DOD) has made concerning the housing shortage but believes a DOD-wide policy to allow servicemembers to join on-base housing waitlists upon being notified of a PCS, instead of being permitted to join only after receiving orders, would be welcomed by both families and the installation command. The committee believes that ad-

ditional time will provide the installation commander a more accurate forecast of incoming personnel while also giving servicemembers additional time for a home to become available, reducing extended stays and expenditures at temporary housing upon arrival.

Accordingly, the committee encourages the Secretary of Defense to instruct the military departments to issue guidance allowing servicemembers and their dependents to join a waitlist at new duty stations upon being notified of a PCS.

Joint-use facilities briefing

The committee notes its interest in having an effective overall strategy for joint use facilities in the Indo-Pacific, authorities for planning construction of potential dual-use facilities, and an assessment on current facilities in States that have entered into a Compact of Free Association with the United States that have the potential to be a joint-use facility.

Accordingly, the committee directs the Assistant Secretary of Defense for Energy, Installations, and Environment to provide a briefing to the Senate Armed Services Committee, not later than December 1, 2022, that shall include an assessment of: (1) The overall strategy for joint-use facilities between the Department of Defense and other Federal agencies in the Indo-Pacific region, specifically in the Freely Associated States; (2) The challenges and benefits of adding ports to the joint use planning process of the Department; (3) The limitations imposed by current authorities for joint-use facilities that may hinder cost-sharing efforts; and (4) The potential of all facilities of the U.S. Government in the Freely Associated States to be a facility used by other Federal agencies to foster cost-sharing benefits. The briefing shall also identify any additional authorities needed to implement military construction projects under the Pacific Deterrence Initiative under section 1251 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283).

Massachusetts Institute of Technology Lincoln Lab Engineering Prototyping Facility construction

The committee notes the importance of microelectronics in great power competition. The committee further notes that the Massachusetts Institute of Technology (MIT) Lincoln Lab is essential to maintaining and furthering our qualitative edge in microelectronics research and development and that the lab's facilities are in worsening condition. The committee supported the Air Force's fiscal year 2016 budget request that included funding for the West Lab project and is pleased to see the first phase of that project, the Compound Semi Conductor Laboratory and Microelectronics Integration Facility, is proceeding relatively on schedule. The committee is concerned that the second phase of the West Lab project, the Engineering Prototyping Facility (EPF), is not being similarly prioritized by the Air Force. The EPF constitutes an urgently-needed investment in national defense research and development infrastructure and derivatively ensures the recruitment and retention of the most talented science, technology, engineering, and mathematics graduates in support of the national defense mission. The

start of the EPF construction project in fiscal year 2023 is critical to ensuring that the Department of Defense continues to receive innovative technologies essential to maintaining superiority over adversaries.

Accordingly, the committee encourages the Department of the Air Force to include the EPF facility in its military construction request for fiscal year 2023. Additionally, the committee further directs the Assistant Secretary of the Air Force for Energy, Installations, and Environment to provide a briefing to the Senate Armed Services Committee not later than December 1, 2021, on the planned budgetary programming for the completion of the EPF project and its associated construction schedule.

Privatized lodging program

The committee notes that the Government Accountability Office (GAO) published a report on June 8, 2021, titled "Military Lodging: DOD Should Provide Congress with More Information on Army's Privatization and Better Guidance to the Military Services" (GAO–21–214) that identified weaknesses in the Privatized Army Lodging (PAL) Program and recommended several improvements to PAL and to the lodging programs of the other services.

Accordingly, consistent with the recommendations in GAO–21–214, the committee directs the Secretary of Defense to: (1) Provide additional key information from the Army about the PAL program in the Department's Military Housing Privatization Initiative program reports to the Congress, beginning with the report for fiscal year 2019, to include the status of improvements to its facilities, time frames for completing improvements, and any significant changes to the development plan; (2) Require the Army to evaluate the methodology and baseline it uses to calculate its cost avoidance estimate, to include a comparison of alternative scenarios against a different baseline in its calculations, and share the results of this evaluation with the Congress; (3) Establish consistent methodologies and clearly define the data that the services are to report to the Secretary on their respective lodging programs; and (4) Assess, by military service, the extent to which servicemembers and civilian employees are inappropriately using off-base lodging for official travel and why it is occurring, develop a plan to address any issues identified, and provide that plan to the Congress.

Finally, not later than March 1, 2022, the Secretary of Defense shall provide a briefing to the Committee on Armed Services of the Senate on the progress of the Secretary in implementing the aforementioned recommendations.

Realizing B–21 depot land acquisition savings

The committee notes the importance of the B–21 Raider Long-Range Strike Bomber program to maintain the safety of the Homeland through power projection. The committee further notes that as the B–21 comes online and becomes operational, an extensive network of spares, repairables, touch labor, and infrastructure must be ready when called upon.

The committee is concerned, however, that the Air Force has yet to acquire certain lands that are optimal to begin development of the B–21 depot campus at Tinker Air Force Base. The committee

also believes that the Air Force has not learned from the mistakes of previous weapons system procurement, such as the F–35, which had a number of issues in establishing a successful depot level repair program.

The committee understands that at a cost of $30.0 million, a single, contiguous campus has the potential to save an estimated $285.0 million in B–21 program construction costs and allow a much more efficient depot sustainment workflow process. Furthermore, the committee understands the single campus concept will reduce depot sustainment costs by an additional $500.0 million over the life cycle of the B–21 program. The committee notes that to support design and infrastructure work for the B–21, land acquisition must occur not later than fiscal year 2023 to support projected aircraft depot inductions. Finally, the committee notes that in addition to the operational impact of delaying the acquisition of the necessary property, the Air Force will save $2.7 million per year alone by acquiring the property vice leasing under an existing construct.

Accordingly, the committee expects the Air Force to budget for the acquisition of the aforementioned property not later than fiscal year 2023 to avoid any program delays, which would lead to degraded B–21 readiness and increased sustainment costs. Additionally, the committee directs the Secretary of the Air Force to provide a briefing to the Senate Armed Services Committee not later than December 1, 2021, on the status of the acquisition for the B–21 depot campus to include updated schedule, cost, and estimated savings achieved by purchasing the property vice leasing.

Report on improving Army Family Housing at Fort McNair, Washington, D.C.

The committee notes that the existing Army-managed family housing at Fort McNair consists of 23 buildings, offering 29 dwelling units. McKim, Mead, and White designed 21 of these buildings as part of a full-campus redevelopment beginning in 1903, corresponding to the creation of the Army War College and relocation of the Engineering School into a combined educational campus. The committee is aware the historic housing at Fort McNair is in failing condition and that without rehabilitation or replacement risks continued deterioration to the point of condemnation. The committee also understands the necessity of preserving the Nation's heritage in concert with the Army's efforts to provide safe and functional homes.

Accordingly, the committee directs the Secretary of the Army to submit to the Committees on Armed Services of the Senate and the House of Representatives a report on improving Army Family Housing at Fort McNair, with a focus on the 15 General Officer Quarters (GOQs) located along the Washington Channel. The report shall:

(1) Include an assessment of architectural, engineering, and historic preservation design;

(2) Include expertise provided by a qualified historic architect or historic preservation design consultant;

(3) Assess the feasibility and provide cost analyses and costs estimates for the following alternatives:

(a) rehabilitation of the housing following the Secretary of the Interior's Standards and Guidelines for the Treatment of Historic Properties to operate and maintain for at least 50 years;

(b) partial demolition, i.e., retention of the façade and building envelope only, and redesign and renovation of all interior spaces and mechanical systems to modern standards;

(c) full demolition and replacement of the GOQs to include demolition and debris disposal of the current housing, evaluation of current and alternate siting on Fort McNair, and cost estimates for new housing construction to current GOQ standards;

(d) renovation and adaptive reuse of the housing for other than GOQ housing purposes of the Army or other tenant organizations;

(e) no action other than continued annual maintenance and repair at currently programmed funding levels; and

(f) any other additional course(s) of action the Army deems feasible;

(4) Incorporate the use of imitative substitute building materials as an alternative to higher cost historic building materials or in-kind building materials in the alternatives considered, as appropriate; and

(5) Evaluate the costs and impacts of all alternative courses of action on the Fort McNair Historic District, Army War College National Historic Landmark, and surrounding historic properties, to include design and rendering services and viewshed analysis.

The report shall be submitted not later than March 1, 2022, and be used as a guide for decision-making regarding future treatment of this housing. The Army may, at its discretion, expand this analysis to include the historic family housing at Joint Base Myer-Henderson Hall, Virginia, and any other locations the Army deems appropriate.

Review of restricted use easements

The committee continues to support the Department of Defense's balancing of military installation encroachment issues, concerns, and proposed resolutions. However, the committee is concerned that restricted use easements (RUEs) associated with Marine Corps Air Station (MCAS) Miramar may no longer be needed to support its readiness mission and may conflict with the committee and Department's goal of enhancing cooperation between military installations and their supporting communities regarding commercial housing developments.

Accordingly, the committee directs the Secretary of the Navy to review all RUEs at MCAS Miramar for the purpose of determining their current relevancy for mission readiness support and whether they may be relinquished at fair market value to allow for development of new housing projects that are contained within approved and adopted community plans. These plans must have taken into consideration the training, safety, and mission requirements associated with the adjacent military installation, as well as quality-of-

life considerations such as close proximity to the installation and costs associated with military participation, such as Basic Allowance for Housing allowances. The Secretary shall provide a briefing on the review to the Senate Armed Services Committee not later than March 1, 2022.

Sustainable building materials

The committee is concerned that the Department of Defense is not adequately modernizing its acquisition approach for military construction projects that could lead to improved schedule, decreased costs, sustainability, and increased availability of materials. The committee believes that sustainable materials could be a viable alternative to certain traditional materials used in construction when technically feasible.

The committee notes that in the Conference Report (H. Rept. 116–442) accompanying the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, the Secretary of Defense was required to submit a report to the Committees on Armed Services of the Senate and the House of Representatives not later than June 1, 2021. The committee notes that the report was to include, at a minimum, a description of potential uses for innovative wood technologies, such as mass timber and cellulose nanomaterials in new military construction; the sustainment and renovation of existing facilities; and an analysis of any barriers to incorporating these innovative wood product technologies into these areas.

The committee is discouraged that the Department has not made this report a priority as it could lead to cost-savings and improved schedules, especially in a time when lumber availability is scarce with historic high prices.

Accordingly, the committee encourages the Department to prioritize this report and looks forward to receiving it as soon as possible. Additionally, the committee believes that the Department should strongly consider sustainable materials, like cross-laminated timber, when establishing evaluation criteria for military construction project contracts when technically feasible.

Unspecified Minor Military Construction

The committee recognizes the importance of military construction in support of the 2018 National Defense Strategy. The committee notes that while major military construction projects support a range of assets from depots to next-generation platforms, unspecified minor military construction (UMMC) also plays a vital part to both operational, support, and research facilities, yet billions of dollars in unfunded requirements still exist.

The committee notes that one such example of these UMMC projects exists at the Engineer Research and Development Center (ERDC). The committee understands projects such as the proposed Military Pavement Repair and Maintenance Research Facility would improve the ability to conduct research into long-term pavement sustainability. Additionally, the committee notes that the proposed Simulator Building will allow ERDC to conduct classified research on ship-to-shore operations in support of the Army and Army Service Component Commands' missions worldwide.

Accordingly, the committee encourages the Department of Defense and military services to ensure proper resource allocations are made for UMMC accounts.

DIVISION C—DEPARTMENT OF ENERGY NATIONAL SECURITY AUTHORIZATIONS AND OTHER AUTHORIZATIONS

TITLE XXXI—DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS

Subtitle A—National Security Programs and Authorizations

National Nuclear Security Administration (sec. 3101)

The committee recommends a provision that would authorize the appropriation of funds for the activities of the National Nuclear Security Administration.

Defense environmental cleanup (sec. 3102)

The committee recommends a provision that would authorize the appropriation of funds for the Department of Energy's defense environmental cleanup activities.

Other defense activities (sec. 3103)

The committee recommends a provision that would authorize the appropriation of funds for the Department of Energy's other defense activities.

Nuclear energy (sec. 3104)

The committee recommends a provision that would authorize the appropriation of funds for the Department of Energy's nuclear energy activities.

Subtitle B—Nuclear Weapons Stockpile Matters

Portfolio management framework for National Nuclear Security Administration (sec. 3111)

The committee recommends a provision that would direct the National Nuclear Security Administration (NNSA), within one year of the enactment of this Act, to (1) Develop and implement an enterprise-wide portfolio management framework that details NNSA's approach and incorporates the leading practices identified by GAO in GAO–21–398 and (2) Complete a single, integrated assessment that is comprehensive and complete, and includes all of the capabilities needed to execute the weapons activities portfolio. The provision would direct NNSA to provide a briefing to the congressional defense committees, not later than June 1, 2022, on its progress in developing a weapons activities portfolio management framework and its plans for implementing GAO's recommendations.

The Government Accountability Office's (GAO) report published on June 9, 2021, titled "Nuclear Security Enterprise: NNSA Should

Use Portfolio Management Leading Practices to Support Modernization Efforts" (GAO–21–398), found that the NNSA is in the early stages of initiating its portfolio management processes and has partially implemented leading practices. GAO recommended that NNSA establish an enterprise-wide portfolio management framework that defines the portfolio of weapons stockpile and infrastructure maintenance and modernization programs and its governance roles, and includes portfolio-level selection criteria, prioritization criteria, and performance metrics. Further, GAO found that NNSA has not developed a comprehensive or complete capability assessment to support its strategic management of its weapons activities portfolio of work, and recommended that NNSA work across its offices to do so. In comments on the draft report, NNSA officials said they believe they have implemented both of GAO's recommendations based on the Agency's existing processes.

The committee is concerned that NNSA officials believe they have already implemented GAO's recommendations, despite NNSA only partially implementing portfolio management leading practices and not comprehensively or completely assessing its capabilities. The committee believes it prudent for NNSA to take additional action and update the committee on the status and direction of its efforts.

Reports on risks to and gaps in industrial base for nuclear weapons components, subsystems, and materials (sec. 3112)

The committee recommends a provision that would modify section 3113 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) to include a reporting requirement, coincident with the existing briefing requirement, regarding industrial base risk monitoring carried out by the National Nuclear Security Administration.

Sense of Senate on oversight role of Congress in conduct of nuclear weapons testing (sec. 3113)

The committee recommends a provision that would express the sense of the Senate that the Congress should have an oversight role on nuclear weapons testing. The committee recognizes the continued certification of the nuclear stockpile by the National Nuclear Security Administration (NNSA) and assessment of the Department of Defense that no identified conditions require the resumption of underground nuclear testing.

Further, the committee notes that much of the legacy technology associated with testing activity has become obsolete and the development of new methods and modern technologies, such as instrumentation for state of the art high speed data acquisition and capabilities to detect differing forms of energies, would likely be required should a need to reconstitute this capability arise, particularly in relation to a complex, well-diagnosed test. Absent such an effort, the committee is concerned that confidence in the current posture will deteriorate.

Accordingly the committee directs the Administrator of the NNSA to update the congressional defense committees, not later than September 30, 2022, on the status of section 4207 of the

Atomic Energy Defense Act (50 U.S.C. 2527) and, in particular, how the current work with respect to U1a Complex Enhancements Project and the Enhanced Capabilities for Subcritical Experiments assists this program.

Subtitle C—Defense Environmental Cleanup Matters

Part I—Environmental Management Liability Reduction and Technology Development

Environmental management liability reduction and technology development (secs. 3121–3125)

The committee recommends a series of provisions that would create a series of competitively selected technology demonstration programs and a university grant program to underpin the advanced technology required to support the Department of Energy's long-term effort to clean up former Cold War nuclear weapons sites and its commitment to the communities around these sites. In fiscal year 2020, the Department's environmental liability for this cleanup was estimated at $512.0 billion—related primarily to retrieving, treating, and disposing of nuclear and hazardous waste. This is the largest share of environmental liability across the entire Federal Government. The Government Accountability Office added this area to its High-Risk List in 2017, indicating that it is at high risk for fraud, waste, and abuse. The provision could accordingly lead to a reduction in the overall cleanup cost.

Part II—Other Matters

Comprehensive strategy for treating, storing, and disposing of defense nuclear waste resulting from stockpile maintenance and modernization activities (sec. 3131)

The committee recommends a provision that would direct the National Nuclear Security Administration (NNSA) to develop a comprehensive strategy that includes: (1) The type and quantity of defense nuclear waste it will generate as a result of stockpile maintenance and modernization activities; (2) How it plans to coordinate with the Department of Energy's Office of Environmental Management to treat, store, and dispose of the waste; and (3) Potential disposal facilities that could accept these waste streams. The estimate should incorporate near, medium, and long term projections with a budgetary estimate over the next 5 fiscal years. The provision would further require an update to the strategy be submitted with the budget request for fiscal year 2027.

The committee directs the Comptroller General of the United States to assess NNSA's strategy and report to the congressional defense committees 180 days after the strategy is completed. The committee further directs the Comptroller General to perform a similar assessment for the second strategy submitted with the fiscal year 2027 budget submission.

The committee notes that as the United States continues to maintain and modernize its nuclear weapons stockpile, waste will continue to be generated and must be treated, stored, and disposed of. In particular, activities to fabricate new plutonium pits, the cores of nuclear weapons, are expected to generate a considerable

volume of transuranic waste. It is not clear whether there are sufficient facilities to address the waste generated by these activities or whether such facilities are included in current plans and budgets.

Subtitle D—Budget and Financial Management Matters

Improvements to cost estimates informing analyses of alternatives (sec. 3141)

The committee recommends a provision that would authorize the Administrator for Nuclear Security, with notification to the congressional defense committees, to seek Project Engineering and Design (PED) funds prior to Critical Decision 1 to begin conceptual design work during the analysis of alternatives (AoA) process and develop more robust cost estimates under conditions outlined in the provision in order to improve the fidelity of cost estimates utilized in an AoA for large projects.

Additionally, the provision directs the Administrator to ensure that any cost estimate used in an AoA for a large project is designed to fully satisfy the requirements outlined in the mission needs statement approved at Critical Decision 0 in the acquisition process, as set forth in Department of Energy Order 413.3B (or a successor order).

Modification of requirements for certain construction projects (sec. 3142)

The committee recommends a provision that would increase the threshold for a minor construction project, as used under chapter 42 of title 50, United States Code, from $20.0 million to $25.0 million to account for inflation.

Modification to terminology for reports of financial balances for atomic energy defense activities (sec. 3143)

The committee recommends a provision that would further clarify terminology developed in section 3151 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) to reflect using the term "encumbered" instead of "committed" in order to refer to funds that have been obligated by the Department of Energy (DOE) to a contract and have been reserved by the contractor for a specific purpose, such as a subcontract. The committee notes that other agencies in the executive branch generally use the term "committed" to refer to an administrative reservation of allotted funds prior to obligation. The committee believes that using a distinct term helps clarify who is acting in any given situation being described in DOE's reports, since commitment and obligation are only done by the Federal Government, whereas encumbrance is only done by a contractor.

Subtitle E—Other Matters

Extension of authority for appointment of certain scientific, engineering, and technical personnel (sec. 3151)

The committee recommends a provision that would extend section 4601(c)(1) of the Atomic Energy Defense Act (50 U.S.C. 2701(c)(1)) from September 30, 2021 to September 30, 2026 in

order to hire up to 200 scientific, engineering, and technical personnel under exempt status.

Extension of enhanced procurement authority to manage supply chain risk (sec. 3152)

The committee recommends a provision that extends the authority to limit in whole or in part procurement disclosure information found in section 2786 of title 50, United States Code, from June 30, 2023 to December 31, 2028, to limit the risk to the nuclear weapons supply chain.

Extension of authority for acceptance of contributions for acceleration of removal or security of fissile materials, radiological materials, and related equipment at vulnerable sites worldwide (sec. 3153)

The committee recommends a provision that extends the authority found in section 3132 of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 (Public Law 108–375) and incorporated into the Atomic Energy Defense Act (50 U.S.C. 2565 et seq.) to accept foreign contributions to help secure fissile material worldwide from December 31, 2023 to December 31, 2028.

Updates to Infrastructure Modernization Initiative (sec. 3154)

The committee remains concerned about the state of the physical infrastructure within the nuclear security enterprise of the National Nuclear Security Administration (NNSA). According to NNSA's Stockpile Stewardship and Management Plan for Fiscal Year 2021, "more than a third of NNSA's total infrastructure assets (as a percentage of replacement plant value) are in poor or very poor condition and are insufficient to meet mission needs." The committee notes that section 3111 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115–91) created the Infrastructure Modernization Initiative (IMI) with the goal of reducing the backlog of deferred maintenance and repair needs by not less than 30 percent by 2025. At the time, the estimated backlog of deferred maintenance and repair needs of the nuclear security enterprise was approximately $3.7 billion. However, the President's budget request for fiscal year 2022 estimates that out of a total Replacement Plant Value of $116.0 billion, the NNSA has a $9.4 billion backlog of repair needs and a $5.8 billion backlog of deferred maintenance. The committee understands recent changes to infrastructure management practices have significantly impacted estimates of both deferred maintenance and repair needs and that the increasing estimates are not directly reflective of a decline in the infrastructure's physical condition. Nevertheless, in order to improve oversight of the IMI, the committee recommends a provision that would direct the Administrator of the NNSA to provide an updated IMI plan and make other improvements to the original statute.

Acquisition of high-performance computing capabilities by National Nuclear Security Administration (sec. 3155)

The committee recommends a provision that would express the sense of the Senate that the National Nuclear Security Administration's (NNSA) Advanced Simulation and Computing program is an essential element of the Stockpile Stewardship Program, and developing the next generation of exascale high-performance computers to conduct performance assessments of nuclear weapons systems and next-generation weapons design is in the national security interest of the United States. The provision would require the Administrator for Nuclear Security, in consultation with the Secretary of Energy, to submit a roadmap outlining the Administration's plans for high-performance computing acquisitions over the next 10 years. The roadmap would be due 2 years after the date of the enactment of this Act to allow adequate consultation with an ongoing review by the National Academies of Sciences on high-performance computing at the NNSA. The provision would require the National Nuclear Security Administrator to enter into an arrangement with a federally funded research and development center (FFRDC) or other organization to independently assess the program's next high-performance computing acquisition, with a report assessing the acquisition due 90 days after entering into an arrangement with the FFRDC.

Limitation on use of funds for naval nuclear fuel systems based on low-enriched uranium (sec. 3156)

The committee recommends a provision that would prohibit the obligation or expenditure of any fiscal year 2022 funds at the National Nuclear Security Administration (NNSA) to conduct research and development of an advanced naval nuclear fuel system based on low-enriched uranium unless the Secretary of Defense, the Secretary of Energy, and the Secretary of the Navy communicate certain determinations to the congressional defense committees. The provision would also require the Administrator of the NNSA to submit to the congressional defense committees, not later than 60 days after the date of the enactment of this Act, a report outlining activities undertaken using fiscal year 2021 funds for this purpose, including progress made toward either technological or nonproliferation goals.

The committee notes that the Secretary of Energy and the Secretary of the Navy stated in a letter to the congressional defense committees dated March 25, 2018, that such a research and development effort would cost about $1.0 billion over a 10-to-15-year period, "with success not assured." It would also result in a reactor design that would be "less capable, more expensive, and unlikely to support current life-of-ship submarine reactors," which would reduce operational availability and increase force structure requirements.

Budget Items

National Nuclear Security Administration Production Modernization—depleted uranium modernization

The budget request included $138.2 million for National Nuclear Security Administration Production Modernization depleted uranium modernization, an increase of $27.3 million from the prior year to re-start the production line. The depleted uranium process is crucial to a responsive infrastructure but relies on metallurgical processing that is inefficient and outdated. The committee recommends an increase of $5.0 million, for a total of $143.2 million, in order to help acquire cold hearth furnace technology that will increase production efficiency.

National Nuclear Security Administration Stockpile Research, Technology and Engineering

The budget request included $2.7 billion for the National Nuclear Security Administration's (NNSA) stockpile research, technology and engineering program.

Stockpile research, technology and engineering is a critical technology insertion for the NNSA's weapons program that modernizes underlying capabilities for significant finding investigations and helps retain and draw a new generation of workforce. While it is critical that the NNSA meet Department of Defense production requirements, the NNSA cannot and must not reduce investments that underpin the future of the weapons program.

Therefore, the committee recommends an increase in the stockpile research, technology and engineering program of $165.8 million, for a total of $2.8 billion as follows: a $19.0 million increase for primary assessment technologies to continue the fundamental understanding of implosion and yield; a $28.0 million increase for dynamic material properties to continue understanding critical constitutive properties of materials under shock loading; a $5.6 million increase for advanced diagnostics to continue to develop state of the art diagnostics for stockpile stewardship activities; a $12.1 million increase for secondary assessment technologies to continue understanding the nature of radiation cross sections, material compatibility, and fusion phenomena; a $15.3 million increase for hydrodynamic and subcritical experiment execution support for subcritical experiments; a $500,000 increase for aging and lifetimes to continue understanding material aging; a $500,000 increase for advanced certification and qualification to continue capabilities to certify the stockpile; a $70.0 million increase for inertial confinement fusion to continue operations, target fabrication, and advanced research at the three primary facilities—the Laboratory for Laser Energetics (LLE) at the University of Rochester, the Z machine at Sandia National Laboratories, and the National Ignition Facility at Lawrence Livermore National Laboratory. In particular, the LLE draws new graduate students into the weapons programs, which grow future leaders in the NNSA and its laboratories. The surety technologies program is increased by $1.9 million to ensure a safe stockpile. The weapon technology development program is increased by $6.6 million for the development of agile manufacturing techniques. Finally and most importantly, the committee rec-

ommends an increase of $6.3 million for academic programs to attract new scientific talent into the NNSA and its contractor workforce. The committee notes that while the Advanced Simulation and Computing Program increased by $15.0 million, this does not make up for cuts in prior years at Lawrence Livermore Laboratory (LLNL); the NNSA should re-prioritize within the overall amount with the increase to avoid this shortfall at LLNL.

National Nuclear Security Administration Infrastructure and Operations

The budget request included $3.6 billion for National Nuclear Security Administration infrastructure and operations, a decrease of $501.1 million. While much of the decrease is associated with completion or wind down of line item construction projects ($423.0 million), a $78.1 million decrease is proposed to the operations of facilities. The committee recommends an increase of $82.1 million to operations of facilities as follows: $66.0 million for infrastructure and safety, $6.1 million for capabilities based investments, and $10.0 million to continue planning for programmatic construction.

National Nuclear Security Administration Secure Transportation Asset

The budget request included $336.7 million for National Nuclear Security Administration's Secure Transportation Asset. The committee recommends an increase of $18.6 million as follows: a $12.0 million increase for operations and equipment for the increased number of asset movements and to accelerate the development of new transportation equipment, such as the Mighty Guardian Trailers and a $6.6 million increase for program direction to help coordinate and oversee these special logistics, as well as to increase training and recruiting of Federal agents.

National Nuclear Security Administration Defense Nuclear Nonproliferation

The budget request included $2.3 billion for National Nuclear Security Administration Defense Nuclear Nonproliferation activities. The committee recommends an overall increase of $57.0 million as follows: a $10.0 million increase to the Laboratory and Partnership Support program to continue working with U.S. domestic industry to reduce U.S. reliance on isotopes produced by highly enriched uranium; a $27.0 million increase to the Domestic Radiological Security program in order to continue the collection of radiological sources; a $10.0 million increase to the Nuclear Smuggling and Detection Program to continue efforts globally to work with host nations to detect and apprehend the smuggling of nuclear materials; and a $10.0 million increase to the Emergency Operations program to continue to upgrade emergency operations equipment.

Department of Energy Environmental Management—Hanford River Corridor and other cleanup operations

The budget request included $196.0 million for Department of Energy Environmental Management Hanford River Corridor cleanup, a decrease of $36.5 million from the prior year. The committee

recommends an increase of $37.0 million to restore the proposed decrease.

Department of Energy Environmental Management—Hanford Office of River Protection Tank Farm Activities

The budget request included $817.6 million for continued stabilization of the tank farm at the Department of Energy Environmental Management Hanford reservation to increase single shell tank retrieval operations and replacement of slurry lines to support the 242–A evaporator. Since these operations are critical to meeting State of Washington Consent Decree Milestones and maintaining overall safety of operations, the committee recommends an increase of $20.0 million.

Department of Energy Environmental Management National Nuclear Security Administration Sites and Nevada Offsite: Lawrence Livermore National Laboratory excess facility decontamination and decommissioning

The budget request included $35.0 million for continued cleanup by the Department of Energy Environmental Management of excess facilities at Lawrence Livermore National Laboratory, the same as the prior year.

The committee recommends an increase of $10.0 million to help accelerate this effort.

Department of Energy Environmental Management: Oak Ridge Nuclear Facility Decontamination and Decommissioning

The budget request included $274.9 million for the Department of Energy Environmental Management to cleanup contamination of facilities, dating back to the Manhattan Project, at the Oak Ridge National Laboratory and the Y–12 plant. The committee recommends an increase of $50.0 million to help accelerate the cleanup of high risk contaminated facilities at the Y–12 plant (project OR–0041).

Department of Energy Environmental Management—Savannah River Nuclear Materials Stabilization and Disposition

The budget request included $312.7 million for Department of Energy Environmental Management Savannah River Nuclear Materials Stabilization and Disposition, a decrease of $37.0 million from the prior year. This program provides maintenance and operations for H-canyon, the Nation's only remaining large scale chemical reprocessing facility. The committee recommends an increase of $24.3 million to help restore the proposed decrease and maintain operations at H-canyon.

Department of Energy Environmental Management—Savannah River Community and Regulatory Support

The budget request included $5.8 million for the Department of Energy Environmental Management Savannah River Community and Regulatory Support, a decrease of $5.7 million from the prior

year. The committee recommends an increase of $5.7 million to restore the proposed decrease for a final value of $11.5 million.

Department of Energy Environmental Management—Uranium Enrichment Decontamination and Decommissioning Fund

The budget request included $6.8 billion for the Department of Energy's Office of Environmental Management, of which $415.7 million was requested to transfer to the Uranium Decontamination and Decommissioning Fund, which was authorized in section 1101 the Energy Policy Act of 1992 (Public Law 102–486) but expired in 2007. Similar to the National Defense Authorization Act for Fiscal Year 2013 (Public Law 112–239), the National Defense Authorization Act for Fiscal Year 2014 (Public Law 113–66), the Carl Levin and Howard P. 'Buck' McKeon National Defense Authorization Act for Fiscal Year 2015 (Public Law 113–291), and the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114–92), the administration should be proposing to directly contribute to this fund rather than using the Office of Environmental Management's budget as a contribution source. Accordingly, the committee recommends a decrease of $415.7 million for the contribution of the Office of Environmental Management to the Fund.

Department of Energy Legacy Management—Formerly Utilized Sites Remedial Action Program

The budget request included $428.7 million for the Department of Energy's Office of Legacy Management, of which $250.0 million was requested to support cleanup activities that would normally be performed by the U.S. Army Corps of Engineers (USACE) at Formerly Utilized Sites Remedial Action Program (FUSRAP) sites. Similar to past years, the committee does not see any reason to introduce risk into cleanup activities at FUSRAP sites by transitioning the administration of the program to a different organization when USACE has successfully administered the program since 1997. Accordingly, the committee recommends a decrease of $250.0 million, for a total of $178.7 million, for the Office of Legacy Management.

Items of Special Interest

Acquisition planning and impacts of choice of contract type on performance

The committee notes the Department of Energy (DOE)—including its National Nuclear Security Administration (NNSA)—obligates about 80 percent of its annual appropriations on contracts for various purposes. High-quality planning is critical for successful acquisitions. The committee directs the Comptroller General of the United States to review the DOE's and the NNSA's acquisition planning processes. The review shall include: (1) The DOE's and the NNSA's acquisition planning requirements and how they differ among types of acquisitions; (2) How offices have tailored these requirements; (3) Examples of how the DOE and the NNSA have performed market research for different types of acquisitions; (4) Approaches to performing independent Government estimates and the

outcomes of these estimates; (5) How offices determine the contract type and incentives for the contract; (6) The extent to which offices have identified benefits and drawbacks or lessons learned from using certain contract types or incentives, including effects on contractor performance; and (7) The challenges that offices have encountered in developing or implementing acquisition plans. The Comptroller General shall provide a briefing to the congressional defense committees on their plan to conduct such a review not later than June 30, 2022.

Applying knowledge-based acquisitions framework to weapons modernization programs

Over the next decade, the Department of Defense (DOD) and the Department of Energy (DOE), through its National Nuclear Security Administration (NNSA), plan to spend billions of dollars modernizing the Nation's nuclear weapons, including delivery platforms, warheads, and bombs. The DOD acquires new delivery platforms through a management process known as the Defense Acquisition System, while NNSA refurbishes nuclear warheads and bombs through a joint management process with the DOD known as the Phase 6.X process. Both management processes generally require their acquisition programs to proceed through phases of development that include a series of milestone reviews and other key decision points that may authorize entry into a new phase of acquisition. The NNSA has issued a directive for implementing the Phase 6.X process that includes additional requirements and recommendations for each phase. Moreover, in its fiscal year 2021 budget request, the NNSA stated that it plans to manage a new weapon modernization program, the W93 program, using the "joint NNSA–DOD phase 1–7 weapons acquisition process that is very similar to the Phase 6.X process."

The Government Accountability Office (GAO) has issued a series of reports over the past few decades examining how the DOD's practices related to weapons acquisitions—such as its use of systems engineering, requirements setting, and design knowledge—compare to the best practices the GAO identified at leading commercial firms. In particular, the GAO has established a body of work showing that positive acquisition outcomes require the use of a knowledge-based approach to product development that demonstrates high levels of knowledge attained before significant commitments are made. This work led to multiple GAO recommendations that the DOD has generally or partially agreed with. While DOD programs continue to struggle in fully implementing knowledge-based acquisition practices, the GAO has found that the major DOD acquisition programs that more closely followed a knowledge-based approach had significantly lower cost and schedule growth than those that did not.

As the NNSA begins to exercise the Phase 1–7 process for acquiring a nuclear weapon, it is incorporating modern program and project management requirements that have been incorporated into the Phase 6.X process over time. However, it is not clear the extent to which the Phase 1–7 process, which the NNSA is using to signal a new system acquisition rather than the modernization or refurbishment of an existing system, uses a knowledge-based approach.

Therefore, the committee directs the Comptroller General of the United States to review NNSA's acquisition process for warhead modernization and system acquisition to address: (1) How the NNSA's process for managing its warhead life extension and acquisition programs compares with DOD's process for managing weapon system acquisitions; (2) To what extent does NNSA apply a knowledge-based approach to its life extension programs under the Phase 6.X process and its associated directive; and (3) To what extent does NNSA plan to apply a knowledge-based approach in its Phase 1–7 process that it plans to use to manage the W93 and other future weapon programs. The committee directs the Comptroller General to provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives on the status of the review not later than April 30, 2022, with a report to follow on a date mutually agreed upon by the committees and the Comptroller General.

Assessment of Department of Energy's Office of Environmental Management cleanup at Los Alamos National Laboratory

The Department of Energy's Office of Environmental Management (EM) conducts legacy cleanup at Los Alamos National Laboratory (LANL) of hazardous chemical and radioactive materials contamination as a result of the lab's operations since its founding in 1943. The cleanup spans a wide range of activities, including surface and groundwater monitoring and remediation, removing contaminated soil, and decontaminating and decommissioning surplus buildings. Cleanup of contaminated sites is conducted under a 2016 Compliance Order on Consent with the New Mexico Environment Department. Over 2,100 contaminated sites at LANL were originally identified for action and over half of them have been closed, ranging from small spill sites to large landfills encompassing several acres.

Given the large number of cleanup operations underway, the committee directs the Comptroller General of the United States to assess the status of cleanup at LANL, including the planned scope of EM activities at LANL and EM's progress to date; the efficiency of EM's efforts to plan and execute cleanup activities at LANL; and challenges to the completion of the cleanup at LANL. The study shall coordinate, to the extent possible, ongoing operations for waste from current pit production and its impact, if any, on cleanup operations.

The Comptroller General shall brief the congressional defense committees on the status of its review by May 1, 2022, with a report to accompany the briefing or follow at a time agreed upon with the committees.

Briefing on options for accelerating the reestablishment of domestic uranium enrichment capabilities

The committee recognizes that a domestic uranium enrichment capability is important for U.S. national security interests. To reestablish this capability, the committee supports ongoing efforts by the National Nuclear Security Administration (NNSA) to develop and implement long-term plans for continued research, develop-

ment, and demonstration of enrichment technologies to support deployment decisions, including activities to: (1) Increase the Technology Readiness Level of enrichment technologies to facilitate deployment; (2) Improve the economics and reliability of these technologies; and (3) Maintain Federal Government expertise in this area.

As such, the committee directs the Administrator for Nuclear Security of the NNSA to provide a briefing to the congressional defense committees, not later than May 30, 2022, on options for, and projected associated costs of, accelerating the reestablishment of a domestic uranium enrichment capability for the United States.

Continued oversight of lithium

The National Nuclear Security Administration's (NNSA) planned Lithium Production Facility (LPF) at its Y–12 National Security Site is expected to begin construction in 2025 and start full operations between 2030 and 2033. To support current stockpile needs until the LPF is fully operational, the NNSA is taking a number of steps over the next decade to sustain lithium operations. The committee directs the Comptroller General of the United States, in consultation with the congressional defense committees, to periodically review the LPF and related lithium sustainment activities. These reviews shall take into consideration critical decisions for the LPF as well as the requirements, cost, schedule, and technology readiness levels of the project and the sustainment program.

Continuing Comptroller General evaluation of the Hanford Waste Treatment Plant

The committee notes that the Department of Energy's Office of Environmental Management (EM) continues to appear on the Government Accountability Office's High Risk List report. EM's largest project resides at the Hanford site in Washington State. This site, whose mission is nuclear waste cleanup and environmental restoration, has faced numerous technical challenges, cost overruns, and schedule delays.

Because of the extremely challenging, multi-decade long mission at Hanford, the committee directs the Comptroller General of the United States to continue its ongoing evaluation of environmental cleanup efforts at the Hanford Site, including the Waste Treatment Plant, in the areas of cost and schedule performance; technology readiness levels; contractor assurance; and project management, as well as the start of direct-feed low-activity waste treatment and Hanford's long-term schedule and budget needs.

The committee directs the Comptroller General to continue the periodic briefings to the congressional defense committees on significant findings and trends whose date and frequency are to be mutually agreed upon by the Comptroller General and the congressional defense committees, with an initial briefing required not later than March 31, 2022.

Continuing Comptroller General oversight of Waste Isolation Pilot Plant

The committee notes that recovery from the 2014 accidents at the Waste Isolation Pilot Plant (WIPP) necessitates additional

oversight, including biannual briefings to the congressional defense committees on actions taken towards bringing WIPP toward full operational status. This includes key milestones, the status of any capital projects under Department of Energy Order 413.3B, as well as obligations and expenditures.

The committee directs the Comptroller General of the United States to continue periodic briefings to the congressional defense committees on significant findings and trends, whose date and frequency are to be mutually agreed upon by the Comptroller General and the congressional defense committees, with an initial briefing required not later than March 31, 2022.

Department of Energy Office of Environmental Management's End State Contracting

The committee notes that in 2020, the Department of Energy's (DOE) Office of Environmental Management (EM) began implementing a new contracting initiative called End State Contracting. According to EM, End State Contracting will provide EM with the flexibility to task contractors using a risk-based approach to define discrete scopes of work that will move sites toward completion and reduce DOE's environmental liability. Previous Government Accountability Office (GAO) reviews have revealed problems with EM's management of contracts and major projects, which have been on GAO's High Risk List since 1990. Over the last three decades, GAO has found many problems with DOE's management of its major capital asset projects—those with a total project cost over $750 million—including uncontrolled changes to scope, exceeding budgets and schedules, and failing to meet the original mission.

Therefore, the committee directs the Comptroller General of the United States to assess EM's implementation of End State Contracting and the extent to which EM has the capacity needed for this model to be successful.

The Comptroller General shall brief the congressional defense committees on the status of its review by May 1, 2022, with a report to accompany the briefing or follow at a time agreed upon with the committees.

Direct-feed high-level waste at the Hanford Site

The Department of Energy's Office of Environmental Management (EM) has been building the Waste Treatment and Immobilization Plant, which consists of multiple facilities, including a key pretreatment facility, to treat a large portion of the nuclear waste at the Hanford Site in Washington State. The pretreatment facility was originally intended to separate waste streams to a low activity portion and a high level portion. In late 2012, work on the pretreatment facility stopped until technical challenges could be resolved and, as of 2021, EM has not resumed construction. In 2018, the U.S. Army Corps of Engineers reported that at current annual funding levels, completing the pretreatment facility on time would not be possible based on escalating costs. EM has been pursuing alternatives for low-activity waste pretreatment capabilities originally planned for the pretreatment facility; this approach is known as direct-feed low-activity waste. In April 2019, EM began an anal-

ysis of alternatives for treating high-level waste (HLW), to include a direct-feed option, which EM expects to be completed in 2021.

Therefore, the committee directs the Comptroller General of the United States to assess EM's approach to analyzing options for direct-feed high-level waste, including the defined mission need, projected costs and schedule for direct-feed HLW, the impact of each alternative on the overall Hanford cleanup cost and schedule, the technology readiness of direct-feed HLW technology, and challenges to constructing and operating direct-feed HLW equipment or facilities.

The committee directs the Comptroller General to report its findings to the congressional defense committees not later than March 31, 2022, with periodic updates as agreed upon by the Comptroller General and the congressional defense committees.

Greater-Than-Class C waste disposal

The Nuclear Regulatory Commission (NRC) is considering a rulemaking to allow for near-surface disposal of Greater-Than-Class C (GTCC) and GTCC-like waste at commercial waste repositories. The National Nuclear Security Administration has been storing GTCC waste awaiting a disposal pathway for it. Under current rules such waste is not generally acceptable for disposal in a near-surface repository because of the concentrations of certain radionuclides present in this waste. Under these rules, such waste would therefore generally need to be disposed of in a geologic repository, and the only geologic repository available in the United States is the Waste Isolation Pilot Plant (WIPP). However, that site is limited to defense waste.

Based on current NRC rules and the possibility of future rulemaking authorizing near-surface disposal as an option, the committee directs the Comptroller General of the United States to assess: (1) The extent to which the Department of Energy's Office of Environmental Management and the National Nuclear Security Administration have evaluated the costs and benefits of disposing of GTCC and GTCC-like waste at a commercial repository; (2) How GTCC and GTCC-like waste would be transported to a commercial repository; and (3) How the disposal of GTCC and GTCC-like waste at a commercial facility would affect the Federal Government's responsibilities for the site after its closure.

The committee directs the Comptroller General to brief the congressional defense committees on the status of its review by May 1, 2022, with a report to accompany the briefing or follow at a date agreed upon by the Comptroller General and the congressional defense committees.

Kansas City National Security Campus planning

Modernization of the Nation's nuclear stockpile depends on timely procurement and production of vital nonnuclear parts and components. The Kansas City National Security Campus (KCNSC) procures or produces most of these parts under National Nuclear Security Administration (NNSA) oversight, with about 65 percent of current components purchased from commercial sources. In fiscal year 2012, the site completed construction of a modern production facility. The new facility was expected to accommodate rising fu-

ture workload demands, based on the forecasts that were current in 2012.

As the Government Accountability Office (GAO) reported in an April 12, 2019, report, titled "Modernizing the Nuclear Security Enterprise: NNSA is Taking Action to Manage Increased Workload at Kansas City National Security Campus" (GAO 19 126), workload demands have increased substantially since 2012. This has resulted in the KCNSC planning to hire thousands of new workers, lease additional office and production space in the highly competitive Kansas City job market, replace or recapitalize production equipment, and maintain a reliable base of commercial suppliers to meet increased demand. This latter issue of maintaining the supplier base also includes quality assurance testing, which is of particular concern to the committee in light of the recent challenges presented by problems with a commercially-sourced capacitor.

Therefore, the committee directs the Comptroller General of the United States to reevaluate the progress of the NNSA and the KCNSC towards addressing identified risks in office space, production space, employee hiring, production equipment recapitalization, and commercial sourcing and quality assurance practices. The committee directs the Comptroller General of the United States to provide a briefing on this evaluation not later than March 31, 2022, with a final report to be provided on a date mutually agreed upon by the committees and the Comptroller General.

Limitations to Nuclear Weapons Availability to the Department of Defense

The committee is aware the Department of Defense (DOD) and the National Nuclear Security Administration (NNSA) are in midst of an extensive nuclear modernization program involving delivery platforms, warheads, and bombs. As weapons are refurbished, the national laboratories update a major assembly release (MAR) document when they determine that a nuclear weapon meets specifications for release to the military service. Among other things, the MAR contains a list of the weapon's limitations, which are areas where the weapon may not meet certain military requirements throughout its operational environment, known as the Stockpile-to-Target Sequence. Limitations may also specify additional conditions for storing, maintaining, or operating the weapon. Government Accountability Office (GAO) work undertaken a decade ago showed that there were over 50 nuclear weapons limitations. DOD officials at the time expressed concern over the impact that certain weapon limitations had on weapon operation, maintenance, and war planning but believed the stockpile was flexible enough to mitigate these concerns. However, they told GAO that there may be less flexibility in the future as the stockpile continues to age and decrease in size. Further, as weapons are modernized, limitations may change or may have been addressed, necessitating updates to other weapons guidance and documentation.

Accordingly, the committee directs the Comptroller General of the United States to update existing work on weapons limitations to review: (1) Current limitations and the extent to which completed, ongoing, and planned refurbishments, as well as new warhead designs, may mitigate the limitations; (2) Constraints im-

posed on the DOD's ability to store, maintain, or operate the weapons; and (3) Other issues as the Comptroller General may deem appropriate with respect to understanding the impact of limitations on stockpile planning and management. The committee directs the Comptroller General to provide the Committees on Armed Services of the Senate and the House of Representatives a briefing on these matters not later than March 31, 2022.

Long term support for the Nevada National Security Site

Since its inception, the Nevada National Security Site (NNSS) has relied on its large and remote area to conduct missions for the nuclear weapons and nonproliferation programs, as well as other elements of the national security community. The mission approach, however, has led to difficulties in enduring core institutional funding for the NNSS.

Therefore, the committee directs the Administrator of the National Nuclear Security Administration (NNSA) to report to the congressional defense committees, not later than March 31, 2022, on the institutional NNSA funding over the future years nuclear security program, as well as minor and major construction projects by rank order. The report shall also address a long term strategy to ensure the NNSS has a stable funding profile, so that it can plan accordingly to maintain a healthy workforce and continue to be a center of excellence in mission assignments that draw on the unique nature of the NNSS to the NNSA and other elements of the national security community.

Minor construction projects of the Department of Energy

Minor construction projects can be executed by the Department of Energy (DOE) without specific authorization by the Congress and are not subject to certain project management controls outlined in departmental directives. The Congress recently raised the cost threshold for these projects from $10.0 million to $20.0 million. Other sections of this title would raise the threshold to $25.0 million to account for inflation. However, some offices—particularly in the National Nuclear Security Administration (NNSA)—have suggested that a cost threshold higher than $25.0 million would create additional efficiencies. The committee directs the Comptroller General of the United States to assess DOE's minor construction threshold in the context of the NNSA's overall construction activities and evaluate the effects that further raising the $20.0 million limit might have. Based on this assessment, the Comptroller General shall provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives not later than March 31, 2022, with a report to follow on a date mutually agreed upon by the committees and the Comptroller General.

Performance of depleted uranium hexafluoride conversion facilities

The Department of Energy's Office of Environmental Management (EM) operates conversion facilities at two former gaseous diffusion plants that produced enriched uranium for defense programs: the Portsmouth site, near Piketon, Ohio, and the Paducah site in Paducah, Kentucky. These two facilities are converting de-

pleted uranium tails (DUF–6)—a byproduct of the uranium enrichment process—to a more stable uranium oxide for storage until final disposition as waste or for commercial reuse. However, the Portsmouth facility began operating in 2010 and experienced several safety and reliability issues during early operations, causing it to shut down in 2015 after two safety incidents until January 2018. Moreover, the National Nuclear Security Administration (NNSA) has taken recent steps to install equipment at the Portsmouth DUF–6 conversion facility to reestablish a supply of depleted uranium feedstock needed to modernize the nuclear weapons stockpile.

Based on the recent shutdown and current need for depleted uranium, the committee directs the Comptroller General of the United States to assess EM's plans for operating the DUF 6 conversion facilities and the extent to which the DUF–6 conversion facilities are meeting their performance objectives. The assessment should also include the extent to which NNSA and EM have integrated their plans for DUF–6 processing and disposal, and EM's plans for and challenges with the final disposition of uranium oxide and hydrofluoric acid.

The committee directs the Comptroller General to report its findings to the congressional defense committees not later than March 31, 2022 with periodic updates as agreed upon by the Comptroller General and the congressional defense committees.

Report on options for maintaining W80–4, W87–1, and W93 program schedules despite interruptions in strategic materials availability

The committee notes that the National Nuclear Security Administration's (NNSA) infrastructure for producing critical strategic nuclear material commodities such as uranium, plutonium, tritium, and lithium, has atrophied and is in dire need of modernization and restoration if the United States is to maintain a safe and effective nuclear weapons stockpile. While the NNSA is currently investing significant resources to recapitalize its legacy infrastructure for producing these commodities, most of the associated projects are complex, long-term efforts that will not reach full operational capability for at least a decade.

Coincident to the restoration of these foundational capabilities, the NNSA is executing a number of nuclear weapon life extension and development programs to ensure the capabilities provided by the nuclear weapons stockpile meet Department of Defense (DOD) military and schedule requirements. Each of these weapons programs is dependent upon steady, uninterrupted supplies of strategic nuclear material commodities in order to meet design and production milestones, and the interplay of these materials and weapons projects must be carefully managed to avoid unnecessary schedule delays. The committee is encouraged by NNSA's recognition of this challenge and its efforts to take steps to accelerate aspects of its material commodities programs to reduce schedule risk from interruptions in materials availability. However, the committee believes that NNSA should also prepare rapidly executable contingency plans, given the high level of concurrency, that minimize the impact of any unforeseen delays or gaps in these supply

flows, should such delays or gaps arise. Accordingly, the committee directs the Administrator of the NNSA to:

(1) Provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives, not later than August 31, 2021, on its current contingency plans for maintaining existing development and production schedules for the W80–4, W87–1, and W93 programs in the event of significant delays or interruptions in one or more of the nuclear materials commodities noted above; and

(2) Submit a report to the Committees on Armed Services of the Senate and the House of Representatives, not later than March 1, 2022, identifying additional options for reducing schedule risks to weapons programs from significant delays or interruptions in one or more of the nuclear materials commodities noted above, including, but not limited to:

(a) opportunities for further accelerating infrastructure recapitalization and strategic nuclear material commodity capability restoration projects;

(b) technical design solutions that may reduce the demand for such commodities without sacrificing weapon performance characteristics needed to meet DOD military requirements; and

(c) options for design tradeoffs that may reduce the demand for such commodities but would require DOD acceptance of weapon performance characteristics that do not meet existing military requirements for the above-identified weapons programs.

Additionally, for any options that require DOD acceptance of weapon performance characteristics that do not meet existing military requirements for the above-identified weapons programs, the committee directs the Commander, U.S. Strategic Command, not later than 90 days after submission of the report outlined in subsection (2), to provide an assessment to the Committees on Armed Services of the Senate and the House of Representatives of the: (1) Likely degradation in military capabilities stemming from such tradeoffs; (2) The resulting impact on the effectiveness and survivability of U.S. nuclear forces; and (3) Any potential implications for U.S. Strategic Command's capability to meet operational employment plans.

Review of Integrated Master Schedule and Program Management Plan for Los Alamos pit production

The committee directs the Administrator of the National Nuclear Security Administration to provide the Integrated Master Schedule and Program Management Plan for the production of 30 pits per year at the Los Alamos National Laboratory to the congressional defense committees and the Government Accountability Office (GAO) not later than February 28, 2022. Further, the committee directs the Comptroller General of the United States to review the Integrated Master Schedule and Program Management Plan according to GAO best practices and to provide a preliminary briefing to the congressional defense committees not later than April 30, 2022, with a complete assessment on the findings of this review to follow, not later than December 31, 2022.

Review of plutonium infrastructure at the National Nuclear Security Administration

At the direction of this committee in the Senate report accompanying S. 4049 (S. Rept. 116–236) of the National Defense Authorization Act for Fiscal Year 2021, the Comptroller General of the United States is conducting periodic reviews of National Nuclear Security Administration's (NNSA) plutonium modernization plans. The reviews include the requirements, cost, schedule, and technology readiness levels, as appropriate, of (1) The Los Alamos Plutonium Pit Production Project (21–D–512) and associated plutonium modernization operations at Los Alamos National Laboratory; (2) The Savannah River Plutonium Processing Facility (21–D–511) and associated modernization operations at the Savannah River Site; and (3) The integration of these two projects with the NNSA's overall plutonium operations and capability sustainment program.

In support of these reviews, the committee directs the Administrator of the National Nuclear Security Administration to provide all formal project documentation, such as critical decision packages, to the Comptroller General when completed, and to provide timely access to all other documentation and officials needed by the Comptroller General to complete the series of reviews.

Space and Atmospheric Burst Reporting System

The Space and Atmospheric Burst Reporting System (SABRS) is a payload deployed on U.S. Government satellites to detect nuclear detonations and is one of multiple technologies in a space-based architecture of nuclear detonation detection sensors. SABRS and the other space-based sensors developed by the national laboratories, along with a supporting ground-based infrastructure operated by the Air Force, comprise the U.S. Nuclear Detonation Detection System (USNDS). The committee supports the USNDS mission but remains concerned about the USNDS governance structure and coordination between NNSA and the Air Force on space-based sensors.

The committee directs the Comptroller General of the United States to undertake a review of the SABRS program, including the following: (1) The status of the SABRS technology, the schedule for its further development and deployment, and issues that may affect its future deployment; (2) How well SABRS is integrated into the related ground-based systems for processing information from space-based sensors, how data from SABRS is being or could be used by the Air Force and other component organizations such as the U.S. Strategic Command (USSTRATCOM), and if there are other challenges facing the SABRS program and its integration into USNDS; and (3) The extent to which the Air Force and USSTRATCOM are committed to the technology and sustaining its deployment. The committee directs the Comptroller General to provide to the congressional defense committees a briefing on this review not later than March 1, 2022.

Status of verification and monitoring capabilities

The current administration has completed an agreement with Russia to extend the terms of the New START treaty until 2026, and the administration has indicated it intends to use this time to

negotiate a new nuclear weapons reduction treaty with Russia. However, little is known about what verification and monitoring approaches the administration may seek to negotiate and potentially include as provisions in a new treaty. Moreover, it has been suggested that a follow-on treaty to New START, or a subsequent future nuclear weapons reduction treaty, could seek to include limits on nonstrategic nuclear weapons or have other limits that could further challenge verification and monitoring efforts.

The committee believes that strong and effective verification and monitoring mechanisms are central to the integrity of any nuclear weapons reduction treaty and are essential to maintaining strategic stability with fewer numbers of nuclear weapons. The committee recognizes that the verification and monitoring approaches of a future treaty may need to be more sophisticated and diverse to maintain such stability.

Therefore, the committee directs the Comptroller General of the United States to undertake a comprehensive review of U.S. nuclear weapons verification and monitoring capabilities, including describing technical approaches under development, the maturity of these approaches and their associated technologies, and how the National Nuclear Security Administration is coordinating with other agencies and international partners to identify priorities and develop suitable approaches and technologies. The Comptroller General shall provide a briefing to the Committees on Armed Services of the Senate and the House of Representatives on the status of this review not later than May 1, 2022, with a report to be provided at a time mutually agreed upon by the committees and the Comptroller General.

Supply chain and quality assurance for the National Nuclear Security Administration

As the Government Accountability Office (GAO) has reported for decades, effective and efficient Department of Defense (DOD) supply chain management is critical for supporting readiness, capabilities, and for helping to ensure that agencies avoid wasteful spending. Further, quality management is recognized as a basic risk area for DOD manufacturing, and the GAO has reported on quality management system-related problems that have resulted in major cost overruns, schedule delays, and reduced system performance for DOD systems. Likewise, the Department of Energy's National Nuclear Security Administration (NNSA) uses commercial sources for about 65 percent of the non-nuclear components found in nuclear weapons. As GAO reviews have shown in areas such as the NNSA's high performance computing, high explosives, micro-electronics, and other materials such as depleted uranium, NNSA requirements for material and component quality and uniformity are frequently more demanding than industry standards. In addition, the NNSA often finds that U.S. suppliers for some critical materials and components are few to nonexistent. Furthermore, with a budget that is a fraction of the DOD's and often episodic needs, in many cases the NNSA cannot maintain a dedicated supplier base.

A recent quality assurance problem identified through testing of commercially-procured capacitors for inclusion in modernized nuclear weapons highlighted the need for the NNSA to manage its

supply chain risk differently and to have more rigorous quality management systems in place for commercially-sourced components and materials. An Incident Response Team (IRT) conducted an after-action report assessing these issues for the NNSA and recommended numerous actions. While the NNSA does conduct enterprise-wide purchases of commercially available equipment such as firearms, ammunition, and uniforms, for many other specialized components and materials NNSA relies on contractors to perform quality assurance testing. The IRT identified a number of deficiencies with respect to the NNSA's oversight of contractors' quality assurance activities as a root cause of capacitor problem.

The committee directs the NNSA to report, not later than April 1, 2022, to the Committees on Armed Services of the Senate and the House of Representatives on actions it has taken in response to the IRT's findings and recommendations, as well as any additional actions planned. The committee further directs the Comptroller General of the United States to review the NNSA's report and provide a briefing to the committees on the results of this review not later than 180 days after the release of said report. As part of this review, the committee directs the Comptroller General to assess the maturity of the NNSA's quality management system as it relates to the nuclear weapons supply chain.

Ten-year infrastructure and facilities plan for inertial confinement fusion program

The committee notes that the inertial confinement fusion (ICF) program is an integral part of the National Nuclear Security Administration's (NNSA) stockpile science effort. It also plays a key role in obtaining data for warhead life extension programs under way. Given the importance of this program, the committee directs the NNSA Administrator to submit to the congressional defense committees, not later than March 31, 2022, a report on a 10-year strategic plan for recapitalizing, upgrading, and maintaining ICF facilities to address the recommendations of the JASON Defense Advisory Panel review of the NNSA ICF program as well as to advance stockpile stewardship and other national security missions. The plan shall include: (1) The current operations and maintenance status of each of the three major ICF facilities; (2) Current and future challenges of operating and maintaining the three major facilities; (3) The required resources and scope of work needed to recapitalize and upgrade the three major facilities to meet NNSA missions for at least the next decade; and (4) The long-term costs to maintain each of the three major facilities in a condition necessary to meet mission requirements.

TITLE XXXII—DEFENSE NUCLEAR FACILITIES SAFETY BOARD

Authorization (sec. 3201)

The committee recommends a provision that would authorize funding for the Defense Nuclear Facilities Safety Board at $31.0 million, consistent with the budget request.

References to chairperson and vice chairperson of Defense Nuclear Facilities Safety Board (sec. 3202)

The committee recommends a provision that would modify the wording of certain sections of United States Code relating to titles of members of the Defense Nuclear Facilities Safety Board.

TITLE XXXV—MARITIME ADMINISTRATION

Maritime Administration (sec. 3501)

The committee recommends a provision that would reauthorize certain aspects of the Maritime Administration.

DIVISION D—FUNDING TABLES

Authorization of amounts in funding tables (sec. 4001)

The committee recommends a provision that would provide for the allocation of funds among programs, projects, and activities in accordance with the tables in division D of this Act, subject to reprogramming in accordance with established procedures.

Consistent with the previously expressed views of the committee, the provision would also require that decisions by an agency head to commit, obligate, or expend funds to a specific entity on the basis of such funding tables be based on authorized, transparent, statutory criteria, or merit-based selection procedures in accordance with the requirements of sections 2304(k) and 2374 of title 10, United States Code, and other applicable provisions of law.

SUMMARY OF NATIONAL DEFENSE AUTHORIZATIONS FOR FISCAL YEAR 2022

SUMMARY OF NATIONAL DEFENSE AUTHORIZATIONS FOR FISCAL YEAR 2022

(In Thousands of Dollars)

	FY 2022 Request	Senate Change	Senate Authorized
DISCRETIONARY AUTHORIZATIONS WITHIN THE JURISDICTION OF THE ARMED SERVICES COMMITTEE			
NATIONAL DEFENSE BASE BUDGET			
DEPARTMENT OF DEFENSE-MILITARY (BUDGET SUB-FUNCTION 051)			
DIVISION A: DEPARTMENT OF DEFENSE AUTHORIZATIONS			
TITLE I--PROCUREMENT			
AIRCRAFT PROCUREMENT, ARMY	2,806,452	328,000	3,134,452
MISSILE PROCUREMENT, ARMY	3,556,251	132,000	3,688,251
PROCUREMENT OF W&TCV, ARMY	3,875,893	658,032	4,533,925
PROCUREMENT OF AMMUNITION, ARMY	2,158,110	281,062	2,439,172
OTHER PROCUREMENT, ARMY	8,873,558	6,934	8,880,492
AIRCRAFT PROCUREMENT, NAVY	16,477,178	2,701,700	19,178,878
WEAPONS PROCUREMENT, NAVY	4,220,705	120,700	4,341,405
PROCUREMENT OF AMMO, NAVY & MC	988,018	41,600	1,029,618
SHIPBUILDING AND CONVERSION, NAVY	22,571,059	2,549,100	25,120,159
OTHER PROCUREMENT, NAVY	10,875,912	644,200	11,520,112
PROCUREMENT, MARINE CORPS	3,043,091	677,700	3,720,791
AIRCRAFT PROCUREMENT, AIR FORCE	15,727,669	2,868,150	18,595,819
MISSILE PROCUREMENT, AIR FORCE	2,669,811		2,669,811
PROCUREMENT, SPACE FORCE	2,766,854	32,500	2,799,354
PROCUREMENT OF AMMUNITION, AIR FORCE	795,168		795,168
OTHER PROCUREMENT, AIR FORCE	25,251,137	475,581	25,726,718
PROCUREMENT, DEFENSE-WIDE	5,548,212	332,192	5,880,404
SUBTOTAL, TITLE I--PROCUREMENT	**132,205,078**	**11,849,451**	**144,054,529**
TITLE II--RESEARCH, DEVELOPMENT, TEST AND EVALUATION			
RESEARCH, DEVELOPMENT, TEST & EVAL, ARMY	12,799,645	306,204	13,105,849
RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY	22,639,362	1,124,500	23,763,862
RESEARCH, DEVELOPMENT, TEST & EVAL, AF	39,179,649	915,700	40,095,349
RDTE, SPACE FORCE	11,271,066	524,100	11,795,166
RESEARCH, DEVELOPMENT, TEST & EVAL, DW	25,857,875	1,251,560	27,109,435
OPERATIONAL TEST & EVAL, DEFENSE	216,591	20,000	236,591
SUBTOTAL, TITLE II--RESEARCH, DEVELOPMENT, TEST AND EVALUATION	**111,964,188**	**4,142,064**	**116,106,252**
TITLE III--OPERATION AND MAINTENANCE			
OPERATION & MAINTENANCE, ARMY	54,616,397	2,525,737	57,142,134
OPERATION & MAINTENANCE, ARMY RES	3,000,635	–6,995	2,993,640
OPERATION & MAINTENANCE, ARNG	7,647,209	–27,976	7,619,233
AFGHANISTAN SECURITY FORCES FUND	2,385,905		2,385,905
AFGHANISTAN SECURITY FORCES FUND	941,905		941,905
COUNTER ISIS TRAIN AND EQUIP FUND (CTEF)	522,000		522,000
OPERATION & MAINTENANCE, NAVY	60,441,228	1,419,725	61,860,953
OPERATION & MAINTENANCE, MARINE CORPS	9,024,791	160,485	9,185,276
OPERATION & MAINTENANCE, NAVY RES	1,148,698	–17,495	1,131,203

SUMMARY OF NATIONAL DEFENSE AUTHORIZATIONS FOR FISCAL YEAR 2022—Continued

(In Thousands of Dollars)

	FY 2022 Request	Senate Change	Senate Authorized
OPERATION & MAINTENANCE, MC RESERVE	285,050	38,205	323,255
OPERATION & MAINTENANCE, AIR FORCE	53,876,475	2,247,745	56,124,220
OPERATION & MAINTENANCE, SPACE FORCE	3,440,712	311,200	3,751,912
OPERATION & MAINTENANCE, AF RESERVE	3,352,106	–34,295	3,317,811
OPERATION & MAINTENANCE, ANG	6,574,020	–16,975	6,557,045
OPERATION & MAINTENANCE, DEFENSE-WIDE	0	–644,145	–644,145
OPERATION AND MAINTENANCE, DEFENSE-WIDE	44,918,366	805,641	45,724,007
MISCELLANEOUS APPROPRIATIONS	1,448,355	25,000	1,473,355
SUBTOTAL, TITLE III--OPERATION AND MAINTENANCE	**253,623,852**	**6,785,857**	**260,409,709**
TITLE IV--MILITARY PERSONNEL			
MILITARY PERSONNEL	157,947,920	–496,612	157,451,308
MEDICARE-ELIGIBLE RETIREE HEALTH FUND CONTRIBUTIONS	9,337,175		9,337,175
SUBTOTAL, TITLE IV--MILITARY PERSONNEL	**167,285,095**	**–496,612**	**166,788,483**
TITLE XIV--OTHER AUTHORIZATIONS			
WORKING CAPITAL FUND	1,902,000		1,902,000
CHEM AGENTS & MUNITIONS DESTRUCTION	1,094,352		1,094,352
DRUG INTERDICTION & CTR-DRUG ACTIVITIES, DEF	821,908		821,908
OFFICE OF THE INSPECTOR GENERAL	438,363		438,363
DEFENSE HEALTH PROGRAM	35,592,407	30,000	35,622,407
SUBTOTAL, TITLE XIV--OTHER AUTHORIZATIONS	**39,849,030**	**30,000**	**39,879,030**
TOTAL, DIVISION A: DEPARTMENT OF DEFENSE AUTHORIZATIONS	**704,927,243**	**22,310,760**	**727,238,003**
DIVISION B: MILITARY CONSTRUCTION AUTHORIZATIONS			
MILITARY CONSTRUCTION			
Army	834,692	753,000	1,587,692
Navy	2,368,352	1,336,050	3,704,402
Air Force	2,102,690	230,250	2,332,940
Defense-Wide	1,957,289	39,680	1,996,969
Army National Guard	257,103	182,300	439,403
Air National Guard	213,770	166,200	379,970
Army Reserve	64,911	58,400	123,311
Navy Reserve	71,804		71,804
Air Force Reserve	78,374	85,700	164,074
NATO Security Investment Program	205,853		205,853
SUBTOTAL, MILITARY CONSTRUCTION	**8,154,838**	**2,851,580**	**11,006,418**
FAMILY HOUSING			
Construction, Army	99,849		99,849
O&M, Army	391,227		391,227
Construction, Navy and Marine Corps	77,616		77,616
O&M, Navy and Marine Corps	357,341		357,341

SUMMARY OF NATIONAL DEFENSE AUTHORIZATIONS FOR FISCAL YEAR 2022—Continued

(In Thousands of Dollars)

	FY 2022 Request	Senate Change	Senate Authorized
Construction, Air Force	115,716		115,716
O&M, Air Force	325,445		325,445
O&M, Defense-Wide	49,785		49,785
Improvement Fund	6,081		6,081
Unaccmp HSG Improvement Fund	494		494
SUBTOTAL, FAMILY HOUSING	**1,423,554**		**1,423,554**
BASE REALIGNMENT AND CLOSURE			
Army BRAC	65,301		65,301
Navy BRAC	111,155		111,155
Air Force BRAC	104,216		104,216
DOD BRAC	3,967		3,967
SUBTOTAL, BASE REALIGNMENT AND CLOSURE	**284,639**		**284,639**
TOTAL, DIVISION B: MILITARY CONSTRUCTION AUTHORIZATIONS	**9,863,031**	**2,851,580**	**12,714,611**
TOTAL, DEPARTMENT OF DEFENSE-MILITARY (BUDGET SUB-FUNCTION 051)	**714,790,274**	**25,162,340**	**739,952,614**
ATOMIC ENERGY DEFENSE ACTIVITIES (BUDGET SUB-FUNCTION 053)			
DIVISION C: DEPARTMENT OF ENERGY NATIONAL SECURITY AND INDEPENDENT FEDERAL AGENCY AUTHORIZATIONS			
DEPARTMENT OF ENERGY AUTHORIZATIONS			
ENERGY PROGRAMS			
NUCLEAR ENERGY	149,800		149,800
SUBTOTAL, ENERGY PROGRAMS	**149,800**	**0**	**149,800**
NATIONAL NUCLEAR SECURITY ADMINISTRATION			
FEDERAL SALARIES AND EXPENSES	464,000		464,000
WEAPONS ACTIVITIES	15,484,295	271,450	15,755,745
DEFENSE NUCLEAR NONPROLIFERATION	1,934,000	57,000	1,991,000
NAVAL REACTORS	1,860,705		1,860,705
SUBTOTAL, NATIONAL NUCLEAR SECURITY ADMINISTRATION	**19,743,000**	**328,450**	**20,071,450**
ENVIRONMENTAL AND OTHER DEFENSE ACTIVITIES			
DEFENSE ENVIRONMENTAL CLEANUP	6,841,670	–268,670	6,573,000
OTHER DEFENSE ACTIVITIES	1,170,000	–250,000	920,000
SUBTOTAL, ENVIRONMENTAL & OTHER DEFENSE ACTIVITIES	**8,011,670**	**–518,670**	**7,493,000**
SUBTOTAL, DEPARTMENT OF ENERGY AUTHORIZATIONS	**27,904,470**	**–190,220**	**27,714,250**
INDEPENDENT FEDERAL AGENCY AUTHORIZATION			

SUMMARY OF NATIONAL DEFENSE AUTHORIZATIONS FOR FISCAL YEAR 2022—Continued

(In Thousands of Dollars)

	FY 2022 Request	Senate Change	Senate Authorized
DEFENSE NUCLEAR FACILTIIES SAFETY BOARD ..	31,000		31,000
SUBTOTAL, INDEPENDENT FEDERAL AGENCY AUTHORIZATION	**31,000**	**0**	**31,000**
TOTAL, DIVISION C: DEPARTMENT OF ENERGY NATIONAL SECURITY AND INDEPENDENT FEDERAL AGENCY AUTHORIZATIONS	**27,935,470**	**–190,220**	**27,745,250**
ATOMIC ENERGY DEFENSE ACTIVITIES (BUDGET SUB-FUNCTION 053)	**27,935,470**	**–190,220**	**27,745,250**
TOTAL, NATIONAL DEFENSE (BUDGET FUNCTION 050)	**742,725,744**	**24,972,120**	**767,697,864**
MEMORANDUM: NON-DEFENSE AUTHORIZATIONS			
TITLE XIV—ARMED FORCES RETIREMENT HOME (FUNCTION 600)	64,300		64,300
MEMORANDUM: TRANSFER AUTHORITIES (NON-ADDS)			
TITLE X—GENERAL TRANSFER AUTHORITY	[8,000,000]		[6,000,000]

TITLE XLI—PROCUREMENT

TITLE XLI—PROCUREMENT

SEC. 4101. PROCUREMENT.

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
	AIRCRAFT PROCUREMENT, ARMY						
	FIXED WING						
3	FUTURE UAS FAMILY	0	0	8	73,000	8	73,000
	Army UFR--Replace Shadow UAS in 8 BCTs			[8]	[73,000]		
4	SMALL UNMANNED AIRCRAFT SYSTEM	0	16,005			0	16,005
	ROTARY						
7	AH–64 APACHE BLOCK IIIA REMAN	30	504,136			30	504,136
8	AH–64 APACHE BLOCK IIIA REMAN	0	192,230			0	192,230
10	UH–60 BLACKHAWK M MODEL (MYP)	24	630,263			24	630,263
11	UH–60 BLACKHAWK M MODEL (MYP)	0	146,068			0	146,068
12	UH–60 BLACK HAWK L AND V MODELS	24	166,205			24	166,205
13	CH–47 HELICOPTER	6	145,218	5	252,000	11	397,218
	Army UFR—Support minimum sustainment rate			[5]	[252,000]		
14	CH–47 HELICOPTER	0	18,559			0	18,559
	MODIFICATION OF AIRCRAFT						
17	GRAY EAGLE MODS2	0	3,143			0	3,143
18	MULTI SENSOR ABN RECON	0	127,665			0	127,665
19	AH–64 MODS	0	118,560			0	118,560
20	CH–47 CARGO HELICOPTER MODS (MYP)	0	9,918	0	3,000	0	12,918
	CH–47 cargo aircraft modifications			[0]	[3,000]		

21	GRCS SEMA MODS	0	2,762			0	2,762
22	ARL SEMA MODS	0	9,437			0	9,437
23	EMARSS SEMA MODS	0	1,568			0	1,568
24	UTILITY/CARGO AIRPLANE MODS	0	8,530			0	8,530
25	UTILITY HELICOPTER MODS	0	15,826			0	15,826
26	NETWORK AND MISSION PLAN	0	29,206			0	29,206
27	COMMS, NAV SURVEILLANCE	0	58,117			0	58,117
29	AVIATION ASSURED PNT	0	47,028			0	47,028
30	GATM ROLLUP	0	16,776			0	16,776
32	UAS MODS	0	3,840			0	3,840
	GROUND SUPPORT AVIONICS						
33	AIRCRAFT SURVIVABILITY EQUIPMENT	0	64,561			0	64,561
34	SURVIVABILITY CM	0	5,104			0	5,104
35	CMWS	0	148,570			0	148,570
36	COMMON INFRARED COUNTERMEASURES (CIRCM)	101	240,412			101	240,412
	OTHER SUPPORT						
38	COMMON GROUND EQUIPMENT	0	13,561			0	13,561
39	AIRCREW INTEGRATED SYSTEMS	0	41,425			0	41,425
40	AIR TRAFFIC CONTROL	0	21,759			0	21,759
	TOTAL AIRCRAFT PROCUREMENT, ARMY	**185**	**2,806,452**	**13**	**328,000**	**198**	**3,134,452**
	MISSILE PROCUREMENT, ARMY						
	SURFACE-TO-AIR MISSILE SYSTEM						
2	LOWER TIER AIR AND MISSILE DEFENSE (AMD) SEN	0	35,473			0	35,473
3	M-SHORAD—PROCUREMENT	37	331,575			37	331,575
4	MSE MISSILE	180	776,696			180	776,696
5	PRECISION STRIKE MISSILE (PRSM)	110	166,130			110	166,130
6	INDIRECT FIRE PROTECTION CAPABILITY INC 2–I	0	25,253			0	25,253
	AIR-TO-SURFACE MISSILE SYSTEM						
7	HELLFIRE SYS SUMMARY	802	118,800			802	118,800
8	JOINT AIR-TO-GROUND MSLS (JAGM)	386	152,177	293	67,000	679	219,177
	Army UFR—Additional JAGM procurement			[293]	[67,000]		

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
9	LONG RANGE PRECISION MUNITION	179	44,744			179	44,744
	ANTI-TANK/ASSAULT MISSILE SYS						
10	JAVELIN (AAWS-M) SYSTEM SUMMARY	376	120,842	67	15,000	443	135,842
	Army UFR—Light Weight Command Launch Units			[67]	[15,000]		
11	TOW 2 SYSTEM SUMMARY	887	104,412			887	104,412
12	GUIDED MLRS ROCKET (GMLRS)	5,817	935,917	300	50,000	6,117	985,917
	Army UFR—Restores GMLRS procurement			[300]	[50,000]		
13	MLRS REDUCED RANGE PRACTICE ROCKETS (RRPR)	3,048	29,574			3,048	29,574
14	HIGH MOBILITY ARTILLERY ROCKET SYSTEM (HIMARS	19	128,438			19	128,438
16	LETHAL MINIATURE AERIAL MISSILE SYSTEM (LMAMS	900	68,278			900	68,278
	MODIFICATIONS						
17	PATRIOT MODS	0	205,469			0	205,469
21	AVENGER MODS	0	11,227			0	11,227
22	ITAS/TOW MODS	0	4,561			0	4,561
23	MLRS MODS	0	273,856			0	273,856
24	HIMARS MODIFICATIONS	0	7,192			0	7,192
	SPARES AND REPAIR PARTS						
25	SPARES AND REPAIR PARTS	0	5,019			0	5,019
	SUPPORT EQUIPMENT & FACILITIES						
26	AIR DEFENSE TARGETS	0	10,618			0	10,618
	TOTAL MISSILE PROCUREMENT, ARMY	**12,741**	**3,556,251**	**660**	**132,000**	**13,401**	**3,688,251**
	PROCUREMENT OF W&TCV, ARMY						
	TRACKED COMBAT VEHICLES						
1	ARMORED MULTI PURPOSE VEHICLE (AMPV)	0	104,727			0	104,727
2	ASSAULT BREACHER VEHICLE (ABV)	0	16,454			0	16,454

3	MOBILE PROTECTED FIREPOWER	23	286,977			23	286,977
	MODIFICATION OF TRACKED COMBAT VEHICLES						
5	STRYKER UPGRADE	187	1,005,028			187	1,005,028
6	BRADLEY PROGRAM (MOD)	0	461,385	138	56,969	138	518,354
	Army UFR—Improved Bradley Acquisition System upgrade			[138]	[56,969]		
7	M109 FOV MODIFICATIONS	0	2,534			0	2,534
8	PALADIN INTEGRATED MANAGEMENT (PIM)	25	446,430	15	199,500	40	645,930
	Army UFR—PIM increase			[15]	[199,500]		
9	IMPROVED RECOVERY VEHICLE (M88A2 HERCULES)	0	52,059			0	52,059
10	ASSAULT BRIDGE (MOD)	0	2,136			0	2,136
13	JOINT ASSAULT BRIDGE	23	110,773			23	110,773
15	ABRAMS UPGRADE PROGRAM	70	981,337	22	369,000	92	1,350,337
	Army UFR—Abrams ARNG M1A2SEPv3 fielding			[22]	[369,000]		
16	VEHICLE PROTECTION SYSTEMS (VPS)	0	80,286			0	80,286
	WEAPONS & OTHER COMBAT VEHICLES						
18	MULTI-ROLE ANTI-ARMOR ANTI-PERSONNEL WEAPON S	0	31,623			0	31,623
19	MORTAR SYSTEMS	0	37,485	200	12,853	200	50,338
	Army UFR—120mm mortar cannon			[200]	[12,853]		
20	XM320 GRENADE LAUNCHER MODULE (GLM)	0	8,666			0	8,666
21	PRECISION SNIPER RIFLE	0	11,040			0	11,040
23	CARBINE	0	4,434			0	4,434
24	NEXT GENERATION SQUAD WEAPON	0	97,087			0	97,087
26	HANDGUN	0	4,930			0	4,930
	MOD OF WEAPONS AND OTHER COMBAT VEH						
27	MK–19 GRENADE MACHINE GUN MODS	0	13,027			0	13,027
28	M777 MODS	0	21,976	0	1,795	0	23,771
	Army UFR—Software Defined Radio-Hardware Integration Kits			[0]	[1,795]		
30	M2 50 CAL MACHINE GUN MODS	0	3,612	1,060	17,915	1,060	21,527
	Army UFR—Additional M2A1s for MATVs			[1,060]	[17,915]		
	SUPPORT EQUIPMENT & FACILITIES						
36	ITEMS LESS THAN $5.0M (WOCV-WTCV)	0	1,068			0	1,068
37	PRODUCTION BASE SUPPORT (WOCV-WTCV)	0	90,819			0	90,819

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
	TOTAL PROCUREMENT OF W&TCV, ARMY	**328**	**3,875,893**	**1,435**	**658,032**	**1,763**	**4,533,925**
	PROCUREMENT OF AMMUNITION, ARMY						
	SMALL/MEDIUM CAL AMMUNITION						
1	CTG, 5.56MM, ALL TYPES	0	47,490	0	32,400	0	79,890
	Army UFR—Enhanced Performance Round and Tracer			[0]	[32,400]		
2	CTG, 7.62MM, ALL TYPES	0	74,870			0	74,870
3	NEXT GENERATION SQUAD WEAPON AMMUNITION	0	76,794			0	76,794
4	CTG, HANDGUN, ALL TYPES	0	7,812			0	7,812
5	CTG, .50 CAL, ALL TYPES	0	29,716			0	29,716
6	CTG, 20MM, ALL TYPES	0	4,371			0	4,371
8	CTG, 30MM, ALL TYPES	0	34,511			0	34,511
9	CTG, 40MM, ALL TYPES	0	35,231	0	14,000	0	49,231
	Army UFR—MK19 training and war reserves			[0]	[14,000]		
	MORTAR AMMUNITION						
10	60MM MORTAR, ALL TYPES	0	23,219			0	23,219
11	81MM MORTAR, ALL TYPES	0	52,135			0	52,135
12	120MM MORTAR, ALL TYPES	0	104,144			0	104,144
	TANK AMMUNITION						
13	CARTRIDGES, TANK, 105MM AND 120MM, ALL TYPES	0	224,503	14,410	99,318	14,410	323,821
	Army UFR—Tank main gun ammo			[14,410]	[99,318]		
	ARTILLERY AMMUNITION						
14	ARTILLERY CARTRIDGES, 75MM & 105MM, ALL TYPES	0	26,709			0	26,709
15	ARTILLERY PROJECTILE, 155MM, ALL TYPES	0	174,015	31,997	30,844	31,997	204,859
	Army UFR—Additional inventory			[31,997]	[30,844]		
16	PROJ 155MM EXTENDED RANGE M982	350	73,498			350	73,498

17	ARTILLERY PROPELLANTS, FUZES AND PRIMERS, ALL	0	150,873			0	150,873	
	MINES							
18	MINES & CLEARING CHARGES, ALL TYPES	0	25,980			0	25,980	
19	CLOSE TERRAIN SHAPING OBSTACLE	0	34,761			0	34,761	
	ROCKETS							
20	SHOULDER LAUNCHED MUNITIONS, ALL TYPES	0	24,408			0	24,408	
21	ROCKET, HYDRA 70, ALL TYPES	0	109,536			0	109,536	
	OTHER AMMUNITION							
22	CAD/PAD, ALL TYPES	0	6,549			0	6,549	
23	DEMOLITION MUNITIONS, ALL TYPES	0	27,904			0	27,904	
24	GRENADES, ALL TYPES	0	37,437			0	37,437	
25	SIGNALS, ALL TYPES	0	7,530			0	7,530	
26	SIMULATORS, ALL TYPES	0	8,350			0	8,350	
27	REACTIVE ARMOR TILES	0	17,755			0	17,755	
	MISCELLANEOUS							
28	AMMO COMPONENTS, ALL TYPES	0	2,784			0	2,784	
29	ITEMS LESS THAN $5 MILLION (AMMO)	0	17,797			0	17,797	
30	AMMUNITION PECULIAR EQUIPMENT	0	12,290			0	12,290	
31	FIRST DESTINATION TRANSPORTATION (AMMO)	0	4,331			0	4,331	
32	CLOSEOUT LIABILITIES	0	99			0	99	
	PRODUCTION BASE SUPPORT							
34	INDUSTRIAL FACILITIES	0	538,120	0	104,500	0	642,620	
	Army UFR—Demolition of Legacy Nitrate Esters (Nitroglycerin) NG1 Facility, Radford Army Ammunition Plant (RFAAP), Virginia			[0]	[40,000]			
	Army UFR—Environmental, Safety, Construction, Maintenance and Repair of GOCO Facilities in VA, TN, MO, PA, & IA			[0]	[40,000]			
	Army UFR—Pyrotechnics Energetic Capability (PEC) construction at Lake City Army Ammunition Plant (LCAAP), Missouri			[0]	[12,000]			
	Army UFR—Solvent Propellant Facility, Preliminary Design, Radford Army Ammunition Plant, Virginia			[0]	[12,500]			
35	CONVENTIONAL MUNITIONS DEMILITARIZATION	0	139,410			0	139,410	
36	ARMS INITIATIVE	0	3,178			0	3,178	

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		Qty	Cost	Qty	Cost	Qty	Cost
	TOTAL PROCUREMENT OF AMMUNITION, ARMY	**350**	**2,158,110**	**46,407**	**281,062**	**46,757**	**2,439,172**
	OTHER PROCUREMENT, ARMY						
	TACTICAL VEHICLES						
2	SEMITRAILERS, FLATBED:	0	12,539	50	6,392	50	18,931
	Army UFR—M872 semitrailer			[50]	[6,392]		
3	SEMITRAILERS, TANKERS	0	17,985			0	17,985
4	HI MOB MULTI-PURP WHLD VEH (HMMWV)	0	60,706			0	60,706
5	GROUND MOBILITY VEHICLES (GMV)	0	29,807	0	5,000	0	34,807
	Infantry Squad Vehicle			[0]	[5,000]		
8	JOINT LIGHT TACTICAL VEHICLE FAMILY OF VEHICL	0	574,562	340	120,000	340	694,562
	Army UFR—Additional JLTV fielding			[340]	[120,000]		
9	TRUCK, DUMP, 20T (CCE)	0	9,882			0	9,882
10	FAMILY OF MEDIUM TACTICAL VEH (FMTV)	0	36,885			0	36,885
11	FAMILY OF COLD WEATHER ALL-TERRAIN VEHICLE (C	0	16,450			0	16,450
12	FIRETRUCKS & ASSOCIATED FIREFIGHTING EQUIP	0	26,256			0	26,256
13	FAMILY OF HEAVY TACTICAL VEHICLES (FHTV)	0	64,282			0	64,282
14	PLS ESP	0	16,943			0	16,943
17	TACTICAL WHEELED VEHICLE PROTECTION KITS	0	17,957			0	17,957
18	MODIFICATION OF IN SVC EQUIP	0	29,349			0	29,349
	NON-TACTICAL VEHICLES						
20	PASSENGER CARRYING VEHICLES	0	1,232			0	1,232
21	NONTACTICAL VEHICLES, OTHER	0	24,246			0	24,246
	COMM—JOINT COMMUNICATIONS						
22	SIGNAL MODERNIZATION PROGRAM	0	140,036	0	2,500	0	142,536
	Army UFR—Multi-Domain Task Force All-Domain Operations Center cloud pilot			[0]	[2,500]		

23	TACTICAL NETWORK TECHNOLOGY MOD IN SVC	0	436,524			0	436,524
25	DISASTER INCIDENT RESPONSE COMMS TERMINAL (DI	0	3,863			0	3,863
26	JCSE EQUIPMENT (USRDECOM)	0	4,845			0	4,845
	COMM—SATELLITE COMMUNICATIONS						
29	DEFENSE ENTERPRISE WIDEBAND SATCOM SYSTEMS	0	97,369			0	97,369
30	TRANSPORTABLE TACTICAL COMMAND COMMUNICATIONS	0	120,550			0	120,550
31	SHF TERM	0	38,129			0	38,129
32	ASSURED POSITIONING, NAVIGATION AND TIMING	0	115,291			0	115,291
33	SMART-T (SPACE)	0	15,407			0	15,407
34	GLOBAL BRDCST SVC—GBS	0	2,763			0	2,763
	COMM—C3 SYSTEM						
37	COE TACTICAL SERVER INFRASTRUCTURE (TSI)	0	99,858			0	99,858
	COMM—COMBAT COMMUNICATIONS						
38	HANDHELD MANPACK SMALL FORM FIT (HMS)	0	775,069			0	775,069
40	ARMY LINK 16 SYSTEMS	0	17,749			0	17,749
42	UNIFIED COMMAND SUITE	0	17,984			0	17,984
43	COTS COMMUNICATIONS EQUIPMENT	0	191,702			0	191,702
44	FAMILY OF MED COMM FOR COMBAT CASUALTY CARE	0	15,957			0	15,957
45	ARMY COMMUNICATIONS & ELECTRONICS	0	89,441			0	89,441
	COMM—INTELLIGENCE COMM						
47	CI AUTOMATION ARCHITECTURE-INTEL	0	13,317			0	13,317
48	DEFENSE MILITARY DECEPTION INITIATIVE	0	5,207			0	5,207
49	MULTI-DOMAIN INTELLIGENCE	0	20,095			0	20,095
	INFORMATION SECURITY						
51	INFORMATION SYSTEM SECURITY PROGRAM-ISSP	0	987			0	987
52	COMMUNICATIONS SECURITY (COMSEC)	0	126,273			0	126,273
53	DEFENSIVE CYBER OPERATIONS	0	27,389	0	4,100	0	31,489
	Army UFR—Cybersecurity / IT Network Mapping			[0]	[4,100]		
56	SIO CAPABILITY	0	21,303			0	21,303
57	BIOMETRIC ENABLING CAPABILITY (BEC)	0	914			0	914
	COMM—LONG HAUL COMMUNICATIONS						
59	BASE SUPPORT COMMUNICATIONS	0	9,209			0	9,209

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Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
	COMM—BASE COMMUNICATIONS						
60	INFORMATION SYSTEMS	0	219,026			0	219,026
61	EMERGENCY MANAGEMENT MODERNIZATION PROGRAM	0	4,875			0	4,875
64	INSTALLATION INFO INFRASTRUCTURE MOD PROGRAM	0	223,001	0	2,040	0	225,041
	EUCOM UFR—Mission Partner Environment			[0]	[2,040]		
	ELECT EQUIP—TACT INT REL ACT (TIARA)						
67	JTT/CIBS-M	0	5,463			0	5,463
68	TERRESTRIAL LAYER SYSTEMS (TLS)	0	39,240			0	39,240
70	DCGS-A-INTEL	0	92,613	48	26,950	48	119,563
	Army UFR—Additional fixed node cloud servers			[48]	[26,950]		
71	JOINT TACTICAL GROUND STATION (JTAGS)-INTEL	0	8,088			0	8,088
72	TROJAN	0	30,828			0	30,828
73	MOD OF IN-SVC EQUIP (INTEL SPT)	0	39,039			0	39,039
74	BIOMETRIC TACTICAL COLLECTION DEVICES	0	11,097			0	11,097
	ELECT EQUIP—ELECTRONIC WARFARE (EW)						
76	EW PLANNING & MANAGEMENT TOOLS (EWPMT)	0	783			0	783
77	AIR VIGILANCE (AV)	0	13,486			0	13,486
79	FAMILY OF PERSISTENT SURVEILLANCE CAP.	0	14,414			0	14,414
80	COUNTERINTELLIGENCE/SECURITY COUNTERMEASURES	0	19,111			0	19,111
81	CI MODERNIZATION	0	421			0	421
	ELECT EQUIP—TACTICAL SURV. (TAC SURV)						
82	SENTINEL MODS	0	47,642			0	47,642
83	NIGHT VISION DEVICES	0	1,092,341	0	–269,766	0	822,575
	Program reduction—IVAS early to need			[0]	[–269,766]		
84	SMALL TACTICAL OPTICAL RIFLE MOUNTED MLRF	0	21,103			0	21,103
85	INDIRECT FIRE PROTECTION FAMILY OF SYSTEMS	0	6,153			0	6,153

86	FAMILY OF WEAPON SIGHTS (FWS)	0	184,145			0	184,145
87	ENHANCED PORTABLE INDUCTIVE ARTILLERY FUZE SE	0	2,371			0	2,371
88	FORWARD LOOKING INFRARED (IFLIR)	0	11,929			0	11,929
89	COUNTER SMALL UNMANNED AERIAL SYSTEM (C-SUAS)	0	60,058			0	60,058
90	JOINT BATTLE COMMAND—PLATFORM (JBC-P)	0	263,661			0	263,661
91	JOINT EFFECTS TARGETING SYSTEM (JETS)	0	62,082			0	62,082
93	COMPUTER BALLISTICS: LHMBC XM32	0	2,811			0	2,811
94	MORTAR FIRE CONTROL SYSTEM	0	17,236			0	17,236
95	MORTAR FIRE CONTROL SYSTEMS MODIFICATIONS	0	2,830			0	2,830
96	COUNTERFIRE RADARS	0	31,694			0	31,694
	ELECT EQUIP—TACTICAL C2 SYSTEMS						
97	ARMY COMMAND POST INTEGRATED INFRASTRUCTURE (	0	49,410			0	49,410
98	FIRE SUPPORT C2 FAMILY	0	9,853			0	9,853
99	AIR & MSL DEFENSE PLANNING & CONTROL SYS	0	67,193			0	67,193
100	IAMD BATTLE COMMAND SYSTEM	0	301,872			0	301,872
101	LIFE CYCLE SOFTWARE SUPPORT (LCSS)	0	5,182			0	5,182
102	NETWORK MANAGEMENT INITIALIZATION AND SERVICE	0	31,349			0	31,349
104	GLOBAL COMBAT SUPPORT SYSTEM-ARMY (GCSS-A)	0	11,271			0	11,271
105	INTEGRATED PERSONNEL AND PAY SYSTEM-ARMY (IPP	0	16,077			0	16,077
107	MOD OF IN-SVC EQUIPMENT (ENFIRE)	0	3,160			0	3,160
	ELECT EQUIP—AUTOMATION						
108	ARMY TRAINING MODERNIZATION	0	9,833			0	9,833
109	AUTOMATED DATA PROCESSING EQUIP	0	130,924	0	3,000	0	133,924
	Army UFR—ATRRS unlimited data rights			[0]	[3,000]		
110	ACCESSIONS INFORMATION ENVIRONMENT (AIE)	0	44,635			0	44,635
111	GENERAL FUND ENTERPRISE BUSINESS SYSTEMS FAM	0	1,452			0	1,452
112	HIGH PERF COMPUTING MOD PGM (HPCMP)	0	69,943			0	69,943
113	CONTRACT WRITING SYSTEM	0	16,957			0	16,957
114	CSS COMMUNICATIONS	0	73,110			0	73,110
115	RESERVE COMPONENT AUTOMATION SYS (RCAS)	0	12,905			0	12,905
	ELECT EQUIP—SUPPORT						
117	BCT EMERGING TECHNOLOGIES	0	13,835			0	13,835

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Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
	CLASSIFIED PROGRAMS						
9999	CLASSIFIED PROGRAMS	0	18,304			0	18,304
	CHEMICAL DEFENSIVE EQUIPMENT						
119	BASE DEFENSE SYSTEMS (BDS)	0	62,295			0	62,295
120	CBRN DEFENSE	0	55,632	0	11,300	0	66,932
	CNGB UFR—Man portable radiological detection system			[0]	[11,300]		
	BRIDGING EQUIPMENT						
122	TACTICAL BRIDGING	0	9,625			0	9,625
123	TACTICAL BRIDGE, FLOAT-RIBBON	0	76,082			0	76,082
124	BRIDGE SUPPLEMENTAL SET	0	19,867			0	19,867
125	COMMON BRIDGE TRANSPORTER (CBT) RECAP	0	109,796			0	109,796
	ENGINEER (NON-CONSTRUCTION) EQUIPMENT						
126	HANDHELD STANDOFF MINEFIELD DETECTION SYS-HST	0	5,628			0	5,628
128	HUSKY MOUNTED DETECTION SYSTEM (HMDS)	0	26,823	96	48,336	96	75,159
	Army UFR—Additional HMDS			[96]	[48,336]		
131	ROBOTICS AND APPLIQUE SYSTEMS	0	124,233	213	10,004	213	134,237
	Army UFR—Common Robotic System-Individual (CRS-I)			[213]	[10,004]		
132	RENDER SAFE SETS KITS OUTFITS	0	84,000	6	3,158	6	87,158
	Army UFR—Additional render safe equipment			[6]	[3,158]		
	COMBAT SERVICE SUPPORT EQUIPMENT						
134	HEATERS AND ECU'S	0	7,116			0	7,116
135	SOLDIER ENHANCEMENT	0	1,286			0	1,286
136	PERSONNEL RECOVERY SUPPORT SYSTEM (PRSS)	0	9,741			0	9,741
137	GROUND SOLDIER SYSTEM	0	150,244			0	150,244
138	MOBILE SOLDIER POWER	0	17,815			0	17,815
139	FORCE PROVIDER	0	28,860			0	28,860

140	FIELD FEEDING EQUIPMENT	0	2,321			0	2,321	
141	CARGO AERIAL DEL & PERSONNEL PARACHUTE SYSTEM	0	40,240			0	40,240	
142	FAMILY OF ENGR COMBAT AND CONSTRUCTION SETS	0	36,163			0	36,163	
	PETROLEUM EQUIPMENT							
144	QUALITY SURVEILLANCE EQUIPMENT	0	744			0	744	
145	DISTRIBUTION SYSTEMS, PETROLEUM & WATER	0	72,296	57	4,420	57	76,716	
	Army UFR—Modular Fuel System (MFS)			[57]	[4,420]			
	MEDICAL EQUIPMENT							
146	COMBAT SUPPORT MEDICAL	0	122,145			0	122,145	
	MAINTENANCE EQUIPMENT							
147	MOBILE MAINTENANCE EQUIPMENT SYSTEMS	0	14,756			0	14,756	
	CONSTRUCTION EQUIPMENT							
154	ALL TERRAIN CRANES	0	112,784			0	112,784	
156	CONST EQUIP ESP	0	8,694			0	8,694	
	RAIL FLOAT CONTAINERIZATION EQUIPMENT							
158	ARMY WATERCRAFT ESP	0	44,409	1	13,600	1	58,009	
	Army UFR—Landing Craft Utility modernization			[1]	[13,600]			
159	MANEUVER SUPPORT VESSEL (MSV)	0	76,660			0	76,660	
	GENERATORS							
161	GENERATORS AND ASSOCIATED EQUIP	0	47,606			0	47,606	
162	TACTICAL ELECTRIC POWER RECAPITALIZATION	0	10,500			0	10,500	
	MATERIAL HANDLING EQUIPMENT							
163	FAMILY OF FORKLIFTS	0	13,325			0	13,325	
	TRAINING EQUIPMENT							
164	COMBAT TRAINING CENTERS SUPPORT	0	79,565			0	79,565	
165	TRAINING DEVICES, NONSYSTEM	0	174,644			0	174,644	
166	SYNTHETIC TRAINING ENVIRONMENT (STE)	0	122,104			0	122,104	
168	GAMING TECHNOLOGY IN SUPPORT OF ARMY TRAINING	0	11,642			0	11,642	
	TEST MEASURE AND DIG EQUIPMENT (TMD)							
170	INTEGRATED FAMILY OF TEST EQUIPMENT (IFTE)	0	42,934			0	42,934	
172	TEST EQUIPMENT MODERNIZATION (TEMOD)	399	24,304			399	24,304	
	OTHER SUPPORT EQUIPMENT							

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Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
174	PHYSICAL SECURITY SYSTEMS (OPA3)	0	86,930			0	86,930
175	BASE LEVEL COMMON EQUIPMENT	0	27,823			0	27,823
176	MODIFICATION OF IN-SVC EQUIPMENT (OPA–3)	0	32,392	0	15,900	0	48,292
	Expeditionary solid waste disposal system			[0]	[15,900]		
177	BUILDING, PRE-FAB, RELOCATABLE	0	32,227			0	32,227
179	SPECIAL EQUIPMENT FOR TEST AND EVALUATION	0	76,917			0	76,917
	OPA2						
180	INITIAL SPARES—C&E	0	9,272			0	9,272
	TOTAL OTHER PROCUREMENT, ARMY	**399**	**8,873,558**	**811**	**6,934**	**1,210**	**8,880,492**
	AIRCRAFT PROCUREMENT, NAVY						
	COMBAT AIRCRAFT						
1	F/A–18E/F (FIGHTER) HORNET	0	87,832			0	87,832
3	JOINT STRIKE FIGHTER CV	20	2,111,009	5	535,000	25	2,646,009
	Navy UFR—Additional F–35C			[5]	[535,000]		
4	JOINT STRIKE FIGHTER CV	0	246,781			0	246,781
5	JSF STOVL	17	2,256,829			17	2,256,829
6	JSF STOVL	0	216,720	482	128,800	482	345,520
	Marine Corps UFR—F–35 peculiar ground support equipment			[482]	[128,800]		
7	CH–53K (HEAVY LIFT)	9	1,286,296	2	250,000	11	1,536,296
	Additional aircraft			[2]	[250,000]		
8	CH–53K (HEAVY LIFT)	0	182,871			0	182,871
9	V–22 (MEDIUM LIFT)	8	751,716	4	372,000	12	1,123,716
	Marine Corps UFR—MV–22 nacelle maintenance stands			[0]	[18,000]		
	Marine Corps UFR—MV–22 support equipment			[0]	[15,000]		
	Marine Corps UFR—MV–22 tooling for WESTPAC			[0]	[4,600]		

	Navy UFR—Additional V–22B			[4]	[334,400]		
11	H–1 UPGRADES (UH–1Y/AH–1Z)	0	939			0	939
13	P–8A POSEIDON	0	44,595			0	44,595
14	E–2D ADV HAWKEYE	5	766,788	1	191,000	6	957,788
	Navy UFR—Additional E–2D			[1]	[191,000]		
15	E–2D ADV HAWKEYE	0	118,095			0	118,095
	TRAINER AIRCRAFT						
16	ADVANCED HELICOPTER TRAINING SYSTEM	36	163,490			36	163,490
	OTHER AIRCRAFT						
17	KC–130J	6	520,787	5	535,200	11	1,055,987
	Marine Corps UFR—KC–130J weapons system trainer			[1]	[31,500]		
	Marine Corps UFR—Replace KC–130J aircraft			[2]	[197,900]		
	Navy UFR—Additional C–130J–30			[2]	[305,800]		
18	KC–130J	0	68,088			0	68,088
21	MQ–4 TRITON	0	160,151	2	323,000	2	483,151
	Additional aircraft			[2]	[323,000]		
23	MQ–8 UAV	0	49,249			0	49,249
24	STUASL0 UAV	0	13,151			0	13,151
25	MQ–25	0	47,468			0	47,468
27	MARINE GROUP 5 UAS	6	233,686	6	60,000	12	293,686
	Marine Corps UFR—Additional aircraft			[2]	[40,000]		
	Marine Corps UFR—Additional ground control stations			[4]	[20,000]		
	MODIFICATION OF AIRCRAFT						
30	F–18 A-D UNIQUE	0	163,095	104	82,500	104	245,595
	Marine Corps UFR—F–18 ALR–67(V)5 radar warning receiver			[96]	[55,000]		
	Marine Corps UFR—F–18C/D AESA radar upgrade			[8]	[27,500]		
31	F–18E/F AND EA–18G MODERNIZATION AND SUSTAINM	0	482,899			0	482,899
32	MARINE GROUP 5 UAS SERIES	0	1,982			0	1,982
33	AEA SYSTEMS	0	23,296			0	23,296
34	AV–8 SERIES	0	17,882			0	17,882
35	INFRARED SEARCH AND TRACK (IRST)	0	138,827			0	138,827
36	ADVERSARY	0	143,571	4	12,400	4	155,971

Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
	Marine Corps UFR—Upgrade of current VMFT–401 adversary aircraft			[4]	[12,400]		
37	F–18 SERIES	0	327,571			0	327,571
38	H–53 SERIES	0	112,436			0	112,436
39	MH–60 SERIES	0	94,794			0	94,794
40	H–1 SERIES	0	124,194			0	124,194
41	EP–3 SERIES	0	28,848			0	28,848
42	E–2 SERIES	0	204,826			0	204,826
43	TRAINER A/C SERIES	0	7,849			0	7,849
44	C–2A	0	2,843			0	2,843
45	C–130 SERIES	0	145,610			0	145,610
46	FEWSG	0	734			0	734
47	CARGO/TRANSPORT A/C SERIES	0	10,682			0	10,682
48	E–6 SERIES	0	128,029			0	128,029
49	EXECUTIVE HELICOPTERS SERIES	0	45,326			0	45,326
51	T–45 SERIES	0	158,772			0	158,772
52	POWER PLANT CHANGES	0	24,915			0	24,915
53	JPATS SERIES	0	22,955			0	22,955
54	AVIATION LIFE SUPPORT MODS	0	2,477			0	2,477
55	COMMON ECM EQUIPMENT	0	119,574	24	7,600	24	127,174
	Marine Corps UFR—F–18 ALE–39 to ALE–47 retrofit			[24]	[7,600]		
56	COMMON AVIONICS CHANGES	0	118,839			0	118,839
57	COMMON DEFENSIVE WEAPON SYSTEM	0	5,476			0	5,476
58	ID SYSTEMS	0	13,154			0	13,154
59	P–8 SERIES	0	131,298	2	30,700	2	161,998
	Navy UFR—P–8A Inc III kits			[2]	[30,700]		
60	MAGTF EW FOR AVIATION	0	29,151	0	6,300	0	35,451

	Marine Corps UFR—Increase EW of AN/ALQ–231(V)3			[0]	[6,300]		
61	MQ–8 SERIES	0	31,624			0	31,624
62	V–22 (TILT/ROTOR ACFT) OSPREY	0	312,835	18	39,300	18	352,135
	Marine Corps UFR—MV–22 Mesh Network Manager			[18]	[39,300]		
63	NEXT GENERATION JAMMER (NGJ)	0	266,676			0	266,676
64	F–35 STOVL SERIES	0	177,054			0	177,054
65	F–35 CV SERIES	0	138,269			0	138,269
66	QRC	0	98,563			0	98,563
67	MQ–4 SERIES	0	7,100			0	7,100
68	RQ–21 SERIES	0	14,123			0	14,123
	AIRCRAFT SPARES AND REPAIR PARTS						
72	SPARES AND REPAIR PARTS	0	2,339,077	4	127,900	4	2,466,977
	Marine Corps UFR—F–35B engine spares			[4]	[117,800]		
	Marine Corps UFR—KC–130J initial spares			[0]	[7,000]		
	Marine Corps UFR—KC–130J weapons system trainer initial spares			[0]	[3,100]		
	AIRCRAFT SUPPORT EQUIP & FACILITIES						
73	COMMON GROUND EQUIPMENT	0	517,267			0	517,267
74	AIRCRAFT INDUSTRIAL FACILITIES	0	80,500			0	80,500
75	WAR CONSUMABLES	0	42,496			0	42,496
76	OTHER PRODUCTION CHARGES	0	21,374			0	21,374
77	SPECIAL SUPPORT EQUIPMENT	0	271,774			0	271,774
	TOTAL AIRCRAFT PROCUREMENT, NAVY	**107**	**16,477,178**	**663**	**2,701,700**	**770**	**19,178,878**
	WEAPONS PROCUREMENT, NAVY						
	MODIFICATION OF MISSILES						
1	TRIDENT II MODS	0	1,144,446			0	1,144,446
	SUPPORT EQUIPMENT & FACILITIES						
2	MISSILE INDUSTRIAL FACILITIES	0	7,319			0	7,319
	STRATEGIC MISSILES						
3	TOMAHAWK	60	124,513			60	124,513
	TACTICAL MISSILES						
5	SIDEWINDER	178	86,366			178	86,366

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
6	STANDARD MISSILE	125	521,814			125	521,814
7	STANDARD MISSILE	0	45,357			0	45,357
8	JASSM	25	37,039			25	37,039
9	SMALL DIAMETER BOMB II	180	40,877			180	40,877
10	RAM	100	92,981			100	92,981
11	JOINT AIR GROUND MISSILE (JAGM)	164	49,702			164	49,702
12	HELLFIRE	120	7,557			120	7,557
13	AERIAL TARGETS	0	150,339			0	150,339
14	DRONES AND DECOYS	18	30,321			18	30,321
15	OTHER MISSILE SUPPORT	0	3,474	0	12,600	0	16,074
	Marine Corps UFR—AGM–167A Griffin			[0]	[12,600]		
16	LRASM	48	161,212			48	161,212
17	NAVAL STRIKE MISSILE (NSM)	34	59,331	0	53,900	34	113,231
	Navy UFR—Additional NSM			[0]	[53,900]		
	MODIFICATION OF MISSILES						
18	TOMAHAWK MODS	0	206,233			0	206,233
19	ESSM	108	248,619			108	248,619
21	AARGM	54	116,345			54	116,345
22	STANDARD MISSILES MODS	0	148,834			0	148,834
	SUPPORT EQUIPMENT & FACILITIES						
23	WEAPONS INDUSTRIAL FACILITIES	0	1,819			0	1,819
	ORDNANCE SUPPORT EQUIPMENT						
26	ORDNANCE SUPPORT EQUIPMENT	0	191,905			0	191,905
	TORPEDOES AND RELATED EQUIP						
27	SSTD	0	4,545			0	4,545
28	MK–48 TORPEDO	58	159,107	0	49,900	58	209,007

	Navy UFR—Heavyweight Torpedo (HWT) quantity increase			[0]	[49,900]		
29	ASW TARGETS	0	13,630			0	13,630
	MOD OF TORPEDOES AND RELATED EQUIP						
30	MK–54 TORPEDO MODS	0	106,112			0	106,112
31	MK–48 TORPEDO ADCAP MODS	0	35,680			0	35,680
32	MARITIME MINES	0	8,567			0	8,567
	SUPPORT EQUIPMENT						
33	TORPEDO SUPPORT EQUIPMENT	0	93,400			0	93,400
34	ASW RANGE SUPPORT	0	3,997			0	3,997
	DESTINATION TRANSPORTATION						
35	FIRST DESTINATION TRANSPORTATION	0	4,023			0	4,023
	GUNS AND GUN MOUNTS						
36	SMALL ARMS AND WEAPONS	0	14,909			0	14,909
	MODIFICATION OF GUNS AND GUN MOUNTS						
37	CIWS MODS	0	6,274			0	6,274
38	COAST GUARD WEAPONS	0	45,958			0	45,958
39	GUN MOUNT MODS	0	68,775			0	68,775
40	LCS MODULE WEAPONS	14	2,121			14	2,121
41	AIRBORNE MINE NEUTRALIZATION SYSTEMS	0	14,822			0	14,822
	SPARES AND REPAIR PARTS						
43	SPARES AND REPAIR PARTS	0	162,382	0	4,300	0	166,682
	Navy UFR—Maritime outfitting and interim spares			[0]	[4,300]		
	TOTAL WEAPONS PROCUREMENT, NAVY	**1,286**	**4,220,705**	**0**	**120,700**	**1,286**	**4,341,405**
	PROCUREMENT OF AMMO, NAVY & MC						
	NAVY AMMUNITION						
1	GENERAL PURPOSE BOMBS	0	48,635			0	48,635
2	JDAM	2,971	74,140			2,971	74,140
3	AIRBORNE ROCKETS, ALL TYPES	0	75,383			0	75,383
4	MACHINE GUN AMMUNITION	0	11,215			0	11,215
5	PRACTICE BOMBS	0	52,225			0	52,225
6	CARTRIDGES & CART ACTUATED DEVICES	0	70,876			0	70,876

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
7	AIR EXPENDABLE COUNTERMEASURES	0	61,600	20,926	41,600	20,926	103,200
	Marine Corps UFR—Additional units			[20,926]	[41,600]		
8	JATOS	0	6,620			0	6,620
9	5 INCH/54 GUN AMMUNITION	0	28,922			0	28,922
10	INTERMEDIATE CALIBER GUN AMMUNITION	0	36,038			0	36,038
11	OTHER SHIP GUN AMMUNITION	0	39,070			0	39,070
12	SMALL ARMS & LANDING PARTY AMMO	0	45,493			0	45,493
13	PYROTECHNIC AND DEMOLITION	0	9,163			0	9,163
15	AMMUNITION LESS THAN $5 MILLION	0	1,575			0	1,575
	MARINE CORPS AMMUNITION						
16	MORTARS	0	50,707			0	50,707
17	DIRECT SUPPORT MUNITIONS	0	120,037			0	120,037
18	INFANTRY WEAPONS AMMUNITION	0	94,001			0	94,001
19	COMBAT SUPPORT MUNITIONS	0	35,247			0	35,247
20	AMMO MODERNIZATION	0	16,267			0	16,267
21	ARTILLERY MUNITIONS	0	105,669			0	105,669
22	ITEMS LESS THAN $5 MILLION	0	5,135			0	5,135
	TOTAL PROCUREMENT OF AMMO, NAVY & MC	**2,971**	**988,018**	**20,926**	**41,600**	**23,897**	**1,029,618**
	SHIPBUILDING AND CONVERSION, NAVY						
	FLEET BALLISTIC MISSILE SHIPS						
1	OHIO REPLACEMENT SUBMARINE	0	3,003,000			0	3,003,000
2	OHIO REPLACEMENT SUBMARINE	0	1,643,980	0	130,000	0	1,773,980
	Submarine industrial base development			[0]	[130,000]		
	OTHER WARSHIPS						
3	CARRIER REPLACEMENT PROGRAM	0	1,068,705			0	1,068,705

4	CVN–81	0	1,299,764			0	1,299,764
5	VIRGINIA CLASS SUBMARINE	2	4,249,240			2	4,249,240
6	VIRGINIA CLASS SUBMARINE	0	2,120,407			0	2,120,407
7	CVN REFUELING OVERHAULS	0	2,456,018			0	2,456,018
8	CVN REFUELING OVERHAULS	0	66,262			0	66,262
9	DDG 1000	0	56,597	0	15,000	0	71,597
	Navy UFR—DDG–1001 combat system activation			[0]	[15,000]		
10	DDG–51	1	2,016,787	1	1,659,000	2	3,675,787
	Navy UFR—Arleigh Burke-class destroyer DDG–51			[1]	[1,659,000]		
11	DDG–51 AP	0	0	0	175,000	0	175,000
	FY23 3rd DDG LLTM			[0]	[125,000]		
	Surface combatant supplier base			[0]	[50,000]		
13	FFG-FRIGATE	1	1,087,900			1	1,087,900
14	FFG-FRIGATE	0	69,100			0	69,100
	AMPHIBIOUS SHIPS						
15	LPD FLIGHT II	0	60,636			0	60,636
16	LPD FLIGHT II	0	0	0	250,000	0	250,000
	Program increase			[0]	[250,000]		
19	LHA REPLACEMENT	0	68,637	0	350,000	0	418,637
	Program increase			[0]	[350,000]		
20	EXPEDITIONARY FAST TRANSPORT (EPF)	0	0	1	270,000	1	270,000
	Program increase			[1]	[270,000]		
	AUXILIARIES, CRAFT AND PRIOR YR PROGRAM COST						
21	TAO FLEET OILER	1	668,184			1	668,184
22	TAO FLEET OILER	0	76,012			0	76,012
23	TAGOS SURTASS SHIPS	1	434,384			1	434,384
24	TOWING, SALVAGE, AND RESCUE SHIP (ATS)	2	183,800			2	183,800
25	LCU 1700	4	67,928			4	67,928
26	OUTFITTING	0	655,707			0	655,707
27	SHIP TO SHORE CONNECTOR	2	156,738			2	156,738
28	SERVICE CRAFT	0	67,866			0	67,866
29	LCAC SLEP	2	32,712			2	32,712

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
30	AUXILIARY VESSELS (USED SEALIFT)	5	299,900	–5	–299,900	0	0
	Program reduction			[–5]	[–299,900]		
31	COMPLETION OF PY SHIPBUILDING PROGRAMS	0	660,795			0	660,795
	TOTAL SHIPBUILDING AND CONVERSION, NAVY	**21**	**22,571,059**	**–3**	**2,549,100**	**18**	**25,120,159**
	OTHER PROCUREMENT, NAVY						
	SHIP PROPULSION EQUIPMENT						
1	SURFACE POWER EQUIPMENT	0	41,414			0	41,414
	GENERATORS						
2	SURFACE COMBATANT HM&E	0	83,746			0	83,746
	NAVIGATION EQUIPMENT						
3	OTHER NAVIGATION EQUIPMENT	0	72,300			0	72,300
	OTHER SHIPBOARD EQUIPMENT						
4	SUB PERISCOPE, IMAGING AND SUPT EQUIP PROG	0	234,932			0	234,932
5	DDG MOD	0	583,136			0	583,136
6	FIREFIGHTING EQUIPMENT	0	15,040			0	15,040
7	COMMAND AND CONTROL SWITCHBOARD	0	2,194			0	2,194
8	LHA/LHD MIDLIFE	0	133,627			0	133,627
9	LCC 19/20 EXTENDED SERVICE LIFE PROGRAM	0	4,387			0	4,387
10	POLLUTION CONTROL EQUIPMENT	0	18,159			0	18,159
11	SUBMARINE SUPPORT EQUIPMENT	0	88,284			0	88,284
12	VIRGINIA CLASS SUPPORT EQUIPMENT	0	22,669			0	22,669
13	LCS CLASS SUPPORT EQUIPMENT	0	9,640			0	9,640
14	SUBMARINE BATTERIES	0	21,834			0	21,834
15	LPD CLASS SUPPORT EQUIPMENT	0	34,292			0	34,292
16	DDG 1000 CLASS SUPPORT EQUIPMENT	0	126,107			0	126,107

17	STRATEGIC PLATFORM SUPPORT EQUIP	0	12,256			0	12,256
18	DSSP EQUIPMENT	0	10,682			0	10,682
19	CG MODERNIZATION	0	156,951	0	36,700	0	193,651
	Navy UFR—CG Modernization Pricing			[0]	[36,700]		
20	LCAC	0	21,314			0	21,314
21	UNDERWATER EOD EQUIPMENT	0	24,146			0	24,146
22	ITEMS LESS THAN $5 MILLION	0	84,789			0	84,789
23	CHEMICAL WARFARE DETECTORS	0	2,997			0	2,997
	REACTOR PLANT EQUIPMENT						
25	SHIP MAINTENANCE, REPAIR AND MODERNIZATION	0	1,307,651	0	167,400	0	1,475,051
	Navy UFR—A–120 availability			[0]	[167,400]		
26	REACTOR POWER UNITS	0	3,270			0	3,270
27	REACTOR COMPONENTS	0	438,729			0	438,729
	OCEAN ENGINEERING						
28	DIVING AND SALVAGE EQUIPMENT	0	10,772			0	10,772
	SMALL BOATS						
29	STANDARD BOATS	0	58,770			0	58,770
	PRODUCTION FACILITIES EQUIPMENT						
30	OPERATING FORCES IPE	0	168,822			0	168,822
	OTHER SHIP SUPPORT						
31	LCS COMMON MISSION MODULES EQUIPMENT	0	74,231			0	74,231
32	LCS MCM MISSION MODULES	0	40,630			0	40,630
33	LCS ASW MISSION MODULES	0	1,565			0	1,565
34	LCS SUW MISSION MODULES	0	3,395			0	3,395
35	LCS IN-SERVICE MODERNIZATION	0	122,591			0	122,591
36	SMALL & MEDIUM UUV	0	32,534			0	32,534
	SHIP SONARS						
38	SPQ–9B RADAR	0	15,927			0	15,927
39	AN/SQQ–89 SURF ASW COMBAT SYSTEM	0	131,829			0	131,829
40	SSN ACOUSTIC EQUIPMENT	0	379,850			0	379,850
41	UNDERSEA WARFARE SUPPORT EQUIPMENT	0	13,965			0	13,965
	ASW ELECTRONIC EQUIPMENT						

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
42	SUBMARINE ACOUSTIC WARFARE SYSTEM	0	24,578			0	24,578
43	SSTD	0	11,010			0	11,010
44	FIXED SURVEILLANCE SYSTEM	0	363,651			0	363,651
45	SURTASS	0	67,500			0	67,500
	ELECTRONIC WARFARE EQUIPMENT						
46	AN/SLQ–32	0	370,559			0	370,559
	RECONNAISSANCE EQUIPMENT						
47	SHIPBOARD IW EXPLOIT	0	261,735			0	261,735
48	AUTOMATED IDENTIFICATION SYSTEM (AIS)	0	3,777			0	3,777
	OTHER SHIP ELECTRONIC EQUIPMENT						
49	COOPERATIVE ENGAGEMENT CAPABILITY	0	24,641	0	36,900	0	61,541
	Navy UFR—Accelerate Naval Tactical Grid Development for Joint All-Domain Command and Control (JADC2)			[0]	[23,600]		
	Navy UFR—Maritime outfitting and interim spares			[0]	[13,300]		
50	NAVAL TACTICAL COMMAND SUPPORT SYSTEM (NTCSS)	0	14,439	0	2,200	0	16,639
	Navy UFR—Naval Operational Business Logistics Enterprise (NOBLE)			[0]	[2,200]		
51	ATDLS	0	101,595			0	101,595
52	NAVY COMMAND AND CONTROL SYSTEM (NCCS)	0	3,535			0	3,535
53	MINESWEEPING SYSTEM REPLACEMENT	0	15,640			0	15,640
54	SHALLOW WATER MCM	0	5,610			0	5,610
55	NAVSTAR GPS RECEIVERS (SPACE)	0	33,097			0	33,097
56	AMERICAN FORCES RADIO AND TV SERVICE	0	2,513			0	2,513
57	STRATEGIC PLATFORM SUPPORT EQUIP	0	4,823			0	4,823
	AVIATION ELECTRONIC EQUIPMENT						
58	ASHORE ATC EQUIPMENT	0	83,464			0	83,464
59	AFLOAT ATC EQUIPMENT	0	67,055			0	67,055

60	ID SYSTEMS	0	46,918			0	46,918
61	JOINT PRECISION APPROACH AND LANDING SYSTEM (	0	35,386			0	35,386
62	NAVAL MISSION PLANNING SYSTEMS	0	17,951			0	17,951
	OTHER SHORE ELECTRONIC EQUIPMENT						
63	MARITIME INTEGRATED BROADCAST SYSTEM	0	2,360			0	2,360
64	TACTICAL/MOBILE C4I SYSTEMS	0	18,919			0	18,919
65	DCGS-N	0	16,691			0	16,691
66	CANES	0	412,002	0	48,000	0	460,002
	Navy UFR—Resilient Communications PNT for Combat Logistics Fleet (CLF)			[0]	[48,000]		
67	RADIAC	0	9,074			0	9,074
68	CANES-INTELL	0	51,593			0	51,593
69	GPETE	0	23,930			0	23,930
70	MASF	0	8,795			0	8,795
71	INTEG COMBAT SYSTEM TEST FACILITY	0	5,829			0	5,829
72	EMI CONTROL INSTRUMENTATION	0	3,925			0	3,925
73	ITEMS LESS THAN $5 MILLION	0	156,042	0	25,200	0	181,242
	Navy UFR—CVN–78 Dual Band Radar and DDG–1000 Multifunction Radar: Signal Data Processor Tech Refresh and Obsolete Component Redesign			[0]	[25,200]		
	SHIPBOARD COMMUNICATIONS						
74	SHIPBOARD TACTICAL COMMUNICATIONS	0	43,212			0	43,212
75	SHIP COMMUNICATIONS AUTOMATION	0	90,724	0	10,500	0	101,224
	Navy UFR—Accelerate Naval Tactical Grid Development for Joint All-Domain Command and Control (JADC2)			[0]	[5,500]		
	Navy UFR—Resilient Communications and PNT for Combat Logistics Fleet (CLF)			[0]	[5,000]		
76	COMMUNICATIONS ITEMS UNDER $5M	0	44,447			0	44,447
	SUBMARINE COMMUNICATIONS						
77	SUBMARINE BROADCAST SUPPORT	0	47,579			0	47,579
78	SUBMARINE COMMUNICATION EQUIPMENT	0	64,642			0	64,642
	SATELLITE COMMUNICATIONS						
79	SATELLITE COMMUNICATIONS SYSTEMS	0	38,636			0	38,636
80	NAVY MULTIBAND TERMINAL (NMT)	0	34,723			0	34,723
	SHORE COMMUNICATIONS						

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
81	JOINT COMMUNICATIONS SUPPORT ELEMENT (JCSE)	0	2,651			0	2,651
	CRYPTOGRAPHIC EQUIPMENT						
82	INFO SYSTEMS SECURITY PROGRAM (ISSP)	0	146,879			0	146,879
83	MIO INTEL EXPLOITATION TEAM	0	977			0	977
	CRYPTOLOGIC EQUIPMENT						
84	CRYPTOLOGIC COMMUNICATIONS EQUIP	0	17,809			0	17,809
	OTHER ELECTRONIC SUPPORT						
92	COAST GUARD EQUIPMENT	0	63,214			0	63,214
	SONOBUOYS						
94	SONOBUOYS—ALL TYPES	0	249,121	0	54,400	0	303,521
	Navy UFR—Additional sonobuoys			[0]	[54,400]		
	AIRCRAFT SUPPORT EQUIPMENT						
95	MINOTAUR	0	4,963			0	4,963
96	WEAPONS RANGE SUPPORT EQUIPMENT	0	98,898			0	98,898
97	AIRCRAFT SUPPORT EQUIPMENT	0	178,647			0	178,647
98	ADVANCED ARRESTING GEAR (AAG)	0	22,265			0	22,265
99	METEOROLOGICAL EQUIPMENT	0	13,687			0	13,687
100	LEGACY AIRBORNE MCM	0	4,446			0	4,446
101	LAMPS EQUIPMENT	0	1,470			0	1,470
102	AVIATION SUPPORT EQUIPMENT	0	70,665			0	70,665
103	UMCS-UNMAN CARRIER AVIATION(UCA)MISSION CNTRL	0	86,584			0	86,584
	SHIP GUN SYSTEM EQUIPMENT						
104	SHIP GUN SYSTEMS EQUIPMENT	0	5,536			0	5,536
	SHIP MISSILE SYSTEMS EQUIPMENT						
105	HARPOON SUPPORT EQUIPMENT	0	204			0	204
106	SHIP MISSILE SUPPORT EQUIPMENT	0	237,987	0	42,500	0	280,487

	Navy UFR—Additional OTH-WS			[0]	[42,500]		
107	TOMAHAWK SUPPORT EQUIPMENT	0	88,726			0	88,726
	FBM SUPPORT EQUIPMENT						
108	STRATEGIC MISSILE SYSTEMS EQUIP	0	281,259			0	281,259
	ASW SUPPORT EQUIPMENT						
109	SSN COMBAT CONTROL SYSTEMS	0	143,289			0	143,289
110	ASW SUPPORT EQUIPMENT	0	30,595			0	30,595
	OTHER ORDNANCE SUPPORT EQUIPMENT						
111	EXPLOSIVE ORDNANCE DISPOSAL EQUIP	0	1,721			0	1,721
112	ITEMS LESS THAN $5 MILLION	0	8,746			0	8,746
	OTHER EXPENDABLE ORDNANCE						
113	ANTI-SHIP MISSILE DECOY SYSTEM	0	76,994			0	76,994
114	SUBMARINE TRAINING DEVICE MODS	0	75,813			0	75,813
115	SURFACE TRAINING EQUIPMENT	0	127,814			0	127,814
	CIVIL ENGINEERING SUPPORT EQUIPMENT						
116	PASSENGER CARRYING VEHICLES	0	4,140			0	4,140
117	GENERAL PURPOSE TRUCKS	0	2,805			0	2,805
118	CONSTRUCTION & MAINTENANCE EQUIP	0	48,403			0	48,403
119	FIRE FIGHTING EQUIPMENT	0	15,084			0	15,084
120	TACTICAL VEHICLES	0	27,400			0	27,400
121	POLLUTION CONTROL EQUIPMENT	0	2,607			0	2,607
122	ITEMS LESS THAN $5 MILLION	0	51,963			0	51,963
123	PHYSICAL SECURITY VEHICLES	0	1,165			0	1,165
	SUPPLY SUPPORT EQUIPMENT						
124	SUPPLY EQUIPMENT	0	24,698			0	24,698
125	FIRST DESTINATION TRANSPORTATION	0	5,385			0	5,385
126	SPECIAL PURPOSE SUPPLY SYSTEMS	0	660,750			0	660,750
	TRAINING DEVICES						
127	TRAINING SUPPORT EQUIPMENT	0	3,465			0	3,465
128	TRAINING AND EDUCATION EQUIPMENT	0	60,114			0	60,114
	COMMAND SUPPORT EQUIPMENT						
129	COMMAND SUPPORT EQUIPMENT	0	31,007			0	31,007

Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
130	MEDICAL SUPPORT EQUIPMENT	0	7,346	0	18,800	0	26,146
	Navy UFR—Expeditionary medical readiness			[0]	[18,800]		
132	NAVAL MIP SUPPORT EQUIPMENT	0	2,887			0	2,887
133	OPERATING FORCES SUPPORT EQUIPMENT	0	12,815			0	12,815
134	C4ISR EQUIPMENT	0	6,324			0	6,324
135	ENVIRONMENTAL SUPPORT EQUIPMENT	0	25,098			0	25,098
136	PHYSICAL SECURITY EQUIPMENT	0	110,647			0	110,647
137	ENTERPRISE INFORMATION TECHNOLOGY	0	31,709			0	31,709
	OTHER						
141	NEXT GENERATION ENTERPRISE SERVICE	0	41			0	41
142	CYBERSPACE ACTIVITIES	0	12,859			0	12,859
	CLASSIFIED PROGRAMS						
9999	CLASSIFIED PROGRAMS	0	19,808			0	19,808
	SPARES AND REPAIR PARTS						
143	SPARES AND REPAIR PARTS	0	424,405	0	201,600	0	626,005
	Navy UFR—DDG–1000 and CVN–78 Dual Band Radar spares			[0]	[108,900]		
	Navy UFR—Maritime outfitting and interim spares			[0]	[92,700]		
	TOTAL OTHER PROCUREMENT, NAVY	**0**	**10,875,912**	**0**	**644,200**	**0**	**11,520,112**
	PROCUREMENT, MARINE CORPS						
	TRACKED COMBAT VEHICLES						
1	AAV7A1 PIP	0	36,836			0	36,836
2	AMPHIBIOUS COMBAT VEHICLE FAMILY OF VEHICLES	92	532,355			92	532,355
3	LAV PIP	0	23,476			0	23,476
	ARTILLERY AND OTHER WEAPONS						
4	155MM LIGHTWEIGHT TOWED HOWITZER	0	32			0	32

5	ARTILLERY WEAPONS SYSTEM	0	67,548	83	153,800	83	221,348
	Marine Corps UFR—Ground-launched anti-ship missiles			[35]	[57,800]		
	Marine Corps UFR—Ground-launched long range fires			[48]	[96,000]		
6	WEAPONS AND COMBAT VEHICLES UNDER $5 MILLION	0	35,402			0	35,402
	GUIDED MISSILES						
8	GROUND BASED AIR DEFENSE	0	9,349			0	9,349
9	ANTI-ARMOR MISSILE-JAVELIN	1	937			1	937
10	FAMILY ANTI-ARMOR WEAPON SYSTEMS (FOAAWS)	0	20,481			0	20,481
11	ANTI-ARMOR MISSILE-TOW	0	14,359			0	14,359
12	GUIDED MLRS ROCKET (GMLRS)	654	98,299			654	98,299
	COMMAND AND CONTROL SYSTEMS						
13	COMMON AVIATION COMMAND AND CONTROL SYSTEM (C	0	18,247			0	18,247
	REPAIR AND TEST EQUIPMENT						
14	REPAIR AND TEST EQUIPMENT	0	33,554			0	33,554
	OTHER SUPPORT (TEL)						
15	MODIFICATION KITS	0	167			0	167
	COMMAND AND CONTROL SYSTEM (NON-TEL)						
16	ITEMS UNDER $5 MILLION (COMM & ELEC)	0	64,879	3,342	68,900	3,342	133,779
	Marine Corps UFR—Fly-Away Broadcast System			[0]	[9,000]		
	Marine Corps UFR—INOD Block III long-range sight			[261]	[16,900]		
	Marine Corps UFR—Squad binocular night vision goggle			[3,081]	[43,000]		
17	AIR OPERATIONS C2 SYSTEMS	0	1,291	0	2,000	0	3,291
	Marine Corps UFR—CEC (AN/USG–4B)			[0]	[2,000]		
	RADAR + EQUIPMENT (NON-TEL)						
19	GROUND/AIR TASK ORIENTED RADAR (G/ATOR)	8	297,369	52	348,000	60	645,369
	Marine Corps UFR—Additional G/ATOR units			[8]	[304,000]		
	Marine Corps UFR—Additional radar retrofit kits and FRP systems			[44]	[44,000]		
	INTELL/COMM EQUIPMENT (NON-TEL)						
20	GCSS-MC	0	604			0	604
21	FIRE SUPPORT SYSTEM	0	39,810			0	39,810
22	INTELLIGENCE SUPPORT EQUIPMENT	0	67,309	1,068	5,600	1,068	72,909
	Marine Corps UFR—SCINet equipment			[1,068]	[5,600]		

SEC. 4101. PROCUREMENT
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Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
24	UNMANNED AIR SYSTEMS (INTEL)	0	24,299			0	24,299
25	DCGS-MC	0	28,633			0	28,633
26	UAS PAYLOADS	0	3,730			0	3,730
	OTHER SUPPORT (NON-TEL)						
29	NEXT GENERATION ENTERPRISE NETWORK (NGEN)	0	97,060	0	19,000	0	116,060
	Marine Corps UFR—Network infrastructure compliance/NGEN			[0]	[19,000]		
30	COMMON COMPUTER RESOURCES	0	83,606	0	13,800	0	97,406
	Marine Corps UFR—MC Hardware Suite End User Devices refresh			[0]	[6,300]		
	Marine Corps UFR—Secure Operational Network Infrastructure and Communications modernization			[0]	[7,500]		
31	COMMAND POST SYSTEMS	0	53,708			0	53,708
32	RADIO SYSTEMS	0	468,678			0	468,678
33	COMM SWITCHING & CONTROL SYSTEMS	0	49,600			0	49,600
34	COMM & ELEC INFRASTRUCTURE SUPPORT	0	110,835	0	5,800	0	116,635
	Marine Corps UFR—Base telecommunications equipment upgrades			[0]	[5,800]		
35	CYBERSPACE ACTIVITIES	0	25,377	24	21,200	24	46,577
	Marine Corps UFR—Defensive Cyber Ops-Internal Defensive Measures suites			[24]	[21,200]		
	CLASSIFIED PROGRAMS						
9999	CLASSIFIED PROGRAMS	0	4,034			0	4,034
	ADMINISTRATIVE VEHICLES						
38	COMMERCIAL CARGO VEHICLES	0	17,848			0	17,848
	TACTICAL VEHICLES						
39	MOTOR TRANSPORT MODIFICATIONS	0	23,363			0	23,363
40	JOINT LIGHT TACTICAL VEHICLE	613	322,013			613	322,013
42	TRAILERS	0	9,876			0	9,876
	ENGINEER AND OTHER EQUIPMENT						

44	TACTICAL FUEL SYSTEMS	0	2,161			0	2,161
45	POWER EQUIPMENT ASSORTED	0	26,625			0	26,625
46	AMPHIBIOUS SUPPORT EQUIPMENT	0	17,119			0	17,119
47	EOD SYSTEMS	0	94,472	85	13,200	85	107,672
	Marine Corps UFR—BCWD/UnSAT/Explosive Hazard Defeat Systems			[0]	[7,800]		
	Marine Corps UFR—ENFIRE/Explosive Hazard Defeat Systems			[85]	[5,400]		
	MATERIALS HANDLING EQUIPMENT						
48	PHYSICAL SECURITY EQUIPMENT	0	84,513			0	84,513
	GENERAL PROPERTY						
49	FIELD MEDICAL EQUIPMENT	0	8,105			0	8,105
50	TRAINING DEVICES	0	37,814			0	37,814
51	FAMILY OF CONSTRUCTION EQUIPMENT	0	34,658	0	15,800	0	50,458
	Marine Corps UFR—All-terrain crane			[0]	[10,800]		
	Marine Corps UFR—Rough terrain container handler			[0]	[5,000]		
52	ULTRA-LIGHT TACTICAL VEHICLE (ULTV)	0	15,439			0	15,439
	OTHER SUPPORT						
53	ITEMS LESS THAN $5 MILLION	0	4,402	108	10,600	108	15,002
	Marine Corps UFR—Lightweight water purification system			[108]	[10,600]		
	SPARES AND REPAIR PARTS						
54	SPARES AND REPAIR PARTS	0	32,819			0	32,819
	TOTAL PROCUREMENT, MARINE CORPS	**1,368**	**3,043,091**	**4,762**	**677,700**	**6,130**	**3,720,791**
	AIRCRAFT PROCUREMENT, AIR FORCE						
	STRATEGIC OFFENSIVE						
1	B–21 RAIDER	0	108,027			0	108,027
	TACTICAL FORCES						
2	F–35	48	4,167,604	1	260,000	49	4,427,604
	Air Force UFR—F–35 power modules			[0]	[175,000]		
	Program increase			[1]	[85,000]		
3	F–35	0	352,632			0	352,632
5	F–15EX	12	1,186,903	5	576,000	17	1,762,903
	Air Force UFR—Additional aircraft, spares, support equipment			[5]	[576,000]		

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
6	F–15EX	0	147,919			0	147,919
	TACTICAL AIRLIFT						
7	KC–46A MDAP	14	2,380,315			14	2,380,315
	OTHER AIRLIFT						
8	C–130J	1	128,896			1	128,896
9	MC–130J	3	220,049			3	220,049
	UPT TRAINERS						
11	ADVANCED TRAINER REPLACEMENT T-X	0	10,397			0	10,397
	HELICOPTERS						
12	MH–139A	0	0	0	75,000	0	75,000
	Program increase			[0]	[75,000]		
13	COMBAT RESCUE HELICOPTER	14	792,221			14	792,221
	MISSION SUPPORT AIRCRAFT						
16	CIVIL AIR PATROL A/C	0	2,813			0	2,813
	OTHER AIRCRAFT						
17	TARGET DRONES	22	116,169			22	116,169
19	E–11 BACN/HAG	2	124,435			2	124,435
21	MQ–9	0	3,288	5	100,000	5	103,288
	Additional aircraft			[5]	[100,000]		
	STRATEGIC AIRCRAFT						
23	B–2A	0	29,944			0	29,944
24	B–1B	0	30,518			0	30,518
25	B–52	0	82,820	0	4,000	0	86,820
	B–52 training system			[0]	[4,000]		
26	COMBAT RESCUE HELICOPTER	0	61,191			0	61,191
27	LARGE AIRCRAFT INFRARED COUNTERMEASURES	0	57,001			0	57,001

	TACTICAL AIRCRAFT						
28	A–10	0	83,621			0	83,621
29	E–11 BACN/HAG	0	68,955			0	68,955
30	F–15	0	234,340			0	234,340
31	F–16	0	613,166	0	25,000	0	638,166
	F–16 AESAs			[0]	[25,000]		
32	F–22A	0	424,722			0	424,722
33	F–35 MODIFICATIONS	0	304,135	0	1,670,750	0	1,974,885
	F–35 upgrades to Block 4			[0]	[1,670,750]		
34	F–15 EPAW	18	149,797			18	149,797
36	KC–46A MDAP	0	1,984			0	1,984
	AIRLIFT AIRCRAFT						
37	C–5	0	25,431			0	25,431
38	C–17A	0	59,570			0	59,570
40	C–32A	0	1,949			0	1,949
41	C–37A	0	5,984			0	5,984
	TRAINER AIRCRAFT						
42	GLIDER MODS	0	142			0	142
43	T–6	0	8,735			0	8,735
44	T–1	0	3,872			0	3,872
45	T–38	0	49,851			0	49,851
	OTHER AIRCRAFT						
46	U–2 MODS	0	126,809			0	126,809
47	KC–10A (ATCA)	0	1,902			0	1,902
49	VC–25A MOD	0	96			0	96
50	C–40	0	262			0	262
51	C–130	0	29,071			0	29,071
52	C–130J MODS	0	110,784			0	110,784
53	C–135	0	61,376			0	61,376
54	COMPASS CALL	0	195,098	5	75,000	5	270,098
	Air Force UFR—Additional spare engines			[5]	[75,000]		
56	RC–135	0	207,596			0	207,596

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
57	E–3	0	109,855			0	109,855
58	E–4	0	19,081			0	19,081
59	E–8	0	16,312			0	16,312
60	AIRBORNE WARNING AND CNTRL SYS (AWACS) 40/45	0	30,327			0	30,327
62	H–1	0	1,533			0	1,533
63	H–60	0	13,709			0	13,709
64	RQ–4 MODS	0	3,205			0	3,205
65	HC/MC–130 MODIFICATIONS	0	150,263			0	150,263
66	OTHER AIRCRAFT	0	54,828			0	54,828
67	MQ–9 MODS	0	144,287			0	144,287
68	MQ–9 UAS PAYLOADS	0	40,800			0	40,800
69	SENIOR LEADER C3, SYSTEM—AIRCRAFT	0	23,554			0	23,554
70	CV–22 MODS	0	158,162	0	82,400	0	240,562
	SOCOM UFR—CV–22 reliability acceleration			[0]	[82,400]		
	AIRCRAFT SPARES AND REPAIR PARTS						
71	INITIAL SPARES/REPAIR PARTS	0	915,710			0	915,710
	COMMON SUPPORT EQUIPMENT						
72	AIRCRAFT REPLACEMENT SUPPORT EQUIP	0	138,761			0	138,761
	POST PRODUCTION SUPPORT						
73	B–2A	0	1,651			0	1,651
74	B–2B	0	38,811			0	38,811
75	B–52	0	5,602			0	5,602
78	F–15	0	2,324			0	2,324
79	F–16	0	10,456			0	10,456
81	RQ–4 POST PRODUCTION CHARGES	0	24,592			0	24,592
	INDUSTRIAL PREPAREDNESS						

82	INDUSTRIAL RESPONSIVENESS	0	18,110			0	18,110
	WAR CONSUMABLES						
83	WAR CONSUMABLES	0	35,866			0	35,866
	OTHER PRODUCTION CHARGES						
84	OTHER PRODUCTION CHARGES	0	979,388			0	979,388
	CLASSIFIED PROGRAMS						
9999	CLASSIFIED PROGRAMS	0	18,092			0	18,092
	TOTAL AIRCRAFT PROCUREMENT, AIR FORCE	**134**	**15,727,669**	**16**	**2,868,150**	**150**	**18,595,819**
	MISSILE PROCUREMENT, AIR FORCE						
	MISSILE REPLACEMENT EQUIPMENT—BALLISTIC						
1	MISSILE REPLACEMENT EQ-BALLISTIC	0	57,793			0	57,793
	BALLISTIC MISSILES						
2	GROUND BASED STRATEGIC DETERRENT	0	8,895			0	8,895
	TACTICAL						
3	REPLAC EQUIP & WAR CONSUMABLES	0	7,681			0	7,681
4	AGM–183A AIR-LAUNCHED RAPID RESPONSE WEAPON	0	160,850			0	160,850
6	JOINT AIR-SURFACE STANDOFF MISSILE	525	710,550			525	710,550
8	SIDEWINDER (AIM–9X)	243	107,587			243	107,587
9	AMRAAM	168	214,002			168	214,002
10	PREDATOR HELLFIRE MISSILE	1,176	103,684			1,176	103,684
11	SMALL DIAMETER BOMB	998	82,819			998	82,819
12	SMALL DIAMETER BOMB II	985	294,649			985	294,649
	INDUSTRIAL FACILITIES						
13	INDUSTR'L PREPAREDNS/POL PREVENTION	0	757			0	757
	CLASS IV						
15	ICBM FUZE MOD	40	53,013	0	12,250	40	65,263
	Realignment of funds			[0]	[12,250]		
16	ICBM FUZE MOD	0	47,757	0	–12,250	0	35,507
	Realignment of funds			[0]	[–12,250]		
17	MM III MODIFICATIONS	0	88,579			0	88,579
19	AIR LAUNCH CRUISE MISSILE (ALCM)	0	46,799			0	46,799

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
	MISSILE SPARES AND REPAIR PARTS						
20	MSL SPRS/REPAIR PARTS (INITIAL)	0	16,212			0	16,212
21	MSL SPRS/REPAIR PARTS (REPLEN)	0	63,547			0	63,547
22	INITIAL SPARES/REPAIR PARTS	0	4,045			0	4,045
	SPECIAL PROGRAMS						
27	SPECIAL UPDATE PROGRAMS	0	30,352			0	30,352
	CLASSIFIED PROGRAMS						
9999	CLASSIFIED PROGRAMS	0	570,240			0	570,240
	TOTAL MISSILE PROCUREMENT, AIR FORCE	**4,135**	**2,669,811**	**0**	**0**	**4,135**	**2,669,811**
	PROCUREMENT, SPACE FORCE						
	SPACE PROCUREMENT, SF						
2	AF SATELLITE COMM SYSTEM	0	43,655			0	43,655
3	COUNTERSPACE SYSTEMS	0	64,804			0	64,804
4	FAMILY OF BEYOND LINE-OF-SIGHT TERMINALS	0	39,444			0	39,444
5	GENERAL INFORMATION TECH—SPACE	0	3,316	0	9,800	0	13,116
	Space Force UFR—Long duration propulsive national security space launch secondary payload adapter			[0]	[8,000]		
	Space Force UFR—Modernize space aggressor equipment			[0]	[1,800]		
6	GPSIII FOLLOW ON	2	601,418			2	601,418
7	GPS III SPACE SEGMENT	0	84,452			0	84,452
8	GLOBAL POSTIONING (SPACE)	0	2,274			0	2,274
9	HERITAGE TRANSITION	0	13,529			0	13,529
10	SPACEBORNE EQUIP (COMSEC)	0	26,245	0	22,700	0	48,945
	Space Force UFR—Space-rated crypto devices to support launch			[0]	[22,700]		
11	MILSATCOM	0	24,333			0	24,333

12	SBIR HIGH (SPACE)	0	154,526			0	154,526
13	SPECIAL SPACE ACTIVITIES	0	142,188			0	142,188
14	MOBILE USER OBJECTIVE SYSTEM	0	45,371			0	45,371
15	NATIONAL SECURITY SPACE LAUNCH	5	1,337,347			5	1,337,347
16	NUDET DETECTION SYSTEM	0	6,690			0	6,690
17	PTES HUB	0	7,406			0	7,406
18	ROCKET SYSTEMS LAUNCH PROGRAM	0	10,429			0	10,429
20	SPACE MODS	0	64,371			0	64,371
21	SPACELIFT RANGE SYSTEM SPACE	0	93,774			0	93,774
	SPARES						
22	SPARES AND REPAIR PARTS	0	1,282			0	1,282
	TOTAL PROCUREMENT, SPACE FORCE	**7**	**2,766,854**	**0**	**32,500**	**7**	**2,799,354**
	PROCUREMENT OF AMMUNITION, AIR FORCE						
	ROCKETS						
1	ROCKETS	0	36,597			0	36,597
	CARTRIDGES						
2	CARTRIDGES	0	169,163			0	169,163
	BOMBS						
3	PRACTICE BOMBS	0	48,745			0	48,745
4	GENERAL PURPOSE BOMBS	0	176,565			0	176,565
5	MASSIVE ORDNANCE PENETRATOR (MOP)	0	15,500			0	15,500
6	JOINT DIRECT ATTACK MUNITION	1,919	124,102			1,919	124,102
7	B–61	0	2,709			0	2,709
	OTHER ITEMS						
8	CAD/PAD	0	47,210			0	47,210
9	EXPLOSIVE ORDNANCE DISPOSAL (EOD)	0	6,151			0	6,151
10	SPARES AND REPAIR PARTS	0	535			0	535
11	MODIFICATIONS	0	292			0	292
12	ITEMS LESS THAN $5,000,000	0	9,164			0	9,164
	FLARES						
13	FLARES	0	95,297			0	95,297

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
	FUZES						
14	FUZES	0	50,795			0	50,795
	SMALL ARMS						
15	SMALL ARMS	0	12,343			0	12,343
	TOTAL PROCUREMENT OF AMMUNITION, AIR FORCE	**1,919**	**795,168**	**0**	**0**	**1,919**	**795,168**
	OTHER PROCUREMENT, AIR FORCE						
	PASSENGER CARRYING VEHICLES						
1	PASSENGER CARRYING VEHICLES	0	8,448			0	8,448
	CARGO AND UTILITY VEHICLES						
2	MEDIUM TACTICAL VEHICLE	0	5,804			0	5,804
3	CAP VEHICLES	0	1,066			0	1,066
4	CARGO AND UTILITY VEHICLES	0	57,459	0	4,500	0	61,959
	CNGB UFR—Security forces utility task vehicle			[0]	[4,500]		
	SPECIAL PURPOSE VEHICLES						
5	JOINT LIGHT TACTICAL VEHICLE	0	97,326			0	97,326
6	SECURITY AND TACTICAL VEHICLES	0	488			0	488
7	SPECIAL PURPOSE VEHICLES	0	75,694	0	5,400	0	81,094
	CNGB UFR—Temperature control trailers			[0]	[5,400]		
	FIRE FIGHTING EQUIPMENT						
8	FIRE FIGHTING/CRASH RESCUE VEHICLES	0	12,525			0	12,525
	MATERIALS HANDLING EQUIPMENT						
9	MATERIALS HANDLING VEHICLES	0	34,933			0	34,933
	BASE MAINTENANCE SUPPORT						
10	RUNWAY SNOW REMOV AND CLEANING EQU	0	9,134			0	9,134
11	BASE MAINTENANCE SUPPORT VEHICLES	0	111,820			0	111,820

	COMM SECURITY EQUIPMENT(COMSEC)						
13	COMSEC EQUIPMENT	0	66,022			0	66,022
14	STRATEGIC MICROELECTRONIC SUPPLY SYSTEM	0	885,051			0	885,051
	INTELLIGENCE PROGRAMS						
15	INTERNATIONAL INTEL TECH & ARCHITECTURES	0	5,809			0	5,809
16	INTELLIGENCE TRAINING EQUIPMENT	0	5,719			0	5,719
17	INTELLIGENCE COMM EQUIPMENT	0	25,844			0	25,844
	ELECTRONICS PROGRAMS						
18	AIR TRAFFIC CONTROL & LANDING SYS	0	44,516	0	8,000	0	52,516
	Air Force UFR—Build command and control framework			[0]	[8,000]		
19	BATTLE CONTROL SYSTEM—FIXED	0	2,940			0	2,940
20	THEATER AIR CONTROL SYS IMPROVEMEN	0	43,442	0	4,400	0	47,842
	EUCOM UFR—Air base air defens ops center			[0]	[4,400]		
21	3D EXPEDITIONARY LONG-RANGE RADAR	0	96,186	0	152,000	0	248,186
	Air Force UFR—Build command and control framework			[0]	[152,000]		
22	WEATHER OBSERVATION FORECAST	0	32,376	0	600	0	32,976
	Space Force UFR—Thule Air Base wind profiler			[0]	[600]		
23	STRATEGIC COMMAND AND CONTROL	0	37,950			0	37,950
24	CHEYENNE MOUNTAIN COMPLEX	0	8,258			0	8,258
25	MISSION PLANNING SYSTEMS	0	14,717			0	14,717
	SPCL COMM-ELECTRONICS PROJECTS						
27	GENERAL INFORMATION TECHNOLOGY	0	43,917	0	44,330	0	88,247
	EUCOM UFR—Mission Partner Environment			[0]	[13,800]		
	INDOPACOM UFR—Mission Partner Environment			[0]	[30,530]		
28	AF GLOBAL COMMAND & CONTROL SYS	0	414			0	414
30	MOBILITY COMMAND AND CONTROL	0	10,619			0	10,619
31	AIR FORCE PHYSICAL SECURITY SYSTEM	0	101,896	0	14,901	0	116,797
	EUCOM UFR—Counter-UAS for UASFE installations			[0]	[1,241]		
	EUCOM UFR—Sensors for air base air defense			[0]	[11,660]		
	Space Force UFR—Maui Optical Site security system			[0]	[2,000]		
32	COMBAT TRAINING RANGES	0	222,598			0	222,598
33	COMBAT TRAINING RANGES	0	14,730			0	14,730

Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
34	MINIMUM ESSENTIAL EMERGENCY COMM N	0	77,119			0	77,119
35	WIDE AREA SURVEILLANCE (WAS)	0	38,794			0	38,794
36	C3 COUNTERMEASURES	0	131,238			0	131,238
37	INTEGRATED PERSONNEL AND PAY SYSTEM	0	15,240			0	15,240
38	GCSS-AF FOS	0	3,959			0	3,959
40	MAINTENANCE REPAIR & OVERHAUL INITIATIVE	0	4,387			0	4,387
41	THEATER BATTLE MGT C2 SYSTEM	0	4,052			0	4,052
42	AIR & SPACE OPERATIONS CENTER (AOC)	0	2,224			0	2,224
	AIR FORCE COMMUNICATIONS						
43	BASE INFORMATION TRANSPT INFRAST (BITI) WIRED	0	58,499			0	58,499
44	AFNET	0	65,354			0	65,354
45	JOINT COMMUNICATIONS SUPPORT ELEMENT (JCSE)	0	4,377			0	4,377
46	USCENTCOM	0	18,101			0	18,101
47	USSTRATCOM	0	4,226			0	4,226
	ORGANIZATION AND BASE						
48	TACTICAL C-E EQUIPMENT	0	162,955			0	162,955
49	RADIO EQUIPMENT	0	14,232	0	1,500	0	15,732
	Space Force UFR—radio equipment			[0]	[1,500]		
51	BASE COMM INFRASTRUCTURE	0	200,797	0	63,500	0	264,297
	EUCOM UFR—Modernize IT infrastructure			[0]	[55,000]		
	Space Force UFR—Emergency 911 rech refresh			[0]	[1,200]		
	Space Force UFR—Lifecycle SIPR/NIP replacement			[0]	[7,000]		
	Space Force UFR—Maui Optical Site resilient comms			[0]	[300]		
	MODIFICATIONS						
52	COMM ELECT MODS	0	18,607			0	18,607
	PERSONAL SAFETY & RESCUE EQUIP						

53	PERSONAL SAFETY AND RESCUE EQUIPMENT	0	106,449	0	25,000	0	131,449
	CNGB UFR—Critical care air transport team			[0]	[9,500]		
	CNGB UFR—Tactical combat casualty care medical kit			[0]	[15,500]		
	DEPOT PLANT+MTRLS HANDLING EQ						
54	POWER CONDITIONING EQUIPMENT	0	11,274			0	11,274
55	MECHANIZED MATERIAL HANDLING EQUIP	0	8,594			0	8,594
	BASE SUPPORT EQUIPMENT						
56	BASE PROCURED EQUIPMENT	0	1	0	83,250	0	83,251
	CNGB UFR—Modular small arms ranges			[0]	[75,000]		
	EUCOM UFR—Tactical decoy devices			[0]	[8,250]		
57	ENGINEERING AND EOD EQUIPMENT	0	32,139			0	32,139
58	MOBILITY EQUIPMENT	0	63,814	0	67,200	0	131,014
	CNGB UFR—Aeromedical evacuation equipment kit			[0]	[3,200]		
	CNGB UFR—Disaster relief mobile kitchen trailers			[0]	[22,500]		
	CNGB UFR—Oxygen generation system			[0]	[3,000]		
	CNGB UFR—Rapid response shelters			[0]	[7,500]		
	CNGB UFR—Security forces modular ballistic protection system			[0]	[31,000]		
59	FUELS SUPPORT EQUIPMENT (FSE)	0	17,928			0	17,928
60	BASE MAINTENANCE AND SUPPORT EQUIPMENT	0	48,534			0	48,534
	SPECIAL SUPPORT PROJECTS						
62	DARP RC135	0	27,359			0	27,359
63	DCGS-AF	0	261,070			0	261,070
65	SPECIAL UPDATE PROGRAM	0	777,652			0	777,652
	CLASSIFIED PROGRAMS						
9999	CLASSIFIED PROGRAMS	0	20,983,908			0	20,983,908
	SPARES AND REPAIR PARTS						
66	SPARES AND REPAIR PARTS (CYBER)	0	978			0	978
67	SPARES AND REPAIR PARTS	0	9,575	0	1,000	0	10,575
	Air Force UFR—Build command and control framework			[0]	[1,000]		
	TOTAL OTHER PROCUREMENT, AIR FORCE	**0**	**25,251,137**	**0**	**475,581**	**0**	**25,726,718**

PROCUREMENT, DEFENSE-WIDE

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
	MAJOR EQUIPMENT, DCSA						
2	MAJOR EQUIPMENT	0	3,014			0	3,014
	MAJOR EQUIPMENT, DHRA						
4	PERSONNEL ADMINISTRATION	0	4,042			0	4,042
	MAJOR EQUIPMENT, DISA						
10	INFORMATION SYSTEMS SECURITY	0	18,923			0	18,923
11	TELEPORT PROGRAM	0	34,908			0	34,908
12	JOINT FORCES HEADQUARTERS—DODIN	0	1,968			0	1,968
13	ITEMS LESS THAN $5 MILLION	0	42,270			0	42,270
14	DEFENSE INFORMATION SYSTEM NETWORK	0	18,025			0	18,025
15	WHITE HOUSE COMMUNICATION AGENCY	0	44,522			0	44,522
16	SENIOR LEADERSHIP ENTERPRISE	0	54,592			0	54,592
17	JOINT REGIONAL SECURITY STACKS (JRSS)	0	62,657			0	62,657
18	JOINT SERVICE PROVIDER	0	102,039			0	102,039
19	FOURTH ESTATE NETWORK OPTIMIZATION (4ENO)	0	80,645			0	80,645
	MAJOR EQUIPMENT, DLA						
21	MAJOR EQUIPMENT	0	530,896			0	530,896
	MAJOR EQUIPMENT, DMACT						
22	MAJOR EQUIPMENT	0	8,498			0	8,498
	MAJOR EQUIPMENT, DODEA						
23	AUTOMATION/EDUCATIONAL SUPPORT & LOGISTICS	0	2,963			0	2,963
	MAJOR EQUIPMENT, DPAA						
24	MAJOR EQUIPMENT, DPAA	10	494			10	494
	MAJOR EQUIPMENT, DEFENSE THREAT REDUCTION AGENCY						
26	VEHICLES	0	118			0	118
27	OTHER MAJOR EQUIPMENT	0	12,681			0	12,681

	MAJOR EQUIPMENT, MISSILE DEFENSE AGENCY						
29	THAAD	18	251,543	12	109,579	30	361,122
	MDA UFR—Additional interceptors			[12]	[109,579]		
31	AEGIS BMD	40	334,621			40	334,621
32	AEGIS BMD	0	17,493			0	17,493
33	BMDS AN/TPY–2 RADARS	0	2,738			0	2,738
34	SM–3 IIAS	8	295,322	2	41,000	10	336,322
	MDA UFR—Additional AURs			[2]	[41,000]		
35	ARROW 3 UPPER TIER SYSTEMS	1	62,000			1	62,000
36	SHORT RANGE BALLISTIC MISSILE DEFENSE (SRBMD)	1	30,000			1	30,000
37	DEFENSE OF GUAM PROCUREMENT	0	40,000	0	77,220	0	117,220
	INDOPACOM UFR—Guam Defense System			[0]	[77,220]		
38	AEGIS ASHORE PHASE III	0	25,866			0	25,866
39	IRON DOME	1	108,000			1	108,000
40	AEGIS BMD HARDWARE AND SOFTWARE	14	81,791			14	81,791
	MAJOR EQUIPMENT, NSA						
46	INFORMATION SYSTEMS SECURITY PROGRAM (ISSP)	0	315			0	315
	MAJOR EQUIPMENT, OSD						
47	MAJOR EQUIPMENT, OSD	0	31,420			0	31,420
	MAJOR EQUIPMENT, SDA						
48	JOINT CAPABILITY TECH DEMONSTRATION (JCTD)	0	74,060			0	74,060
	MAJOR EQUIPMENT, TJS						
49	MAJOR EQUIPMENT, TJS	0	7,830			0	7,830
	CLASSIFIED PROGRAMS						
9999	CLASSIFIED PROGRAMS	0	635,338			0	635,338
	AVIATION PROGRAMS						
52	ARMED OVERWATCH/TARGETING	6	170,000			6	170,000
53	MANNED ISR	0	2,500			0	2,500
54	MC–12	0	2,250			0	2,250
55	MH–60 BLACKHAWK	0	29,900			0	29,900
56	ROTARY WING UPGRADES AND SUSTAINMENT	0	202,278			0	202,278
57	UNMANNED ISR	0	55,951			0	55,951

SEC. 4101. PROCUREMENT
(In Thousands of Dollars)

Line	Item	FY 2022 Request		Senate Change		Senate Authorized	
		Qty	Cost	Qty	Cost	Qty	Cost
58	NON-STANDARD AVIATION	0	3,282			0	3,282
59	U–28	0	4,176			0	4,176
60	MH–47 CHINOOK	0	130,485			0	130,485
61	CV–22 MODIFICATION	0	41,762	0	5,810	0	47,572
	SOCOM UFR—CV–22 reliability acceleration			[0]	[5,810]		
62	MQ–9 UNMANNED AERIAL VEHICLE	0	8,020			0	8,020
63	PRECISION STRIKE PACKAGE	0	165,224			0	165,224
64	AC/MC–130J	0	205,216			0	205,216
65	C–130 MODIFICATIONS	0	13,373			0	13,373
	SHIPBUILDING						
66	UNDERWATER SYSTEMS	0	17,227	0	6,100	0	23,327
	SOCOM UFR—Combat diving advanced equipment acceleration			[0]	[5,200]		
	SOCOM UFR—Modernized forward look sonar			[0]	[900]		
	AMMUNITION PROGRAMS						
67	ORDNANCE ITEMS <$5M	0	168,072			0	168,072
	OTHER PROCUREMENT PROGRAMS						
68	INTELLIGENCE SYSTEMS	0	131,889			0	131,889
69	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS	0	5,991			0	5,991
70	OTHER ITEMS <$5M	0	62,722			0	62,722
71	COMBATANT CRAFT SYSTEMS	0	17,080			0	17,080
72	SPECIAL PROGRAMS	0	44,351	0	31,180	0	75,531
	SOCOM UFR—Medium fixed wing mobility modifications			[0]	[31,180]		
73	TACTICAL VEHICLES	0	26,806			0	26,806
74	WARRIOR SYSTEMS <$5M	0	284,548			0	284,548
75	COMBAT MISSION REQUIREMENTS	0	27,513			0	27,513
77	OPERATIONAL ENHANCEMENTS INTELLIGENCE	0	20,252			0	20,252

78	OPERATIONAL ENHANCEMENTS	0	328,569	0	61,303	0	389,872
	SOCOM UFR—Armored ground mobility systems acceleration			[0]	[33,303]		
	SOCOM UFR—Fused panoramic night vision goggles acceleration			[0]	[28,000]		
	CBDP						
79	CHEMICAL BIOLOGICAL SITUATIONAL AWARENESS	0	167,918			0	167,918
80	CB PROTECTION & HAZARD MITIGATION	0	189,265			0	189,265
	TOTAL PROCUREMENT, DEFENSE-WIDE	**99**	**5,548,212**	**14**	**332,192**	**113**	**5,880,404**
	TOTAL PROCUREMENT	**26,050**	**132,205,078**	**75,704**	**11,849,451**	**101,754**	**144,054,529**

TITLE XLII—RESEARCH, DEVELOPMENT, TEST, AND EVALUATION

TITLE XLII—RESEARCH, DEVELOPMENT, TEST, AND EVALUATION

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION.

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

Line	Program Element	Item	FY 2022 Request	Senate Change	Senate Authorized
		RESEARCH, DEVELOPMENT, TEST & EVAL, ARMY			
		BASIC RESEARCH			
1	0601102A	DEFENSE RESEARCH SCIENCES	297,241		297,241
2	0601103A	UNIVERSITY RESEARCH INITIATIVES	66,981	36,500	103,481
		Smart thread data exchange		[5,000]	
		UAS propulsion research		[1,500]	
		University research programs		[30,000]	
3	0601104A	UNIVERSITY AND INDUSTRY RESEARCH CENTERS	94,003		94,003
4	0601121A	CYBER COLLABORATIVE RESEARCH ALLIANCE	5,067		5,067
5	0601601A	ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING BASIC RESEARCH	10,183		10,183
		SUBTOTAL BASIC RESEARCH	**473,475**	**36,500**	**509,975**
		APPLIED RESEARCH			
6	0602115A	BIOMEDICAL TECHNOLOGY	11,925		11,925
7	0602134A	COUNTER IMPROVISED-THREAT ADVANCED STUDIES	1,976		1,976
8	0602141A	LETHALITY TECHNOLOGY	64,126	2,500	66,626
		Ceramic material systems for extreme environments		[2,500]	
9	0602142A	ARMY APPLIED RESEARCH	28,654		28,654
10	0602143A	SOLDIER LETHALITY TECHNOLOGY	105,168		105,168

11	0602144A	GROUND TECHNOLOGY	56,400	11,000	67,400
		Earthen structures research		[3,000]	
		Graphene applications for military engineering		[2,000]	
		Polar research and testing		[4,000]	
		Verified inherent control		[2,000]	
12	0602145A	NEXT GENERATION COMBAT VEHICLE TECHNOLOGY	172,166	2,500	174,666
		Light detection and ranging (LiDAR) technology		[2,500]	
13	0602146A	NETWORK C3I TECHNOLOGY	84,606	2,000	86,606
		UAS sensor research		[2,000]	
14	0602147A	LONG RANGE PRECISION FIRES TECHNOLOGY	64,285		64,285
15	0602148A	FUTURE VERTICLE LIFT TECHNOLOGY	91,411		91,411
16	0602150A	AIR AND MISSILE DEFENSE TECHNOLOGY	19,316	28,000	47,316
		Counter-UAS applied research		[5,000]	
		High energy laser research		[5,000]	
		High energy laser support technology		[5,000]	
		Kill chain automation for air and missile defense systems		[8,000]	
		Secure computing capabilities		[5,000]	
17	0602180A	ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING TECHNOLOGIES	15,034		15,034
18	0602181A	ALL DOMAIN CONVERGENCE APPLIED RESEARCH	25,967		25,967
19	0602182A	C3I APPLIED RESEARCH	12,406		12,406
20	0602183A	AIR PLATFORM APPLIED RESEARCH	6,597		6,597
21	0602184A	SOLDIER APPLIED RESEARCH	11,064	7,500	18,564
		Military footwear research		[2,500]	
		Pathfinder air assault		[5,000]	
22	0602213A	C3I APPLIED CYBER	12,123		12,123
23	0602386A	BIOTECHNOLOGY FOR MATERIALS—APPLIED RESEARCH	20,643		20,643
24	0602785A	MANPOWER/PERSONNEL/TRAINING TECHNOLOGY	18,701		18,701
25	0602787A	MEDICAL TECHNOLOGY	91,720		91,720
		SUBTOTAL APPLIED RESEARCH	**914,288**	**53,500**	**967,788**
		ADVANCED TECHNOLOGY DEVELOPMENT			
26	0603002A	MEDICAL ADVANCED TECHNOLOGY	43,804		43,804

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

Line	Program Element	Item	FY 2022 Request	Senate Change	Senate Authorized
27	0603007A	MANPOWER, PERSONNEL AND TRAINING ADVANCED TECHNOLOGY	14,273		14,273
28	0603025A	ARMY AGILE INNOVATION AND DEMONSTRATION	22,231		22,231
29	0603040A	ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING ADVANCED TECHNOLOGIES	909		909
30	0603041A	ALL DOMAIN CONVERGENCE ADVANCED TECHNOLOGY	17,743		17,743
31	0603042A	C3I ADVANCED TECHNOLOGY	3,151		3,151
32	0603043A	AIR PLATFORM ADVANCED TECHNOLOGY	754		754
33	0603044A	SOLDIER ADVANCED TECHNOLOGY	890		890
34	0603115A	MEDICAL DEVELOPMENT	26,521		26,521
35	0603116A	LETHALITY ADVANCED TECHNOLOGY	8,066		8,066
36	0603117A	ARMY ADVANCED TECHNOLOGY DEVELOPMENT	76,815		76,815
37	0603118A	SOLDIER LETHALITY ADVANCED TECHNOLOGY	107,966		107,966
38	0603119A	GROUND ADVANCED TECHNOLOGY	23,403	18,000	41,403
		Additive manufacturing capabilities for austere operating environments		[15,000]	
		Permafrost research		[3,000]	
39	0603134A	COUNTER IMPROVISED-THREAT SIMULATION	24,747		24,747
40	0603386A	BIOTECHNOLOGY FOR MATERIALS—ADVANCED RESEARCH	53,736		53,736
41	0603457A	C3I CYBER ADVANCED DEVELOPMENT	31,426		31,426
42	0603461A	HIGH PERFORMANCE COMPUTING MODERNIZATION PROGRAM	189,123	5,000	194,123
		High performance computing modernization program		[5,000]	
43	0603462A	NEXT GENERATION COMBAT VEHICLE ADVANCED TECHNOLOGY	164,951	10,000	174,951
		Combat vehicle lithium battery development		[1,500]	
		Cyber and connected vehicle integration research		[3,500]	
		Robotics development		[5,000]	
44	0603463A	NETWORK C3I ADVANCED TECHNOLOGY	155,867	–13,000	142,867
		Command post modernization		[2,000]	
		Network technology research		[–15,000]	
45	0603464A	LONG RANGE PRECISION FIRES ADVANCED TECHNOLOGY	93,909	5,000	98,909

		Advanced guidance technology		[5,000]	
46	0603465A	FUTURE VERTICAL LIFT ADVANCED TECHNOLOGY	179,677	8,500	188,177
		Future Long Range Assault Aircraft		[3,500]	
		Future vertical lift 20mm chain gun		[5,000]	
47	0603466A	AIR AND MISSILE DEFENSE ADVANCED TECHNOLOGY	48,826		48,826
48	0603920A	HUMANITARIAN DEMINING	8,649		8,649
		SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT	**1,297,437**	**33,500**	**1,330,937**
		ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES			
49	0603305A	ARMY MISSILE DEFENSE SYSTEMS INTEGRATION	11,702		11,702
50	0603308A	ARMY SPACE SYSTEMS INTEGRATION	18,755		18,755
52	0603619A	LANDMINE WARFARE AND BARRIER—ADV DEV	50,314		50,314
53	0603639A	TANK AND MEDIUM CALIBER AMMUNITION	79,873		79,873
54	0603645A	ARMORED SYSTEM MODERNIZATION—ADV DEV	170,590		170,590
55	0603747A	SOLDIER SUPPORT AND SURVIVABILITY	2,897		2,897
56	0603766A	TACTICAL ELECTRONIC SURVEILLANCE SYSTEM—ADV DEV	113,365		113,365
57	0603774A	NIGHT VISION SYSTEMS ADVANCED DEVELOPMENT	18,000	3,804	21,804
		Army UFR—Soldier Maneuver Sensors		[3,804]	
58	0603779A	ENVIRONMENTAL QUALITY TECHNOLOGY—DEM/VAL	11,921		11,921
59	0603790A	NATO RESEARCH AND DEVELOPMENT	3,777		3,777
60	0603801A	AVIATION—ADV DEV	1,125,641		1,125,641
61	0603804A	LOGISTICS AND ENGINEER EQUIPMENT—ADV DEV	7,055		7,055
62	0603807A	MEDICAL SYSTEMS—ADV DEV	22,071		22,071
63	0603827A	SOLDIER SYSTEMS—ADVANCED DEVELOPMENT	17,459	2,900	20,359
		Development of anthropomorphic armor for female servicemembers		[2,900]	
64	0604017A	ROBOTICS DEVELOPMENT	87,198		87,198
65	0604019A	EXPANDED MISSION AREA MISSILE (EMAM)	50,674		50,674
67	0604035A	LOW EARTH ORBIT (LEO) SATELLITE CAPABILITY	19,638		19,638
68	0604036A	MULTI-DOMAIN SENSING SYSTEM (MDSS) ADV DEV	50,548		50,548
69	0604037A	TACTICAL INTEL TARGETING ACCESS NODE (TITAN) ADV DEV	28,347		28,347
70	0604100A	ANALYSIS OF ALTERNATIVES	10,091		10,091
71	0604101A	SMALL UNMANNED AERIAL VEHICLE (SUAV) (6.4)	926		926

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Line	Program Element	Item	FY 2022 Request	Senate Change	Senate Authorized
72	0604113A	FUTURE TACTICAL UNMANNED AIRCRAFT SYSTEM (FTUAS)	69,697	6,000	75,697
		Army UFR—Acceleration of FTUAS		[6,000]	
73	0604114A	LOWER TIER AIR MISSILE DEFENSE (LTAMD) SENSOR	327,690		327,690
74	0604115A	TECHNOLOGY MATURATION INITIATIVES	270,124		270,124
75	0604117A	MANEUVER—SHORT RANGE AIR DEFENSE (M-SHORAD)	39,376		39,376
76	0604119A	ARMY ADVANCED COMPONENT DEVELOPMENT & PROTOTYPING	189,483		189,483
77	0604120A	ASSURED POSITIONING, NAVIGATION AND TIMING (PNT)	96,679		96,679
78	0604121A	SYNTHETIC TRAINING ENVIRONMENT REFINEMENT & PROTOTYPING	194,195	4,600	198,795
		Synthetic training enviroment		[4,600]	
79	0604134A	COUNTER IMPROVISED-THREAT DEMONSTRATION, PROTOTYPE DEVELOPMENT, AND TESTING	13,379		13,379
80	0604182A	HYPERSONICS	300,928		300,928
81	0604403A	FUTURE INTERCEPTOR	7,895		7,895
82	0604531A	COUNTER—SMALL UNMANNED AIRCRAFT SYSTEMS ADVANCED DEVELOPMENT	19,148		19,148
83	0604541A	UNIFIED NETWORK TRANSPORT	35,409		35,409
84	0604644A	MOBILE MEDIUM RANGE MISSILE	286,457		286,457
85	0604785A	INTEGRATED BASE DEFENSE (BUDGET ACTIVITY 4)	2,040		2,040
86	0305251A	CYBERSPACE OPERATIONS FORCES AND FORCE SUPPORT	52,988		52,988
		SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES	**3,806,330**	**17,304**	**3,823,634**
		SYSTEM DEVELOPMENT & DEMONSTRATION			
89	0604201A	AIRCRAFT AVIONICS	6,654		6,654
90	0604270A	ELECTRONIC WARFARE DEVELOPMENT	30,840		30,840
91	0604601A	INFANTRY SUPPORT WEAPONS	67,873		67,873
92	0604604A	MEDIUM TACTICAL VEHICLES	11,374		11,374
93	0604611A	JAVELIN	7,094		7,094
94	0604622A	FAMILY OF HEAVY TACTICAL VEHICLES	31,602		31,602
95	0604633A	AIR TRAFFIC CONTROL	4,405		4,405

96	0604642A	LIGHT TACTICAL WHEELED VEHICLES	2,055	5,600	7,655
		Army UFR—Electric light reconnaissance vehicle		[5,600]	
97	0604645A	ARMORED SYSTEMS MODERNIZATION (ASM)—ENG DEV	137,256		137,256
98	0604710A	NIGHT VISION SYSTEMS—ENG DEV	62,690		62,690
99	0604713A	COMBAT FEEDING, CLOTHING, AND EQUIPMENT	1,658		1,658
100	0604715A	NON-SYSTEM TRAINING DEVICES—ENG DEV	26,540		26,540
101	0604741A	AIR DEFENSE COMMAND, CONTROL AND INTELLIGENCE—ENG DEV	59,518		59,518
102	0604742A	CONSTRUCTIVE SIMULATION SYSTEMS DEVELOPMENT	22,331		22,331
103	0604746A	AUTOMATIC TEST EQUIPMENT DEVELOPMENT	8,807		8,807
104	0604760A	DISTRIBUTIVE INTERACTIVE SIMULATIONS (DIS)—ENG DEV	7,453		7,453
107	0604798A	BRIGADE ANALYSIS, INTEGRATION AND EVALUATION	21,534		21,534
108	0604802A	WEAPONS AND MUNITIONS—ENG DEV	309,778		309,778
109	0604804A	LOGISTICS AND ENGINEER EQUIPMENT—ENG DEV	59,261		59,261
110	0604805A	COMMAND, CONTROL, COMMUNICATIONS SYSTEMS—ENG DEV	20,121		20,121
111	0604807A	MEDICAL MATERIEL/MEDICAL BIOLOGICAL DEFENSE EQUIPMENT—ENG DEV	44,424		44,424
112	0604808A	LANDMINE WARFARE/BARRIER—ENG DEV	14,137		14,137
113	0604818A	ARMY TACTICAL COMMAND & CONTROL HARDWARE & SOFTWARE	162,704		162,704
114	0604820A	RADAR DEVELOPMENT	127,919		127,919
115	0604822A	GENERAL FUND ENTERPRISE BUSINESS SYSTEM (GFEBS)	17,623		17,623
117	0604827A	SOLDIER SYSTEMS—WARRIOR DEM/VAL	6,454		6,454
118	0604852A	SUITE OF SURVIVABILITY ENHANCEMENT SYSTEMS—EMD	106,354	21,000	127,354
		Army UFR—Active protection systems for Bradley and Stryker		[21,000]	
120	0605013A	INFORMATION TECHNOLOGY DEVELOPMENT	122,168		122,168
121	0605018A	INTEGRATED PERSONNEL AND PAY SYSTEM-ARMY (IPPS-A)	76,936		76,936
122	0605028A	ARMORED MULTI-PURPOSE VEHICLE (AMPV)	35,560		35,560
124	0605030A	JOINT TACTICAL NETWORK CENTER (JTNC)	16,364		16,364
125	0605031A	JOINT TACTICAL NETWORK (JTN)	28,954		28,954
128	0605035A	COMMON INFRARED COUNTERMEASURES (CIRCM)	16,630		16,630
130	0605038A	NUCLEAR BIOLOGICAL CHEMICAL RECONNAISSANCE VEHICLE (NBCRV) SENSOR SUITE	7,618		7,618
131	0605041A	DEFENSIVE CYBER TOOL DEVELOPMENT	18,892	–5,000	13,892
		Cyber situational understanding reduction		[–5,000]	
132	0605042A	TACTICAL NETWORK RADIO SYSTEMS (LOW-TIER)	28,849		28,849

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133	0605047A	CONTRACT WRITING SYSTEM	22,960	–10,000	12,960
		Program reduction		[–10,000]	
135	0605051A	AIRCRAFT SURVIVABILITY DEVELOPMENT	65,603		65,603
136	0605052A	INDIRECT FIRE PROTECTION CAPABILITY INC 2—BLOCK 1	233,512		233,512
137	0605053A	GROUND ROBOTICS	18,241		18,241
138	0605054A	EMERGING TECHNOLOGY INITIATIVES	254,945		254,945
139	0605143A	BIOMETRICS ENABLING CAPABILITY (BEC)	4,326		4,326
140	0605144A	NEXT GENERATION LOAD DEVICE—MEDIUM	15,616		15,616
141	0605145A	MEDICAL PRODUCTS AND SUPPORT SYSTEMS DEVELOPMENT	962		962
142	0605148A	TACTICAL INTEL TARGETING ACCESS NODE (TITAN) EMD	54,972		54,972
143	0605203A	ARMY SYSTEM DEVELOPMENT & DEMONSTRATION	122,175		122,175
144	0605205A	SMALL UNMANNED AERIAL VEHICLE (SUAV) (6.5)	2,275		2,275
145	0605224A	MULTI-DOMAIN INTELLIGENCE	9,313		9,313
146	0605225A	SIO CAPABILITY DEVELOPMENT	22,713		22,713
147	0605231A	PRECISION STRIKE MISSILE (PRSM)	188,452		188,452
148	0605232A	HYPERSONICS EMD	111,473		111,473
149	0605233A	ACCESSIONS INFORMATION ENVIRONMENT (AIE)	18,790		18,790
150	0605450A	JOINT AIR-TO-GROUND MISSILE (JAGM)	2,134		2,134
151	0605457A	ARMY INTEGRATED AIR AND MISSILE DEFENSE (AIAMD)	157,873		157,873
152	0605531A	COUNTER—SMALL UNMANNED AIRCRAFT SYSTEMS SYS DEV & DEMONSTRATION	33,386		33,386
153	0605625A	MANNED GROUND VEHICLE	225,106		225,106
154	0605766A	NATIONAL CAPABILITIES INTEGRATION (MIP)	14,454		14,454
155	0605812A	JOINT LIGHT TACTICAL VEHICLE (JLTV) ENGINEERING AND MANUFACTURING DEVELOPMENT PH	2,564		2,564
156	0605830A	AVIATION GROUND SUPPORT EQUIPMENT	1,201		1,201
157	0303032A	TROJAN—RH12	3,362		3,362
161	0304270A	ELECTRONIC WARFARE DEVELOPMENT	75,520	16,840	92,360
		Army UFR—Terrestrial Layer System (TLS) Echelon Above Brigade (EAB)		[16,840]	

		SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION	**3,392,358**	**28,440**	**3,420,798**
		MANAGEMENT SUPPORT			
162	0604256A	THREAT SIMULATOR DEVELOPMENT	18,439		18,439
163	0604258A	TARGET SYSTEMS DEVELOPMENT	17,404		17,404
164	0604759A	MAJOR T&E INVESTMENT	68,139		68,139
165	0605103A	RAND ARROYO CENTER	33,126		33,126
166	0605301A	ARMY KWAJALEIN ATOLL	240,877	27,000	267,877
		Army UFR—Preserve Kwajalein Atoll quality of life		[27,000]	
167	0605326A	CONCEPTS EXPERIMENTATION PROGRAM	79,710		79,710
169	0605601A	ARMY TEST RANGES AND FACILITIES	354,227		354,227
170	0605602A	ARMY TECHNICAL TEST INSTRUMENTATION AND TARGETS	49,253		49,253
171	0605604A	SURVIVABILITY/LETHALITY ANALYSIS	36,389		36,389
172	0605606A	AIRCRAFT CERTIFICATION	2,489		2,489
173	0605702A	METEOROLOGICAL SUPPORT TO RDT&E ACTIVITIES	6,689		6,689
174	0605706A	MATERIEL SYSTEMS ANALYSIS	21,558		21,558
175	0605709A	EXPLOITATION OF FOREIGN ITEMS	13,631		13,631
176	0605712A	SUPPORT OF OPERATIONAL TESTING	55,122		55,122
177	0605716A	ARMY EVALUATION CENTER	65,854		65,854
178	0605718A	ARMY MODELING & SIM X-CMD COLLABORATION & INTEG	2,633		2,633
179	0605801A	PROGRAMWIDE ACTIVITIES	96,589		96,589
180	0605803A	TECHNICAL INFORMATION ACTIVITIES	26,808		26,808
181	0605805A	MUNITIONS STANDARDIZATION, EFFECTIVENESS AND SAFETY	43,042		43,042
182	0605857A	ENVIRONMENTAL QUALITY TECHNOLOGY MGMT SUPPORT	1,789		1,789
183	0605898A	ARMY DIRECT REPORT HEADQUARTERS—R&D - MHA	52,108		52,108
185	0606002A	RONALD REAGAN BALLISTIC MISSILE DEFENSE TEST SITE	80,952		80,952
186	0606003A	COUNTERINTEL AND HUMAN INTEL MODERNIZATION	5,363		5,363
187	0606105A	MEDICAL PROGRAM-WIDE ACTIVITIES	39,041		39,041
188	0606942A	ASSESSMENTS AND EVALUATIONS CYBER VULNERABILITIES	5,466		5,466
		SUBTOTAL MANAGEMENT SUPPORT	**1,416,698**	**27,000**	**1,443,698**
		OPERATIONAL SYSTEMS DEVELOPMENT			

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190	0603778A	MLRS PRODUCT IMPROVEMENT PROGRAM	12,314		12,314
191	0605024A	ANTI-TAMPER TECHNOLOGY SUPPORT	8,868		8,868
192	0607131A	WEAPONS AND MUNITIONS PRODUCT IMPROVEMENT PROGRAMS	22,828		22,828
194	0607136A	BLACKHAWK PRODUCT IMPROVEMENT PROGRAM	4,773		4,773
195	0607137A	CHINOOK PRODUCT IMPROVEMENT PROGRAM	52,372	18,000	70,372
		CH–47 Chinook cargo on/off loading system		[8,000]	
		Program increase		[10,000]	
196	0607139A	IMPROVED TURBINE ENGINE PROGRAM	275,024		275,024
197	0607142A	AVIATION ROCKET SYSTEM PRODUCT IMPROVEMENT AND DEVELOPMENT	12,417		12,417
198	0607143A	UNMANNED AIRCRAFT SYSTEM UNIVERSAL PRODUCTS	4,594		4,594
199	0607145A	APACHE FUTURE DEVELOPMENT	10,067	15,000	25,067
		Program increase		[15,000]	
200	0607148A	AN/TPQ–53 COUNTERFIRE TARGET ACQUISITION RADAR SYSTEM	56,681		56,681
201	0607150A	INTEL CYBER DEVELOPMENT	3,611	8,860	12,471
		Army UFR—Cyber-Info Dominance Center		[8,860]	
202	0607312A	ARMY OPERATIONAL SYSTEMS DEVELOPMENT	28,029		28,029
203	0607313A	ELECTRONIC WARFARE DEVELOPMENT	5,673		5,673
204	0607665A	FAMILY OF BIOMETRICS	1,178		1,178
205	0607865A	PATRIOT PRODUCT IMPROVEMENT	125,932		125,932
206	0203728A	JOINT AUTOMATED DEEP OPERATION COORDINATION SYSTEM (JADOCS)	25,547		25,547
207	0203735A	COMBAT VEHICLE IMPROVEMENT PROGRAMS	211,523	64,100	275,623
		Abrams tank modernization		[64,100]	
208	0203743A	155MM SELF-PROPELLED HOWITZER IMPROVEMENTS	213,281		213,281
210	0203752A	AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM	132		132
211	0203758A	DIGITIZATION	3,936		3,936
212	0203801A	MISSILE/AIR DEFENSE PRODUCT IMPROVEMENT PROGRAM	127		127
213	0203802A	OTHER MISSILE PRODUCT IMPROVEMENT PROGRAMS	10,265		10,265

214	0205412A	ENVIRONMENTAL QUALITY TECHNOLOGY—OPERATIONAL SYSTEM DEV	262		262
215	0205456A	LOWER TIER AIR AND MISSILE DEFENSE (AMD) SYSTEM	182		182
216	0205778A	GUIDED MULTIPLE-LAUNCH ROCKET SYSTEM (GMLRS)	63,937		63,937
217	0208053A	JOINT TACTICAL GROUND SYSTEM	13,379		13,379
219	0303028A	SECURITY AND INTELLIGENCE ACTIVITIES	24,531		24,531
220	0303140A	INFORMATION SYSTEMS SECURITY PROGRAM	15,720	–5,000	10,720
		Identity, credentialing, and access management reduction		[–5,000]	
221	0303141A	GLOBAL COMBAT SUPPORT SYSTEM	52,739	9,000	61,739
		Army UFR—ERP convergence/modernization		[9,000]	
222	0303142A	SATCOM GROUND ENVIRONMENT (SPACE)	15,247		15,247
226	0305179A	INTEGRATED BROADCAST SERVICE (IBS)	5,430		5,430
227	0305204A	TACTICAL UNMANNED AERIAL VEHICLES	8,410		8,410
228	0305206A	AIRBORNE RECONNAISSANCE SYSTEMS	24,460		24,460
233	0307665A	BIOMETRICS ENABLED INTELLIGENCE	2,066		2,066
234	0708045A	END ITEM INDUSTRIAL PREPAREDNESS ACTIVITIES	61,720		61,720
999	9999999999	CLASSIFIED PROGRAMS	2,993		2,993
		SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT	**1,380,248**	**109,960**	**1,490,208**
		SOFTWARE AND DIGITAL TECHNOLOGY PILOT PROGRAMS			
237	0608041A	DEFENSIVE CYBER—SOFTWARE PROTOTYPE DEVELOPMENT	118,811		118,811
		SUBTOTAL SOFTWARE AND DIGITAL TECHNOLOGY PILOT PROGRAMS	**118,811**	**0**	**118,811**
		TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, ARMY	**12,799,645**	**306,204**	**13,105,849**
		RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY			
		BASIC RESEARCH			
1	0601103N	UNIVERSITY RESEARCH INITIATIVES	117,448	33,000	150,448
		High-performance computation and data equipment		[3,000]	
		University research programs		[30,000]	
3	0601153N	DEFENSE RESEARCH SCIENCES	484,421		484,421
		SUBTOTAL BASIC RESEARCH	**601,869**	**33,000**	**634,869**

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Line	Program Element	Item	FY 2022 Request	Senate Change	Senate Authorized
		APPLIED RESEARCH			
4	0602114N	POWER PROJECTION APPLIED RESEARCH	23,013	3,000	26,013
		Graphene electro-active metamaterials		[3,000]	
5	0602123N	FORCE PROTECTION APPLIED RESEARCH	122,888	5,000	127,888
		Relative positioning of autonomous platforms		[3,000]	
		Resilient Innovative Sustainable Economies via University Partnerships (RISE-UP)		[2,000]	
6	0602131M	MARINE CORPS LANDING FORCE TECHNOLOGY	51,112		51,112
7	0602235N	COMMON PICTURE APPLIED RESEARCH	51,477		51,477
8	0602236N	WARFIGHTER SUSTAINMENT APPLIED RESEARCH	70,547	5,500	76,047
		Anti-corrosion nanotechnologies		[3,000]	
		Humanoid robotics research		[2,500]	
9	0602271N	ELECTROMAGNETIC SYSTEMS APPLIED RESEARCH	85,157		85,157
10	0602435N	OCEAN WARFIGHTING ENVIRONMENT APPLIED RESEARCH	70,086		70,086
11	0602651M	JOINT NON-LETHAL WEAPONS APPLIED RESEARCH	6,405		6,405
12	0602747N	UNDERSEA WARFARE APPLIED RESEARCH	57,484	22,000	79,484
		Undersea vehicle research academic partnerships		[12,000]	
		Undersea warfare applied research		[10,000]	
13	0602750N	FUTURE NAVAL CAPABILITIES APPLIED RESEARCH	173,356		173,356
14	0602782N	MINE AND EXPEDITIONARY WARFARE APPLIED RESEARCH	32,160		32,160
15	0602792N	INNOVATIVE NAVAL PROTOTYPES (INP) APPLIED RESEARCH	152,976		152,976
16	0602861N	SCIENCE AND TECHNOLOGY MANAGEMENT—ONR FIELD ACITIVITIES	79,254		79,254
		SUBTOTAL APPLIED RESEARCH	**975,915**	**35,500**	**1,011,415**
		ADVANCED TECHNOLOGY DEVELOPMENT			
17	0603123N	FORCE PROTECTION ADVANCED TECHNOLOGY	21,661		21,661
18	0603271N	ELECTROMAGNETIC SYSTEMS ADVANCED TECHNOLOGY	8,146		8,146
19	0603640M	USMC ADVANCED TECHNOLOGY DEMONSTRATION (ATD)	224,155	20,300	244,455

		Marine Corps UFR—Maritime Targeting Cell-Expeditionary		[5,300]	
		Marine Corps UFR—Unmanned adversary technology investment		[10,000]	
		Unmanned systems interoperability		[5,000]	
20	0603651M	JOINT NON-LETHAL WEAPONS TECHNOLOGY DEVELOPMENT	13,429		13,429
21	0603673N	FUTURE NAVAL CAPABILITIES ADVANCED TECHNOLOGY DEVELOPMENT	265,299		265,299
22	0603680N	MANUFACTURING TECHNOLOGY PROGRAM	57,236		57,236
23	0603729N	WARFIGHTER PROTECTION ADVANCED TECHNOLOGY	4,935		4,935
24	0603758N	NAVY WARFIGHTING EXPERIMENTS AND DEMONSTRATIONS	47,167		47,167
25	0603782N	MINE AND EXPEDITIONARY WARFARE ADVANCED TECHNOLOGY	1,981		1,981
26	0603801N	INNOVATIVE NAVAL PROTOTYPES (INP) ADVANCED TECHNOLOGY DEVELOPMENT	133,779	–20,000	113,779
		Naval prototypes reduction		[–20,000]	
		SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT	**777,788**	**300**	**778,088**
		ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES			
27	0603128N	UNMANNED AERIAL SYSTEM	16,879	45,000	61,879
		Marine Corps UFR—MQ–9 payload upgrade		[20,000]	
		Medium-altitude, long-endurance manned-unmanned experimentation		[25,000]	
28	0603178N	MEDIUM AND LARGE UNMANNED SURFACE VEHICLES (USVS)	144,846		144,846
29	0603207N	AIR/OCEAN TACTICAL APPLICATIONS	27,849		27,849
30	0603216N	AVIATION SURVIVABILITY	16,815		16,815
31	0603239N	NAVAL CONSTRUCTION FORCES	5,290		5,290
33	0603254N	ASW SYSTEMS DEVELOPMENT	17,612		17,612
34	0603261N	TACTICAL AIRBORNE RECONNAISSANCE	3,111		3,111
35	0603382N	ADVANCED COMBAT SYSTEMS TECHNOLOGY	32,310		32,310
36	0603502N	SURFACE AND SHALLOW WATER MINE COUNTERMEASURES	58,013		58,013
37	0603506N	SURFACE SHIP TORPEDO DEFENSE	1,862		1,862
38	0603512N	CARRIER SYSTEMS DEVELOPMENT	7,182		7,182
39	0603525N	PILOT FISH	408,087	76,600	484,687
		Navy UFR—Classified		[76,600]	
40	0603527N	RETRACT LARCH	44,197		44,197
41	0603536N	RETRACT JUNIPER	144,541		144,541
42	0603542N	RADIOLOGICAL CONTROL	761		761

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43	0603553N	SURFACE ASW	1,144		1,144
44	0603561N	ADVANCED SUBMARINE SYSTEM DEVELOPMENT	99,782		99,782
45	0603562N	SUBMARINE TACTICAL WARFARE SYSTEMS	14,059		14,059
46	0603563N	SHIP CONCEPT ADVANCED DESIGN	111,590		111,590
47	0603564N	SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES	106,957		106,957
48	0603570N	ADVANCED NUCLEAR POWER SYSTEMS	203,572		203,572
49	0603573N	ADVANCED SURFACE MACHINERY SYSTEMS	78,122		78,122
50	0603576N	CHALK EAGLE	80,270		80,270
51	0603581N	LITTORAL COMBAT SHIP (LCS)	84,924		84,924
52	0603582N	COMBAT SYSTEM INTEGRATION	17,322		17,322
53	0603595N	OHIO REPLACEMENT	296,231		296,231
54	0603596N	LCS MISSION MODULES	75,995		75,995
55	0603597N	AUTOMATED TEST AND RE-TEST (ATRT)	7,805		7,805
56	0603599N	FRIGATE DEVELOPMENT	109,459		109,459
57	0603609N	CONVENTIONAL MUNITIONS	7,296		7,296
58	0603635M	MARINE CORPS GROUND COMBAT/SUPPORT SYSTEM	77,065		77,065
59	0603654N	JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT	34,785		34,785
60	0603713N	OCEAN ENGINEERING TECHNOLOGY DEVELOPMENT	8,774		8,774
61	0603721N	ENVIRONMENTAL PROTECTION	20,677		20,677
62	0603724N	NAVY ENERGY PROGRAM	33,824		33,824
63	0603725N	FACILITIES IMPROVEMENT	6,327		6,327
64	0603734N	CHALK CORAL	579,389		579,389
65	0603739N	NAVY LOGISTIC PRODUCTIVITY	669		669
66	0603746N	RETRACT MAPLE	295,295		295,295
67	0603748N	LINK PLUMERIA	692,280		692,280
68	0603751N	RETRACT ELM	83,904		83,904
69	0603764M	LINK EVERGREEN	221,253	43,200	264,453

		Marine Corps UFR—Additional development		[43,200]	
71	0603790N	NATO RESEARCH AND DEVELOPMENT	5,805		5,805
72	0603795N	LAND ATTACK TECHNOLOGY	4,017		4,017
73	0603851M	JOINT NON-LETHAL WEAPONS TESTING	29,589		29,589
74	0603860N	JOINT PRECISION APPROACH AND LANDING SYSTEMS—DEM/VAL	24,450		24,450
75	0603925N	DIRECTED ENERGY AND ELECTRIC WEAPON SYSTEMS	81,803	88,300	170,103
		Navy UFR—HELIOS SNLWS Increment1.5		[88,300]	
76	0604014N	F/A –18 INFRARED SEARCH AND TRACK (IRST)	48,793		48,793
77	0604027N	DIGITAL WARFARE OFFICE	46,769	11,500	58,269
		Navy UFR—Accelerate Naval Tactical Grid Development for Joint All-Domain Command and Control (JADC2).		[11,500]	
78	0604028N	SMALL AND MEDIUM UNMANNED UNDERSEA VEHICLES	84,676		84,676
79	0604029N	UNMANNED UNDERSEA VEHICLE CORE TECHNOLOGIES	59,299		59,299
81	0604031N	LARGE UNMANNED UNDERSEA VEHICLES	88,063		88,063
82	0604112N	GERALD R. FORD CLASS NUCLEAR AIRCRAFT CARRIER (CVN 78—80)	121,509		121,509
83	0604126N	LITTORAL AIRBORNE MCM	18,669		18,669
84	0604127N	SURFACE MINE COUNTERMEASURES	13,655		13,655
85	0604272N	TACTICAL AIR DIRECTIONAL INFRARED COUNTERMEASURES (TADIRCM)	33,246		33,246
86	0604289M	NEXT GENERATION LOGISTICS	1,071		1,071
87	0604292N	FUTURE VERTICAL LIFT (MARITIME STRIKE)	9,825		9,825
88	0604320M	RAPID TECHNOLOGY CAPABILITY PROTOTYPE	6,555		6,555
89	0604454N	LX (R)	3,344		3,344
90	0604536N	ADVANCED UNDERSEA PROTOTYPING	58,473		58,473
91	0604636N	COUNTER UNMANNED AIRCRAFT SYSTEMS (C-UAS)	5,529		5,529
92	0604659N	PRECISION STRIKE WEAPONS DEVELOPMENT PROGRAM	97,944		97,944
93	0604707N	SPACE AND ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT	9,340		9,340
94	0604786N	OFFENSIVE ANTI-SURFACE WARFARE WEAPON DEVELOPMENT	127,756		127,756
95	0605512N	MEDIUM UNMANNED SURFACE VEHICLES (MUSVS))	60,028		60,028
96	0605513N	UNMANNED SURFACE VEHICLE ENABLING CAPABILITIES	170,838		170,838
97	0605514M	GROUND BASED ANTI-SHIP MISSILE (MARFORRES)	102,716		102,716
98	0605516M	LONG RANGE FIRES (MARFORRES)	88,479		88,479
99	0605518N	CONVENTIONAL PROMPT STRIKE (CPS)	1,372,340	126,000	1,498,340

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		Navy UFR—Additional CPS development		[126,000]	
100	0303354N	ASW SYSTEMS DEVELOPMENT—MIP	8,571		8,571
101	0304240M	ADVANCED TACTICAL UNMANNED AIRCRAFT SYSTEM	16,204		16,204
102	0304270N	ELECTRONIC WARFARE DEVELOPMENT—MIP	506		506
		SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES	**7,077,987**	**390,600**	**7,468,587**
		SYSTEM DEVELOPMENT & DEMONSTRATION			
103	0603208N	TRAINING SYSTEM AIRCRAFT	5,864		5,864
104	0604212N	OTHER HELO DEVELOPMENT	56,444		56,444
105	0604214M	AV–8B AIRCRAFT—ENG DEV	10,146		10,146
106	0604215N	STANDARDS DEVELOPMENT	4,082		4,082
107	0604216N	MULTI-MISSION HELICOPTER UPGRADE DEVELOPMENT	46,418		46,418
108	0604221N	P–3 MODERNIZATION PROGRAM	579		579
109	0604230N	WARFARE SUPPORT SYSTEM	10,167		10,167
110	0604231N	COMMAND AND CONTROL SYSTEMS	122,913	39,200	162,113
		Navy UFR—Naval Operational Business Logistics Enterprise (NOBLE)		[39,200]	
111	0604234N	ADVANCED HAWKEYE	386,860		386,860
112	0604245M	H–1 UPGRADES	50,158		50,158
113	0604261N	ACOUSTIC SEARCH SENSORS	46,066		46,066
114	0604262N	V–22A	107,984		107,984
115	0604264N	AIR CREW SYSTEMS DEVELOPMENT	22,746		22,746
116	0604269N	EA–18	68,425		68,425
117	0604270N	ELECTRONIC WARFARE DEVELOPMENT	139,535	12,000	151,535
		Marine Corps UFR—Integration of EM spectrum ops into AN/ALQ–231(V)		[6,500]	
		Marine Corps UFR—Integration of multi-domain capabilities into AN/ALQ–231(V)		[5,500]	
118	0604273M	EXECUTIVE HELO DEVELOPMENT	45,932		45,932
119	0604274N	NEXT GENERATION JAMMER (NGJ)	243,923		243,923

120	0604280N	JOINT TACTICAL RADIO SYSTEM—NAVY (JTRS-NAVY)	234,434	8,300	242,734
		Navy UFR—Accelerate Naval Tactical Grid Development for Joint All-Domain Command and Control (JADC2).		[8,300]	
121	0604282N	NEXT GENERATION JAMMER (NGJ) INCREMENT II	248,096		248,096
122	0604307N	SURFACE COMBATANT COMBAT SYSTEM ENGINEERING	371,575		371,575
123	0604311N	LPD–17 CLASS SYSTEMS INTEGRATION	904		904
124	0604329N	SMALL DIAMETER BOMB (SDB)	46,769		46,769
125	0604366N	STANDARD MISSILE IMPROVEMENTS	343,511		343,511
126	0604373N	AIRBORNE MCM	10,881		10,881
127	0604378N	NAVAL INTEGRATED FIRE CONTROL—COUNTER AIR SYSTEMS ENGINEERING	46,121	13,000	59,121
		Stratospheric balloon research		[13,000]	
128	0604419N	ADVANCED SENSORS APPLICATION PROGRAM (ASAP)	0	15,000	15,000
		Program increase		[15,000]	
129	0604501N	ADVANCED ABOVE WATER SENSORS	77,852		77,852
130	0604503N	SSN–688 AND TRIDENT MODERNIZATION	95,693		95,693
131	0604504N	AIR CONTROL	27,499		27,499
132	0604512N	SHIPBOARD AVIATION SYSTEMS	8,924		8,924
133	0604518N	COMBAT INFORMATION CENTER CONVERSION	11,631		11,631
134	0604522N	AIR AND MISSILE DEFENSE RADAR (AMDR) SYSTEM	96,556		96,556
135	0604530N	ADVANCED ARRESTING GEAR (AAG)	147		147
136	0604558N	NEW DESIGN SSN	503,252		503,252
137	0604562N	SUBMARINE TACTICAL WARFARE SYSTEM	62,115		62,115
138	0604567N	SHIP CONTRACT DESIGN/ LIVE FIRE T&E	54,829		54,829
139	0604574N	NAVY TACTICAL COMPUTER RESOURCES	4,290		4,290
140	0604601N	MINE DEVELOPMENT	76,027		76,027
141	0604610N	LIGHTWEIGHT TORPEDO DEVELOPMENT	94,386		94,386
142	0604654N	JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT	8,348		8,348
143	0604657M	USMC GROUND COMBAT/SUPPORTING ARMS SYSTEMS—ENG DEV	42,144		42,144
144	0604703N	PERSONNEL, TRAINING, SIMULATION, AND HUMAN FACTORS	7,375		7,375
146	0604755N	SHIP SELF DEFENSE (DETECT & CONTROL)	149,433		149,433
147	0604756N	SHIP SELF DEFENSE (ENGAGE: HARD KILL)	87,862		87,862
148	0604757N	SHIP SELF DEFENSE (ENGAGE: SOFT KILL/EW)	69,006		69,006

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149	0604761N	INTELLIGENCE ENGINEERING	20,684		20,684
150	0604771N	MEDICAL DEVELOPMENT	3,967		3,967
151	0604777N	NAVIGATION/ID SYSTEM	48,837		48,837
152	0604800M	JOINT STRIKE FIGHTER (JSF)—EMD	577		577
153	0604800N	JOINT STRIKE FIGHTER (JSF)—EMD	262		262
154	0604850N	SSN(X)	29,829	25,800	55,629
		Navy UFR—SSN(X) non-propulsion development		[25,800]	
155	0605013M	INFORMATION TECHNOLOGY DEVELOPMENT	11,277		11,277
156	0605013N	INFORMATION TECHNOLOGY DEVELOPMENT	243,828	–10,000	233,828
		Contract writing systems reduction		[–10,000]	
157	0605024N	ANTI-TAMPER TECHNOLOGY SUPPORT	8,426		8,426
158	0605180N	TACAMO MODERNIZATION	150,592	367,200	517,792
		Navy UFR—Acceleration of EC–130J–30 TACAMO Recapitalization		[367,200]	
159	0605212M	CH–53K RDTE	256,903		256,903
160	0605215N	MISSION PLANNING	88,128		88,128
161	0605217N	COMMON AVIONICS	60,117	31,900	92,017
		Marine Corps UFR—MANGL Digital Interoperability		[31,900]	
162	0605220N	SHIP TO SHORE CONNECTOR (SSC)	6,320		6,320
163	0605327N	T-AO 205 CLASS	4,336		4,336
164	0605414N	UNMANNED CARRIER AVIATION (UCA)	268,937	87,000	355,937
		Navy UFR—MQ–25 Emissions Control and Manned-Unmanned Teaming		[87,000]	
165	0605450M	JOINT AIR-TO-GROUND MISSILE (JAGM)	356		356
166	0605500N	MULTI-MISSION MARITIME AIRCRAFT (MMA)	27,279		27,279
167	0605504N	MULTI-MISSION MARITIME (MMA) INCREMENT III	173,784		173,784
168	0605611M	MARINE CORPS ASSAULT VEHICLES SYSTEM DEVELOPMENT & DEMONSTRATION	80,709		80,709
169	0605813M	JOINT LIGHT TACTICAL VEHICLE (JLTV) SYSTEM DEVELOPMENT & DEMONSTRATION	2,005		2,005
170	0204202N	DDG–1000	112,576		112,576

174	0304785N	ISR & INFO OPERATIONS	136,140		136,140
175	0306250M	CYBER OPERATIONS TECHNOLOGY DEVELOPMENT	26,318		26,318
		SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION	**5,910,089**	**589,400**	**6,499,489**
		MANAGEMENT SUPPORT			
176	0604256N	THREAT SIMULATOR DEVELOPMENT	20,862		20,862
177	0604258N	TARGET SYSTEMS DEVELOPMENT	12,113		12,113
178	0604759N	MAJOR T&E INVESTMENT	84,617		84,617
179	0605152N	STUDIES AND ANALYSIS SUPPORT—NAVY	3,108		3,108
180	0605154N	CENTER FOR NAVAL ANALYSES	38,590		38,590
183	0605804N	TECHNICAL INFORMATION SERVICES	934		934
184	0605853N	MANAGEMENT, TECHNICAL & INTERNATIONAL SUPPORT	93,966		93,966
185	0605856N	STRATEGIC TECHNICAL SUPPORT	3,538		3,538
186	0605863N	RDT&E SHIP AND AIRCRAFT SUPPORT	135,149		135,149
187	0605864N	TEST AND EVALUATION SUPPORT	429,277		429,277
188	0605865N	OPERATIONAL TEST AND EVALUATION CAPABILITY	24,872		24,872
189	0605866N	NAVY SPACE AND ELECTRONIC WARFARE (SEW) SUPPORT	17,653		17,653
190	0605867N	SEW SURVEILLANCE/RECONNAISSANCE SUPPORT	8,065		8,065
191	0605873M	MARINE CORPS PROGRAM WIDE SUPPORT	47,042		47,042
192	0605898N	MANAGEMENT HQ—R&D	35,614		35,614
193	0606355N	WARFARE INNOVATION MANAGEMENT	38,958		38,958
194	0305327N	INSIDER THREAT	2,581		2,581
195	0902498N	MANAGEMENT HEADQUARTERS (DEPARTMENTAL SUPPORT ACTIVITIES)	1,747		1,747
		SUBTOTAL MANAGEMENT SUPPORT	**998,686**	**0**	**998,686**
		OPERATIONAL SYSTEMS DEVELOPMENT			
199	0604840M	F–35 C2D2	515,746		515,746
200	0604840N	F–35 C2D2	481,962		481,962
201	0605520M	MARINE CORPS AIR DEFENSE WEAPONS SYSTEMS (MARFORRES)	65,381		65,381
202	0607658N	COOPERATIVE ENGAGEMENT CAPABILITY (CEC)	176,486		176,486
203	0101221N	STRATEGIC SUB & WEAPONS SYSTEM SUPPORT	177,098	8,000	185,098
		Strategic weapons system shipboard navigation modernization		[8,000]	

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204	0101224N	SSBN SECURITY TECHNOLOGY PROGRAM	45,775		45,775
205	0101226N	SUBMARINE ACOUSTIC WARFARE DEVELOPMENT	64,752		64,752
206	0101402N	NAVY STRATEGIC COMMUNICATIONS	35,451		35,451
207	0204136N	F/A–18 SQUADRONS	189,224	3,000	192,224
		Neural network algorithms on advanced processors		[3,000]	
208	0204228N	SURFACE SUPPORT	13,733		13,733
209	0204229N	TOMAHAWK AND TOMAHAWK MISSION PLANNING CENTER (TMPC)	132,181		132,181
210	0204311N	INTEGRATED SURVEILLANCE SYSTEM	84,276		84,276
211	0204313N	SHIP-TOWED ARRAY SURVEILLANCE SYSTEMS	6,261		6,261
212	0204413N	AMPHIBIOUS TACTICAL SUPPORT UNITS (DISPLACEMENT CRAFT)	1,657		1,657
213	0204460M	GROUND/AIR TASK ORIENTED RADAR (G/ATOR)	21,367	47,000	68,367
		Marine Corps UFR—Air traffic control Block IV development		[23,000]	
		Marine Corps UFR—Radar signal processor refresh		[12,000]	
		Marine Corps UFR—Software mods to implement NIFC		[12,000]	
214	0204571N	CONSOLIDATED TRAINING SYSTEMS DEVELOPMENT	56,741		56,741
215	0204575N	ELECTRONIC WARFARE (EW) READINESS SUPPORT	62,006		62,006
216	0205601N	ANTI-RADIATION MISSILE IMPROVEMENT	133,520		133,520
217	0205620N	SURFACE ASW COMBAT SYSTEM INTEGRATION	28,804		28,804
218	0205632N	MK–48 ADCAP	114,492		114,492
219	0205633N	AVIATION IMPROVEMENTS	132,486		132,486
220	0205675N	OPERATIONAL NUCLEAR POWER SYSTEMS	113,760		113,760
221	0206313M	MARINE CORPS COMMUNICATIONS SYSTEMS	89,897	2,800	92,697
		Marine Corps UFR—CEC DDS antenna enhancements		[2,800]	
222	0206335M	COMMON AVIATION COMMAND AND CONTROL SYSTEM (CAC2S)	9,324	3,500	12,824
		Marine Corps UFR—Software development for NIFC integration		[3,500]	
223	0206623M	MARINE CORPS GROUND COMBAT/SUPPORTING ARMS SYSTEMS	108,235		108,235
224	0206624M	MARINE CORPS COMBAT SERVICES SUPPORT	13,185		13,185

225	0206625M	USMC INTELLIGENCE/ELECTRONIC WARFARE SYSTEMS (MIP)	37,695	6,600	44,295
		Marine Corps UFR—G-BOSS High Definition modernization		[3,700]	
		Marine Corps UFR—SCINet transition		[2,900]	
226	0206629M	AMPHIBIOUS ASSAULT VEHICLE	7,551		7,551
227	0207161N	TACTICAL AIM MISSILES	23,881		23,881
228	0207163N	ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE (AMRAAM)	32,564		32,564
229	0208043N	PLANNING AND DECISION AID SYSTEM (PDAS)	3,101		3,101
234	0303138N	AFLOAT NETWORKS	30,890	4,800	35,690
		Navy UFR—Accelerate Naval Tactical Grid Development for Joint All-Domain Command and Control (JADC2).		[4,800]	
235	0303140N	INFORMATION SYSTEMS SECURITY PROGRAM	33,311		33,311
236	0305192N	MILITARY INTELLIGENCE PROGRAM (MIP) ACTIVITIES	7,514		7,514
237	0305204N	TACTICAL UNMANNED AERIAL VEHICLES	9,837		9,837
238	0305205N	UAS INTEGRATION AND INTEROPERABILITY	9,797		9,797
239	0305208M	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS	38,800		38,800
240	0305220N	MQ–4C TRITON	13,029		13,029
241	0305231N	MQ–8 UAV	26,543		26,543
242	0305232M	RQ–11 UAV	533		533
243	0305234N	SMALL (LEVEL 0) TACTICAL UAS (STUASL0)	1,772		1,772
245	0305241N	MULTI-INTELLIGENCE SENSOR DEVELOPMENT	59,252		59,252
246	0305242M	UNMANNED AERIAL SYSTEMS (UAS) PAYLOADS (MIP)	9,274		9,274
247	0305251N	CYBERSPACE OPERATIONS FORCES AND FORCE SUPPORT	36,378		36,378
248	0305421N	RQ–4 MODERNIZATION	134,323		134,323
249	0307577N	INTELLIGENCE MISSION DATA (IMD)	907		907
250	0308601N	MODELING AND SIMULATION SUPPORT	9,772		9,772
251	0702207N	DEPOT MAINTENANCE (NON-IF)	36,880		36,880
252	0708730N	MARITIME TECHNOLOGY (MARITECH)	3,329		3,329
999	9999999999	CLASSIFIED PROGRAMS	1,872,586		1,872,586
		SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT	**5,313,319**	**75,700**	**5,389,019**
		SOFTWARE AND DIGITAL TECHNOLOGY PILOT PROGRAMS			
254	0608013N	RISK MANAGEMENT INFORMATION—SOFTWARE PILOT PROGRAM	13,703		13,703

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255	0608113N	NAVY NEXT GENERATION ENTERPRISE NETWORK (NGEN)—SOFTWARE PILOT PROGRAM	955,151		955,151
256	0608231N	MARITIME TACTICAL COMMAND AND CONTROL (MTC2)—SOFTWARE PILOT PROGRAM	14,855		14,855
		SUBTOTAL SOFTWARE AND DIGITAL TECHNOLOGY PILOT PROGRAMS	**983,709**	**0**	**983,709**
		TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY	**22,639,362**	**1,124,500**	**23,763,862**
		RESEARCH, DEVELOPMENT, TEST & EVAL, AF			
		BASIC RESEARCH			
1	0601102F	DEFENSE RESEARCH SCIENCES	328,303		328,303
2	0601103F	UNIVERSITY RESEARCH INITIATIVES	162,403	30,000	192,403
		University research programs		[30,000]	
		SUBTOTAL BASIC RESEARCH	**490,706**	**30,000**	**520,706**
		APPLIED RESEARCH			
4	0602020F	FUTURE AF CAPABILITIES APPLIED RESEARCH	79,901		79,901
5	0602102F	MATERIALS	113,460	12,000	125,460
		Continuous composites 3D printing		[7,000]	
		High energy synchrotron x-ray research		[5,000]	
6	0602201F	AEROSPACE VEHICLE TECHNOLOGIES	163,032	10,000	173,032
		Ground test and development of hypersonic engines		[5,000]	
		Hypersonic flight test services		[5,000]	
7	0602202F	HUMAN EFFECTIVENESS APPLIED RESEARCH	136,273		136,273
8	0602203F	AEROSPACE PROPULSION	174,683	7,000	181,683
		Low-cost small turbine engine research		[7,000]	
9	0602204F	AEROSPACE SENSORS	198,918	250,000	448,918
		Microelectronics research network		[250,000]	
11	0602298F	SCIENCE AND TECHNOLOGY MANAGEMENT— MAJOR HEADQUARTERS ACTIVITIES	8,891		8,891

12	0602602F	CONVENTIONAL MUNITIONS	151,757		151,757
13	0602605F	DIRECTED ENERGY TECHNOLOGY	111,052		111,052
14	0602788F	DOMINANT INFORMATION SCIENCES AND METHODS	169,110		169,110
		SUBTOTAL APPLIED RESEARCH	**1,307,077**	**279,000**	**1,586,077**
		ADVANCED TECHNOLOGY DEVELOPMENT			
17	0603032F	FUTURE AF INTEGRATED TECHNOLOGY DEMOS	131,643	–2,900	128,743
		Procure Valkyrie aircraft		[75,000]	
		Program reduction		[–77,900]	
18	0603112F	ADVANCED MATERIALS FOR WEAPON SYSTEMS	31,905		31,905
19	0603199F	SUSTAINMENT SCIENCE AND TECHNOLOGY (S&T)	21,057		21,057
20	0603203F	ADVANCED AEROSPACE SENSORS	45,464		45,464
21	0603211F	AEROSPACE TECHNOLOGY DEV/DEMO	70,486	2,000	72,486
		B–52 engine pylon fairings		[2,000]	
22	0603216F	AEROSPACE PROPULSION AND POWER TECHNOLOGY	75,273		75,273
23	0603270F	ELECTRONIC COMBAT TECHNOLOGY	46,591		46,591
26	0603456F	HUMAN EFFECTIVENESS ADVANCED TECHNOLOGY DEVELOPMENT	24,589		24,589
27	0603601F	CONVENTIONAL WEAPONS TECHNOLOGY	157,423		157,423
28	0603605F	ADVANCED WEAPONS TECHNOLOGY	28,258		28,258
29	0603680F	MANUFACTURING TECHNOLOGY PROGRAM	45,259	9,000	54,259
		Hypersonics materials manufacturing		[2,000]	
		Sustainment and modernization research and development program		[7,000]	
30	0603788F	BATTLESPACE KNOWLEDGE DEVELOPMENT AND DEMONSTRATION	56,772		56,772
		SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT	**734,720**	**8,100**	**742,820**
		ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES			
31	0603260F	INTELLIGENCE ADVANCED DEVELOPMENT	5,795		5,795
32	0603742F	COMBAT IDENTIFICATION TECHNOLOGY	21,939		21,939
33	0603790F	NATO RESEARCH AND DEVELOPMENT	4,114		4,114
34	0603851F	INTERCONTINENTAL BALLISTIC MISSILE—DEM/VAL	49,621		49,621
36	0604001F	NC3 ADVANCED CONCEPTS	6,900		6,900
37	0604002F	AIR FORCE WEATHER SERVICES RESEARCH	986		986

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38	0604003F	ADVANCED BATTLE MANAGEMENT SYSTEM (ABMS)	203,849		203,849
39	0604004F	ADVANCED ENGINE DEVELOPMENT	123,712	87,000	210,712
		Air Force UFR—Complete two prototype engines		[57,000]	
		Program increase		[30,000]	
40	0604006F	ARCHITECTURE INITIATIVES	82,438	80,000	162,438
		Acceleration of tactical datalink waveform		[80,000]	
41	0604015F	LONG RANGE STRIKE—BOMBER	2,872,624		2,872,624
42	0604032F	DIRECTED ENERGY PROTOTYPING	10,820		10,820
43	0604033F	HYPERSONICS PROTOTYPING	438,378		438,378
44	0604201F	PNT RESILIENCY, MODS, AND IMPROVEMENTS	39,742		39,742
45	0604257F	ADVANCED TECHNOLOGY AND SENSORS	23,745	5,000	28,745
		Air Force automatic target recognition		[5,000]	
46	0604288F	SURVIVABLE AIRBORNE OPERATIONS CENTER	95,788		95,788
47	0604317F	TECHNOLOGY TRANSFER	15,768	7,500	23,268
		Academic technology transfer partnerships		[7,500]	
48	0604327F	HARD AND DEEPLY BURIED TARGET DEFEAT SYSTEM (HDBTDS) PROGRAM	15,886		15,886
49	0604414F	CYBER RESILIENCY OF WEAPON SYSTEMS-ACS	71,229		71,229
50	0604776F	DEPLOYMENT & DISTRIBUTION ENTERPRISE R&D	40,103		40,103
51	0604858F	TECH TRANSITION PROGRAM	343,545	116,800	460,345
		Blended wing body prototype phase 1		[15,000]	
		C–17 active winglets phase 1		[5,000]	
		Cold spray technologies		[5,000]	
		Engine compressor blade coatings		[2,000]	
		KC–135 winglets		[10,000]	
		NORTHCOM UFR—Proliferated low earth orbit Arctic communications		[79,800]	
52	0605230F	GROUND BASED STRATEGIC DETERRENT	2,553,541		2,553,541
54	0207110F	NEXT GENERATION AIR DOMINANCE	1,524,667		1,524,667

56	0207522F	AIRBASE AIR DEFENSE SYSTEMS (ABADS)	10,905		10,905
57	0208030F	WAR RESERVE MATERIEL—AMMUNITION	3,943		3,943
59	0305236F	COMMON DATA LINK EXECUTIVE AGENT (CDL EA)	43,881		43,881
61	0305601F	MISSION PARTNER ENVIRONMENTS	16,420		16,420
62	0306250F	CYBER OPERATIONS TECHNOLOGY SUPPORT	242,499	40,000	282,499
		Coordination with private sector to protect against foreign malicious cyber actors		[15,000]	
		CYBERCOM enhanced attribution transition		[25,000]	
63	0306415F	ENABLED CYBER ACTIVITIES	16,578		16,578
66	0901410F	CONTRACTING INFORMATION TECHNOLOGY SYSTEM	20,343	–10,000	10,343
		Contract writing systems reduction		[–10,000]	
		SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES	**8,899,759**	**326,300**	**9,226,059**
		SYSTEM DEVELOPMENT & DEMONSTRATION			
78	0604200F	FUTURE ADVANCED WEAPON ANALYSIS & PROGRAMS	23,499		23,499
79	0604201F	PNT RESILIENCY, MODS, AND IMPROVEMENTS	167,520		167,520
80	0604222F	NUCLEAR WEAPONS SUPPORT	30,050		30,050
81	0604270F	ELECTRONIC WARFARE DEVELOPMENT	2,110		2,110
82	0604281F	TACTICAL DATA NETWORKS ENTERPRISE	169,836		169,836
83	0604287F	PHYSICAL SECURITY EQUIPMENT	8,469		8,469
85	0604602F	ARMAMENT/ORDNANCE DEVELOPMENT	9,047		9,047
86	0604604F	SUBMUNITIONS	2,954		2,954
87	0604617F	AGILE COMBAT SUPPORT	16,603		16,603
89	0604706F	LIFE SUPPORT SYSTEMS	25,437		25,437
90	0604735F	COMBAT TRAINING RANGES	23,980	13,200	37,180
		Air Force combat training ranges		[7,200]	
		GPS denied training		[3,000]	
		Gulf test range improvement		[3,000]	
92	0604932F	LONG RANGE STANDOFF WEAPON	609,042		609,042
93	0604933F	ICBM FUZE MODERNIZATION	129,709		129,709
95	0605056F	OPEN ARCHITECTURE MANAGEMENT	37,109		37,109
97	0605223F	ADVANCED PILOT TRAINING	188,898		188,898
98	0605229F	HH–60W	66,355		66,355

Line	Program Element	Item	FY 2022 Request	Senate Change	Senate Authorized
101	0207171F	F–15 EPAWSS	112,012		112,012
102	0207328F	STAND IN ATTACK WEAPON	166,570		166,570
103	0207701F	FULL COMBAT MISSION TRAINING	7,064		7,064
105	0401221F	KC–46A TANKER SQUADRONS	73,459	–6,000	67,459
		Future tanker development		[–6,000]	
107	0401319F	VC–25B	680,665		680,665
108	0701212F	AUTOMATED TEST SYSTEMS	15,445		15,445
109	0804772F	TRAINING DEVELOPMENTS	4,482		4,482
		SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION	**2,570,315**	**7,200**	**2,577,515**
		MANAGEMENT SUPPORT			
124	0604256F	THREAT SIMULATOR DEVELOPMENT	41,909		41,909
125	0604759F	MAJOR T&E INVESTMENT	130,766		130,766
126	0605101F	RAND PROJECT AIR FORCE	36,017		36,017
128	0605712F	INITIAL OPERATIONAL TEST & EVALUATION	12,582		12,582
129	0605807F	TEST AND EVALUATION SUPPORT	811,032		811,032
131	0605827F	ACQ WORKFORCE- GLOBAL VIG & COMBAT SYS	243,796		243,796
132	0605828F	ACQ WORKFORCE- GLOBAL REACH	435,930		435,930
133	0605829F	ACQ WORKFORCE- CYBER, NETWORK, & BUS SYS	435,274		435,274
135	0605831F	ACQ WORKFORCE- CAPABILITY INTEGRATION	243,806		243,806
136	0605832F	ACQ WORKFORCE- ADVANCED PRGM TECHNOLOGY	103,041		103,041
137	0605833F	ACQ WORKFORCE- NUCLEAR SYSTEMS	226,055		226,055
138	0605898F	MANAGEMENT HQ—R&D	4,079		4,079
139	0605976F	FACILITIES RESTORATION AND MODERNIZATION—TEST AND EVALUATION SUPPORT	70,788		70,788
140	0605978F	FACILITIES SUSTAINMENT—TEST AND EVALUATION SUPPORT	30,057		30,057
141	0606017F	REQUIREMENTS ANALYSIS AND MATURATION	85,799		85,799
142	0606398F	MANAGEMENT HQ—T&E	6,163		6,163

143	0303166F	SUPPORT TO INFORMATION OPERATIONS (IO) CAPABILITIES	537		537
144	0303255F	COMMAND, CONTROL, COMMUNICATION, AND COMPUTERS (C4)—STRATCOM	25,340	17,000	42,340
		Air Force UFR—Build command and control framework		[12,000]	
		Rapid engineering architecture collaboration hub		[5,000]	
145	0308602F	ENTERPRISE INFORMATION SERVICES (EIS)	28,720		28,720
146	0702806F	ACQUISITION AND MANAGEMENT SUPPORT	37,211		37,211
147	0804731F	GENERAL SKILL TRAINING	1,506		1,506
148	0804772F	TRAINING DEVELOPMENTS	2,957		2,957
150	1001004F	INTERNATIONAL ACTIVITIES	2,420		2,420
156	1206864F	SPACE TEST PROGRAM (STP)	3		3
		SUBTOTAL MANAGEMENT SUPPORT	**3,015,788**	**17,000**	**3,032,788**
		OPERATIONAL SYSTEMS DEVELOPMENT			
157	0604233F	SPECIALIZED UNDERGRADUATE FLIGHT TRAINING	5,509		5,509
158	0604445F	WIDE AREA SURVEILLANCE	2,760		2,760
160	0604840F	F–35 C2D2	985,404	20,000	1,005,404
		Program increase		[20,000]	
161	0605018F	AF INTEGRATED PERSONNEL AND PAY SYSTEM (AF-IPPS)	22,010		22,010
162	0605024F	ANTI-TAMPER TECHNOLOGY EXECUTIVE AGENCY	51,492		51,492
163	0605117F	FOREIGN MATERIEL ACQUISITION AND EXPLOITATION	71,391	–5,000	66,391
		Program reduction		[–5,000]	
164	0605278F	HC/MC–130 RECAP RDT&E	46,796		46,796
165	0606018F	NC3 INTEGRATION	26,532		26,532
167	0101113F	B–52 SQUADRONS	715,811		715,811
168	0101122F	AIR-LAUNCHED CRUISE MISSILE (ALCM)	453		453
169	0101126F	B–1B SQUADRONS	29,127		29,127
170	0101127F	B–2 SQUADRONS	144,047		144,047
171	0101213F	MINUTEMAN SQUADRONS	113,622		113,622
172	0101316F	WORLDWIDE JOINT STRATEGIC COMMUNICATIONS	15,202		15,202
174	0101328F	ICBM REENTRY VEHICLES	96,313		96,313
176	0102110F	UH–1N REPLACEMENT PROGRAM	16,132		16,132
177	0102326F	REGION/SECTOR OPERATION CONTROL CENTER MODERNIZATION PROGRAM	771		771

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

Line	Program Element	Item	FY 2022 Request	Senate Change	Senate Authorized
178	0102412F	NORTH WARNING SYSTEM (NWS)	99	30,100	30,199
		NORTHCOM UFR—Over the horizon radar		[25,100]	
		NORTHCOM UFR—Polar over the horizon radar		[5,000]	
179	0102417F	OVER-THE-HORIZON BACKSCATTER RADAR	42,300		42,300
180	0202834F	VEHICLES AND SUPPORT EQUIPMENT—GENERAL	5,889		5,889
181	0205219F	MQ–9 UAV	85,135		85,135
182	0205671F	JOINT COUNTER RCIED ELECTRONIC WARFARE	3,111		3,111
183	0207040F	MULTI-PLATFORM ELECTRONIC WARFARE EQUIPMENT	36,607		36,607
184	0207131F	A–10 SQUADRONS	39,224		39,224
185	0207133F	F–16 SQUADRONS	224,573		224,573
186	0207134F	F–15E SQUADRONS	239,616		239,616
187	0207136F	MANNED DESTRUCTIVE SUPPRESSION	15,855		15,855
188	0207138F	F–22A SQUADRONS	647,296		647,296
189	0207142F	F–35 SQUADRONS	69,365		69,365
190	0207146F	F–15EX	118,126		118,126
191	0207161F	TACTICAL AIM MISSILES	32,974		32,974
192	0207163F	ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE (AMRAAM)	51,288		51,288
193	0207227F	COMBAT RESCUE—PARARESCUE	852		852
194	0207247F	AF TENCAP	23,685		23,685
195	0207249F	PRECISION ATTACK SYSTEMS PROCUREMENT	12,083		12,083
196	0207253F	COMPASS CALL	91,266		91,266
197	0207268F	AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM	103,715	3,000	106,715
		Additive manufacturing		[3,000]	
198	0207325F	JOINT AIR-TO-SURFACE STANDOFF MISSILE (JASSM)	117,325		117,325
199	0207327F	SMALL DIAMETER BOMB (SDB)	27,109		27,109
201	0207412F	CONTROL AND REPORTING CENTER (CRC)	9,875		9,875
202	0207417F	AIRBORNE WARNING AND CONTROL SYSTEM (AWACS)	171,014		171,014

203	0207418F	AFSPECWAR—TACP	4,598		4,598
205	0207431F	COMBAT AIR INTELLIGENCE SYSTEM ACTIVITIES	21,863		21,863
206	0207438F	THEATER BATTLE MANAGEMENT (TBM) C4I	7,905		7,905
207	0207439F	ELECTRONIC WARFARE INTEGRATED REPROGRAMMING (EWIR)	15,000		15,000
208	0207444F	TACTICAL AIR CONTROL PARTY-MOD	13,081		13,081
209	0207452F	DCAPES	4,305		4,305
210	0207521F	AIR FORCE CALIBRATION PROGRAMS	1,984		1,984
211	0207522F	AIRBASE AIR DEFENSE SYSTEMS (ABADS)	7,392		7,392
212	0207573F	NATIONAL TECHNICAL NUCLEAR FORENSICS	1,971		1,971
213	0207590F	SEEK EAGLE	30,539		30,539
214	0207601F	USAF MODELING AND SIMULATION	17,110		17,110
215	0207605F	WARGAMING AND SIMULATION CENTERS	7,535		7,535
216	0207610F	BATTLEFIELD ABN COMM NODE (BACN)	32,008		32,008
217	0207697F	DISTRIBUTED TRAINING AND EXERCISES	4,007		4,007
218	0208006F	MISSION PLANNING SYSTEMS	92,557		92,557
219	0208007F	TACTICAL DECEPTION	489		489
220	0208064F	OPERATIONAL HQ—CYBER	2,115		2,115
221	0208087F	DISTRIBUTED CYBER WARFARE OPERATIONS	72,487		72,487
222	0208088F	AF DEFENSIVE CYBERSPACE OPERATIONS	18,449		18,449
223	0208097F	JOINT CYBER COMMAND AND CONTROL (JCC2)	79,079		79,079
224	0208099F	UNIFIED PLATFORM (UP)	101,893		101,893
228	0208288F	INTEL DATA APPLICATIONS	493		493
229	0301025F	GEOBASE	2,782		2,782
231	0301113F	CYBER SECURITY INTELLIGENCE SUPPORT	5,224		5,224
238	0301401F	AIR FORCE SPACE AND CYBER NON-TRADITIONAL ISR FOR BATTLESPACE AWARENESS	2,463		2,463
239	0302015F	E–4B NATIONAL AIRBORNE OPERATIONS CENTER (NAOC)	26,331		26,331
240	0303131F	MINIMUM ESSENTIAL EMERGENCY COMMUNICATIONS NETWORK (MEECN)	58,165		58,165
242	0303140F	INFORMATION SYSTEMS SECURITY PROGRAM	8,032	–5,000	3,032
		Identity, credentialing, and access management reduction		[–5,000]	
243	0303142F	GLOBAL FORCE MANAGEMENT—DATA INITIATIVE	452		452
244	0303248F	ALL DOMAIN COMMON PLATFORM	64,000		64,000
246	0304260F	AIRBORNE SIGINT ENTERPRISE	97,546		97,546

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
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Line	Program Element	Item	FY 2022 Request	Senate Change	Senate Authorized
247	0304310F	COMMERCIAL ECONOMIC ANALYSIS	3,770		3,770
251	0305020F	CCMD INTELLIGENCE INFORMATION TECHNOLOGY	1,663		1,663
252	0305022F	ISR MODERNIZATION & AUTOMATION DVMT (IMAD)	18,888		18,888
253	0305099F	GLOBAL AIR TRAFFIC MANAGEMENT (GATM)	4,672		4,672
254	0305103F	CYBER SECURITY INITIATIVE	290		290
255	0305111F	WEATHER SERVICE	26,228	1,000	27,228
		Weather forecasting using machine learning		[1,000]	
256	0305114F	AIR TRAFFIC CONTROL, APPROACH, AND LANDING SYSTEM (ATCALS)	8,749		8,749
257	0305116F	AERIAL TARGETS	1,528	125,000	126,528
		Unmanned adversary air platforms		[125,000]	
260	0305128F	SECURITY AND INVESTIGATIVE ACTIVITIES	223		223
262	0305146F	DEFENSE JOINT COUNTERINTELLIGENCE ACTIVITIES	8,733		8,733
264	0305179F	INTEGRATED BROADCAST SERVICE (IBS)	21,335		21,335
265	0305202F	DRAGON U–2	17,146	57,000	74,146
		Air Force UFR—Antenna replacement		[57,000]	
267	0305206F	AIRBORNE RECONNAISSANCE SYSTEMS	71,791	67,000	138,791
		Air Force UFR—ASARS processor and antenna development		[67,000]	
268	0305207F	MANNED RECONNAISSANCE SYSTEMS	14,799		14,799
269	0305208F	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS	24,568		24,568
270	0305220F	RQ–4 UAV	83,124		83,124
271	0305221F	NETWORK-CENTRIC COLLABORATIVE TARGETING	17,224		17,224
272	0305238F	NATO AGS	19,473		19,473
273	0305240F	SUPPORT TO DCGS ENTERPRISE	40,421		40,421
274	0305600F	INTERNATIONAL INTELLIGENCE TECHNOLOGY AND ARCHITECTURES	14,473		14,473
275	0305881F	RAPID CYBER ACQUISITION	4,326		4,326
276	0305984F	PERSONNEL RECOVERY COMMAND & CTRL (PRC2)	2,567		2,567
277	0307577F	INTELLIGENCE MISSION DATA (IMD)	6,169		6,169

278	0401115F	C–130 AIRLIFT SQUADRON	9,752		9,752
279	0401119F	C–5 AIRLIFT SQUADRONS (IF)	17,507		17,507
280	0401130F	C–17 AIRCRAFT (IF)	16,360		16,360
281	0401132F	C–130J PROGRAM	14,112		14,112
282	0401134F	LARGE AIRCRAFT IR COUNTERMEASURES (LAIRCM)	5,540		5,540
283	0401218F	KC–135S	3,564		3,564
285	0401318F	CV–22	17,189		17,189
286	0408011F	SPECIAL TACTICS / COMBAT CONTROL	6,640		6,640
288	0708055F	MAINTENANCE, REPAIR & OVERHAUL SYSTEM	26,921		26,921
289	0708610F	LOGISTICS INFORMATION TECHNOLOGY (LOGIT)	7,071		7,071
291	0804743F	OTHER FLIGHT TRAINING	1,999		1,999
293	0901202F	JOINT PERSONNEL RECOVERY AGENCY	1,841		1,841
294	0901218F	CIVILIAN COMPENSATION PROGRAM	3,560		3,560
295	0901220F	PERSONNEL ADMINISTRATION	3,368		3,368
296	0901226F	AIR FORCE STUDIES AND ANALYSIS AGENCY	1,248		1,248
297	0901538F	FINANCIAL MANAGEMENT INFORMATION SYSTEMS DEVELOPMENT	4,852		4,852
301	1202140F	SERVICE SUPPORT TO SPACECOM ACTIVITIES	6,737		6,737
999	9999999999	CLASSIFIED PROGRAMS	15,868,973	–45,000	15,823,973
		Program reduction		[–150,000]	
		Project A		[–5,000]	
		Project B		[–5,000]	
		Project C		[–10,000]	
		Project D		[75,000]	
		Project E		[50,000]	
		SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT	**21,743,003**	**248,100**	**21,991,103**
		SOFTWARE AND DIGITAL TECHNOLOGY PILOT PROGRAMS			
317	0608158F	STRATEGIC MISSION PLANNING AND EXECUTION SYSTEM—SOFTWARE PILOT PROGRAM	96,100		96,100
318	0608410F	AIR & SPACE OPERATIONS CENTER (AOC)—SOFTWARE PILOT PROGRAM	186,918		186,918
319	0608920F	DEFENSE ENTERPRISE ACCOUNTING AND MANAGEMENT SYSTEM (DEAMS)—SOFTWARE PILOT PRO.	135,263		135,263
		SUBTOTAL SOFTWARE AND DIGITAL TECHNOLOGY PILOT PROGRAMS	**418,281**	**0**	**418,281**

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

Line	Program Element	Item	FY 2022 Request	Senate Change	Senate Authorized
		TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, AF	**39,179,649**	**915,700**	**40,095,349**
		RDTE, SPACE FORCE			
		APPLIED RESEARCH			
1	1206601SF	SPACE TECHNOLOGY	181,209	23,700	204,909
		Battery cycle life improvements		[3,000]	
		Radiation hardened microelectronics		[5,000]	
		Space Force UFR—Innovation applications		[15,700]	
		SUBTOTAL APPLIED RESEARCH	**181,209**	**23,700**	**204,909**
		ADVANCED TECHNOLOGY DEVELOPMENT			
2	1206616SF	SPACE ADVANCED TECHNOLOGY DEVELOPMENT/DEMO	75,919	71,000	146,919
		Space Force UFR—Accelerate Cislunar flight experiment		[61,000]	
		SPACECOM UFR—Joint space rapid experimentation and demonstration		[10,000]	
		SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT	**75,919**	**71,000**	**146,919**
		ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES			
3	1203164SF	NAVSTAR GLOBAL POSITIONING SYSTEM (USER EQUIPMENT) (SPACE)	434,194		434,194
4	1203710SF	EO/IR WEATHER SYSTEMS	162,274		162,274
5	1203905SF	SPACE SYSTEM SUPPORT	37,000		37,000
6	1206422SF	WEATHER SYSTEM FOLLOW-ON	61,521		61,521
7	1206425SF	SPACE SITUATION AWARENESS SYSTEMS	123,262	7,000	130,262
		Space Force UFR—Maui optical site		[7,000]	
8	1206427SF	SPACE SYSTEMS PROTOTYPE TRANSITIONS (SSPT)	101,851	28,000	129,851
		Space Force UFR—Expand Blackjack radio frequency payloads		[28,000]	
9	1206438SF	SPACE CONTROL TECHNOLOGY	32,931		32,931

10	1206730SF	SPACE SECURITY AND DEFENSE PROGRAM	56,546		56,546
11	1206760SF	PROTECTED TACTICAL ENTERPRISE SERVICE (PTES)	100,320	9,000	109,320
		Space Force UFR—PTES Prototype Development		[9,000]	
12	1206761SF	PROTECTED TACTICAL SERVICE (PTS)	243,285		243,285
13	1206855SF	EVOLVED STRATEGIC SATCOM (ESS)	160,056		160,056
14	1206857SF	SPACE RAPID CAPABILITIES OFFICE	66,193		66,193
		SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES	**1,579,433**	**44,000**	**1,623,433**
		SYSTEM DEVELOPMENT & DEMONSTRATION			
15	1203269SF	GPS III FOLLOW-ON (GPS IIIF)	264,265		264,265
16	1203940SF	SPACE SITUATION AWARENESS OPERATIONS	56,279		56,279
17	1206421SF	COUNTERSPACE SYSTEMS	38,063		38,063
18	1206422SF	WEATHER SYSTEM FOLLOW-ON	1,438		1,438
19	1206425SF	SPACE SITUATION AWARENESS SYSTEMS	127,026	9,000	136,026
		Space Force UFR—Add space domain rapid innovation pathfinders		[9,000]	
20	1206431SF	ADVANCED EHF MILSATCOM (SPACE)	28,218		28,218
21	1206432SF	POLAR MILSATCOM (SPACE)	127,870		127,870
22	1206442SF	NEXT GENERATION OPIR	2,451,256		2,451,256
23	1206445SF	COMMERCIAL SATCOM (COMSATCOM) INTEGRATION	23,400		23,400
24	1206853SF	NATIONAL SECURITY SPACE LAUNCH PROGRAM (SPACE)—EMD	221,510	9,200	230,710
		Space Force UFR—Liquid oxygen explosive tests		[9,200]	
		SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION	**3,339,325**	**18,200**	**3,357,525**
		MANAGEMENT SUPPORT			
25	1206116SF	SPACE TEST AND TRAINING RANGE DEVELOPMENT	19,319	33,300	52,619
		Space Force UFR—Signal emulation generation subsystem		[33,300]	
26	1206392SF	ACQ WORKFORCE—SPACE & MISSILE SYSTEMS	214,051		214,051
27	1206398SF	SPACE & MISSILE SYSTEMS CENTER—MHA	12,119		12,119
28	1206759SF	MAJOR T&E INVESTMENT—SPACE	71,503		71,503
29	1206860SF	ROCKET SYSTEMS LAUNCH PROGRAM (SPACE)	17,769	10,000	27,769
		Tactically responsive launch		[10,000]	
31	1206864SF	SPACE TEST PROGRAM (STP)	20,881		20,881

Line	Program Element	Item	FY 2022 Request	Senate Change	Senate Authorized
		SUBTOTAL MANAGEMENT SUPPORT	**355,642**	**43,300**	**398,942**
		OPERATIONAL SYSTEM DEVELOPMENT			
33	1201017SF	GLOBAL SENSOR INTEGRATED ON NETWORK (GSIN)	4,731		4,731
34	1203001SF	FAMILY OF ADVANCED BLOS TERMINALS (FAB-T)	156,788		156,788
35	1203040SF	DCO-SPACE	2,150	10,900	13,050
		Space Force UFR—Cyber defense platforms for SBIRs and ground-based radar		[10,900]	
36	1203109SF	NARROWBAND SATELLITE COMMUNICATIONS	112,012		112,012
37	1203110SF	SATELLITE CONTROL NETWORK (SPACE)	36,810		36,810
38	1203165SF	NAVSTAR GLOBAL POSITIONING SYSTEM (SPACE AND CONTROL SEGMENTS)	1,966		1,966
39	1203173SF	SPACE AND MISSILE TEST AND EVALUATION CENTER	1,699	4,000	5,699
		Space Force UFR—Improve operations of payload adapter		[4,000]	
40	1203174SF	SPACE INNOVATION, INTEGRATION AND RAPID TECHNOLOGY DEVELOPMENT	18,054	20,000	38,054
		Space Force UFR—Digitial core services for distributed space test and training		[20,000]	
41	1203182SF	SPACELIFT RANGE SYSTEM (SPACE)	11,115		11,115
42	1203265SF	GPS III SPACE SEGMENT	7,207		7,207
43	1203330SF	SPACE SUPERIORITY ISR	18,109		18,109
44	1203620SF	NATIONAL SPACE DEFENSE CENTER	1,280		1,280
45	1203873SF	BALLISTIC MISSILE DEFENSE RADARS	12,292		12,292
46	1203906SF	NCMC—TW/AA SYSTEM	9,858		9,858
47	1203913SF	NUDET DETECTION SYSTEM (SPACE)	45,887		45,887
48	1203940SF	SPACE SITUATION AWARENESS OPERATIONS	64,763		64,763
49	1206423SF	GLOBAL POSITIONING SYSTEM III—OPERATIONAL CONTROL SEGMENT	413,766		413,766
53	1206770SF	ENTERPRISE GROUND SERVICES	191,713		191,713
999	9999999999	CLASSIFIED PROGRAMS	4,474,809	289,000	4,763,809
		Program increase		[10,000]	
		Space Force UFR—classified		[279,000]	

		SUBTOTAL OPERATIONAL SYSTEM DEVELOPMENT	**5,585,009**	**323,900**	**5,908,909**
		SOFTWARE & DIGITAL TECHNOLOGY PILOT PROGRAMS			
54	1203614SF	JSPOC MISSION SYSTEM	154,529		154,529
		SUBTOTAL SOFTWARE & DIGITAL TECHNOLOGY PILOT PROGRAMS	**154,529**	**0**	**154,529**
		TOTAL RDTE, SPACE FORCE	**11,271,066**	**524,100**	**11,795,166**
		RESEARCH, DEVELOPMENT, TEST & EVAL, DW			
		BASIC RESEARCH			
1	0601000BR	DTRA BASIC RESEARCH	11,828		11,828
2	0601101E	DEFENSE RESEARCH SCIENCES	395,781	15,000	410,781
		Increase for DARPA-funded university research activities		[15,000]	
3	0601108D8Z	HIGH ENERGY LASER RESEARCH INITIATIVES	15,390		15,390
4	0601110D8Z	BASIC RESEARCH INITIATIVES	39,828	32,500	72,328
		DEPSCoR		[10,000]	
		Minerva management and social science research		[22,500]	
5	0601117E	BASIC OPERATIONAL MEDICAL RESEARCH SCIENCE	76,018	5,000	81,018
		Traumatic brain injury research		[5,000]	
6	0601120D8Z	NATIONAL DEFENSE EDUCATION PROGRAM	112,195	1,500	113,695
		DOD laboratory workforce development program		[1,500]	
7	0601228D8Z	HISTORICALLY BLACK COLLEGES AND UNIVERSITIES/MINORITY INSTITUTIONS	31,136		31,136
8	0601384BP	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM	34,708		34,708
		SUBTOTAL BASIC RESEARCH	**716,884**	**54,000**	**770,884**
		APPLIED RESEARCH			
9	0602000D8Z	JOINT MUNITIONS TECHNOLOGY	19,591		19,591
10	0602115E	BIOMEDICAL TECHNOLOGY	108,698	15,000	123,698
		Program increase		[15,000]	
12	0602230D8Z	DEFENSE TECHNOLOGY INNOVATION	22,918	50,000	72,918
		6G and beyond experimentation efforts		[50,000]	
13	0602234D8Z	LINCOLN LABORATORY RESEARCH PROGRAM	55,692		55,692

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Line	Program Element	Item	FY 2022 Request	Senate Change	Senate Authorized
14	0602251D8Z	APPLIED RESEARCH FOR THE ADVANCEMENT OF S&T PRIORITIES	65,015		65,015
15	0602303E	INFORMATION & COMMUNICATIONS TECHNOLOGY	430,363	315,000	745,363
		National Security Commission on Artificial Intelligence implementation		[200,000]	
		Program increase		[15,000]	
		Quantum computing acceleration		[100,000]	
16	0602383E	BIOLOGICAL WARFARE DEFENSE	31,421		31,421
17	0602384BP	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM	206,956		206,956
18	0602668D8Z	CYBER SECURITY RESEARCH	15,380		15,380
19	0602702E	TACTICAL TECHNOLOGY	202,515		202,515
20	0602715E	MATERIALS AND BIOLOGICAL TECHNOLOGY	317,024	15,000	332,024
		Program increase		[15,000]	
21	0602716E	ELECTRONICS TECHNOLOGY	357,384	15,000	372,384
		Program increase		[15,000]	
22	0602718BR	COUNTER WEAPONS OF MASS DESTRUCTION APPLIED RESEARCH	197,011		197,011
23	0602751D8Z	SOFTWARE ENGINEERING INSTITUTE (SEI) APPLIED RESEARCH	9,601		9,601
24	0602890D8Z	HIGH ENERGY LASER RESEARCH	45,997		45,997
25	1160401BB	SOF TECHNOLOGY DEVELOPMENT	44,829		44,829
		SUBTOTAL APPLIED RESEARCH	**2,130,395**	**410,000**	**2,540,395**
		ADVANCED TECHNOLOGY DEVELOPMENT			
26	0603000D8Z	JOINT MUNITIONS ADVANCED TECHNOLOGY	23,213		23,213
27	0603121D8Z	SO/LIC ADVANCED DEVELOPMENT	4,665		4,665
28	0603122D8Z	COMBATING TERRORISM TECHNOLOGY SUPPORT	69,376		69,376
29	0603133D8Z	FOREIGN COMPARATIVE TESTING	25,432	20,000	45,432
		Domestic comparative testing program		[20,000]	
31	0603160BR	COUNTER WEAPONS OF MASS DESTRUCTION ADVANCED TECHNOLOGY DEVELOPMENT	399,362		399,362
32	0603176C	ADVANCED CONCEPTS AND PERFORMANCE ASSESSMENT	15,800	5,200	21,000

		MDA UFR—Cybersecurity improvements		[5,200]	
33	0603180C	ADVANCED RESEARCH	21,466	5,000	26,466
		High speed flight experiment testing		[5,000]	
34	0603183D8Z	JOINT HYPERSONIC TECHNOLOGY DEVELOPMENT &TRANSITION	51,340		51,340
35	0603225D8Z	JOINT DOD-DOE MUNITIONS TECHNOLOGY DEVELOPMENT	19,063		19,063
36	0603286E	ADVANCED AEROSPACE SYSTEMS	174,043		174,043
37	0603287E	SPACE PROGRAMS AND TECHNOLOGY	101,524		101,524
38	0603288D8Z	ANALYTIC ASSESSMENTS	24,012		24,012
39	0603289D8Z	ADVANCED INNOVATIVE ANALYSIS AND CONCEPTS	51,513		51,513
42	0603338D8Z	DEFENSE MODERNIZATION AND PROTOTYPING	115,443	75,000	190,443
		Rapid Innovation Program		[75,000]	
43	0603342D8Z	DEFENSE INNOVATION UNIT (DIU)	31,873		31,873
44	0603375D8Z	TECHNOLOGY INNOVATION	54,433		54,433
45	0603384BP	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM—ADVANCED DEVELOPMENT	197,824		197,824
46	0603527D8Z	RETRACT LARCH	99,175		99,175
47	0603618D8Z	JOINT ELECTRONIC ADVANCED TECHNOLOGY	18,221		18,221
48	0603648D8Z	JOINT CAPABILITY TECHNOLOGY DEMONSTRATIONS	102,669		102,669
49	0603662D8Z	NETWORKED COMMUNICATIONS CAPABILITIES	2,984		2,984
50	0603680D8Z	DEFENSE-WIDE MANUFACTURING SCIENCE AND TECHNOLOGY PROGRAM	134,022	11,500	145,522
		Certification-based workforce training programs for manufacturing		[3,000]	
		Cybersecurity for industrial control systems		[3,000]	
		Data analytics and visual system		[3,000]	
		Integrated silicon-based lasers		[2,500]	
51	0603680S	MANUFACTURING TECHNOLOGY PROGRAM	37,543	9,000	46,543
		HPC-enabled large-scale advanced manufacturing		[4,000]	
		Steel Performance Initiative		[5,000]	
53	0603712S	GENERIC LOGISTICS R&D TECHNOLOGY DEMONSTRATIONS	12,418		12,418
54	0603716D8Z	STRATEGIC ENVIRONMENTAL RESEARCH PROGRAM	51,863		51,863
55	0603720S	MICROELECTRONICS TECHNOLOGY DEVELOPMENT AND SUPPORT	160,821		160,821
56	0603727D8Z	JOINT WARFIGHTING PROGRAM	2,169		2,169
57	0603739E	ADVANCED ELECTRONICS TECHNOLOGIES	116,716	15,000	131,716
		Program increase		[15,000]	

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Line	Program Element	Item	FY 2022 Request	Senate Change	Senate Authorized
58	0603760E	COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS	251,794	15,000	266,794
		Program increase		[15,000]	
59	0603766E	NETWORK-CENTRIC WARFARE TECHNOLOGY	584,771	105,000	689,771
		Artificial intelligence research activities		[100,000]	
		Deep water active technologies		[5,000]	
60	0603767E	SENSOR TECHNOLOGY	294,792	–35,000	259,792
		Program reduction		[–35,000]	
61	0603769D8Z	DISTRIBUTED LEARNING ADVANCED TECHNOLOGY DEVELOPMENT	6,398		6,398
62	0603781D8Z	SOFTWARE ENGINEERING INSTITUTE	14,677		14,677
65	0603924D8Z	HIGH ENERGY LASER ADVANCED TECHNOLOGY PROGRAM	107,397		107,397
66	0603941D8Z	TEST & EVALUATION SCIENCE & TECHNOLOGY	267,161		267,161
67	0603950D8Z	NATIONAL SECURITY INNOVATION NETWORK	21,270		21,270
68	0604055D8Z	OPERATIONAL ENERGY CAPABILITY IMPROVEMENT	74,300		74,300
74	1160402BB	SOF ADVANCED TECHNOLOGY DEVELOPMENT	93,415		93,415
75	1206310SDA	SPACE SCIENCE AND TECHNOLOGY RESEARCH AND DEVELOPMENT	172,638		172,638
		SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT	**4,007,596**	**225,700**	**4,233,296**
		ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES			
76	0603161D8Z	NUCLEAR AND CONVENTIONAL PHYSICAL SECURITY EQUIPMENT RDT&E ADC&P	28,687		28,687
77	0603600D8Z	WALKOFF	108,652		108,652
79	0603851D8Z	ENVIRONMENTAL SECURITY TECHNICAL CERTIFICATION PROGRAM	71,429		71,429
80	0603881C	BALLISTIC MISSILE DEFENSE TERMINAL DEFENSE SEGMENT	277,949	2,000	279,949
		Survivability planning and intercept evaluation tool		[2,000]	
81	0603882C	BALLISTIC MISSILE DEFENSE MIDCOURSE DEFENSE SEGMENT	745,144		745,144
82	0603884BP	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM—DEM/VAL	129,445		129,445
83	0603884C	BALLISTIC MISSILE DEFENSE SENSORS	224,750	3,012	227,762
		MDA UFR—Cybersecurity improvements		[3,012]	

84	0603890C	BMD ENABLING PROGRAMS	595,301	119,196	714,497
		MDA UFR—Cybersecurity improvements		[44,830]	
		MDA UFR—System survivability in radiation environments		[20,166]	
		MDA UFR—Tower-based fire control sensor for cruise missile defense		[27,000]	
		NORTHCOM UFR—NCR elevated radar		[27,200]	
85	0603891C	SPECIAL PROGRAMS—MDA	413,374		413,374
86	0603892C	AEGIS BMD	732,512	48,400	780,912
		MDA UFR—Radar upgrades		[48,400]	
87	0603896C	BALLISTIC MISSILE DEFENSE COMMAND AND CONTROL, BATTLE MANAGEMENT AND COMMUNICATI.	603,448	6,476	609,924
		MDA UFR—Cybersecurity improvements		[2,000]	
		MDA UFR—JADC2 integration		[4,476]	
88	0603898C	BALLISTIC MISSILE DEFENSE JOINT WARFIGHTER SUPPORT	50,594		50,594
89	0603904C	MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)	52,403		52,403
90	0603906C	REGARDING TRENCH	11,952		11,952
91	0603907C	SEA BASED X-BAND RADAR (SBX)	147,241		147,241
92	0603913C	ISRAELI COOPERATIVE PROGRAMS	300,000		300,000
93	0603914C	BALLISTIC MISSILE DEFENSE TEST	362,906		362,906
94	0603915C	BALLISTIC MISSILE DEFENSE TARGETS	553,334		553,334
96	0603923D8Z	COALITION WARFARE	5,103		5,103
97	0604011D8Z	NEXT GENERATION INFORMATION COMMUNICATIONS TECHNOLOGY (5G)	374,665	100,000	474,665
		5G acceleration activities		[100,000]	
98	0604016D8Z	DEPARTMENT OF DEFENSE CORROSION PROGRAM	3,259		3,259
99	0604102C	GUAM DEFENSE DEVELOPMENT	78,300	154,450	232,750
		INDOPACOM UFR—Guam Defense System		[154,450]	
103	0604181C	HYPERSONIC DEFENSE	247,931	61,865	309,796
		MDA UFR—Accelerate hypersonic defensive systems		[61,865]	
104	0604250D8Z	ADVANCED INNOVATIVE TECHNOLOGIES	716,456	–35,000	681,456
		Program increase—Project B		[60,000]	
		Program reduction—Project A		[–10,000]	
		Program reduction—strategic capabilities research and prototyping		[–100,000]	
		Thermionic energy generation		[15,000]	

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105	0604294D8Z	TRUSTED & ASSURED MICROELECTRONICS	509,195		509,195
106	0604331D8Z	RAPID PROTOTYPING PROGRAM	103,575	–50,000	53,575
		Program reduction—joint affordable kill chain		[–50,000]	
107	0604341D8Z	DEFENSE INNOVATION UNIT (DIU) PROTOTYPING	11,213		11,213
108	0604400D8Z	DEPARTMENT OF DEFENSE (DOD) UNMANNED SYSTEM COMMON DEVELOPMENT	2,778		2,778
109	0604551BR	CATAPULT	7,166		7,166
110	0604555D8Z	OPERATIONAL ENERGY CAPABILITY IMPROVEMENT—NON S&T	23,200		23,200
111	0604672C	HOMELAND DEFENSE RADAR—HAWAII (HDR-H)	0	76,000	76,000
		INDOPACOM UFR—Restoration of HDR-H		[76,000]	
113	0604682D8Z	WARGAMING AND SUPPORT FOR STRATEGIC ANALYSIS (SSA)	3,519		3,519
114	0604826J	JOINT C5 CAPABILITY DEVELOPMENT, INTEGRATION AND INTEROPERABILITY ASSESSMENTS	17,439	25,000	42,439
		Joint All-Domain Command and Control experimentation		[25,000]	
115	0604873C	LONG RANGE DISCRIMINATION RADAR (LRDR)	133,335		133,335
116	0604874C	IMPROVED HOMELAND DEFENSE INTERCEPTORS	926,125		926,125
117	0604876C	BALLISTIC MISSILE DEFENSE TERMINAL DEFENSE SEGMENT TEST	32,697		32,697
118	0604878C	AEGIS BMD TEST	117,055		117,055
119	0604879C	BALLISTIC MISSILE DEFENSE SENSOR TEST	77,428		77,428
120	0604880C	LAND-BASED SM–3 (LBSM3)	43,158		43,158
121	0604887C	BALLISTIC MISSILE DEFENSE MIDCOURSE SEGMENT TEST	61,424		61,424
122	0202057C	SAFETY PROGRAM MANAGEMENT	2,323		2,323
123	0300206R	ENTERPRISE INFORMATION TECHNOLOGY SYSTEMS	2,568		2,568
125	0305103C	CYBER SECURITY INITIATIVE	1,142		1,142
126	1206410SDA	SPACE TECHNOLOGY DEVELOPMENT AND PROTOTYPING	636,179	13,000	649,179
		Laser communication ground terminals		[5,000]	
		Space laser communications		[8,000]	
127	1206893C	SPACE TRACKING & SURVEILLANCE SYSTEM	15,176		15,176
128	1206895C	BALLISTIC MISSILE DEFENSE SYSTEM SPACE PROGRAMS	292,811		292,811

		SUBTOTAL ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES	**9,854,341**	**524,399**	**10,378,740**
		SYSTEM DEVELOPMENT & DEMONSTRATION			
129	0604161D8Z	NUCLEAR AND CONVENTIONAL PHYSICAL SECURITY EQUIPMENT RDT&E SDD	5,682		5,682
131	0604384BP	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM—EMD	299,848		299,848
132	0604771D8Z	JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEM (JTIDS)	9,345		9,345
133	0605000BR	COUNTER WEAPONS OF MASS DESTRUCTION SYSTEMS DEVELOPMENT	14,063		14,063
134	0605013BL	INFORMATION TECHNOLOGY DEVELOPMENT	4,265		4,265
135	0605021SE	HOMELAND PERSONNEL SECURITY INITIATIVE	7,205		7,205
136	0605022D8Z	DEFENSE EXPORTABILITY PROGRAM	5,447		5,447
137	0605027D8Z	OUSD(C) IT DEVELOPMENT INITIATIVES	16,892		16,892
138	0605070S	DOD ENTERPRISE SYSTEMS DEVELOPMENT AND DEMONSTRATION	679		679
140	0605080S	DEFENSE AGENCY INITIATIVES (DAI)—FINANCIAL SYSTEM	32,254		32,254
142	0605141BR	MISSION ASSURANCE RISK MANAGEMENT SYSTEM (MARMS)	5,500		5,500
143	0605210D8Z	DEFENSE-WIDE ELECTRONIC PROCUREMENT CAPABILITIES	7,148		7,148
144	0605294D8Z	TRUSTED & ASSURED MICROELECTRONICS	113,895		113,895
146	0605772D8Z	NUCLEAR COMMAND, CONTROL, & COMMUNICATIONS	3,991		3,991
149	0305304D8Z	DOD ENTERPRISE ENERGY INFORMATION MANAGEMENT (EEIM)	2,227		2,227
150	0305310D8Z	CWMD SYSTEMS: SYSTEM DEVELOPMENT AND DEMONSTRATION	20,246		20,246
		SUBTOTAL SYSTEM DEVELOPMENT & DEMONSTRATION	**548,687**	**0**	**548,687**
		MANAGEMENT SUPPORT			
151	0603829J	JOINT CAPABILITY EXPERIMENTATION	8,444		8,444
152	0604774D8Z	DEFENSE READINESS REPORTING SYSTEM (DRRS)	7,508		7,508
153	0604875D8Z	JOINT SYSTEMS ARCHITECTURE DEVELOPMENT	7,859		7,859
154	0604940D8Z	CENTRAL TEST AND EVALUATION INVESTMENT DEVELOPMENT (CTEIP)	550,140	4,000	554,140
		Wave glider development		[4,000]	
155	0604942D8Z	ASSESSMENTS AND EVALUATIONS	17,980		17,980
156	0605001E	MISSION SUPPORT	73,145		73,145
157	0605100D8Z	JOINT MISSION ENVIRONMENT TEST CAPABILITY (JMETC)	71,410		71,410
159	0605126J	JOINT INTEGRATED AIR AND MISSILE DEFENSE ORGANIZATION (JIAMDO)	52,671		52,671
161	0605142D8Z	SYSTEMS ENGINEERING	40,030	–15,000	25,030

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		Program reduction		[–15,000]	
162	0605151D8Z	STUDIES AND ANALYSIS SUPPORT—OSD	4,612	5,000	9,612
		Acquisition Innovation Research Center		[5,000]	
163	0605161D8Z	NUCLEAR MATTERS-PHYSICAL SECURITY	14,429		14,429
164	0605170D8Z	SUPPORT TO NETWORKS AND INFORMATION INTEGRATION	4,759		4,759
165	0605200D8Z	GENERAL SUPPORT TO USD (INTELLIGENCE)	1,952		1,952
166	0605384BP	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM	110,503		110,503
172	0605790D8Z	SMALL BUSINESS INNOVATION RESEARCH (SBIR)/ SMALL BUSINESS TECHNOLOGY TRANSFER	3,639		3,639
173	0605797D8Z	MAINTAINING TECHNOLOGY ADVANTAGE	25,889		25,889
174	0605798D8Z	DEFENSE TECHNOLOGY ANALYSIS	39,774		39,774
175	0605801KA	DEFENSE TECHNICAL INFORMATION CENTER (DTIC)	61,453	–50,000	11,453
		Program reduction		[–50,000]	
176	0605803SE	R&D IN SUPPORT OF DOD ENLISTMENT, TESTING AND EVALUATION	18,762		18,762
177	0605804D8Z	DEVELOPMENT TEST AND EVALUATION	27,366		27,366
178	0605898E	MANAGEMENT HQ—R&D	12,740		12,740
179	0605998KA	MANAGEMENT HQ—DEFENSE TECHNICAL INFORMATION CENTER (DTIC)	3,549		3,549
180	0606100D8Z	BUDGET AND PROGRAM ASSESSMENTS	15,438		15,438
181	0606225D8Z	ODNA TECHNOLOGY AND RESOURCE ANALYSIS	2,897		2,897
182	0606589D8W	DEFENSE DIGITAL SERVICE (DDS) DEVELOPMENT SUPPORT	918		918
183	0606771D8Z	CYBER RESILIENCY AND CYBERSECURITY POLICY	31,638		31,638
184	0203345D8Z	DEFENSE OPERATIONS SECURITY INITIATIVE (DOSI)	2,925		2,925
185	0204571J	JOINT STAFF ANALYTICAL SUPPORT	977		977
186	0208045K	C4I INTEROPERABILITY	55,361		55,361
189	0303140SE	INFORMATION SYSTEMS SECURITY PROGRAM	853		853
191	0303260D8Z	DEFENSE MILITARY DECEPTION PROGRAM OFFICE (DMDPO)	969		969
192	0305172K	COMBINED ADVANCED APPLICATIONS	15,696		15,696
194	0305208K	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS	3,073		3,073

197	0804768J	COCOM EXERCISE ENGAGEMENT AND TRAINING TRANSFORMATION (CE2T2)—NON-MHA	29,530		29,530
198	0808709SE	DEFENSE EQUAL OPPORTUNITY MANAGEMENT INSTITUTE (DEOMI)	689		689
199	0901598C	MANAGEMENT HQ—MDA	24,102		24,102
200	0903235K	JOINT SERVICE PROVIDER (JSP)	2,645		2,645
999	9999999999	CLASSIFIED PROGRAMS	37,520		37,520
		SUBTOTAL MANAGEMENT SUPPORT	**1,383,845**	**–56,000**	**1,327,845**
		OPERATIONAL SYSTEMS DEVELOPMENT			
202	0604130V	ENTERPRISE SECURITY SYSTEM (ESS)	5,355		5,355
203	0604532K	JOINT ARTIFICIAL INTELLIGENCE	10,033		10,033
206	0607210D8Z	INDUSTRIAL BASE ANALYSIS AND SUSTAINMENT SUPPORT	58,189	39,250	97,439
		Defense industrial skills and technology training systems		[4,000]	
		Demonstration program on domestic production of rare earth elements from coal byproducts		[3,000]	
		Digital manufacturing		[1,500]	
		Industrial skills training		[2,500]	
		Rare earth element separation technologies		[7,500]	
		Submarine construction workforce training pipeline		[20,750]	
207	0607310D8Z	CWMD SYSTEMS: OPERATIONAL SYSTEMS DEVELOPMENT	18,721		18,721
208	0607327T	GLOBAL THEATER SECURITY COOPERATION MANAGEMENT INFORMATION SYSTEMS (G-TSCMIS)	7,398		7,398
209	0607384BP	CHEMICAL AND BIOLOGICAL DEFENSE (OPERATIONAL SYSTEMS DEVELOPMENT)	58,261		58,261
215	0302019K	DEFENSE INFO INFRASTRUCTURE ENGINEERING AND INTEGRATION	16,233		16,233
216	0303126K	LONG-HAUL COMMUNICATIONS—DCS	10,275		10,275
217	0303131K	MINIMUM ESSENTIAL EMERGENCY COMMUNICATIONS NETWORK (MEECN)	4,892		4,892
218	0303136G	KEY MANAGEMENT INFRASTRUCTURE (KMI)	83,751		83,751
219	0303140D8Z	INFORMATION SYSTEMS SECURITY PROGRAM	49,191	20,000	69,191
		Workforce transformation cyber initiative pilot program		[20,000]	
220	0303140G	INFORMATION SYSTEMS SECURITY PROGRAM	423,745	40,000	463,745
		Additional cybersecurity support for the defense industrial base		[25,000]	
		Pilot program on public-private partnership with internet ecosystem companies		[25,000]	
		Program reduction		[–10,000]	
221	0303140K	INFORMATION SYSTEMS SECURITY PROGRAM	5,707		5,707
222	0303150K	GLOBAL COMMAND AND CONTROL SYSTEM	4,150		4,150

SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
(In Thousands of Dollars)

Line	Program Element	Item	FY 2022 Request	Senate Change	Senate Authorized
223	0303153K	DEFENSE SPECTRUM ORGANIZATION	19,302		19,302
224	0303228K	JOINT REGIONAL SECURITY STACKS (JRSS)	9,342		9,342
226	0303430V	FEDERAL INVESTIGATIVE SERVICES INFORMATION TECHNOLOGY	15,326		15,326
232	0305128V	SECURITY AND INVESTIGATIVE ACTIVITIES	8,800		8,800
235	0305146V	DEFENSE JOINT COUNTERINTELLIGENCE ACTIVITIES	3,820		3,820
237	0305186D8Z	POLICY R&D PROGRAMS	4,843		4,843
238	0305199D8Z	NET CENTRICITY	13,471		13,471
240	0305208BB	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS	5,994		5,994
247	0305387D8Z	HOMELAND DEFENSE TECHNOLOGY TRANSFER PROGRAM	1,273		1,273
255	0708012K	LOGISTICS SUPPORT ACTIVITIES	1,690		1,690
256	0708012S	PACIFIC DISASTER CENTERS	1,799		1,799
257	0708047S	DEFENSE PROPERTY ACCOUNTABILITY SYSTEM	6,390		6,390
259	1105219BB	MQ–9 UAV	19,065		19,065
261	1160403BB	AVIATION SYSTEMS	173,537		173,537
262	1160405BB	INTELLIGENCE SYSTEMS DEVELOPMENT	32,766		32,766
263	1160408BB	OPERATIONAL ENHANCEMENTS	145,830		145,830
264	1160431BB	WARRIOR SYSTEMS	78,592	4,211	82,803
		SOCOM UFR—Maritime scalable effects acceleration		[4,211]	
265	1160432BB	SPECIAL PROGRAMS	6,486		6,486
266	1160434BB	UNMANNED ISR	18,006		18,006
267	1160480BB	SOF TACTICAL VEHICLES	7,703		7,703
268	1160483BB	MARITIME SYSTEMS	58,430		58,430
270	1160490BB	OPERATIONAL ENHANCEMENTS INTELLIGENCE	10,990		10,990
999	9999999999	CLASSIFIED PROGRAMS	5,208,029	–10,000	5,198,029
		Project A		[–10,000]	
		SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT	**6,607,385**	**93,461**	**6,700,846**

		SOFTWARE AND DIGITAL TECHNOLOGY PILOT PROGRAMS			
272	0604532K	JOINT ARTIFICIAL INTELLIGENCE	186,639		186,639
273	0608197V	NATIONAL BACKGROUND INVESTIGATION SERVICES—SOFTWARE PILOT PROGRAM	123,570		123,570
274	0608648D8Z	ACQUISITION VISIBILITY—SOFTWARE PILOT PROGRAM	18,307		18,307
275	0303150K	GLOBAL COMMAND AND CONTROL SYSTEM	32,774		32,774
276	0308588D8Z	ALGORITHMIC WARFARE CROSS FUNCTIONAL TEAMS—SOFTWARE PILOT PROGRAM	247,452		247,452
		SUBTOTAL SOFTWARE AND DIGITAL TECHNOLOGY PILOT PROGRAMS	**608,742**	**0**	**608,742**
		TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, DW	**25,857,875**	**1,251,560**	**27,109,435**
		OPERATIONAL TEST & EVAL, DEFENSE			
		MANAGEMENT SUPPORT			
1	0605118OTE	OPERATIONAL TEST AND EVALUATION	105,394		105,394
2	0605131OTE	LIVE FIRE TEST AND EVALUATION	68,549		68,549
3	0605814OTE	OPERATIONAL TEST ACTIVITIES AND ANALYSES	42,648	20,000	62,648
		Joint Test and Evaluation restoration		[20,000]	
		SUBTOTAL MANAGEMENT SUPPORT	**216,591**	**20,000**	**236,591**
		TOTAL OPERATIONAL TEST & EVAL, DEFENSE	**216,591**	**20,000**	**236,591**
		TOTAL RDT&E	**111,964,188**	**4,142,064**	**116,106,252**

TITLE XLIII—OPERATION AND MAINTENANCE

TITLE XLIII—OPERATION AND MAINTENANCE

SEC. 4301. OPERATION AND MAINTENANCE.

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

Line	Item	FY 2022 Request	Senate Change	Senate Authorized
	OPERATION & MAINTENANCE, ARMY			
	OPERATING FORCES			
010	MANEUVER UNITS	3,563,856		3,563,856
020	MODULAR SUPPORT BRIGADES	142,082		142,082
030	ECHELONS ABOVE BRIGADE	758,174		758,174
040	THEATER LEVEL ASSETS	2,753,783	113,429	2,867,212
	Army UFR—PM WIN-T SNAP & GRRIP for OIR		[1,654]	
	Army UFR—PM WIN-T SNAP & GRRIP for OSS		[5,775]	
	CENTCOM UFR—PATRIOT support		[106,000]	
050	LAND FORCES OPERATIONS SUPPORT	1,110,156		1,110,156
060	AVIATION ASSETS	1,795,522		1,795,522
070	FORCE READINESS OPERATIONS SUPPORT	7,442,976	539,825	7,982,801
	Army UFR—Arctic cold weather gloves		[13,867]	
	Army UFR—Arctic OCIE		[65,050]	
	Army UFR—ECWCS procurement		[8,999]	
	Army UFR—Female/small stature body armor		[81,750]	
	Army UFR—Garrison Installation Facilities-Related Control Systems (FRCS)		[13,071]	
	Army UFR—Heavylift transportation for OIR		[33,854]	
	Army UFR—Industrial base special installation control systems		[14,824]	
	Army UFR—Medical sustainment level maintenance		[16,400]	
	Army UFR—Mission Partner Environment		[6,300]	

	Army UFR—Support to Homeland Contingency Operatons		[228,410]	
	Army UFR—TADSS maintenance		[17,000]	
	CENTCOM UFR—Heavylift logistics		[40,300]	
080	LAND FORCES SYSTEMS READINESS	580,921	34,000	614,921
	CENTCOM UFR—COMSAT air time		[34,000]	
090	LAND FORCES DEPOT MAINTENANCE	1,257,959	332,096	1,590,055
	Army UFR—Aerial-Intelligence, Surveillance, Reconnaissance (A-ISR) Sustainment		[38,900]	
	Army UFR—Communications & Electronics Repair Cycle Float		[3,200]	
	Army UFR—Tactical Combat Vehicle Repair Cycle Float		[89,017]	
	Army UFR—UH–60 L-L Repair Cycle Float		[125,565]	
	Army UFR—Weapon system software readiness		[75,414]	
100	MEDICAL READINESS	1,102,964		1,102,964
110	BASE OPERATIONS SUPPORT	8,878,603	67,529	8,946,132
	Army UFR—Accelerate food service modernization		[25,129]	
	Army UFR—Army Climate Assessment Tool (ACAT)		[1,000]	
	Army UFR—Electrical grid improvements for electric vehicle charging stations		[20,000]	
	Army UFR—GSA leased vehicles		[14,700]	
	Army UFR—Monitoring and predicting desertification		[1,200]	
	Army UFR—Multi-Domain Operations-Live		[1,500]	
	Army UFR—Natural infrastructure and range lands, climate resilence at Ft. Huachuca		[4,000]	
120	FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION	4,051,869	840,085	4,891,954
	Army UFR—Critical organic industrial base production capacity		[7,400]	
	Army UFR—Fort Belvoir CDC Restoration and Modernization		[1,380]	
	Army UFR—Fort Polk CDC Restoration and Modernization		[2,305]	
	Program increase FSRM to 100%		[829,000]	
130	MANAGEMENT AND OPERATIONAL HEADQUARTERS	289,891		289,891
140	ADDITIONAL ACTIVITIES	526,517	52,000	578,517
	Army UFR—EDI ADOS		[52,000]	
160	RESET	397,196		397,196
170	US AFRICA COMMAND	384,791	133,546	518,337
	AFRICOM UFR—Commercial SATCOM		[16,500]	
	AFRICOM UFR—ISR improvements		[67,000]	

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

Line	Item	FY 2022 Request	Senate Change	Senate Authorized
	Army UFR—MQ–9 COCO Support to AFRICOM		[50,046]	
180	US EUROPEAN COMMAND	293,932	41,978	335,910
	EUCOM UFR—Information Operations		[26,765]	
	EUCOM UFR—Mission Partner Environment		[15,213]	
190	US SOUTHERN COMMAND	196,726		196,726
200	US FORCES KOREA	67,052		67,052
210	CYBERSPACE ACTIVITIES—CYBERSPACE OPERATIONS	621,836	64,062	685,898
	Army UFR—Autonomic Security Operations Center		[1,150]	
	Army UFR—Critical infrastructure risk management cyber resiliency mitigations		[13,630]	
	Army UFR—MRCT / Cyber I&W / Ops Cell		[4,655]	
	Army UFR—Security Operations Center as a Service (SOCaaS)		[44,627]	
220	CYBERSPACE ACTIVITIES—CYBERSECURITY	629,437	96,739	726,176
	Army UFR—C-SCRM supplier vetting and equipment inspection		[1,200]	
	Army UFR—Cybersecurity control systems assessments		[89,889]	
	Army UFR—Cyber-Supply Chain Risk Mgmt (C-SCRM) program		[2,750]	
	Army UFR—Defensive cyber sensors		[2,900]	
	SUBTOTAL OPERATING FORCES	**36,846,243**	**2,315,289**	**39,161,532**
	MOBILIZATION			
230	STRATEGIC MOBILITY	353,967	131,096	485,063
	Army UFR—APS–3 Afloat ship use rate cost increases		[114,495]	
	Army UFR—Medical CBRN equipment		[16,601]	
240	ARMY PREPOSITIONED STOCKS	381,192	319,947	701,139
	Army UFR—APS–1 CONUS Operational Project Care of Supplies in Storage		[10,271]	
	Army UFR—APS–2 Europe Care of Supplies In Storage		[193,746]	
	Army UFR—APS–4 South Humanitarian Assistance Disaster Relief Site		[31,487]	

	Army UFR—Medical equipment		[84,443]	
250	INDUSTRIAL PREPAREDNESS	3,810		3,810
	SUBTOTAL MOBILIZATION	**738,969**	**451,043**	**1,190,012**
	TRAINING AND RECRUITING			
260	OFFICER ACQUISITION	163,568		163,568
270	RECRUIT TRAINING	75,140		75,140
280	ONE STATION UNIT TRAINING	81,274		81,274
290	SENIOR RESERVE OFFICERS TRAINING CORPS	520,973		520,973
300	SPECIALIZED SKILL TRAINING	998,869		998,869
310	FLIGHT TRAINING	1,309,556		1,309,556
320	PROFESSIONAL DEVELOPMENT EDUCATION	218,651		218,651
330	TRAINING SUPPORT	616,380	18,100	634,480
	Army UFR—ATRRS Modernization		[18,100]	
340	RECRUITING AND ADVERTISING	683,569	1,394	684,963
	Army UFR—Enterprise Technology Integration, Governance, and Engineering Requirements (ETIGER)		[1,394]	
350	EXAMINING	169,442		169,442
360	OFF-DUTY AND VOLUNTARY EDUCATION	214,923	16,155	231,078
	Army UFR—Tuition assistance		[16,155]	
370	CIVILIAN EDUCATION AND TRAINING	220,589		220,589
380	JUNIOR RESERVE OFFICER TRAINING CORPS	187,569		187,569
	SUBTOTAL TRAINING AND RECRUITING	**5,460,503**	**35,649**	**5,496,152**
	ADMIN & SRVWIDE ACTIVITIES			
400	SERVICEWIDE TRANSPORTATION	684,562	92,216	776,778
	Army UFR—Second destination transportation		[70,716]	
	Army UFR—Transportation management system		[21,500]	
410	CENTRAL SUPPLY ACTIVITIES	808,895	89,900	898,795
	Army UFR—Advanced additive manufacturing		[89,900]	
420	LOGISTIC SUPPORT ACTIVITIES	767,053	106,464	873,517

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

Line	Item	FY 2022 Request	Senate Change	Senate Authorized
	Army UFR—AMC LITeS		[29,104]	
	Army UFR—Deployments and mobilizations for Operation Spartan Shield (OSS)		[77,360]	
430	AMMUNITION MANAGEMENT	469,038		469,038
440	ADMINISTRATION	488,535	4,000	492,535
	Joint Counter-UAS Office training support		[4,000]	
450	SERVICEWIDE COMMUNICATIONS	1,952,742	65,383	2,018,125
	Army UFR—CHRA IT Cloud		[5,300]	
	Army UFR—ERP convergence/modernization		[49,420]	
	Army UFR—Harden CSS VSAT network		[10,663]	
460	MANPOWER MANAGEMENT	323,273		323,273
470	OTHER PERSONNEL SUPPORT	663,602	66,439	730,041
	Army UFR—Enterprise Technology Integration, Governance, and Engineering Requirements (ETIGER)		[1,393]	
	Army UFR—HR cloud and IT modernization		[29,675]	
	Army UFR—integrated Personnel Electronic Records Management System (iPERMS)		[5,371]	
	Army UFR—Personnel security investigations		[30,000]	
480	OTHER SERVICE SUPPORT	2,004,981	66,076	2,071,057
	Army UFR—DFAS cost estimation		[49,983]	
	Army UFR—Presidential and DOD support		[16,093]	
490	ARMY CLAIMS ACTIVITIES	180,178		180,178
500	REAL ESTATE MANAGEMENT	269,009	5,000	274,009
	Army real estate inventory system		[5,000]	
510	FINANCIAL MANAGEMENT AND AUDIT READINESS	437,940		437,940
520	INTERNATIONAL MILITARY HEADQUARTERS	482,571		482,571
530	MISC. SUPPORT OF OTHER NATIONS	29,670		29,670
9999	CLASSIFIED PROGRAMS	2,008,633	54,938	2,063,571
	Army UFR—Helios Dagger		[14,710]	
	SOUTHCOM UFR—Additional non-traditional ISR operations		[22,228]	

	SOUTHCOM UFR—Additional traditional ISR operations		[18,000]	
	SUBTOTAL ADMIN & SRVWIDE ACTIVITIES	**11,570,682**	**550,416**	**12,121,098**
	UNDISTRIBUTED			
998	UNDISTRIBUTED	0	–826,660	–826,660
	Bulk fuel adjustment		[–25,560]	
	Foreign currency fluctuations		[–81,000]	
	Printing costs reduction		[–5,100]	
	Unobligated balances		[–715,000]	
	SUBTOTAL UNDISTRIBUTED	**0**	**–826,660**	**–826,660**
	TOTAL OPERATION & MAINTENANCE, ARMY	**54,616,397**	**2,525,737**	**57,142,134**
	OPERATION & MAINTENANCE, ARMY RES			
	OPERATING FORCES			
010	MODULAR SUPPORT BRIGADES	10,465		10,465
020	ECHELONS ABOVE BRIGADE	554,992		554,992
030	THEATER LEVEL ASSETS	120,892		120,892
040	LAND FORCES OPERATIONS SUPPORT	597,718		597,718
050	AVIATION ASSETS	111,095		111,095
060	FORCE READINESS OPERATIONS SUPPORT	385,506		385,506
070	LAND FORCES SYSTEMS READINESS	98,021		98,021
080	LAND FORCES DEPOT MAINTENANCE	34,368		34,368
090	BASE OPERATIONS SUPPORT	584,513	36,000	620,513
	Army UFR—Repair Transient Training Officer Barracks Bldg 5406, ASA Dix		[18,000]	
	Army UFR—Repair Transient Training Officer Barracks Bldg 5502, ASA Dix		[18,000]	
100	FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION	342,433		342,433
110	MANAGEMENT AND OPERATIONAL HEADQUARTERS	22,472		22,472
120	CYBERSPACE ACTIVITIES—CYBERSPACE OPERATIONS	2,764		2,764
130	CYBERSPACE ACTIVITIES—CYBERSECURITY	7,476		7,476

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

Line	Item	FY 2022 Request	Senate Change	Senate Authorized
	SUBTOTAL OPERATING FORCES	**2,872,715**	**36,000**	**2,908,715**
	ADMIN & SRVWD ACTIVITIES			
140	SERVICEWIDE TRANSPORTATION	15,400		15,400
150	ADMINISTRATION	19,611		19,611
160	SERVICEWIDE COMMUNICATIONS	37,458		37,458
170	MANPOWER MANAGEMENT	7,162		7,162
180	RECRUITING AND ADVERTISING	48,289		48,289
	SUBTOTAL ADMIN & SRVWD ACTIVITIES	**127,920**	**0**	**127,920**
	UNDISTRIBUTED			
998	UNDISTRIBUTED	0	–42,995	–42,995
	Bulk fuel adjustment		[–3,195]	
	Unobligated balances		[–39,800]	
	SUBTOTAL UNDISTRIBUTED	**0**	**–42,995**	**–42,995**
	TOTAL OPERATION & MAINTENANCE, ARMY RES	**3,000,635**	**–6,995**	**2,993,640**
	OPERATION & MAINTENANCE, ARNG			
	OPERATING FORCES			
010	MANEUVER UNITS	799,854		799,854
020	MODULAR SUPPORT BRIGADES	211,561		211,561
030	ECHELONS ABOVE BRIGADE	835,709		835,709
040	THEATER LEVEL ASSETS	101,179		101,179

050	LAND FORCES OPERATIONS SUPPORT	34,436		34,436
060	AVIATION ASSETS	1,110,416		1,110,416
070	FORCE READINESS OPERATIONS SUPPORT	704,827	5,000	709,827
	CNGB UFR—Weapons of Mass Destruction Civil Support Teams Equipment Sustainment		[5,000]	
080	LAND FORCES SYSTEMS READINESS	47,886		47,886
090	LAND FORCES DEPOT MAINTENANCE	244,439		244,439
100	BASE OPERATIONS SUPPORT	1,097,960		1,097,960
110	FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION	956,988	50,825	1,007,813
	Army UFR—Force Projection Outload Facility		[2,520]	
	Army UFR—Operational Readiness Training Complex		[48,305]	
120	MANAGEMENT AND OPERATIONAL HEADQUARTERS	1,047,870		1,047,870
130	CYBERSPACE ACTIVITIES—CYBERSPACE OPERATIONS	8,071		8,071
140	CYBERSPACE ACTIVITIES—CYBERSECURITY	7,828		7,828
	SUBTOTAL OPERATING FORCES	**7,209,024**	**55,825**	**7,264,849**
	ADMIN & SRVWD ACTIVITIES			
150	SERVICEWIDE TRANSPORTATION	8,017		8,017
160	ADMINISTRATION	76,993	29,994	106,987
	CNGB UFR—Joint information exchange environment		[6,300]	
	State Partnership Program—restore to FY21 levels		[23,694]	
170	SERVICEWIDE COMMUNICATIONS	101,113		101,113
180	MANPOWER MANAGEMENT	8,920		8,920
190	OTHER PERSONNEL SUPPORT	240,292		240,292
200	REAL ESTATE MANAGEMENT	2,850		2,850
	SUBTOTAL ADMIN & SRVWD ACTIVITIES	**438,185**	**29,994**	**468,179**
	UNDISTRIBUTED			
998	UNDISTRIBUTED	0	–113,795	–113,795
	Bulk fuel adjustment		[–3,195]	
	Unobligated balances		[–110,600]	

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

Line	Item	FY 2022 Request	Senate Change	Senate Authorized
	SUBTOTAL UNDISTRIBUTED	**0**	**–113,795**	**–113,795**
	TOTAL OPERATION & MAINTENANCE, ARNG	**7,647,209**	**–27,976**	**7,619,233**
	AFGHANISTAN SECURITY FORCES FUND			
	AFGHAN NATIONAL ARMY			
010	SUSTAINMENT	1,053,668		1,053,668
020	INFRASTRUCTURE	1,818		1,818
030	EQUIPMENT AND TRANSPORTATION	22,911		22,911
040	TRAINING AND OPERATIONS	31,837		31,837
	SUBTOTAL AFGHAN NATIONAL ARMY	**1,110,234**	**0**	**1,110,234**
	AFGHAN NATIONAL POLICE			
050	SUSTAINMENT	440,628		440,628
070	EQUIPMENT AND TRANSPORTATION	38,551		38,551
080	TRAINING AND OPERATIONS	38,152		38,152
	SUBTOTAL AFGHAN NATIONAL POLICE	**517,331**	**0**	**517,331**
	AFGHAN AIR FORCE			
090	SUSTAINMENT	562,056		562,056
110	EQUIPMENT AND TRANSPORTATION	26,600		26,600
120	TRAINING AND OPERATIONS	169,684		169,684
	SUBTOTAL AFGHAN AIR FORCE	**758,340**	**0**	**758,340**

	AFGHAN SPECIAL SECURITY FORCES			
130	SUSTAINMENT	685,176		685,176
150	EQUIPMENT AND TRANSPORTATION	78,962		78,962
160	TRAINING AND OPERATIONS	177,767		177,767
	SUBTOTAL AFGHAN SPECIAL SECURITY FORCES	**941,905**	**0**	**941,905**
	TOTAL AFGHANISTAN SECURITY FORCES FUND	**3,327,810**	**0**	**3,327,810**
	COUNTER ISIS TRAIN AND EQUIP FUND (CTEF)			
	COUNTER ISIS TRAIN AND EQUIP FUND (CTEF)			
010	IRAQ	345,000		345,000
020	SYRIA	177,000		177,000
	SUBTOTAL COUNTER ISIS TRAIN AND EQUIP FUND (CTEF)	**522,000**	**0**	**522,000**
	TOTAL COUNTER ISIS TRAIN AND EQUIP FUND (CTEF)	**522,000**	**0**	**522,000**
	OPERATION & MAINTENANCE, NAVY			
	OPERATING FORCES			
010	MISSION AND OTHER FLIGHT OPERATIONS	6,264,654	280,400	6,545,054
	Navy UFR—Flying hour program - fleet operations		[280,400]	
020	FLEET AIR TRAINING	2,465,007	156,900	2,621,907
	Navy UFR—Flying hour program - fleet replacement squadron		[156,900]	
030	AVIATION TECHNICAL DATA & ENGINEERING SERVICES	55,140		55,140
040	AIR OPERATIONS AND SAFETY SUPPORT	197,904		197,904
050	AIR SYSTEMS SUPPORT	1,005,932		1,005,932
060	AIRCRAFT DEPOT MAINTENANCE	1,675,356	222,200	1,897,556
	Navy UFR—Additional aircraft depot maintenance events		[222,200]	
070	AIRCRAFT DEPOT OPERATIONS SUPPORT	65,518		65,518
080	AVIATION LOGISTICS	1,460,546		1,460,546

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

Line	Item	FY 2022 Request	Senate Change	Senate Authorized
090	MISSION AND OTHER SHIP OPERATIONS	5,858,028	76,000	5,934,028
	Navy UFR—Resilient Communications and PNT for Combat Logistics Fleet (CLF)		[34,000]	
	Navy UFR—Submarine Tender Overhaul		[42,000]	
100	SHIP OPERATIONS SUPPORT & TRAINING	1,154,696	13,500	1,168,196
	Navy UFR—Accelerate Naval Tactical Grid Development for Joint All-Domain Command and Control (JADC2)		[200]	
	Navy UFR—Naval Operational Business Logistics Enterprise (NOBLE)		[13,300]	
110	SHIP DEPOT MAINTENANCE	10,300,078	39,800	10,339,878
	Navy UFR—A–120 availability		[39,800]	
120	SHIP DEPOT OPERATIONS SUPPORT	2,188,454	36,000	2,224,454
	Navy UFR—CG Modernization Pricing		[36,000]	
130	COMBAT COMMUNICATIONS AND ELECTRONIC WARFARE	1,551,846		1,551,846
140	SPACE SYSTEMS AND SURVEILLANCE	327,251	12,000	339,251
	Navy UFR—T-AGOS maintenance and repair		[12,000]	
150	WARFARE TACTICS	798,082		798,082
160	OPERATIONAL METEOROLOGY AND OCEANOGRAPHY	447,486		447,486
170	COMBAT SUPPORT FORCES	2,250,756	47,100	2,297,856
	CENTCOM UFR—Naval patrol craft support		[47,100]	
180	EQUIPMENT MAINTENANCE AND DEPOT OPERATIONS SUPPORT	192,968		192,968
190	COMBATANT COMMANDERS CORE OPERATIONS	61,614		61,614
200	COMBATANT COMMANDERS DIRECT MISSION SUPPORT	198,596	250,840	449,436
	INDOPACOM UFR—Critical HQ manpower positions		[4,620]	
	INDOPACOM UFR—Future fusion centers		[3,300]	
	INDOPACOM UFR—ISR augmentation		[41,000]	
	INDOPACOM UFR—Mission Partner Environment		[54,010]	
	INDOPACOM UFR—Multi-Domain Training and Experimentation Capability		[59,410]	
	INDOPACOM UFR—Pacific Movement Coordination Center		[500]	
	INDOPACOM UFR—Wargaming analytical tools		[88,000]	

210	MILITARY INFORMATION SUPPORT OPERATIONS	8,984	28,000	36,984
	INDOPACOM UFR—Military Information Support Ops		[28,000]	
220	CYBERSPACE ACTIVITIES	565,926	–5,000	560,926
	Identity, credentialing, and access management reduction		[–5,000]	
230	FLEET BALLISTIC MISSILE	1,476,247		1,476,247
240	WEAPONS MAINTENANCE	1,538,743		1,538,743
250	OTHER WEAPON SYSTEMS SUPPORT	592,357		592,357
260	ENTERPRISE INFORMATION	734,970		734,970
270	SUSTAINMENT, RESTORATION AND MODERNIZATION	2,961,937	575,000	3,536,937
	Program increase FSRM to 100%		[575,000]	
280	BASE OPERATING SUPPORT	4,826,314		4,826,314
	SUBTOTAL OPERATING FORCES	**51,225,390**	**1,732,740**	**52,958,130**
	MOBILIZATION			
290	SHIP PREPOSITIONING AND SURGE	457,015	49,300	506,315
	Navy UFR—Maritime Prepositioning Force (MPF) Engine Overhauls		[49,300]	
300	READY RESERVE FORCE	645,522		645,522
310	SHIP ACTIVATIONS/INACTIVATIONS	353,530		353,530
320	EXPEDITIONARY HEALTH SERVICES SYSTEMS	149,384	14,800	164,184
	Navy UFR—Expeditionary medical readiness		[14,800]	
330	COAST GUARD SUPPORT	20,639		20,639
	SUBTOTAL MOBILIZATION	**1,626,090**	**64,100**	**1,690,190**
	TRAINING AND RECRUITING			
340	OFFICER ACQUISITION	172,913		172,913
350	RECRUIT TRAINING	13,813		13,813
360	RESERVE OFFICERS TRAINING CORPS	167,152		167,152
370	SPECIALIZED SKILL TRAINING	1,053,104		1,053,104
380	PROFESSIONAL DEVELOPMENT EDUCATION	311,209		311,209
390	TRAINING SUPPORT	306,302		306,302

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

Line	Item	FY 2022 Request	Senate Change	Senate Authorized
400	RECRUITING AND ADVERTISING	205,219		205,219
410	OFF-DUTY AND VOLUNTARY EDUCATION	79,053		79,053
420	CIVILIAN EDUCATION AND TRAINING	109,754		109,754
430	JUNIOR ROTC	57,323		57,323
	SUBTOTAL TRAINING AND RECRUITING	**2,475,842**	**0**	**2,475,842**
	ADMIN & SRVWD ACTIVITIES			
440	ADMINISTRATION	1,268,961		1,268,961
450	CIVILIAN MANPOWER AND PERSONNEL MANAGEMENT	212,952		212,952
460	MILITARY MANPOWER AND PERSONNEL MANAGEMENT	562,546		562,546
470	MEDICAL ACTIVITIES	285,436		285,436
480	SERVICEWIDE TRANSPORTATION	217,782		217,782
500	PLANNING, ENGINEERING, AND PROGRAM SUPPORT	479,480		479,480
510	ACQUISITION, LOGISTICS, AND OVERSIGHT	741,045		741,045
520	INVESTIGATIVE AND SECURITY SERVICES	738,187		738,187
9999	CLASSIFIED PROGRAMS	607,517		607,517
	SUBTOTAL ADMIN & SRVWD ACTIVITIES	**5,113,906**	**0**	**5,113,906**
	UNDISTRIBUTED			
998	UNDISTRIBUTED	0	–377,115	–377,115
	Bulk fuel adjustment		[–54,315]	
	Foreign currency fluctuations		[–96,000]	
	Printing costs reduction		[–5,100]	
	Unobligated balances		[–221,700]	
	SUBTOTAL UNDISTRIBUTED	**0**	**–377,115**	**–377,115**

	TOTAL OPERATION & MAINTENANCE, NAVY	**60,441,228**	**1,419,725**	**61,860,953**
	OPERATION & MAINTENANCE, MARINE CORPS			
	OPERATING FORCES			
010	OPERATIONAL FORCES	1,587,456	45,300	1,632,756
	Marine Corps UFR—Plate Carrier Gen III		[45,300]	
020	FIELD LOGISTICS	1,532,630		1,532,630
030	DEPOT MAINTENANCE	215,949		215,949
040	MARITIME PREPOSITIONING	107,969		107,969
050	CYBERSPACE ACTIVITIES	233,486		233,486
060	SUSTAINMENT, RESTORATION & MODERNIZATION	1,221,117	224,000	1,445,117
	Program increase FSRM to 100%		[224,000]	
070	BASE OPERATING SUPPORT	2,563,278		2,563,278
	SUBTOTAL OPERATING FORCES	**7,461,885**	**269,300**	**7,731,185**
	TRAINING AND RECRUITING			
080	RECRUIT TRAINING	24,729		24,729
090	OFFICER ACQUISITION	1,208		1,208
100	SPECIALIZED SKILL TRAINING	110,752		110,752
110	PROFESSIONAL DEVELOPMENT EDUCATION	61,539		61,539
120	TRAINING SUPPORT	490,975		490,975
130	RECRUITING AND ADVERTISING	223,643		223,643
140	OFF-DUTY AND VOLUNTARY EDUCATION	49,369		49,369
150	JUNIOR ROTC	26,065		26,065
	SUBTOTAL TRAINING AND RECRUITING	**988,280**	**0**	**988,280**
	ADMIN & SRVWD ACTIVITIES			
160	SERVICEWIDE TRANSPORTATION	100,475		100,475

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Line	Item	FY 2022 Request	Senate Change	Senate Authorized
170	ADMINISTRATION	410,729		410,729
9999	CLASSIFIED PROGRAMS	63,422		63,422
	SUBTOTAL ADMIN & SRVWD ACTIVITIES	**574,626**	**0**	**574,626**
	UNDISTRIBUTED			
998	UNDISTRIBUTED	0	–108,815	–108,815
	Bulk fuel adjustment		[–54,315]	
	Foreign currency fluctuations		[–12,000]	
	Printing costs reduction		[–5,100]	
	Unobligated balances		[–37,400]	
	SUBTOTAL UNDISTRIBUTED	**0**	**–108,815**	**–108,815**
	TOTAL OPERATION & MAINTENANCE, MARINE CORPS	**9,024,791**	**160,485**	**9,185,276**
	OPERATION & MAINTENANCE, NAVY RES			
	OPERATING FORCES			
010	MISSION AND OTHER FLIGHT OPERATIONS	628,522		628,522
020	INTERMEDIATE MAINTENANCE	9,593		9,593
030	AIRCRAFT DEPOT MAINTENANCE	135,280		135,280
040	AIRCRAFT DEPOT OPERATIONS SUPPORT	497		497
050	AVIATION LOGISTICS	29,435		29,435
070	COMBAT COMMUNICATIONS	18,469		18,469
080	COMBAT SUPPORT FORCES	136,710		136,710
090	CYBERSPACE ACTIVITIES	440		440
100	ENTERPRISE INFORMATION	26,628		26,628

110	SUSTAINMENT, RESTORATION AND MODERNIZATION	42,311		42,311
120	BASE OPERATING SUPPORT	103,606		103,606
	SUBTOTAL OPERATING FORCES	**1,131,491**	**0**	**1,131,491**
	ADMIN & SRVWD ACTIVITIES			
130	ADMINISTRATION	1,943		1,943
140	MILITARY MANPOWER AND PERSONNEL MANAGEMENT	12,191		12,191
150	ACQUISITION AND PROGRAM MANAGEMENT	3,073		3,073
	SUBTOTAL ADMIN & SRVWD ACTIVITIES	**17,207**	**0**	**17,207**
	UNDISTRIBUTED			
998	UNDISTRIBUTED	0	–17,495	–17,495
	Bulk fuel adjustment		[–3,195]	
	Unobligated balances		[–14,300]	
	SUBTOTAL UNDISTRIBUTED	**0**	**–17,495**	**–17,495**
	TOTAL OPERATION & MAINTENANCE, NAVY RES	**1,148,698**	**–17,495**	**1,131,203**
	OPERATION & MAINTENANCE, MC RESERVE			
	OPERATING FORCES			
010	OPERATING FORCES	102,271	45,900	148,171
	Marine Corps UFR—Individual combat clothing and equipment		[45,900]	
020	DEPOT MAINTENANCE	16,811		16,811
030	SUSTAINMENT, RESTORATION AND MODERNIZATION	42,702		42,702
040	BASE OPERATING SUPPORT	109,210		109,210
	SUBTOTAL OPERATING FORCES	**270,994**	**45,900**	**316,894**
	ADMIN & SRVWD ACTIVITIES			

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Line	Item	FY 2022 Request	Senate Change	Senate Authorized
050	ADMINISTRATION	14,056		14,056
	SUBTOTAL ADMIN & SRVWD ACTIVITIES	**14,056**	**0**	**14,056**
	UNDISTRIBUTED			
998	UNDISTRIBUTED	0	–7,695	–7,695
	Bulk fuel adjustment		[–3,195]	
	Unobligated balances		[–4,500]	
	SUBTOTAL UNDISTRIBUTED	**0**	**–7,695**	**–7,695**
	TOTAL OPERATION & MAINTENANCE, MC RESERVE	**285,050**	**38,205**	**323,255**
	OPERATION & MAINTENANCE, AIR FORCE			
	OPERATING FORCES			
010	PRIMARY COMBAT FORCES	706,860		706,860
020	COMBAT ENHANCEMENT FORCES	2,382,448	96,500	2,478,948
	Air Force UFR—Build command and control framework		[5,000]	
	Air Force UFR—Weapon system sustainment		[37,000]	
	CENTCOM UFR—Additional ISR		[53,000]	
	EUCOM UFR—Air Base Air Defense Operations Center		[1,500]	
030	AIR OPERATIONS TRAINING (OJT, MAINTAIN SKILLS)	1,555,320	285,000	1,840,320
	Air Force UFR—FSRM		[285,000]	
040	DEPOT PURCHASE EQUIPMENT MAINTENANCE	3,661,762	209,000	3,870,762
	Air Force UFR—Weapon system sustainment		[209,000]	
050	FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION	3,867,114	744,000	4,611,114
	Program increase FSRM to 100%		[744,000]	

060	CYBERSPACE SUSTAINMENT	179,568	116,000	295,568
	Air Force UFR—Weapon system sustainment		[116,000]	
070	CONTRACTOR LOGISTICS SUPPORT AND SYSTEM SUPPORT	8,457,653	729,000	9,186,653
	A–10/F–35 contract maintenance		[156,000]	
	Air Force UFR—Build command and control framework		[112,000]	
	Air Force UFR—F–35 weapon system sustainment		[185,000]	
	Air Force UFR—Weapon system sustainment		[276,000]	
080	FLYING HOUR PROGRAM	5,646,730	469,000	6,115,730
	Air Force UFR—Weapon system sustainment		[114,000]	
	Restore A10s divestment		[272,000]	
	Restore C130s divestment		[83,000]	
090	BASE SUPPORT	9,846,037	85,000	9,931,037
	Air Force UFR—Build command and control framework		[85,000]	
100	GLOBAL C3I AND EARLY WARNING	979,705		979,705
110	OTHER COMBAT OPS SPT PROGRAMS	1,418,515	6,310	1,424,825
	Commercial economic analysis program reduction		[–3,000]	
	EUCOM UFR—Air base air defense		[110]	
	EUCOM UFR—Mission Partner Environment		[9,200]	
120	CYBERSPACE ACTIVITIES	864,761		864,761
150	SPACE CONTROL SYSTEMS	13,223		13,223
160	US NORTHCOM/NORAD	196,774		196,774
170	US STRATCOM	475,015		475,015
180	US CYBERCOM	389,663	31,300	420,963
	CYBERCOM UFR—Acceleration of cyber intelligence		[3,200]	
	CYBERCOM UFR—Acquisition personnel		[4,800]	
	CYBERCOM UFR—Advanced cyber training		[23,300]	
190	US CENTCOM	372,354	19,000	391,354
	CENTCOM UFR—MISO program		[24,000]	
	Program reduction to OSCI		[–5,000]	
200	US SOCOM	28,733		28,733
220	CENTCOM CYBERSPACE SUSTAINMENT	1,289		1,289
230	USSPACECOM	272,601	57,000	329,601

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(In Thousands of Dollars)

Line	Item	FY 2022 Request	Senate Change	Senate Authorized
	SPACECOM UFR—Bridging space protection gaps		[30,200]	
	SPACECOM UFR—Pathway to full operational capability		[26,800]	
9999	CLASSIFIED PROGRAMS	1,454,383	–10,500	1,443,883
	Capabilities Management Office reduction		[–5,000]	
	CCMD Intelligence Information Technology reduction		[–3,000]	
	Strategy Coordination reduction		[–2,500]	
	SUBTOTAL OPERATING FORCES	**42,770,508**	**2,836,610**	**45,607,118**
	MOBILIZATION			
240	AIRLIFT OPERATIONS	2,422,784		2,422,784
250	MOBILIZATION PREPAREDNESS	667,851		667,851
	SUBTOTAL MOBILIZATION	**3,090,635**	**0**	**3,090,635**
	TRAINING AND RECRUITING			
260	OFFICER ACQUISITION	156,193		156,193
270	RECRUIT TRAINING	26,072		26,072
280	RESERVE OFFICERS TRAINING CORPS (ROTC)	127,693		127,693
290	SPECIALIZED SKILL TRAINING	491,286		491,286
300	FLIGHT TRAINING	718,742		718,742
310	PROFESSIONAL DEVELOPMENT EDUCATION	302,092		302,092
320	TRAINING SUPPORT	162,165		162,165
330	RECRUITING AND ADVERTISING	171,339		171,339
340	EXAMINING	8,178		8,178
350	OFF-DUTY AND VOLUNTARY EDUCATION	236,760		236,760
360	CIVILIAN EDUCATION AND TRAINING	306,602		306,602

370	JUNIOR ROTC	65,940		65,940
	SUBTOTAL TRAINING AND RECRUITING	**2,773,062**	**0**	**2,773,062**
	ADMIN & SRVWD ACTIVITIES			
380	LOGISTICS OPERATIONS	1,062,709		1,062,709
390	TECHNICAL SUPPORT ACTIVITIES	169,957		169,957
400	ADMINISTRATION	1,005,827		1,005,827
410	SERVICEWIDE COMMUNICATIONS	31,054		31,054
420	OTHER SERVICEWIDE ACTIVITIES	1,470,757	6,000	1,476,757
	Air Force UFR—Build command and control framework		[6,000]	
430	CIVIL AIR PATROL	29,128		29,128
450	INTERNATIONAL SUPPORT	81,118		81,118
9999	CLASSIFIED PROGRAMS	1,391,720		1,391,720
	SUBTOTAL ADMIN & SRVWD ACTIVITIES	**5,242,270**	**6,000**	**5,248,270**
	UNDISTRIBUTED			
998	UNDISTRIBUTED	0	–594,865	–594,865
	Bulk fuel adjustment		[–150,165]	
	Foreign currency fluctuations		[–81,000]	
	Printing costs reduction		[–5,100]	
	Unobligated balances		[–358,600]	
	SUBTOTAL UNDISTRIBUTED	**0**	**–594,865**	**–594,865**
	TOTAL OPERATION & MAINTENANCE, AIR FORCE	**53,876,475**	**2,247,745**	**56,124,220**
	OPERATION & MAINTENANCE, SPACE FORCE			
	OPERATING FORCES			
010	GLOBAL C3I & EARLY WARNING	495,615	25,700	521,315
	Space Force UFR—Maintenance contracts for missile warning and defense systems		[25,700]	

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Line	Item	FY 2022 Request	Senate Change	Senate Authorized
020	SPACE LAUNCH OPERATIONS	185,700		185,700
030	SPACE OPERATIONS	611,269	9,500	620,769
	Space Force UFR—Increase opeational support to SPACECOM		[5,500]	
	Space Force UFR—Space Commercially Augmented Mission Platform		[4,000]	
040	EDUCATION & TRAINING	22,887	86,000	108,887
	Space Force UFR—Accelerate Space Force PME		[86,000]	
060	DEPOT MAINTENANCE	280,165	26,200	306,365
	Space Force UFR—Weapon system sustainment		[26,200]	
070	FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION	213,347	67,800	281,147
	Space Force UFR—Aircraft fire training mock-up		[1,500]	
	Space Force UFR—FSRM Cheyenne Mountain Complex		[66,300]	
080	CONTRACTOR LOGISTICS AND SYSTEM SUPPORT	1,158,707	96,000	1,254,707
	Space Force UFR—Weapon system sustainment		[96,000]	
090	SPACE OPERATIONS -BOS	143,520		143,520
9999	CLASSIFIED PROGRAMS	172,755		172,755
	SUBTOTAL OPERATING FORCES	**3,283,965**	**311,200**	**3,595,165**
	ADMINISTRATION AND SERVICE WIDE ACTIVITIES			
100	ADMINISTRATION	156,747		156,747
	SUBTOTAL ADMINISTRATION AND SERVICE WIDE ACTIVITIES	**156,747**	**0**	**156,747**
	UNDISTRIBUTED			
998	UNDISTRIBUTED	0		
	SUBTOTAL UNDISTRIBUTED	**0**	**0**	

	TOTAL OPERATION & MAINTENANCE, SPACE FORCE	**3,440,712**	**311,200**	**3,751,912**
	OPERATION & MAINTENANCE, AF RESERVE			
	OPERATING FORCES			
010	PRIMARY COMBAT FORCES	1,665,015		1,665,015
020	MISSION SUPPORT OPERATIONS	179,486		179,486
030	DEPOT PURCHASE EQUIPMENT MAINTENANCE	530,540		530,540
040	FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION	114,987	9,000	123,987
	Air Force UFR—FSRM		[9,000]	
050	CONTRACTOR LOGISTICS SUPPORT AND SYSTEM SUPPORT	254,831		254,831
060	BASE SUPPORT	470,801		470,801
070	CYBERSPACE ACTIVITIES	1,372		1,372
	SUBTOTAL OPERATING FORCES	**3,217,032**	**9,000**	**3,226,032**
	ADMINISTRATION AND SERVICEWIDE ACTIVITIES			
080	ADMINISTRATION	91,289		91,289
090	RECRUITING AND ADVERTISING	23,181		23,181
100	MILITARY MANPOWER AND PERS MGMT (ARPC)	13,966		13,966
110	OTHER PERS SUPPORT (DISABILITY COMP)	6,196		6,196
120	AUDIOVISUAL	442		442
	SUBTOTAL ADMINISTRATION AND SERVICEWIDE ACTIVITIES	**135,074**	**0**	**135,074**
	UNDISTRIBUTED			
998	UNDISTRIBUTED	0	–43,295	–43,295
	Bulk fuel adjustment		[–3,195]	
	Unobligated balances		[–40,100]	
	SUBTOTAL UNDISTRIBUTED	**0**	**–43,295**	**–43,295**

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(In Thousands of Dollars)

Line	Item	FY 2022 Request	Senate Change	Senate Authorized
	TOTAL OPERATION & MAINTENANCE, AF RESERVE	**3,352,106**	**–34,295**	**3,317,811**
	OPERATION & MAINTENANCE, ANG			
	OPERATING FORCES			
010	AIRCRAFT OPERATIONS	2,281,432		2,281,432
020	MISSION SUPPORT OPERATIONS	582,848	5,900	588,748
	CNGB UFR—HRF/CERFP sustainment		[5,900]	
030	DEPOT PURCHASE EQUIPMENT MAINTENANCE	1,241,318		1,241,318
040	FACILITIES SUSTAINMENT, RESTORATION & MODERNIZATION	353,193	26,000	379,193
	Air Force UFR—FSRM		[26,000]	
050	CONTRACTOR LOGISTICS SUPPORT AND SYSTEM SUPPORT	1,077,654		1,077,654
060	BASE SUPPORT	908,198	17,400	925,598
	CNGB UFR—Security forces hearing and comm package		[17,400]	
070	CYBERSPACE SUSTAINMENT	23,895		23,895
080	CYBERSPACE ACTIVITIES	17,263		17,263
	SUBTOTAL OPERATING FORCES	**6,485,801**	**49,300**	**6,535,101**
	ADMINISTRATION AND SERVICE-WIDE ACTIVITIES			
090	ADMINISTRATION	46,455		46,455
100	RECRUITING AND ADVERTISING	41,764		41,764
	SUBTOTAL ADMINISTRATION AND SERVICE-WIDE ACTIVITIES	**88,219**	**0**	**88,219**
	UNDISTRIBUTED			
998	UNDISTRIBUTED	0	–66,275	–66,275
	Bulk fuel adjustment		[–15,975]	

	Unobligated balances		[–50,300]	
	SUBTOTAL UNDISTRIBUTED	**0**	**–66,275**	**–66,275**
	TOTAL OPERATION & MAINTENANCE, ANG	**6,574,020**	**–16,975**	**6,557,045**
	OPERATION AND MAINTENANCE, DEFENSE-WIDE			
	OPERATING FORCES			
010	JOINT CHIEFS OF STAFF	407,240		407,240
020	JOINT CHIEFS OF STAFF—CE2T2	554,634	123,100	677,734
	AFRICOM UFR—Joint Exercise Program		[18,000]	
	CENTCOM UFR—EAGER LION		[20,000]	
	INDOPACOM UFR—Joint Exercise Program		[35,100]	
	Joint Exercise Program—restore to FY21 levels		[50,000]	
030	JOINT CHIEFS OF STAFF—CYBER	8,098		8,098
050	SPECIAL OPERATIONS COMMAND COMBAT DEVELOPMENT ACTIVITIES	2,044,479	3,310	2,047,789
	SOCOM UFR—Armored ground mobility systems acceleration		[3,310]	
060	SPECIAL OPERATIONS COMMAND CYBERSPACE ACTIVITIES	45,851		45,851
070	SPECIAL OPERATIONS COMMAND INTELLIGENCE	1,614,757		1,614,757
080	SPECIAL OPERATIONS COMMAND MAINTENANCE	1,081,869	6,341	1,088,210
	SOCOM UFR—Modernized forward look sonar		[900]	
	SOCOM UFR—Personal signature management acceleration		[5,441]	
090	SPECIAL OPERATIONS COMMAND MANAGEMENT/OPERATIONAL HEADQUARTERS	180,042		180,042
100	SPECIAL OPERATIONS COMMAND OPERATIONAL SUPPORT	1,202,060		1,202,060
110	SPECIAL OPERATIONS COMMAND THEATER FORCES	3,175,789		3,175,789
	SUBTOTAL OPERATING FORCES	**10,314,819**	**132,751**	**10,447,570**
	TRAINING AND RECRUITING			
130	DEFENSE ACQUISITION UNIVERSITY	171,607		171,607
140	JOINT CHIEFS OF STAFF	92,905		92,905
150	PROFESSIONAL DEVELOPMENT EDUCATION	31,669		31,669

SEC. 4301. OPERATION AND MAINTENANCE
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Line	Item	FY 2022 Request	Senate Change	Senate Authorized
	SUBTOTAL TRAINING AND RECRUITING	**296,181**	**0**	**296,181**
	ADMIN & SRVWIDE ACTIVITIES			
170	CIVIL MILITARY PROGRAMS	137,311	20,000	157,311
	Innovative readiness training increase		[5,000]	
	STARBASE		[15,000]	
190	DEFENSE CONTRACT AUDIT AGENCY	618,526		618,526
200	DEFENSE CONTRACT AUDIT AGENCY—CYBER	3,984		3,984
220	DEFENSE CONTRACT MANAGEMENT AGENCY	1,438,296		1,438,296
230	DEFENSE CONTRACT MANAGEMENT AGENCY—CYBER	11,999		11,999
240	DEFENSE COUNTERINTELLIGENCE AND SECURITY AGENCY	941,488	5,000	946,488
	DCSA Analytic tools for assessing FOCI		[5,000]	
260	DEFENSE COUNTERINTELLIGENCE AND SECURITY AGENCY—CYBER	9,859		9,859
270	DEFENSE HUMAN RESOURCES ACTIVITY	816,168	15,000	831,168
	Troops-to-Teachers		[15,000]	
280	DEFENSE HUMAN RESOURCES ACTIVITY—CYBER	17,655		17,655
290	DEFENSE INFORMATION SYSTEMS AGENCY	1,913,734	42,000	1,955,734
	milCloud 2.0 migration		[42,000]	
310	DEFENSE INFORMATION SYSTEMS AGENCY—CYBER	530,278	85,100	615,378
	Automated C2, orchestration, other increased capabilities for JFHQ-DODIN		[25,000]	
	CYBERCOM UFR—Hardening of DODIN		[60,100]	
350	DEFENSE LEGAL SERVICES AGENCY	229,498		229,498
360	DEFENSE LOGISTICS AGENCY	402,864		402,864
370	DEFENSE MEDIA ACTIVITY	222,655		222,655
380	DEFENSE PERSONNEL ACCOUNTING AGENCY	130,174		130,174
390	DEFENSE SECURITY COOPERATION AGENCY	2,067,446	338,290	2,405,736

	AFRICOM UFR—AFRICOM security cooperation program increase		[60,000]	
	Increase to Ukraine Security Assistance Initiative		[50,000]	
	INDOPACOM UFR—INDOPACOM security cooperation program increase		[130,600]	
	Joint Combined Exchange Training—restore to FY21 levels		[3,190]	
	SOUTHCOM UFR—Air Mobility Initiative		[85,000]	
	SOUTHCOM UFR—Central America Border Security Initiative		[9,500]	
420	DEFENSE TECHNOLOGY SECURITY ADMINISTRATION	39,305		39,305
440	DEFENSE THREAT REDUCTION AGENCY	885,749		885,749
460	DEFENSE THREAT REDUCTION AGENCY—CYBER	36,736		36,736
470	DEPARTMENT OF DEFENSE EDUCATION ACTIVITY	3,138,345	70,000	3,208,345
	Impact Aid for children with severe disabilities		[20,000]	
	Impact Aid for schools with military dependent students		[50,000]	
490	MISSILE DEFENSE AGENCY	502,450		502,450
530	OFFICE OF THE LOCAL DEFENSE COMMUNITY COOPERATION—OSD	89,686		89,686
540	OFFICE OF THE SECRETARY OF DEFENSE	1,766,614	97,500	1,864,114
	Analytical tools in evaluating energy resilience measures		[2,000]	
	Bien Hoa dioxin cleanup		[15,000]	
	Centers for Disease Control and Prevention nation-wide human health assessment		[15,000]	
	Congressional Hearings and Reporting Requirements Tracking System modernization		[2,000]	
	Cost Assessment Data Enterprise		[3,500]	
	Defense Environmental International Cooperation program increase		[2,000]	
	Interstate compacts on licensed occupations		[4,000]	
	Joint Aviation Safety Council		[4,000]	
	Office of the Secretary of Defense civilian workforce		[25,000]	
	Personnel in the Office of Assistant Secretary of Defense Sustainment and Environment, Safety, and Occupational Health		[5,000]	
	Strategic competition initiative		[20,000]	
550	OFFICE OF THE SECRETARY OF DEFENSE—CYBER	32,851		32,851
560	SPACE DEVELOPMENT AGENCY	53,851		53,851
570	WASHINGTON HEADQUARTERS SERVICES	369,698		369,698
999	CLASSIFIED PROGRAMS	17,900,146		17,900,146
	SUBTOTAL ADMIN & SRVWIDE ACTIVITIES	**34,307,366**	**672,890**	**34,980,256**

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

Line	Item	FY 2022 Request	Senate Change	Senate Authorized
	TOTAL OPERATION AND MAINTENANCE, DEFENSE-WIDE	**44,918,366**	**161,496**	**45,079,862**
	UNDISTRIBUTED			
	OPERATION & MAINTENANCE, DEFENSE-WIDE			
998	UNDISTRIBUTED	0	–644,145	–644,145
	Bulk fuel adjustment		[–3,195]	
	Foreign currency fluctuations		[–30,000]	
	Printing costs reduction		[–5,100]	
	Program reduction—SOCOM unjustified increase in management and headquarters expenses		[–28,650]	
	Unobligated balances		[–577,200]	
	SUBTOTAL UNDISTRIBUTED	**0**	**–644,145**	**–644,145**
	TOTAL OPERATION & MAINTENANCE, DEFENSE-WIDE	**0**	**161,496**	**161,496**
	MISCELLANEOUS APPROPRIATIONS			
	US COURT OF APPEALS FOR THE ARMED FORCES, DEF			
010	US COURT OF APPEALS FOR THE ARMED FORCES, DEFENSE	15,589		15,589
	SUBTOTAL US COURT OF APPEALS FOR THE ARMED FORCES, DEF	**15,589**	**0**	**15,589**
	TOTAL MISCELLANEOUS APPROPRIATIONS	**15,589**	**0**	**15,589**
	MISCELLANEOUS APPROPRIATIONS			
	OVERSEAS HUMANITARIAN, DISASTER, AND CIVIC AID			

010	OVERSEAS HUMANITARIAN, DISASTER AND CIVIC AID	110,051	25,000	135,051
	Program increase		[25,000]	
	SUBTOTAL OVERSEAS HUMANITARIAN, DISASTER, AND CIVIC AID	**110,051**	**25,000**	**135,051**
	TOTAL MISCELLANEOUS APPROPRIATIONS	**110,051**	**25,000**	**135,051**
	MISCELLANEOUS APPROPRIATIONS			
	COOPERATIVE THREAT REDUCTION ACCOUNT			
010	COOPERATIVE THREAT REDUCTION	239,849		239,849
	SUBTOTAL COOPERATIVE THREAT REDUCTION ACCOUNT	**239,849**	**0**	**239,849**
	TOTAL MISCELLANEOUS APPROPRIATIONS	**239,849**	**0**	**239,849**
	MISCELLANEOUS APPROPRIATIONS			
	ACQUISITION WORKFORCE DEVELOPMENT			
010	ACQ WORKFORCE DEV FD	54,679		54,679
	SUBTOTAL ACQUISITION WORKFORCE DEVELOPMENT	**54,679**	**0**	**54,679**
	TOTAL MISCELLANEOUS APPROPRIATIONS	**54,679**	**0**	**54,679**
	MISCELLANEOUS APPROPRIATIONS			
	ENVIRONMENTAL RESTORATION, ARMY			
050	ENVIRONMENTAL RESTORATION, ARMY	200,806		200,806
	SUBTOTAL ENVIRONMENTAL RESTORATION, ARMY	**200,806**	**0**	**200,806**
	TOTAL MISCELLANEOUS APPROPRIATIONS	**200,806**	**0**	**200,806**
	MISCELLANEOUS APPROPRIATIONS			

SEC. 4301. OPERATION AND MAINTENANCE
(In Thousands of Dollars)

Line	Item	FY 2022 Request	Senate Change	Senate Authorized
	ENVIRONMENTAL RESTORATION, NAVY			
060	ENVIRONMENTAL RESTORATION, NAVY	298,250		298,250
	SUBTOTAL ENVIRONMENTAL RESTORATION, NAVY	**298,250**	**0**	**298,250**
	TOTAL MISCELLANEOUS APPROPRIATIONS	**298,250**	**0**	**298,250**
	MISCELLANEOUS APPROPRIATIONS			
	ENVIRONMENTAL RESTORATION, AIR FORCE			
070	ENVIRONMENTAL RESTORATION, AIR FORCE	301,768		301,768
	SUBTOTAL ENVIRONMENTAL RESTORATION, AIR FORCE	**301,768**	**0**	**301,768**
	TOTAL MISCELLANEOUS APPROPRIATIONS	**301,768**	**0**	**301,768**
	MISCELLANEOUS APPROPRIATIONS			
	ENVIRONMENTAL RESTORATION, DEFENSE			
080	ENVIRONMENTAL RESTORATION, DEFENSE	8,783		8,783
	SUBTOTAL ENVIRONMENTAL RESTORATION, DEFENSE	**8,783**	**0**	**8,783**
	TOTAL MISCELLANEOUS APPROPRIATIONS	**8,783**	**0**	**8,783**
	MISCELLANEOUS APPROPRIATIONS			
	ENVIRONMENTAL RESTORATION FORMERLY USED SITES			
090	ENVIRONMENTAL RESTORATION FORMERLY USED SITES	218,580		218,580
	SUBTOTAL ENVIRONMENTAL RESTORATION FORMERLY USED SITES	**218,580**	**0**	**218,580**

TOTAL MISCELLANEOUS APPROPRIATIONS	218,580	0	218,580
TOTAL OPERATION & MAINTENANCE	253,623,852	6,947,353	260,571,205

TITLE XLIV—MILITARY PERSONNEL

TITLE XLIV—MILITARY PERSONNEL

SEC. 4401. MILITARY PERSONNEL.

SEC. 4401. MILITARY PERSONNEL
(In Thousands of Dollars)

Item	FY 2022 Request	Senate Change	Senate Authorized
MILITARY PERSONNEL			
MILITARY PERSONNEL APPROPRIATIONS			
MILITARY PERSONNEL APPROPRIATIONS	157,947,920	–496,612	157,451,308
A–10/F–35 Active duty maintainers		93,000	
Army UFR – JTIMS exercise support		67,435	
Army UFR – Reserve Component EDI for Rotational Forces		55,999	
Army UFR – Reserve Component Homeland Security Ops		228,410	
CNGB UFR – CBRN Response Forces		9,200	
Military personnel historical underexecution		[–950,656]	
SUBTOTAL MILITARY PERSONNEL APPROPRIATIONS	**157,947,920**	**–496,612**	**157,451,308**
MEDICARE-ELIGIBLE RETIREE HEALTH CARE FUND CONTRIBUTIONS			
MEDICARE-ELIGIBLE RETIREE HEALTH CARE FUND CONTRIBUTIONS	9,337,175		9,337,175
SUBTOTAL MEDICARE-ELIGIBLE RETIREE HEALTH CARE FUND CONTRIBUTIONS	**9,337,175**	**0**	**9,337,175**
TOTAL MILITARY PERSONNEL	**167,285,095**	**–496,612**	**166,788,483**

TITLE XLV—OTHER AUTHORIZATIONS

TITLE XLV—OTHER AUTHORIZATIONS

SEC. 4501. OTHER AUTHORIZATIONS.

SEC. 4501. OTHER AUTHORIZATIONS
(In Thousands of Dollars)

Line	Item	FY 2022 Request	Senate Change	Senate Authorized
	WORKING CAPITAL FUND			
	WORKING CAPITAL FUND, ARMY			
1	INDUSTRIAL OPERATIONS	26,935		26,935
2	SUPPLY MANAGEMENT—ARMY	357,776		357,776
	SUBTOTAL WORKING CAPITAL FUND, ARMY	**384,711**	**0**	**384,711**
	WORKING CAPITAL FUND, NAVY			
1	SUPPLY MANAGEMENT, NAVY	150,000		150,000
	SUBTOTAL WORKING CAPITAL FUND, NAVY	**150,000**	**0**	**150,000**
	WORKING CAPITAL FUND, AIR FORCE			
2	SUPPLIES AND MATERIALS	77,453		77,453
	SUBTOTAL WORKING CAPITAL FUND, AIR FORCE	**77,453**	**0**	**77,453**
	WORKING CAPITAL FUND, DEFENSE-WIDE			
1	ENERGY MANAGEMENT—DEF	40,000		40,000
2	SUPPLY CHAIN MANAGEMENT—DEF	87,765		87,765
	SUBTOTAL WORKING CAPITAL FUND, DEFENSE-WIDE	**127,765**	**0**	**127,765**
	WORKING CAPITAL FUND, DECA			
2	WORKING CAPITAL FUND, DECA	1,162,071		1,162,071

	SUBTOTAL WORKING CAPITAL FUND, DECA	**1,162,071**	**0**	**1,162,071**
	TOTAL WORKING CAPITAL FUND	**1,902,000**	**0**	**1,902,000**
	CHEM AGENTS & MUNITIONS DESTRUCTION			
	OPERATION & MAINTENANCE			
1	CHEM DEMILITARIZATION—O&M	93,121		93,121
	SUBTOTAL OPERATION & MAINTENANCE	**93,121**	**0**	**93,121**
	RESEARCH, DEVELOPMENT, TEST, AND EVALUATION			
2	CHEM DEMILITARIZATION—RDT&E	1,001,231		1,001,231
	SUBTOTAL RESEARCH, DEVELOPMENT, TEST, AND EVALUATION	**1,001,231**	**0**	**1,001,231**
	TOTAL CHEM AGENTS & MUNITIONS DESTRUCTION	**1,094,352**	**0**	**1,094,352**
	DRUG INTERDICTION & CTR-DRUG ACTIVITIES, DEF			
	DRUG INTRDCTN			
1	COUNTER-NARCOTICS SUPPORT	593,250		593,250
	SUBTOTAL DRUG INTRDCTN	**593,250**	**0**	**593,250**
	DRUG DEMAND REDUCTION PROGRAM			
2	DRUG DEMAND REDUCTION PROGRAM	126,024		126,024
	SUBTOTAL DRUG DEMAND REDUCTION PROGRAM	**126,024**	**0**	**126,024**
	NATIONAL GUARD COUNTER-DRUG PROGRAM			
3	NATIONAL GUARD COUNTER-DRUG PROGRAM	96,970		96,970
	SUBTOTAL NATIONAL GUARD COUNTER-DRUG PROGRAM	**96,970**	**0**	**96,970**
	NATIONAL GUARD COUNTER-DRUG SCHOOLS			
4	NATIONAL GUARD COUNTER-DRUG SCHOOLS	5,664		5,664
	SUBTOTAL NATIONAL GUARD COUNTER-DRUG SCHOOLS	**5,664**	**0**	**5,664**

SEC. 4501. OTHER AUTHORIZATIONS
(In Thousands of Dollars)

Line	Item	FY 2022 Request	Senate Change	Senate Authorized
	TOTAL DRUG INTERDICTION & CTR-DRUG ACTIVITIES, DEF	**821,908**	**0**	**821,908**
	OFFICE OF THE INSPECTOR GENERAL			
	OFFICE OF THE INSPECTOR GENERAL			
1	OPERATION AND MAINTENANCE	434,700		434,700
2	OPERATION AND MAINTENANCE	1,218		1,218
3	RDT&E	2,365		2,365
4	PROCUREMENT	80		80
	SUBTOTAL OFFICE OF THE INSPECTOR GENERAL	**438,363**	**0**	**438,363**
	TOTAL OFFICE OF THE INSPECTOR GENERAL	**438,363**	**0**	**438,363**
	DEFENSE HEALTH PROGRAM			
	OPERATION & MAINTENANCE			
1	IN-HOUSE CARE	9,720,004	30,000	9,750,004
	Anomalous health incidents		[30,000]	
2	PRIVATE SECTOR CARE	18,092,679		18,092,679
3	CONSOLIDATED HEALTH SUPPORT	1,541,122		1,541,122
4	INFORMATION MANAGEMENT	2,233,677		2,233,677
5	MANAGEMENT ACTIVITIES	335,138		335,138
6	EDUCATION AND TRAINING	333,234		333,234
7	BASE OPERATIONS/COMMUNICATIONS	1,926,865		1,926,865
	SUBTOTAL OPERATION & MAINTENANCE	**34,182,719**	**30,000**	**34,212,719**
	RDT&E			
10	R&D ADVANCED DEVELOPMENT	235,556		235,556
11	R&D DEMONSTRATION/VALIDATION	142,252		142,252

12	R&D ENGINEERING DEVELOPMENT	101,054		101,054
12	R&D MANAGEMENT AND SUPPORT	49,645		49,645
14	R&D CAPABILITIES ENHANCEMENT	17,619		17,619
8	R&D RESEARCH	9,091		9,091
9	R&D EXPLORATRY DEVELOPMENT	75,463		75,463
	SUBTOTAL RDT&E	**630,680**	**0**	**630,680**
	PROCUREMENT			
15	PROC INITIAL OUTFITTING	20,926		20,926
16	PROC REPLACEMENT & MODERNIZATION	250,366		250,366
18	PROC MILITARY HEALTH SYSTEM—DESKTOP TO DATACENTER	72,302		72,302
19	PROC DOD HEALTHCARE MANAGEMENT SYSTEM MODERNIZATION	435,414		435,414
	SUBTOTAL PROCUREMENT	**779,008**	**0**	**779,008**
	TOTAL DEFENSE HEALTH PROGRAM	**35,592,407**	**30,000**	**35,622,407**
	TOTAL OTHER AUTHORIZATIONS	**39,849,030**	**30,000**	**39,879,030**

TITLE XLVI—MILITARY CONSTRUCTION

TITLE XLVI—MILITARY CONSTRUCTION

SEC. 4601. MILITARY CONSTRUCTION.

SEC. 4601. MILITARY CONSTRUCTION
(In Thousands of Dollars)

Account	State/ Country	Installation	Project Title	FY 2022 Request	Senate Change	Senate Authorized
MILITARY CONSTRUCTION						
ARMY						
Army	Alabama	Fort Rucker	AIT Barracks Complex	0	66,000	66,000
Army	Alabama	Redstone Arsenal	Propulsion Systems Lab	55,000		55,000
Army	Belgium	SHAPE Headquarters	Command and Control Facility	16,000		16,000
Army	California	Fort Irwin	Simulations Center	52,000		52,000
Army	Georgia	Fort Gordon	Cyber Instructional Fac (Admin/Cmd) (INC 2)	69,000		69,000
Army	Georgia	Fort Stewart	Barracks	0	100,000	100,000
Army	Germany	East Camp Grafenwoehr	EDI: Barracks and Dining Facility	103,000		103,000
Army	Germany	Smith Barracks	Live Fire Exercise Shoothouse	16,000		16,000
Army	Germany	Smith Barracks	Indoor Small Arms Range	17,500		17,500
Army	Hawaii	Fort Shafter	Cost to Complete, Command & Control Facility	0	55,500	55,500
Army	Hawaii	West Loch Naval Magazine Annex	Ammunition Storage	51,000		51,000
Army	Hawaii	Wheeler Army Airfield	Aviation Unit Ops Building	0	84,000	84,000
Army	Hawaii	Wheeler Army Airfield	Rotary Wing Parking Apron	0	56,000	56,000
Army	Kansas	Fort Leavenworth	Child Development Center	0	34,000	34,000
Army	Kentucky	Fort Knox	Child Development Center	0	27,000	27,000
Army	Kwajalein	Kwajalein Atoll	Cost to Complete, Family Housing Replacement Construction.	0	10,000	10,000
Army	Louisiana	Camp Minden	Collective Training Unaccompanied Housing	0	13,800	13,800
Army	Louisiana	Fort Polk	Barracks	0	56,000	56,000

Army	Louisiana	Fort Polk	Joint Operations Center	55,000		55,000
Army	Maryland	Fort Meade	Barracks	81,000		81,000
Army	New York	Fort Hamilton	Information Systems Facility	26,000		26,000
Army	New York	Watervliet Arsenal	Access Control Point	20,000		20,000
Army	New York	West Point Military Reservation	Cost to Complete, Engineering Center	0	17,200	17,200
Army	Pennsylvania	Letterkenny Army Depot	Fire Station	21,000		21,000
Army	Pennsylvania	Tobyhanna Army Depot	Cost to Complete, Family Housing Replacement Construction.	0	7,500	7,500
Army	Puerto Rico	Fort Buchanan	Cost to Complete, Family Housing Replacement Construction.	0	14,000	14,000
Army	South Carolina	Fort Jackson	Cost to Complete, Reception Barracks Complex, Ph 1.	0	21,000	21,000
Army	South Carolina	Fort Jackson	Reception Barracks Complex, Ph2 (INC 2)	34,000		34,000
Army	Texas	Fort Hood	Barracks	0	61,000	61,000
Army	Texas	Fort Hood	Barracks	0	69,000	69,000
Army	Virginia	Jont Base Langley-Eustis	Cost to Complete, AIT Barracks Complex, Ph 4	0	16,000	16,000
Army	Worldwide Classified	Classified Location	Forward Operating Site	31,000		31,000
Army	Worldwide Unspecified	Unspecified Worldwide Locations	Minor Construction	35,543		35,543
Army	Worldwide Unspecified	Unspecified Worldwide Locations	Planning & Design	124,649		124,649
Army	Worldwide Unspecified	Unspecified Worldwide Locations	Host Nation Support	27,000		27,000
Army	Worldwide Unspecified	Worldwide Various Locations	Lab Planning & Design Unfunded Requirement	0	45,000	45,000
SUBTOTAL ARMY				**834,692**	**753,000**	**1,587,692**
NAVY						
Navy	Arizona	Marine Corps Air Station Yuma	Bachelor Enlisted Quarters	0	99,600	99,600

SEC. 4601. MILITARY CONSTRUCTION
(In Thousands of Dollars)

Account	State/ Country	Installation	Project Title	FY 2022 Request	Senate Change	Senate Authorized
Navy	Arizona	Marine Corps Air Station Yuma	Combat Training Tank Complex	0	29,300	29,300
Navy	California	Camp Pendleton	I MEF Consolidated Information Center (INC)	19,869		19,869
Navy	California	Marine Corps Air Ground Combat Center	Wastewater Treatment Plant	0	45,000	45,000
Navy	California	Marine Corps Air Station Miramar	Aircraft Maintenance Hangar	0	209,500	209,500
Navy	California	Marine Corps Air Station Miramar	F–35 Centralized Engine Repair Facility	0	31,400	31,400
Navy	California	Marine Corps Base Camp Pendleton	Basilone Road Realignment	0	85,200	85,200
Navy	California	Marine Corps Base Camp Pendleton	CLB MEU Complex	0	83,900	83,900
Navy	California	Marine Corps Base Camp Pendleton	Warehouse Replacement	0	22,200	22,200
Navy	California	Marine Corps Reserve Depot San Diego	Recruit Mess Hall Replacement	0	8,000	8,000
Navy	California	Naval Air Station Lemoore	F–35C Hangar 6 Phase 2 (Mod 3/4) (INC)	75,070		75,070
Navy	California	Naval Base Coronado	CMV–22B Aircraft Maintenance Hangar	0	63,600	63,600
Navy	California	Naval Base San Diego	Pier 6 Replacement (INC)	50,000		50,000
Navy	California	Naval Base Ventura County	Combat Vehicle Maintenance Facility	0	48,700	48,700
Navy	California	Naval Base Ventura County	MQ–25 Aircraft Maintenance Hangar	0	148,800	148,800
Navy	California	Naval Weapons Station Seal Beach	Missile Magazines (INC)	10,840		10,840
Navy	California	San Nicolas Island	Directed Energy Weapons Test Facilities	19,907		19,907

Navy	El Salvador	Cooperative Security Location Comalapa	Hangar and Ramp Expansion	0	28,000	28,000
Navy	Florida	Marine Corps Support Facility Blount Island	Lighterage and Small Craft Facility	0	69,400	69,400
Navy	Greece	Naval Support Activity Souda Bay	EDI: Joint Mobility Processing Center	41,650		41,650
Navy	Guam	Andersen Air Force Base	Aviation Admin Building	50,890		50,890
Navy	Guam	Joint Region Marianas	4th Marines Regiment Facilities	109,507	–25,000	84,507
Navy	Guam	Joint Region Marianas	Combat Logistics Battallion–4 Facility	92,710	–28,000	64,710
Navy	Guam	Joint Region Marianas	Consolidated Armory	43,470		43,470
Navy	Guam	Joint Region Marianas	Infantry Battalion Company HQ	44,100		44,100
Navy	Guam	Joint Region Marianas	Marine Expeditionary Brigade Enablers	66,830		66,830
Navy	Guam	Joint Region Marianas	Principal End Item (PEI) Warehouse	47,110		47,110
Navy	Guam	Joint Region Marianas	Bachelor Enlisted Quarters H (INC)	43,200		43,200
Navy	Guam	Joint Region Marianas	X-Ray Wharf Berth 2	103,800	–40,000	63,800
Navy	Guam	Joint Region Marianas	Joint Communication Upgrade (INC)	84,000		84,000
Navy	Hawaii	Marine Corps Base Kaneohe Bay	Bachelor Enlisted Quarters Phase II (INC)	0	10,000	10,000
Navy	Hawaii	Marine Corps Base Kaneohe Bay	Electrical Distribution Modernization	0	64,500	64,500
Navy	Japan	Fleet Activities Yokosuka	Pier 5 (Berths 2 and 3) (INC)	15,292		15,292
Navy	Japan	Fleet Activities Yokosuka	Ship Handling & Combat Training Facilities	49,900		49,900
Navy	Maine	Portsmouth Naval Shipyard	Multi-Mission Dry Dock #1 Extension (INC)—Navy #1 UFR.	0	100,000	100,000
Navy	Maine	Portsmouth Naval Shipyard	Multi-Mission Dry Dock #1 Extension (INC)	250,000		250,000
Navy	Nevada	Naval Air Station Fallon	Training Range Land Acquisition—Phase 2	48,250	–48,250	0
Navy	North Carolina	Camp Lejeune	II MEF Operations Center Replacement (INC)	42,200		42,200
Navy	North Carolina	Marine Corps Air Station Cherry Point	ATC Tower & Airfield Operations	0	18,700	18,700
Navy	North Carolina	Marine Corps Air Station Cherry Point	Aircraft Maintenance Hangar	207,897	–150,000	57,897

SEC. 4601. MILITARY CONSTRUCTION
(In Thousands of Dollars)

Account	State/ Country	Installation	Project Title	FY 2022 Request	Senate Change	Senate Authorized
Navy	North Carolina	Marine Corps Air Station Cherry Point	F–35 Flightline Utilities Modernization Phase 2	113,520	–80,000	33,520
Navy	North Carolina	Marine Corps Base Camp Lejeune	Water Treatment Plant Replacement Hadnot Pt	0	64,200	64,200
Navy	South Carolina	Marine Corps Air Station Beaufort	Aircraft Maintenance Hangar	0	122,600	122,600
Navy	South Carolina	Marine Corps Air Station Beaufort	Recycling/Hazardous Waste Facility	0	5,000	5,000
Navy	Spain	Naval Station Rota	EDI: Explosive Ordnance Disposal (EOD) Mobile Unit Facilities.	0	85,600	85,600
Navy	Virginia	Marine Corps Base Quantico	Vehicle Inspection and Visitor Control Center	42,850		42,850
Navy	Virginia	Marine Corps Base Quantico	Wargaming Center (INC)	30,500		30,500
Navy	Virginia	Naval Station Norfolk	CMV–22 Aircraft Maintenance Hangar & Airfield Improvement.	0	75,100	75,100
Navy	Virginia	Naval Station Norfolk	Submarine Pier 3 (INC)	88,923	–45,000	43,923
Navy	Virginia	Naval Weapons Station Yorktown	Navy Munitions Command (NMC) Ordnance Facilities Recap, Phase 2.	0	13,500	13,500
Navy	Virginia	Portsmouth Naval Shipyard	Dry Dock Saltwater System for CVN–78	156,380	–100,000	56,380
Navy	Worldwide Unspecified	Unspecified Worldwide Locations	Unspecified Minor Military Construction	56,435		56,435
Navy	Worldwide Unspecified	Unspecified Worldwide Locations	MCON Design Funds	363,252		363,252
Navy	Worldwide Unspecified	Worldwide Various Locations	Consolidated RDT&E Systems Facility P&D (Naval Station Newport).	0	1,700	1,700

Navy	Worldwide Unspecified	Worldwide Various Locations	F–35 Joint Strike Fighter Sustainment Center (P–993) P&D (MCAS Cherry Point).	0	10,000	10,000
Navy	Worldwide Unspecified	Worldwide Various Locations	HDR Hawaii: Planning and Design	0	9,000	9,000
Navy	Worldwide Unspecified	Worldwide Various Locations	Lab Planning & Design Unfunded Requirement	0	110,000	110,000
Navy	Worldwide Unspecified	Worldwide Various Locations	Next Generation Secure Submarine Platform Facility P&D (Naval Station Newport).	0	4,000	4,000
Navy	Worldwide Unspecified	Worldwide Various Locations	Next Generation Torpedo Integration Lab P&D (Naval Station Newport).	0	1,200	1,200
Navy	Worldwide Unspecified	Worldwide Various Locations	PDI: Planning & Design Unfunded Requirement	0	68,200	68,200
Navy	Worldwide Unspecified	Worldwide Various Locations	Planning & Design	0	40,000	40,000
Navy	Worldwide Unspecified	Worldwide Various Locations	Submarine Payloads Integration Laboratory P&D (Naval Station Newport).	0	1,400	1,400
Navy	Worldwide Unspecified	Worldwide Various Locations	Unspecified Minor Construction	0	75,000	75,000
SUBTOTAL NAVY				**2,368,352**	**1,336,050**	**3,704,402**
AIR FORCE						
Air Force	Alaska	Eielson Air Force Base	Contaminated Soil Removal	0	44,850	44,850
Air Force	Alaska	Joint Base Elmendorf-Richardson	Extend Runway 16/34 (INC 1)	79,000		79,000
Air Force	Arizona	Davis-Monthan Air Force Base	South Wilmot Gate	13,400		13,400
Air Force	Arizona	Luke Air Force Base	F–35A ADAL AMU Facility Squadron #6	28,000		28,000
Air Force	Arizona	Luke Air Force Base	F–35A Squadron Operations Facility #6	21,000		21,000
Air Force	Australia	Royal Australian Air Force Base Darwin	Squadron Operations Facility	7,400		7,400
Air Force	Australia	Royal Australian Air Force Base Tindal	Aircraft Maintenance Support Facility	6,200		6,200

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Air Force	Australia	Royal Australian Air Force Base Tindal	Squadron Operations Facility	8,200		8,200
Air Force	California	Edwards Air Force Base	Flight Test Engineering Lab Complex	4,000		4,000
Air Force	California	Vandenberg Space Force Base	GBSD Stage Processing Facility	19,000		19,000
Air Force	California	Vandenberg Space Force Base	GBSD Re-Entry Vehicle Facility	48,000		48,000
Air Force	Colorado	Schriever Space Force Base	ADAL Fitness Center	0	30,000	30,000
Air Force	District of Columbia	Joint Base Anacostia Bolling	Joint Air Defense Operations Center Phase II	24,000		24,000
Air Force	Florida	Eglin Air Force Base	Cost to Complete—Advanced Munitions Technology Complex.	0	31,500	31,500
Air Force	Florida	Eglin Air Force Base	Flightline Fire Station at Duke Field	0	14,000	14,000
Air Force	Georgia	Moody Air Force Base	41 RQS HH-60W Apron	0	12,500	12,500
Air Force	Germany	Spangdahlem Air Base	F/A–22 LO/Composite Repair Facility	22,625		22,625
Air Force	Guam	Joint Region Marianas	Munitions Storage Igloos IV	55,000		55,000
Air Force	Guam	Joint Region Marianas	Airfield Damage Repair Warehouse	30,000		30,000
Air Force	Guam	Joint Region Marianas	Hayman Munitions Storage Igloos, MSA2	9,824		9,824
Air Force	Hungary	Kecskemet Air Base	EDI: Construct Parallel Taxiway	38,650		38,650
Air Force	Hungary	Kecskemet Air Base	EDI: Construct Airfield Upgrades	20,564		20,564
Air Force	Italy	Aviano Air Force Base	Area A1 Entry Control Point	0	10,200	10,200
Air Force	Japan	Kadena Air Base	Airfield Damage Repair Storage Facility	38,000		38,000
Air Force	Japan	Kadena Air Base	Helicopter Rescue Ops Maintenance Hangar	168,000	–118,000	50,000
Air Force	Japan	Kadena Air Base	Replace Munitions Structures	26,100		26,100
Air Force	Japan	Misawa Air Base	Airfield Damage Repair Facility	25,000		25,000
Air Force	Japan	Yokota Air Base	Airfield Damage Repair Warehouse	0	39,000	39,000

Air Force	Japan	Yokota Air Base	Construct CATM Facility	25,000		25,000
Air Force	Japan	Yokota Air Base	C–130J Corrosion Control Hangar	67,000		67,000
Air Force	Louisiana	Barksdale Air Force Base	Cost to Complete—Entrance Road and Gate	0	36,000	36,000
Air Force	Louisiana	Barksdale Air Force Base	Weapons Generation Facility (INC 1)	40,000		40,000
Air Force	Maryland	Joint Base Andrews	Cost to Complete—Military Working Dog Kennel	0	7,800	7,800
Air Force	Maryland	Joint Base Andrews	Fire Crash Rescue Station	26,000		26,000
Air Force	Massachusetts	Hanscom Air Force Base	NC3 Acquisitions Management Facility	66,000		66,000
Air Force	New Mexico	Kirtland Air Force Base	Cost to Complete—Wyoming Gate Antiterrorism Compliance.	0	5,600	5,600
Air Force	Ohio	Wright-Patterson Air Force Base	Child Development Center	0	24,000	24,000
Air Force	Oklahoma	Tinker Air Force Base	KC–46A 3–Bay Depot Maintenance Hangar	160,000	–100,000	60,000
Air Force	South Carolina	Joint Base Charleston	Fire and Rescue Station	0	30,000	30,000
Air Force	South Carolina	Joint Base Charleston	Flightline Support Facility	0	29,000	29,000
Air Force	South Dakota	Ellsworth Air Force Base	B–21 2–Bay LO Restoration Facility (INC 2)	91,000	–50,000	41,000
Air Force	South Dakota	Ellsworth Air Force Base	B–21 Field Training Detachment Facility	47,000		47,000
Air Force	South Dakota	Ellsworth Air Force Base	B–21 Mission Operations Planning Facility	36,000		36,000
Air Force	South Dakota	Ellsworth Air Force Base	B–21 Washrack & Maintenance Hangar	65,000		65,000
Air Force	South Dakota	Ellsworth Air Force Base	B–21 ADAL Flight Simulator	24,000		24,000
Air Force	South Dakota	Ellsworth Air Force Base	B–21 Formal Training Unit/AMU	70,000		70,000
Air Force	Spain	Morón Air Base	EDI: Hot Cargo Pad	8,542		8,542
Air Force	Tennessee	Arnold Air Force Base	Add/Alter Test Cell Delivery Bay	0	14,600	14,600
Air Force	Texas	Joint Base San Antonio	BMT Recruit Dormitory 8 (INC 3)	31,000		31,000
Air Force	Texas	Joint Base San Antonio	BMT Recruit Dormitory 7	141,000		141,000
Air Force	Texas	Joint Base San Antonio—Fort Sam Houston	Child Development Center – FSH	0	29,000	29,000
Air Force	Texas	Joint Base San Antonio—Lackland	Child Development Center – Lackland	0	29,000	29,000
Air Force	Texas	Sheppard Air Force Base	Child Development Center	20,000		20,000
Air Force	United Kingdom	Royal Air Force Fairford	EDI: Construct DABS-FEV Storage	94,000	–70,000	24,000
Air Force	United Kingdom	Royal Air Force Lakenheath	Cost to Complete—F–35 ADAL Conventional Munitions MX.	0	4,400	4,400

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Air Force	United Kingdom	Royal Air Force Lakenheath	F-35A Child Development Center	0	24,000	24,000
Air Force	United Kingdom	Royal Air Force Lakenheath	F–35A Weapons Load Training Facility	49,000		49,000
Air Force	United Kingdom	Royal Air Force Lakenheath	F–35A Munition Inspection Facility	31,000		31,000
Air Force	Utah	Hill Air Force Base	GBSD Organic Software Sustainment Center (INC 2)	31,000		31,000
Air Force	Virginia	Joint Base Langley Eustis	Fuel System Maintenance Dock	0	24,000	24,000
Air Force	Worldwide Unspecified	Various Worldwide Locations	EDI: Planning & Design	648		648
Air Force	Worldwide Unspecified	Various Worldwide Locations	PDI: Planning & Design	27,200		27,200
Air Force	Worldwide Unspecified	Various Worldwide Locations	Planning & Design	201,453		201,453
Air Force	Worldwide Unspecified	Various Worldwide Locations	Unspecified Minor Military Construction	58,884		58,884
Air Force	Worldwide Unspecified	Worldwide Various Locations	Lab Planning & Design Unfunded Requirement	0	120,000	120,000
Air Force	Worldwide Unspecified	Worldwide Various Locations	Secure Integration Support Lab w/Land Acquisition P&D (Air Force Maui Optical and Supercomputing Site).	0	8,800	8,800
SUBTOTAL AIR FORCE				**2,102,690**	**230,250**	**2,332,940**
DEFENSE-WIDE						
Defense-Wide	Alabama	Fort Rucker	10 MW RICE Generator Plant and Microgrid Controls	0	24,000	24,000
Defense-Wide	Alabama	Redstone Arsenal	MSIC Advanced Analysis Facility Phase 1 (INC)	0	25,000	25,000
Defense-Wide	Belgium	Chievres Air Base	Europe West District Superintendent's Office	15,000		15,000

Defense-Wide	California	Camp Pendleton	Veterinary Treatment Facility Replacement	13,600		13,600
Defense-Wide	California	Marine Corps Air Station Miramar	Additional LFG Power Meter Station	0	4,054	4,054
Defense-Wide	California	Naval Air Weapons Station China Lake / Ridgecrest	Solar Energy Storage System	0	9,120	9,120
Defense-Wide	California	Silver Strand Training Complex	SOF NSWG11 Operations Support Facility	12,000		12,000
Defense-Wide	California	Silver Strand Training Complex	SOF ATC Operations Support Facility	21,700		21,700
Defense-Wide	Colorado	Buckley Air Force Base	JCC Expansion	20,000		20,000
Defense-Wide	District of Columbia	Joint Base Anacostia Bolling	DIA HQ Cooling Towers and Cond Pumps	0	2,257	2,257
Defense-Wide	District of Columbia	Joint Base Anacostia Bolling	PV Carports	0	29,004	29,004
Defense-Wide	Florida	MacDill Air Force Base	Transmission and Switching Stations	0	22,000	22,000
Defense-Wide	Georgia	Fort Benning	4.8MW Generation and Microgrid	0	17,593	17,593
Defense-Wide	Georgia	Fort Benning	SOF Battalion Headquarters Facility	62,000		62,000
Defense-Wide	Georgia	Fort Stewart	10 MW Generation Plant, with Microgrid Controls	0	22,000	22,000
Defense-Wide	Georgia	Naval Submarine Base Kings Bay	Electrical Transmission and Distribution	0	19,314	19,314
Defense-Wide	Germany	Ramstein Air Base	Ramstein Middle School	93,000	–80,000	13,000
Defense-Wide	Guam	Polaris Point Submarine Base	Inner Apra Harbor Resiliency Upgrades (Phase I)	0	38,300	38,300
Defense-Wide	Hawaii	Joint Base Pearl Harbor-Hickam	Veterinary Treatment Facility Replacement	29,800		29,800
Defense-Wide	Idaho	Mountain Home Air Force Base	Water Treatment Plant and Pump Station	0	33,800	33,800
Defense-Wide	Japan	Kadena Air Base	Truck Unload Facilities	22,300		22,300
Defense-Wide	Japan	Kadena Air Base	Operations Support Facility	24,000		24,000
Defense-Wide	Japan	Marine Corps Air Base Iwakuni	Fuel Pier	57,700		57,700

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Defense-Wide	Japan	Misawa Air Base	Additive Injection Pump and Storage System	6,000		6,000
Defense-Wide	Japan	Naval Air Facility Atsugi	Smart Grid for Utility and Facility Controls	0	3,810	3,810
Defense-Wide	Japan	Yokota Air Base	Hangar/AMU	108,253	–78,000	30,253
Defense-Wide	Kuwait	Camp Arifjan	Microgrid Controller, 1.25 MW Solar PV, and 1.5 MWh Battery.	0	15,000	15,000
Defense-Wide	Maryland	Bethesda Naval Hospital	MEDCEN Addition / Alteration (INC 5)	153,233		153,233
Defense-Wide	Maryland	Fort Meade	SOF Operations Facility	100,000	–25,000	75,000
Defense-Wide	Maryland	Fort Meade	NSAW Recap Building 4 (INC 1)	104,100		104,100
Defense-Wide	Maryland	Fort Meade	NSAW Mission Ops and Records Center (INC 1)	94,000		94,000
Defense-Wide	Michigan	Camp Grayling	650 kW Gas-Fired Micro-Turbine Generation System	0	5,700	5,700
Defense-Wide	Mississippi	Camp Shelby	10 MW Generation Plant and Feeder Level Microgrid system.	0	34,500	34,500
Defense-Wide	Mississippi	Camp Shelby	Electrical Distribution Infrastructure Undergrounding Hardening Project.	0	11,155	11,155
Defense-Wide	Missouri	Fort Leonard Wood	Hospital Replacement (INC 4)	160,000		160,000
Defense-Wide	New Mexico	Kirtland Air Force Base	Environmental Health Facility Replacement	8,600		8,600
Defense-Wide	New York	Fort Drum	Well Field Expansion Project	0	25,300	25,300
Defense-Wide	North Carolina	Fort Bragg	10 MW Microgrid Utilizing Existing and New Generators.	0	19,464	19,464
Defense-Wide	North Carolina	Fort Bragg	Emergency Water System	0	7,705	7,705
Defense-Wide	North Dakota	Cavalier Air Force Station	PCARS Emergency Power Plant Fuel Storage	0	24,150	24,150
Defense-Wide	Ohio	Springfield-Beckley Municipal Airport	Base-wide Microgrid with Natural Gas Generator, Photovoltaic and Battery Storage.	0	4,700	4,700
Defense-Wide	Puerto Rico	Aguadilla	Microgrid Control System, 460 kW PV, 275 kW Generator, 660 kWh BESS.	0	10,120	10,120
Defense-Wide	Puerto Rico	Fort Allen	Microgrid Control System, 690 kW PV, 275 kW GEN, 570 kWh BESS.	0	12,190	12,190

Defense-Wide	Puerto Rico	Punta Borinquen	Ramey Unit School Replacement	84,000		84,000
Defense-Wide	Tennessee	Memphis International Airport	PV Arrays and Battery Storage	0	4,780	4,780
Defense-Wide	Texas	Joint Base San Antonio	Ambulatory Care Center Phase 4	35,000		35,000
Defense-Wide	United Kingdom	Menwith Hill Station	RAFMH Main Gate Rehabilitation	20,000		20,000
Defense-Wide	United Kingdom	Royal Air Force Lakenheath	Hospital Replacement-Temporary Facilities	19,283		19,283
Defense-Wide	Virginia	Fort Belvoir	Veterinary Treatment Facility Replacement	29,800		29,800
Defense-Wide	Virginia	Fort Belvoir, NGA Campus East	LED Upgrade Package	0	365	365
Defense-Wide	Virginia	Humphries Engineer Center and Support Activity	SOF Battalion Operations Facility	0	36,000	36,000
Defense-Wide	Virginia	National Geospatial-Intelligence Agency Campus East	Electrical System Redundancy	0	5,299	5,299
Defense-Wide	Virginia	Pentagon	Consolidated Maintenance Complex (RRMC)	20,000		20,000
Defense-Wide	Virginia	Pentagon	Force Protection Perimeter Enhancements	8,608		8,608
Defense-Wide	Virginia	Pentagon	Public Works Support Facility	21,935		21,935
Defense-Wide	Virginia	Pentagon, Mark Center, and Raven Rock Mountain Complex	Recommissioning of HVAC Systems, Part B	0	2,600	2,600
Defense-Wide	Washington	Oak Harbor	ACC / Dental Clinic	59,000		59,000
Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Unspecified Minor Military Construction	8,000		8,000
Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Planning & Design	13,317		13,317
Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Planning & Design	11,000		11,000
Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Unspecified Minor Military Construction	4,435		4,435

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Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Unspecified Minor Military Construction	21,746		21,746
Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Energy Resilience and Conserv. Invest. Prog.	246,600	–246,600	0
Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Unspecified Minor Military Construction	3,000		3,000
Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Planning & Design	14,194		14,194
Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	ERCIP Design	40,150		40,150
Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Unspecified Minor Military Construction	12,000		12,000
Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Planning & Design	83,840		83,840
Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Exercise Related Minor Construction	5,615		5,615
Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Planning & Design	2,000		2,000
Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Planning & Design	5,275		5,275
Defense-Wide	Worldwide Unspecified	Various Worldwide Locations	Planning & Design	20,576		20,576
Defense-Wide	Worldwide Unspecified	Various Worldwide Locations	Planning & Design	20,862		20,862
Defense-Wide	Worldwide Unspecified	Various Worldwide Locations	Unspecified Minor Military Construction	6,668		6,668

Defense-Wide	Worldwide Unspecified	Various Worldwide Locations	Planning & Design	35,099		35,099
SUBTOTAL DEFENSE-WIDE				**1,957,289**	**39,680**	**1,996,969**
ARMY NATIONAL GUARD						
Army National Guard	Alabama	Huntsville	National Guard Readiness Center	0	17,000	17,000
Army National Guard	Connecticut	Putnam	National Guard Readiness Center	17,500		17,500
Army National Guard	Georgia	Fort Benning	Post-Initial Mil. Training Unaccomp. Housing	13,200		13,200
Army National Guard	Guam	Barrigada	National Guard Readiness Center Addition	34,000		34,000
Army National Guard	Idaho	Jerome	National Guard Readiness Center	15,000		15,000
Army National Guard	Illinois	Bloomington Armory	National Guard Vehicle Maintenance Shop	15,000		15,000
Army National Guard	Kansas	Topeka	National Guard/Reserve Center Building	16,732		16,732
Army National Guard	Louisiana	Lake Charles	National Guard Readiness Center	18,500		18,500
Army National Guard	Maine	Saco	National Guard Vehicle Maintenance Shop	21,200		21,200
Army National Guard	Mississippi	Camp Shelby	Maneuver Area Training Equipment Site	0	15,500	15,500
Army National Guard	Montana	Butte	National Guard Readiness Center	16,000		16,000
Army National Guard	Nebraska	Mead Training Site	Collective Training Unaccompanied Housing	0	11,000	11,000
Army National Guard	North Dakota	Dickinson	National Guard Readiness Center	15,500		15,500
Army National Guard	South Dakota	Sioux Falls	National Guard Readiness Center	0	15,000	15,000
Army National Guard	Texas	Camp Bullis	Cost to Complete, Vehicle Maintenance Shop	0	16,400	16,400
Army National Guard	Vermont	Bennington	National Guard Readiness Center	0	16,900	16,900
Army National Guard	Virginia	Troutville	National Guard Readiness Center Addition	6,100		6,100
Army National Guard	Virginia	Troutville	Combined Support Maintenance Shop Addition	6,900		6,900
Army National Guard	Worldwide Unspecified	Unspecified Worldwide Locations	Unspecified Minor Military Construction	39,471		39,471
Army National Guard	Worldwide Unspecified	Unspecified Worldwide Locations	Planning & Design	22,000		22,000
Army National Guard	Worldwide Unspecified	Worldwide Various Locations	Army Aviation Support Facility P&D (Sandston, VA)	0	6,500	6,500
Army National Guard	Worldwide Unspecified	Worldwide Various Locations	Cost to Complete, Unspecified Minor Construction	0	69,000	69,000

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Army National Guard	Worldwide Unspecified	Worldwide Various Locations	Family Housing Planning and Design	0	15,000	15,000
SUBTOTAL ARMY NATIONAL GUARD				**257,103**	**182,300**	**439,403**
AIR NATIONAL GUARD						
Air National Guard	Alabama	Montgomery Regional Airport	Aircraft Maintenance Facility	0	19,200	19,200
Air National Guard	Alabama	Sumpter Smith Air National Guard Base	Security and Services Training Facility	0	7,500	7,500
Air National Guard	Connecticut	Bradley International Airport	Composite ASE/Vehicle Mx Facility	0	17,000	17,000
Air National Guard	Delaware	New Castle County Airport	Replace Fuel Cell/Corrosion Control Hangar	0	17,500	17,500
Air National Guard	Idaho	Boise Air Terminal (Gowen Field)	Medical Training Facility	0	6,500	6,500
Air National Guard	Illinois	Abraham Lincoln Capital Airport	Base Civil Engineer Complex	0	10,200	10,200
Air National Guard	Massachusetts	Barnes Air National Guard Base	Combined Engine/ASE/NDI Shop	12,200		12,200
Air National Guard	Michigan	Alpena County Regional Airport	Aircraft Maintenance Hangar/Shops	23,000		23,000
Air National Guard	Michigan	Selfridge Air National Guard Base	A-10 Maintenance Hangar and Shops	0	28,000	28,000
Air National Guard	Michigan	W. K. Kellog Regional Airport	Construct Main Base Entrance	10,000		10,000
Air National Guard	Mississippi	Jackson International Airport	Fire Crash and Rescue Station	9,300		9,300

Air National Guard	New York	Francis S. Gabreski Airport	Base Civil Engineer Complex	0	14,800	14,800
Air National Guard	New York	Schenectady Municipal Airport	C–130 Flight Simulator Facility	10,800		10,800
Air National Guard	Ohio	Camp Perry	RED HORSE Logistics Complex	7,800		7,800
Air National Guard	South Carolina	McEntire Joint National Guard Base	Hazardous Cargo Pad	0	9,000	9,000
Air National Guard	South Carolina	McEntire Joint National Guard Base	F–16 Mission Training Center	9,800		9,800
Air National Guard	South Dakota	Joe Foss Field	F–16 Mission Training Center	9,800		9,800
Air National Guard	Texas	Kelly Field Annex	Aircraft Corrosion Control	0	9,500	9,500
Air National Guard	Washington	Camp Murray Air National Guard Station	Air Support Operations Complex	0	27,000	27,000
Air National Guard	Wisconsin	Truax Field	Medical Readiness Facility	13,200		13,200
Air National Guard	Wisconsin	Truax Field	F–35 3–Bay Specialized Hangar	31,000		31,000
Air National Guard	Worldwide Unspecified	Unspecified Worldwide Locations	Unspecified Minor Military Construction	29,068		29,068
Air National Guard	Worldwide Unspecified	Various Worldwide Locations	Planning & Design	34,402		34,402
Air National Guard	Wyoming	Cheyenne Regional Airport	Combined Vehicle Maintenance & ASE Complex	13,400		13,400
SUBTOTAL AIR NATIONAL GUARD				**213,770**	**166,200**	**379,970**
ARMY RESERVE						
Army Reserve	Michigan	Southfield	Area Maintenance Support Activity	12,000		12,000
Army Reserve	Ohio	Wright-Patterson Air Force Base	AR Center Training Building/ UHS	19,000		19,000
Army Reserve	Wisconsin	Fort McCoy	Transient Training Officer Barracks	0	29,200	29,200
Army Reserve	Wisconsin	Fort McCoy	Transient Training Battalion Headquarters	12,200		12,200
Army Reserve	Wisonsin	Fort McCoy	Transient Training Enlisted Barracks	0	29,200	29,200
Army Reserve	Worldwide Unspecified	Unspecified Worldwide Locations	Planning & Design	7,167		7,167

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Army Reserve	Worldwide Unspecified	Unspecified Worldwide Locations	Unspecified Minor Military Construction	14,544		14,544
SUBTOTAL ARMY RESERVE				**64,911**	**58,400**	**123,311**
NAVY RESERVE						
Navy Reserve	Michigan	Navy Operational Support Center Battle Creek	Reserve Center & Vehicle Maintenance Facility	49,090		49,090
Navy Reserve	Minnesota	Minneapolis Air Reserve Station	Joint Reserve Intelligence Center	14,350		14,350
Navy Reserve	Worldwide Unspecified	Unspecified Worldwide Locations	MCNR Unspecified Minor Construction	2,359		2,359
Navy Reserve	Worldwide Unspecified	Unspecified Worldwide Locations	USMCR Planning and Design	4,748		4,748
Navy Reserve	Worldwide Unspecified	Unspecified Worldwide Locations	MCNR Planning & Design	1,257		1,257
SUBTOTAL NAVY RESERVE				**71,804**	**0**	**71,804**
AIR FORCE RESERVE						
Air Force Reserve	California	Beale Air Force Base	940 ARW SQ OPS & AMU Complex	0	33,000	33,000
Air Force Reserve	Florida	Homestead Air Reserve Base	Corrosion Control Facility	14,000		14,000
Air Force Reserve	Florida	Patrick Air Force Base	Recovery Flight Simulator	18,500		18,500
Air Force Reserve	Indiana	Grissom Air Reserve Base	Logistics Readiness Complex	0	29,000	29,000
Air Force Reserve	Minnesota	Minneapolis-St Paul Air Reserve Station	Mission Support Group Facility	14,000		14,000
Air Force Reserve	New York	Niagara Falls Air Reserve Station	Main Gate	10,600		10,600

Air Force Reserve	Ohio	Youngstown Air Reserve Base	Assault Runway	0	8,700	8,700
Air Force Reserve	Worldwide Unspecified	Unspecified Worldwide Locations	Planning & Design	5,830		5,830
Air Force Reserve	Worldwide Unspecified	Unspecified Worldwide Locations	Unspecified Minor Military Construction	15,444		15,444
Air Force Reserve	Worldwide Unspecified	Worldwide Various Locations	Planning and Design - KC-46 MOB 5	0	15,000	15,000
SUBTOTAL AIR FORCE RESERVE				**78,374**	**85,700**	**164,074**
NATO SECURITY INVESTMENT PROGRAM						
NATO Security Investment Program	Worldwide Unspecified	NATO Security Investment Program	NATO Security Investment Program	205,853		205,853
SUBTOTAL NATO SECURITY INVESTMENT PROGRAM				**205,853**	**0**	**205,853**
TOTAL MILITARY CONSTRUCTION				**8,154,838**	**2,851,580**	**11,006,418**
FAMILY HOUSING						
CONSTRUCTION, ARMY						
Construction, Army	Italy	Vicenza	Family Housing New Construction	92,304		92,304
Construction, Army	Worldwide Unspecified	Unspecified Worldwide Locations	Family Housing P&D	7,545		7,545
SUBTOTAL CONSTRUCTION, ARMY				**99,849**	**0**	**99,849**
O&M, ARMY						
O&M, Army	Worldwide Unspecified	Unspecified Worldwide Locations	Management	42,850		42,850
O&M, Army	Worldwide Unspecified	Unspecified Worldwide Locations	Services	8,277		8,277
O&M, Army	Worldwide Unspecified	Unspecified Worldwide Locations	Furnishings	18,077		18,077

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O&M, Army	Worldwide Unspecified	Unspecified Worldwide Locations	Miscellaneous	556		556
O&M, Army	Worldwide Unspecified	Unspecified Worldwide Locations	Maintenance	111,181		111,181
O&M, Army	Worldwide Unspecified	Unspecified Worldwide Locations	Utilities	43,772		43,772
O&M, Army	Worldwide Unspecified	Unspecified Worldwide Locations	Leasing	128,110		128,110
O&M, Army	Worldwide Unspecified	Unspecified Worldwide Locations	Housing Privatization Support	38,404		38,404
SUBTOTAL O&M, ARMY				**391,227**	**0**	**391,227**
CONSTRUCTION, NAVY AND MARINE CORPS						
Construction, Navy and Marine Corps	Worldwide Unspecified	Unspecified Worldwide Locations	USMC DPRI/Guam Planning & Design	2,098		2,098
Construction, Navy and Marine Corps	Worldwide Unspecified	Unspecified Worldwide Locations	Construction Improvements	71,884		71,884
Construction, Navy and Marine Corps	Worldwide Unspecified	Unspecified Worldwide Locations	Planning & Design	3,634		3,634
SUBTOTAL CONSTRUCTION, NAVY AND MARINE CORPS				**77,616**	**0**	**77,616**
O&M, NAVY AND MARINE CORPS						
O&M, Navy and Marine Corps	Worldwide Unspecified	Unspecified Worldwide Locations	Utilities	56,271		56,271
O&M, Navy and Marine Corps	Worldwide Unspecified	Unspecified Worldwide Locations	Furnishings	16,537		16,537

O&M, Navy and Marine Corps	Worldwide Unspecified	Unspecified Worldwide Locations	Management	54,083		54,083
O&M, Navy and Marine Corps	Worldwide Unspecified	Unspecified Worldwide Locations	Miscellaneous	285		285
O&M, Navy and Marine Corps	Worldwide Unspecified	Unspecified Worldwide Locations	Services	17,637		17,637
O&M, Navy and Marine Corps	Worldwide Unspecified	Unspecified Worldwide Locations	Leasing	62,567		62,567
O&M, Navy and Marine Corps	Worldwide Unspecified	Unspecified Worldwide Locations	Maintenance	95,417		95,417
O&M, Navy and Marine Corps	Worldwide Unspecified	Unspecified Worldwide Locations	Housing Privatization Support	54,544		54,544
SUBTOTAL O&M, NAVY AND MARINE CORPS				**357,341**	**0**	**357,341**
CONSTRUCTION, AIR FORCE						
Construction, Air Force	Georgia	Robins Air Force Base	Robins 2 MHPI Restructure	6,000		6,000
Construction, Air Force	Nebraska	Offutt Air Force Base	Offutt MHPI Restructure	50,000		50,000
Construction, Air Force	Worldwide Unspecified	Unspecified Worldwide Locations	Construction Improvements	49,258		49,258
Construction, Air Force	Worldwide Unspecified	Unspecified Worldwide Locations	Planning & Design	10,458		10,458
SUBTOTAL CONSTRUCTION, AIR FORCE				**115,716**	**0**	**115,716**
O&M, AIR FORCE						
O&M, Air Force	Worldwide Unspecified	Unspecified Worldwide Locations	Housing Privatization	23,275		23,275
O&M, Air Force	Worldwide Unspecified	Unspecified Worldwide Locations	Utilities	43,668		43,668
O&M, Air Force	Worldwide Unspecified	Unspecified Worldwide Locations	Management	70,062		70,062

SEC. 4601. MILITARY CONSTRUCTION
(In Thousands of Dollars)

Account	State/ Country	Installation	Project Title	FY 2022 Request	Senate Change	Senate Authorized
O&M, Air Force	Worldwide Unspecified	Unspecified Worldwide Locations	Services	8,124		8,124
O&M, Air Force	Worldwide Unspecified	Unspecified Worldwide Locations	Furnishings	26,842		26,842
O&M, Air Force	Worldwide Unspecified	Unspecified Worldwide Locations	Miscellaneous	2,200		2,200
O&M, Air Force	Worldwide Unspecified	Unspecified Worldwide Locations	Leasing	9,520		9,520
O&M, Air Force	Worldwide Unspecified	Unspecified Worldwide Locations	Maintenance	141,754		141,754
SUBTOTAL O&M, AIR FORCE				**325,445**	**0**	**325,445**
O&M, DEFENSE-WIDE						
O&M, Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Utilities	4,166		4,166
O&M, Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Furnishings	83		83
O&M, Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Utilities	14		14
O&M, Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Leasing	13,387		13,387
O&M, Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Maintenance	49		49
O&M, Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Furnishings	656		656
O&M, Defense-Wide	Worldwide Unspecified	Unspecified Worldwide Locations	Leasing	31,430		31,430

SUBTOTAL O&M, DEFENSE-WIDE				**49,785**	**0**	**49,785**
IMPROVEMENT FUND						
Improvement Fund	Worldwide Unspecified	Unspecified Worldwide Locations	Administrative Expenses—FHIF	6,081		6,081
SUBTOTAL IMPROVEMENT FUND				**6,081**	**0**	**6,081**
UNACCMP HSG IMPROVEMENT FUND						
Unaccmp HSG Improvement Fund	Worldwide Unspecified	Unspecified Worldwide Locations	Administrative Expenses—UHIF	494		494
SUBTOTAL UNACCMP HSG IMPROVEMENT FUND				**494**	**0**	**494**
TOTAL FAMILY HOUSING				**1,423,554**		**1,423,554**
DEFENSE BASE REALIGNMENT AND CLOSURE						
ARMY BRAC						
Army BRAC	Worldwide Unspecified	Base Realignment & Closure	Base Realignment & Closure	65,301		65,301
SUBTOTAL ARMY BRAC				**65,301**	**0**	**65,301**
NAVY BRAC						
Navy BRAC	Worldwide Unspecified	Unspecified Worldwide Locations	Base Realignment & Closure	111,155		111,155
SUBTOTAL NAVY BRAC				**111,155**	**0**	**111,155**
AIR FORCE BRAC						
Air Force BRAC	Worldwide Unspecified	Unspecified Worldwide Locations	DOD BRAC Activities—Air Force	104,216		104,216
SUBTOTAL AIR FORCE BRAC				**104,216**	**0**	**104,216**
DOD BRAC						

SEC. 4601. MILITARY CONSTRUCTION
(In Thousands of Dollars)

Account	State/ Country	Installation	Project Title	FY 2022 Request	Senate Change	Senate Authorized
DOD BRAC	Worldwide Unspecified	Unspecified Worldwide Locations	Int–4: DLA Activities	3,967		3,967
SUBTOTAL DOD BRAC				**3,967**	**0**	**3,967**
TOTAL DEFENSE BASE REALIGNMENT AND CLOSURE				**284,639**		**284,639**
TOTAL MILITARY CONSTRUCTION, FAMILY HOUSING, AND BRAC				**9,863,031**	**2,851,580**	**12,714,611**

TITLE XLVII—DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS

TITLE XLVII—DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS

SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS.

SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS
(In Thousands of Dollars)

Program	FY 2022 Request	Senate Change	Senate Authorized
Discretionary Summary by Appropriation			
Energy and Water Development and Related Agencies			
Appropriation Summary:			
Energy Programs			
Nuclear energy	149,800	0	149,800
Atomic Energy Defense Activities			
National Nuclear Security Administration:			
Federal Salaries and Expenses	464,000	0	464,000
Weapons activities	15,484,295	271,450	15,755,745
Defense nuclear nonproliferation	1,934,000	57,000	1,991,000
Naval reactors	1,860,705	0	1,860,705
Total, National Nuclear Security Administration	**19,743,000**	**328,450**	**20,071,450**
Defense environmental cleanup	6,841,670	–268,670	6,573,000
Other defense activities	1,170,000	–250,000	920,000

Total, Atomic Energy Defense Activities	**27,754,670**	**–190,220**	**27,564,450**
Total, Discretionary Funding	**27,904,470**	**–190,220**	**27,714,250**
Nuclear Energy			
Safeguards and security	149,800		149,800
Total, Nuclear Energy	**149,800**	**0**	**149,800**
National Nuclear Security Administration			
Federal Salaries and Expenses			
Program direction	464,000	0	464,000
Weapons Activities			
Stockpile management			
Stockpile major modernization			
B61 Life extension program	771,664		771,664
W76–2 Modification program	0		0
W88 Alteration program	207,157		207,157
W80–4 Life extension program	1,080,400		1,080,400
W80–4 ALT SLCM	10,000		10,000
W87–1 Modification Program (formerly IW1)	691,031		691,031
W93	72,000		72,000
Multi-Weapon Systems	1,180,483		1,180,483
Total, Stockpile major modernization	**4,012,735**	**0**	**4,012,735**
Weapons dismantlement and disposition	51,000		51,000
Production operations	568,941		568,941
Total, Stockpile management	**4,632,676**	**0**	**4,632,676**
Production modernization			

SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS
(In Thousands of Dollars)

Program	FY 2022 Request	Senate Change	Senate Authorized
Primary capability modernization			
Plutonium modernization			
Los Alamos plutonium modernization			
Los Alamos Plutonium Operations	660,419		660,419
21–D–512, Plutonium Pit Production Project, LANL	350,000		350,000
Subtotal, Los Alamos plutonium modernization	**1,010,419**	**0**	**1,010,419**
Savannah River plutonium modernization			
Savannah River plutonium operations	128,000		128,000
21–D–511, Savannah River Plutonium Processing Facility, SRS	475,000		475,000
Subtotal, Savannah River plutonium modernization	**603,000**	**0**	**603,000**
Enterprise Plutonium Support	107,098		107,098
Total, Plutonium Modernization	**1,720,517**	**0**	**1,720,517**
High Explosives & Energetics	68,785		68,785
Total, Primary capability modernization	**1,789,302**	**0**	**1,789,302**
Secondary Capability Modernization	488,097	5,000	493,097
Cold hearth furnace for depleted uranium		(5,000)	
Tritium and Domestic Uranium Enrichment	489,017		489,017
Non-Nuclear Capability Modernization	144,563		144,563
Total, Production modernization	**2,910,979**	**5,000**	**2,915,979**
Stockpile research, technology, and engineering			
Assessment science	689,578	79,950	769,528
Reverse FY22 decrease		(79,950)	
Engineering and integrated assessments	336,766	1,000	337,766
Reverse FY22 decrease		(1,000)	
Inertial confinement fusion	529,000	70,000	599,000
Reverse FY22 decrease, fund operations and targets		(70,000)	

Advanced simulation and computing	747,012		747,012
Weapon technology and manufacturing maturation	292,630	8,500	301,130
Reverse FY22 decrease		(8,500)	
Academic programs	85,645	6,300	91,945
Reverse FY22 decrease		(6,300)	
Total, Stockpile research, technology, and engineering	**2,680,631**	**165,750**	**2,846,381**
Infrastructure and operations			
Operating			
Operations of facilities	1,014,000		1,014,000
Safety and Environmental Operations	165,354		165,354
Maintenance and Repair of Facilities	670,000		670,000
Recapitalization			
Infrastructure and Safety	508,664	66,000	574,664
Reverse FY22 decrease		(66,000)	
Capabilities Based Investments	143,066	6,100	149,166
Reverse FY22 decrease		(6,100)	
Planning for Programmatic Construction (Pre-CD–1)	0	10,000	10,000
Reverse FY22 decrease		(10,000)	
Subtotal, Recapitalization	**651,730**	**82,100**	**733,830**
Total, Operating	**2,501,084**	**82,100**	**2,583,184**
I&O: Construction			
Programmatic			
22–D–513 Power Sources Capability, SNL	13,827		13,827
21–D–510, HE Synthesis, Formulation, and Production Facility, PX	44,500		44,500
18–D–690, Lithium Processing Facility, Y–12	171,902		171,902
18–D–650, Tritium Finishing Facility, SRS	27,000		27,000
18–D–620, Exascale Computing Facility Modernization Project, LLNL	0		0
17–D–640, U1a Complex Enhancements Project, NNSS	135,000		135,000
15–D–302, TA–55 Reinvestment Project—Phase 3, LANL	27,000		27,000
15–D–301, HE Science & Engineering Facility, PX	0		0

SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS
(In Thousands of Dollars)

Program	FY 2022 Request	Senate Change	Senate Authorized
07–D–220-04, Transuranic Liquid Waste Facility, LANL	0		0
06–D–141, Uranium Processing Facility, Y–12	524,000		524,000
04–D–125, Chemistry and Metallurgy Research Replacement Project, LANL	138,123		138,123
Total, Programmatic	**1,081,352**	**0**	**1,081,352**
Mission enabling			
22–D–514 Digital Infrastructure Capability Expansion	8,000		8,000
Total, Mission enabling	**8,000**	**0**	**8,000**
Total, I&O construction	**1,089,352**	**0**	**1,089,352**
Total, Infrastructure and operations	**3,590,436**	**82,100**	**3,672,536**
Secure transportation asset			
Operations and equipment	213,704	12,000	225,704
Reverse FY22 decrease		(12,000)	
Program direction	123,060	6,600	129,660
Reverse FY22 decrease		(6,600)	
Total, Secure transportation asset	**336,764**	**18,600**	**355,364**
Defense nuclear security			
Operations and maintenance	824,623		824,623
Security improvements program	0		0
Construction:			
17–D–710, West end protected area reduction project, Y–12	23,000		23,000
Subtotal, construction	**23,000**	**0**	**23,000**
Total, Defense nuclear security	**847,623**	**0**	**847,623**
Information technology and cybersecurity	**406,530**		406,530

Legacy contractor pensions	**78,656**		78,656
Total, Weapons Activities	**15,484,295**	**271,450**	**15,755,745**
Adjustments			
Use of prior year balances	0		0
Total, Adjustments	**0**	**0**	**0**
Total, Weapons Activities	**15,484,295**	**271,450**	**15,755,745**
Defense Nuclear Nonproliferation			
Defense Nuclear Nonproliferation Programs			
Material management and minimization			
Conversion (formerly HEU Reactor Conversion)	100,660		100,660
Nuclear material removal	42,100		42,100
Material disposition	200,186		200,186
Laboratory and partnership support	0	10,000	10,000
Additional isotope production		(10,000)	
Total, Material management & minimization	**342,946**	**10,000**	**352,946**
Global material security			
International nuclear security	79,939		79,939
Domestic radiological security	158,002	27,000	185,002
Reverse FY22 decrease		(27,000)	
International radiological security	85,000		85,000
Nuclear smuggling detection and deterrence	175,000	10,000	185,000
Additional border screening		(10,000)	
Total, Global material security	**497,941**	**37,000**	**534,941**
Nonproliferation and arms control	184,795		184,795
National Technical Nuclear Forensics R&D	45,000		45,000
Defense nuclear nonproliferation R&D			
Proliferation detection	269,407		269,407
Nonproliferation Stewardship program	87,329		87,329
Nuclear detonation detection	271,000		271,000

SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS
(In Thousands of Dollars)

Program	FY 2022 Request	Senate Change	Senate Authorized
Nonproliferation fuels development	0		0
Total, Defense Nuclear Nonproliferation R&D	**627,736**	**0**	**627,736**
Nonproliferation construction			
U.S. Construction:			
18–D–150 Surplus Plutonium Disposition Project	156,000		156,000
99–D–143, Mixed Oxide (MOX) Fuel Fabrication Facility, SRS	0		0
Total, U.S. Construction:	**156,000**	**0**	**156,000**
Total, Nonproliferation construction	**156,000**	**0**	**156,000**
Total, Defense Nuclear Nonproliferation Programs	**1,854,418**	**47,000**	**1,901,418**
Legacy contractor pensions	38,800		38,800
Nuclear counterterrorism and incident response program			
Emergency Operations	14,597	10,000	24,597
Reverse FY22 decrease		(10,000)	
Counterterrorism and Counterproliferation	356,185		356,185
Total, Nuclear counterterrorism and incident response program	**370,782**	**10,000**	**380,782**
Subtotal, Defense Nuclear Nonproliferation	**2,264,000**	**57,000**	**2,321,000**
Adjustments			
Use of prior year balances	0		0
Rescission of prior year MOX funding	–330,000		–330,000
Total, Adjustments	**–330,000**	**0**	**–330,000**
Total, Defense Nuclear Nonproliferation	**1,934,000**	**57,000**	**1,991,000**

Naval Reactors			
Naval reactors development	635,684		635,684
Columbia-Class reactor systems development	55,000		55,000
S8G Prototype refueling	126,000		126,000
Naval reactors operations and infrastructure	599,017		599,017
Program direction	55,579		55,579
Construction:			
22–D–532 Security Upgrades KL	5,100		5,100
22–D–531 KL Chemistry & Radiological Health Building	41,620		41,620
21–D–530 KL Steam and Condensate Upgrades	0		0
14–D–901, Spent Fuel Handling Recapitalization Project, NRF	348,705		348,705
Total, Construction	**395,425**	**0**	**395,425**
Rescission of Prior Year unobligated balances	–6,000		–6,000
Total, Naval Reactors	**1,860,705**	**0**	**1,860,705**
TOTAL, National Nuclear Security Administration	**19,743,000**	**328,450**	**20,071,450**
Defense Environmental Cleanup			
Closure sites administration	3,987		3,987
Richland:			
River corridor and other cleanup operations	196,000	37,000	233,000
Reverse FY22 decrease		(37,000)	
Central plateau remediation	689,776		689,776
Richland community and regulatory support	5,121		5,121
18–D–404 Modification of Waste Encapsulation and Storage Facility	8,000		8,000
22–D–401 L–888, 400 Area Fire Station	15,200		15,200
22–D–402 L–897, 200 Area Water Treatment Facility	12,800		12,800
Total, Richland	**926,897**	**37,000**	**963,897**
Office of River Protection:			
Waste Treatment Immobilization Plant Commissioning	50,000		50,000
Rad liquid tank waste stabilization and disposition	817,642	20,000	837,642

SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS
(In Thousands of Dollars)

Program	FY 2022 Request	Senate Change	Senate Authorized
Additional tank stabilization		(20,000)	
Construction:			
18–D–16 Waste treatment and immobilization plant—LBL/Direct feed LAW	586,000		586,000
01–D–16 D, High-level waste facility	60,000		60,000
01–D–16 E, Pretreatment Facility	20,000		20,000
Total, Construction	**666,000**	**0**	**666,000**
ORP Low-level waste offsite disposal	7,000		7,000
Total, Office of River Protection	**1,540,642**	**20,000**	**1,560,642**
Idaho National Laboratory:			
Idaho cleanup and waste disposition	358,925		358,925
Idaho community and regulatory support	2,658		2,658
Construction:			
22–D–403 Idaho Spent Nuclear Fuel Staging Facility	3,000		3,000
22–D–404 Addl ICDF Landfill Disposal Cell and Evaporation Ponds Project	5,000		5,000
Total, Construction	**8,000**	**0**	**8,000**
Total, Idaho National Laboratory	**369,583**	**0**	**369,583**
NNSA sites and Nevada off-sites			
Lawrence Livermore National Laboratory	1,806		1,806
LLNL Excess facilities D&D	35,000	10,000	45,000
Accelerate cleanup		(10,000)	
Separations Processing Research Unit	15,000		15,000
Nevada Test Site	60,737		60,737
Sandia National Laboratory	4,576		4,576
Los Alamos National Laboratory	275,119		275,119
Los Alamos Excess facilities D&D	58,381		58,381

Total, NNSA sites and Nevada off-sites	**450,619**	**10,000**	**460,619**
Oak Ridge Reservation:			
OR Nuclear facility D&D	274,923	50,000	324,923
Accelerate cleanup		(50,000)	
U233 Disposition Program	55,000		55,000
OR cleanup and waste disposition	73,725		73,725
Construction:			
17–D–401 On-site waste disposal facility	12,500		12,500
14–D–403 Outfall 200 Mercury Treatment Facility	0		0
Subtotal, Construction:	**12,500**	**0**	**12,500**
OR community & regulatory support	5,096		5,096
OR technology development and deployment	3,000		3,000
Total, Oak Ridge Reservation	**424,244**	**50,000**	**474,244**
Savannah River Site:			
Savannah River risk management operations	461,723	24,300	486,023
H-canyon operations		(24,300)	
SR legacy pensions	130,882		130,882
SR community and regulatory support	5,805	5,700	11,505
Reverse FY22 decrease		(5,700)	
Radioactive liquid tank waste:			
Construction:			
20-D–402 Advanced Manufacturing Collaborative Facility (AMC)	0		0
20-D–401 Saltstone Disposal Unit #10, 11, 12	19,500		19,500
19–D–701 SR Security systems replacement	5,000		5,000
18–D–402 Saltstone disposal unit #8/9	68,000		68,000
17–D–402 Saltstone Disposal Unit #7	0		0
05–D–405 Salt waste processing facility, SRS	0		0
Total, Construction, Radioactive liquid tank waste	**92,500**	**0**	**92,500**
Radioactive liquid tank waste stabilization	890,865		890,865
Total, Savannah River Site	**1,581,775**	**30,000**	**1,611,775**

SEC. 4701. DEPARTMENT OF ENERGY NATIONAL SECURITY PROGRAMS
(In Thousands of Dollars)

Program	FY 2022 Request	Senate Change	Senate Authorized
Waste Isolation Pilot Plant			
Waste Isolation Pilot Plant	350,424		350,424
Construction:			
15–D–411 Safety significant confinement ventilation system, WIPP	55,000		55,000
15–D–412 Exhaust shaft, WIPP	25,000		25,000
21–D–401 Hoisting Capability Project	0		0
Total, Construction	**80,000**	**0**	**80,000**
Total, Waste Isolation Pilot Plant	**430,424**	**0**	**430,424**
Program direction—Defense Environmental Cleanup	293,106		293,106
Program support—Defense Environmental Cleanup	62,979		62,979
Safeguards and Security—Defense Environmental Cleanup	316,744		316,744
Technology development and deployment	25,000		25,000
Federal contribution to the Uranium Enrichment D&D Fund	415,670	–415,670	0
Reverse contribution to Fund from EM budget		(–415,670)	
Use of prior year balances	0		0
Subtotal, Defense environmental cleanup	**6,841,670**	**–268,670**	**6,573,000**
Rescission:			
Rescission of prior year balances	0		0
TOTAL, Defense Environmental Cleanup	**6,841,670**	**–268,670**	**6,573,000**
Other Defense Activities			
Environment, health, safety and security			
Environment, health, safety and security mission support	130,809		130,809

Program direction	75,511		75,511
Total, Environment, health, safety and security	**206,320**	**0**	**206,320**
Independent enterprise assessments			
Enterprise assessments	27,335		27,335
Program direction—Office of Enterprise Assessments	56,049	0	56,049
Total, Office of Enterprise Assessments	**83,384**	**0**	**83,384**
Specialized security activities	283,500		283,500
Office of Legacy Management			
Legacy management activities—defense	408,797	–250,000	158,797
Reduction for work performed by Army Corps of Engineers		(–250,000)	
Program direction	19,933		19,933
Total, Office of Legacy Management	**428,730**	**–250,000**	**178,730**
Defense related administrative support	163,710		163,710
Office of hearings and appeals	4,356		4,356
Subtotal, Other defense activities	**1,170,000**	**–250,000**	**920,000**
Use of prior year balances	0		0
Total, Other Defense Activities	**1,170,000**	**–250,000**	**920,000**

LEGISLATIVE REQUIREMENTS

Departmental Recommendations

Committee Action

SENATE ARMED SERVICES COMMITTEE

ROLL CALL VOTES DURING COMMITTEE MARKUP OF THE NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2022

In compliance with Rule XXVI 7(3)(b) of the Standing Rules of the Senate, listed below is a tabulation of the roll call votes.

Personnel Subcommittee:

1. MOTION: To include a provision that reform the disposition of charges and convening of courts-martial for certain offenses under the Uniform Code of Military Justice and increase the prevention of sexual assaults and other crimes in the military

VOTE: Passed by roll call vote 5–1

In favor: Senators Inhofe, Gillibrand, Warren, Hawley, and Tuberville

Opposed: Senator Tillis

Full Committee:

2. MOTION: To include a provision that would increase the authorized active forces end strength for the Air Force.

VOTE: Passed by roll call vote 25–1

In favor: Senators Reed, Shaheen, Gillibrand, Blumenthal, Hirono, Kaine, King, Peters, Manchin, Duckworth, Rosen, Kelly, Inhofe, Wicker, Fischer, Cotton, Rounds, Ernst, Tillis, Sullivan, Cramer, Scott, Blackburn, Hawley, and Tuberville

Opposed: Senator Warren

3. MOTION: To include a provision that would require a revised nuclear posture review.

VOTE: Passed by roll call vote 14–12

In favor: Senators Manchin, Inhofe, Wicker, Fischer, Cotton, Rounds, Ernst, Tillis, Sullivan, Cramer, Scott, Blackburn, Hawley, and Tuberville

Opposed: Senators Reed, Shaheen, Gillibrand, Blumenthal, Hirono, Kaine, King, Warren, Peters, Duckworth, Rosen, and Kelly

4. MOTION: To include a provision to extend paid parental leave.

VOTE: Passed by roll call vote 14–12

In favor: Senators Reed, Shaheen, Gillibrand, Blumenthal, Hirono, Kaine, King, Warren, Peters, Manchin, Duckworth, Rosen, Kelly, and Ernst

Opposed: Senators Inhofe, Wicker, Fischer, Cotton, Rounds, Tillis, Sullivan, Cramer, Scott, Blackburn, Hawley, and Tuberville

5. MOTION: To include a provision that would require the Secretary concerned to pay a member in the reserve component of an Armed Force incentive pay in the same amount as a member in the regular component of that Armed Force.

VOTE: Passed by roll call vote 16–10

In favor: Senators Shaheen, Gillibrand, Blumenthal, Hirono, Kaine, Warren, Peters, Manchin, Duckworth, Rosen, Kelly, Ernst, Sullivan, Cramer, Blackburn, and Tuberville

Opposed: Senators Reed, King, Inhofe, Wicker, Fischer, Cotton, Rounds, Tillis, Scott, and Hawley

6. MOTION: To include a provision that would improve the Selective Service System.

VOTE: Passed by roll call vote 21–5

In favor: Senators Reed, Shaheen, Gillibrand, Blumenthal, Hirono, Kaine, King, Warren, Peters, Manchin, Duckworth, Rosen, Kelly, Fischer, Ernst, Tillis, Sullivan, Cramer, Scott, Blackburn, and Tuberville

Opposed: Senators Inhofe, Wicker, Cotton, Rounds, and Hawley

7. MOTION: To include a provision to strike the provision relating to Medal of Honor authorities.

VOTE: Passed by roll call vote 25–1

In favor: Senators Reed, Shaheen, Gillibrand, Blumenthal, Hirono, Kaine, King, Peters, Manchin, Duckworth, Rosen, Kelly, Inhofe, Wicker, Fischer, Cotton, Rounds, Ernst, Tillis, Sullivan, Cramer, Scott, Blackburn, Hawley, and Tuberville

Opposed: Senator Warren

8. MOTION: To include a provision to rescind each Medal of Honor awarded for acts at Wounded Knee Creek on December 29, 1890, and for other purposes.

VOTE: Failed by roll call vote 7–19

In favor: Senators Gillibrand, Blumenthal, Hirono, Warren, Peters, Rosen, and Kelly

Opposed: Senators Reed, Shaheen, Kaine, King, Manchin, Duckworth, Inhofe, Wicker, Fischer, Cotton, Rounds, Ernst, Tillis, Sullivan, Cramer, Scott, Blackburn, Hawley, and Tuberville

9. MOTION: To include a provision to prohibit the promotion of Critical Race Theory and similar theories in the Armed Forces.

VOTE: Failed by roll call vote 13–13

In favor: Senators Inhofe, Wicker, Fischer, Cotton, Rounds, Ernst, Tillis, Sullivan, Cramer, Scott, Blackburn, Hawley, and Tuberville

Opposed: Senators Reed, Shaheen, Gillibrand, Blumenthal, Hirono, Kaine, King, Warren, Peters, Manchin, Duckworth, Rosen, and Kelly

10. MOTION: To include a provision that would require Department of Defense Contractors to disclose diversity, equity, and inclusion training materials as a condition of working with the Department.

VOTE: Passed by roll call vote 14–12

In favor: Senators Manchin, Inhofe, Wicker, Fischer, Cotton, Rounds, Ernst, Tillis, Sullivan, Cramer, Scott, Blackburn, Hawley, and Tuberville

Opposed: Senators Reed, Shaheen, Gillibrand, Blumenthal, Hirono, Kaine, King, Warren, Peters, Duckworth, Rosen, and Kelly

11. MOTION: To include a provision to require the Secretary of Defense to establish a system for tracking, recording, and reporting separations of members of the Armed Forces for engaging in supremacist or extremist conduct.

VOTE: Failed by roll call vote 11–15

In favor: Senators Reed, Shaheen, Gillibrand, Blumenthal, Hirono, Kaine, King, Warren, Peters, Duckworth, and Rosen

Opposed: Senators Manchin, Kelly, Inhofe, Wicker, Fischer, Cotton, Rounds, Ernst, Tillis, Sullivan, Cramer, Scott, Blackburn, Hawley, and Tuberville

12. MOTION: To include a provision that would strike the requirement for a report with recommendations on establishing a punitive article in the Uniform Code of Military Justice for violent extremism.

VOTE: Failed by roll call vote 12–14

In favor: Senators Inhofe, Wicker, Cotton, Rounds, Ernst, Tillis, Sullivan, Cramer, Scott, Blackburn, Hawley, and Tuberville

Opposed: Senators Reed, Shaheen, Gillibrand, Blumenthal, Hirono, Kaine, King, Warren, Peters, Manchin, Duckworth, Rosen, Kelly, and Fischer

13. MOTION: To include a provision that would provide for the independent investigation of sexual harassment complaints.

VOTE: Failed by roll call vote 12–14

In favor: Senators Reed, Shaheen, Gillibrand, Blumenthal, Hirono, Kaine, King, Warren, Peters, Duckworth, Rosen, and Kelly

Opposed: Senators Manchin, Inhofe, Wicker, Fischer, Cotton, Rounds, Ernst, Tillis, Sullivan, Cramer, Scott, Blackburn, Hawley, and Tuberville

14. MOTION: To include a provision that directs the Secretary of Defense to fully consider and make needed adjustments to account for current and emerging climate and environmental challenges and to ensure the climate resilience of assets and capabilities of the Department of Defense.

VOTE: Passed by roll call vote 14–12

In favor: Senators Reed, Shaheen, Gillibrand, Blumenthal, Hirono, Kaine, King, Warren, Peters, Manchin, Duckworth, Rosen, Kelly, and Tuberville

Opposed: Senators Inhofe, Wicker, Fischer, Cotton, Rounds, Ernst, Tillis, Sullivan, Cramer, Scott, Blackburn, and Hawley

15. MOTION: To include a provision that would prohibit the burial in Arlington National Cemetery, Virginia, of any President or Vice President who is not a member or veteran of the Armed Forces.

VOTE: Failed by roll call vote 9–17

In favor: Senators Reed, Shaheen, Gillibrand, Blumenthal, Hirono, Warren, Peters, Duckworth, and Rosen

Opposed: Senators Kaine, King, Manchin, Kelly, Inhofe, Wicker, Fischer, Cotton, Rounds, Ernst, Tillis, Sullivan, Cramer, Scott, Blackburn, Hawley, and Tuberville

16. MOTION: To include a provision that would provide heightened revolving door requirements.

VOTE: Failed by roll call vote 10–16

In favor: Senators Gillibrand, Blumenthal, Hirono, King, Warren, Peters, Manchin, Duckworth, Rosen, and Hawley

Opposed: Senators Reed, Shaheen, Kaine, Kelly, Inhofe, Wicker, Fischer, Cotton, Rounds, Ernst, Tillis, Sullivan, Cramer, Scott, Blackburn, and Tuberville

17. MOTION: To include a provision that would provide for enhancement of recusal for conflicts of personal interest requirements for Department of Defense officers and employees.

VOTE: Passed by roll call vote 16–10

In favor: Senators Reed, Shaheen, Gillibrand, Blumenthal, Hirono, Kaine, King, Warren, Peters, Manchin, Duckworth, Rosen, Kelly, Wicker, Tillis, and Hawley

Opposed: Senators Inhofe, Fischer, Cotton, Rounds, Ernst, Sullivan, Cramer, Scott, Blackburn, and Tuberville

18. MOTION: To include a provision that would modify the authority for the commission on naming assets of the Department of Defense that commemorate the Confederate States of America or any person who served voluntarily with the Confederate States of America and to prohibit naming assets of the Department until a report is submitted.

VOTE: Failed by roll call vote 9–17

In favor: Senators Inhofe, Wicker, Rounds, Tillis, Sullivan, Cramer, Scott, Blackburn, and Tuberville

Opposed: Senators Reed, Shaheen, Gillibrand, Blumenthal, Hirono, Kaine, King, Warren, Peters, Manchin, Duckworth, Rosen, Kelly, Fischer, Cotton, Ernst, and Hawley

19. MOTION: To favorably report to the Senate the National Defense Authorization Act for Fiscal Year 2022. Reviewing this.

VOTE: Passed by roll call vote 23–3

In favor: Senators Reed, Shaheen, Gillibrand, Blumenthal, Hirono, Kaine, King, Peters, Manchin, Duckworth, Rosen, Kelly, Inhofe, Wicker, Fischer, Rounds, Ernst, Tillis, Sullivan, Cramer, Scott, Blackburn, and Tuberville

Opposed: Senators Warren, Cotton, and Hawley

Congressional Budget Office Cost Estimate

It was not possible to include the Congressional Budget Office cost estimate on this legislation because it was not available at the time the report was filed. It will be included in material presented during Senate floor debate on the legislation.

Regulatory Impact

Paragraph 11(b) of rule XXVI of the Standing Rules of the Senate requires that a report on the regulatory impact of the bill be included in the report on the bill. The committee finds that there is no regulatory impact in the case of the National Defense Authorization Bill for Fiscal Year 2022.

Changes in Exsisting Law

Pursuant to the provisions of paragraph 12 of rule XXVI of the Standing Rules of the Senate, the changes in existing law made by certain portions of the bill have not been shown in this section of the report because, in the opinion of the committee, it is necessary to dispense with showing such changes in order to expedite the business of the Senate and reduce the expenditure of funds.

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