

NOT FOR PUBLICATION UNTIL RELEASED BY
THE SENATE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON SEAPOWER

STATEMENT OF

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BEFORE THE

SUBCOMMITTEE ON SEAPOWER OF THE
SENATE ARMED SERVICES COMMITTEE

ON

DEPARTMENT OF THE NAVY FISCAL YEAR 2024 BUDGET REQUEST FOR SEAPOWER

MARCH 28, 2023

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Chairman Kaine, Ranking Member Cramer and distinguished members of the Subcommittee, thank you for the opportunity to appear before you today to address the Department of Navy's Fiscal Year (FY) 2024 budget request for Seapower capabilities. Maintaining a world-class and world-wide deployable Navy and Marine Corps as a first line of defense for the United States is a continuous effort. The Department of the Navy (DON) appreciates the support of Congress and this Committee for the Department's acquisition, sustainment, research, and development programs that allow us to continue to build and operate a lethal, capable, integrated, and forward-postured Navy and Marine Corps.

The security of our country and preservation of our national interests remains reliant on a superior naval force, strategically postured to adapt to constantly evolving geopolitical challenges and threats. The Navy and Marine Corps team must continue to provide unmatched operational capability to best support the regional Combatant Commanders in countering the People's Republic of China (PRC), the pacing challenge for the Department, the acute threat posed by Russia, and other persistent threats, while remaining prepared to respond to any global crisis. The Navy and Marine Corps continue to lead Joint and Coalition forces through integrated deterrence and remain postured to adapt to emerging threats as demand for our naval capabilities continues to increase. To maintain the maritime dominance of the Joint Force, the DON continues to invest in the modernization of our existing capabilities, and is pursuing initiatives for rapid innovation and streamlined acquisition of future capabilities, including those of our allies and partners.

The DON is investing in lethal capabilities across a broad spectrum of platforms and programs to equip our warfighters for potential combat operations with credible and sufficient capability to deter, and when necessary, prevail in conflict. Since the start of FY 2022 we have delivered 14 battle force ships to the Fleet including three Arleigh Burke Class destroyers (DDG 51), two Virginia Class submarines (SSN), five Littoral Combat Ships (LCS), one San Antonio Class amphibious transport dock (LPD), the first Fleet Replenishment Oiler of the new John Lewis class (TAO-205), one Spearhead Class expeditionary fast transport dock with autonomy functions (EPF), and one Lewis B. Puller class expeditionary sea base (ESB). Today, the Navy has 296 battle force ships, with an additional 76 ships under contract and 56 ships in construction, with the balance of ships in pre-construction activities such as long lead material procurement and planning efforts. We expect to take delivery of seven more ships and plan to award contracts for up to 17 more ships during FY 2023, including the DDG 51 FY 2023-2027 multi-year procurement contracts and the T-AO block buy contract as authorized in the FY 2023 National Defense Authorization Act.

The Department has made great strides in recapitalizing Naval aviation platforms. Last year we delivered 91 new aircraft for the Navy and Marine Corps team, including F/A-18E/F production and ongoing procurement and fleet integration of F-35, E-2D, V-22, P-8, H-1, CH-53K, VH-92A, and unmanned aircraft MQ-4C, MQ-9A Extended Range (ER), and MQ-25. Naval Aviation is now predominantly comprised of new airframes, made possible through a deliberate strategy of evolutionary, controlled technical risk development programs. Unmanned aviation advancement has continued into FY 2023 with three different integration events conducted to “fly” the MQ-25 virtually in the program’s test lab with actual ground control station software and aircraft computer hardware and software. VUQ-10, the MQ-25 Fleet Replacement Squadron, stood up in October 2022, and is responsible for initial training of maintainers. For the Marine Corps, Unmanned Aerial Vehicle Squadron (VMU)-1 recently conducted phase zero operations with MQ-9A ER, including multisensory imagery reconnaissance, electronic support, unmanned escort of surface forces, and maritime domain awareness in support of the Joint Force and Coalition Partners in CENTCOM, totaling over 3,800 hours. VMU-3 started transition to the MQ-9A ER with flights to begin in 2023.

Over the last year, global events have continued to pressurize the need for rapid change across the Services and the DON has taken note, aggressively seeking and implementing new and improved ways to operate, integrate, and sustain our forces. Russia’s ongoing war against Ukraine has affirmed our perception of the modern-day character of war. Specifically, the war against Ukraine has displayed the value of enhanced sensors and long-range precision fires, and the importance of freedom of navigation and the ability to sustain a force. The war highlights the need for increased industrial capacity, and shown the genuine value in maintaining relationships among partners and allies. Additionally, it has shown us that persistent, forward presence is essential for the success of our nation’s deterrence efforts. Moreover, recent provocations by China, such as flying collection assets directly over the continental United States, clearly shows their willingness to compete below the threshold of armed violence.

The Marine Corps’ activation of new units, including the 3rd Marine Littoral Regiment and Task Force 61/2 are indicative of efforts made to compete and reassure allies and partners. Additionally, the establishment of Marine Corps Base (MCB) Camp Blaz on Guam is yet another positive for the Marine Corps and the Joint Force, as it will serve as a critical logistics and inside force enabler. These new organizations and installations will actively participate and support operational concepts, including Distributed Maritime Operations (DMO), Expeditionary Advanced Base Operations (EABO), and Stand-In Forces. However, continued fielding and sustainment of

advanced capabilities in mobility, logistics, kill webs, and command and control will be essential for the entire Marine Corps to remain credible and lethal.

The security environment demands ships, aircraft, subs, expeditionary forces, special operations forces, and Sailors ready to fight and win. Readiness is generated across the DON, from shipyards and aviation depots, to our global network of bases and stations, to the steaming and flight hours our Sailors and Marines need to hone their skills. For surface ship maintenance, we are reinforcing our commitment to our industry partners to share future demand signals, and we are seeing the benefits of improved maintenance package planning, earlier contract awards, and delivery of long-lead time material to our repair yards. Continued investments in spares supports the readiness for training and operational units while simultaneously improving endurance for sustained operations. Funding of some availabilities that cross fiscal year boundaries via the OPN funding pilot is also showing positive results. These initiatives enable a stable and predictable workload for our industry partners and ensure a balance of operational requirements with industrial capacity.

The Navy continues to invest and mature autonomy to support future DMO through manned/unmanned teaming (MUM-T). To help increase opportunities to learn, the Navy has begun experimenting in the fleet with unmanned and autonomous systems at scale. Task Force 59 is exploring commercially available systems to augment their Maritime Domain Awareness, and 4th Fleet is building upon the Unmanned Campaign Framework to identify their needs to support the future hybrid fleet for the SOUTHCOM Area of Responsibility. In 2023 and 2024, we will be conducting numerous DON and multi-national unmanned experiments and exercises to explore MUM-T Maritime Domain Awareness, lethality, command and control, and contested logistics to include dual use technologies. This approach to innovation will leverage industries' pace of technology, allies, and partners' capabilities, while exploring new concepts. The return on investment includes a more flexible hybrid fleet that can be scaled with our allies and partners to help fill gaps brought on from world conflicts, or industrial base challenges at a more affordable cost.

The Fiscal Year 2024 President's Budget Request

The President's FY 2024 budget provides the resources necessary for the Navy and Marine Corps to continue to implement the 2022 National Defense Strategy (NDS). This request builds and sustains the right mix of capabilities to keep the sea lanes open and free, deter conflict, and defend against current and future threats. In alignment with the Secretary of the Navy's priorities, the budget request enables the One Navy-Marine Corps Team to continue strengthening our maritime

dominance, building on our culture of warfighting excellence, and enhancing our strategic partnerships.

The FY 2024 budget request is strategy-based and analytically-driven to meet our strategic goals, while balanced with reform targeted at maximizing the value of every dollar. The budget reflects the Department's commitment to building and sustaining a modernized naval force and operating forward with sufficient capability, size, and mix to deter and defend. FY 2024 continues key investments in advanced technologies and modernization of our current Seapower and Projection forces. In this request we are prioritizing the recapitalization of the strategic ballistic missile submarine, the Columbia Class, which remains the Department's top acquisition priority. It requests the first year of incremental funding for the second Columbia Class SSBN and full funding for two DDG Flight IIIs, two SSNs, two FFGs, one T-AO, and one AS(X), while providing the next increment of funding for construction of CVN 80, CVN 81, and LHA 9. The budget supports modernization of our warfighting capabilities across all domains, including research and development (R&D) funding for the future fast attack submarine (SSN(X)), future destroyer (DDG(X)), the Next Generation Air Dominance (NGAD) Family of Systems (FoS), Marine Corps Unmanned Expeditionary (MUX) FoS, and recapitalization of the Take Charge and Move Out (TACAMO) mission.

The Department requests funding in FY 2024 to support procurement of 88 aircraft, modification, spares, and support equipment -- 63 fixed wing aircraft including 15 Navy and four Marine Corps F-35C carrier variants; 16 F-35B Short Takeoff and Vertical Landing variants; two Marine Corps KC-130Js; and 26 T-54A multi-engine training system aircraft. Additional unmanned aircraft procurements include two MQ-4C Unmanned Aircraft in FY 2024, five MQ-9A ER, two XQ-58 Valkyrie Collaborative Combat Aircraft (CCA) for prototype experimentation, and three carrier-capable MQ-25 aircraft. Rotary wing investments include 15 CH-53Ks.

The FY 2024 budget prioritizes readiness recovery, continuing prior year gains on ship and aircraft maintenance efforts to improve overall department readiness. It includes a significant investment in submarine maintenance through the 15-Year SSN Maintenance Strategy with the goal of reducing maintenance periods and improving the operational availability of these critical assets. The request continues investment to develop improved war-fighting capabilities across all domains and distributed maritime operations, investing in long range fires and hypersonic weapons as well as increases to unmanned platforms. This budget also develops the Integrated Combat System (ICS) which will deliver decision superiority at rapid speed and enable ships to operate force-wide as an

integrated system.

The budget request increases investment in the Commandant’s Force Design 2030 priorities by \$705 million, moving programs from concept/experimentation to production within three lines of effort (LOE) – logistics, sensing, and fires. These investments provide unique capabilities the Marine Corps requires to enable joint force access, sense and make sense of the battlefield, to close kill chains, and apply lethal fires when required to deter or defeat adversaries.

The FY 2024 budget continues investment in the defense industrial base to ensure the continued viability of the crucial businesses and infrastructure needed to ensure our ships, aircraft, and ground equipment are available when needed for the defense of the nation and our interests abroad. The budget request includes a \$647 million investment in the submarine industrial base to support serial production of Columbia Class nuclear-powered, ballistic missile submarines (SSBN) in parallel with Virginia Class nuclear-powered attack submarine (SSN) construction. The budget makes significant investments in the munitions industrial base, supporting multiyear procurement (MYP) contracts for critical munitions including Standard Missile (SM-6), the Naval Strike Missile (NSM), and the Long-Range Anti-Ship Missile (LRASM). MYP contracts will generate Economic Order Quantity (EOQ) savings, stabilize the demand signal to the industrial base, and enable the Department to respond quickly to future contingencies.

Summary

The Navy and Marine Corps team continues to meet challenges head on – in cyberspace, in outer space, on the sea, under the sea, in the littorals and in the air every single day. With Congress’ support, the Department of the Navy is focused on rapidly researching, developing, acquiring, and fielding the material solutions required to be more lethal, sustainable, resilient, survivable, agile, and responsive. We are committed to providing the Nation with a combat-credible, dominant, globally responsive naval force to keep the sea lanes open, deter conflict, and when called upon, decisively win our Nation’s wars.

Programmatic details regarding Navy and Marine Corps capabilities are summarized in the following section.

U.S. NAVY AND MARINE CORPS SEAPOWER CAPABILITIES

SHIP PROGRAMS

Submarines

Ballistic Missile Submarines, coupled with the TRIDENT II D-5 Strategic Weapons System (SWS), represent the most survivable leg of the Nation's strategic arsenal, and provide the Nation's most assured nuclear response capability. Modernizing this capability with both the Columbia Class SSBN and TRIDENT D5 Life Extension 2 (D5LE2) will ensure the effectiveness and availability of the nation's Sea Based Strategic Deterrent through the 2080s. Columbia Class is the Navy's #1 acquisition priority as its construction and delivery are critical to pace the retirement of current ballistic missile submarines.

The lead ship of the class, DISTRICT OF COLUMBIA, started construction in FY 2021. This ship must be on patrol in 2030 to meet STRATCOM requirements. The second ship of the class, WISCONSIN, will officially start construction in the first quarter of FY 2024. The FY 2024 budget request includes the first year of incremental funding for the second ship, advance procurement and advance construction funds for future ships, and funding for continued class design efforts. The FY 2024 budget continues funding for several initiatives that are essential to reducing construction schedule risk and enabling cost savings including continuous production of missile tubes and various critical components, multi-program material procurement and procurement of production backup units. Through these congressionally granted authorities, the Navy has realized significant benefit. In missile tube production, which is tightly coordinated with procurement of Common Missile Compartment material for the U.K. Dreadnought Class submarines being executed under the Polaris Sales Agreement, all missile tubes in support of Columbia Hull 1 and UK Dreadnought Hull 1 have been delivered. Using authorities provided by Congress, General Dynamics Electric Boat and Huntington Ingalls Industries-Newport News continue to procure material to maintain and grow the submarine industrial base as the program builds to annual procurements beginning in FY 2026.

The Navy has taken delivery of 21 Virginia Class submarines with 17 additional under contract. Two deliveries are planned in 2023: Hyman G Rickover (SSN 795) this summer and New Jersey (SSN 796) this fall. The second ship of the Block V contract is under construction and will introduce the Virginia Payload Module, which helps mitigate the loss of undersea strike capability with the retirement of SSGNs later this decade. All Block V ships will incorporate Acoustic Superiority program improvements. The Navy recognizes that Virginia Class construction

performance continues to be challenged to meet the required two per year delivery cadence and is working closely with shipbuilders to stabilize and improve performance in the industrial base. The FY 2024 budget includes funding for two Virginia SSNs, which will be procured as options under the Block V contract as one Virginia Payload Module ship and a modified Virginia Class Subsea and Seabed Warfare platform. The budget also includes funding for advance procurement and economic order quantity funding for the next block (Block VI). The FY 2024 budget also includes cost to complete funding for several Block IV boats to address COVID impacts, supplier disruptions and shipyard performance, as well as R&D funding for continued development of capabilities and technologies for future Blocks.

The Navy is also working closely with our allies – Australia and the United Kingdom – to implement the AUKUS Optimal Pathway for Australia to acquire a conventionally-armed, nuclear powered submarine capability. On March 13, the President announced plans to employ a phased approach to provide this capability on the fastest possible timeline, while upholding the highest standards for nuclear stewardship and setting a precedent that strengthens the nonproliferation regime. As the President made clear, our three nations are making concrete commitments to each other, and we are backing these commitments up with significant investments to strengthen the industrial bases of each of our nations.

The submarine industrial base faces an increase in demand across the enterprise as the Navy ramps up production of the Columbia Class while continuing two-per-year Virginia Class procurements. The Navy is taking steps to expand and strengthen the submarine industrial base to support concurrent construction of Virginia and Columbia Class submarines, and appreciates congressional support to address these challenges. In 2021, the Navy partnered with the Office of the Secretary of Defense on a comprehensive study to assess the submarine industrial base's ability to design, construct, and deliver submarines at rates consistent with current and future shipbuilding plans. The FY 2024 budget continues efforts to fund submarine industrial base investments identified in the study. Investments are targeted in six key areas to include shipbuilder infrastructure, supplier development for capability/capacity, scaling of new technologies, workforce trade skill gaps and constraints, expanding productive capacity via strategic outsourcing, and government oversight of these efforts. The Navy has seen significant benefit from this funding in areas such as new technology through standing up of the Additive Manufacturing Center of Excellence in Danville, VA, workforce development by scaling up the Accelerated Training in Defense Manufacturing program and launching of an aggressive campaign to recruit people into key

defense trades and shipyard infrastructure in the groundbreaking for the multi-class submarine production facility at Newport News, VA.

The FY 2024 budget continues the efforts started in FY 2022 in support of requirements development, Analysis of Alternatives execution, concept design and technology development for the Future Attack Submarine (SSN(X)). As the Columbia design workforce efforts diminish, SSN(X) design efforts will ramp up, thereby maintaining the strength of the submarine design workforce. SSN(X) is anticipated to start construction in the mid-2030s, which will ensure a production workforce is in place as Columbia production ramps down.

Aircraft Carriers (CVNs)

The FY 2024 budget fully funds the operations and maintenance of 11 In-Service Aircraft Carriers, three Ford Class Carriers under construction, and a Service Life Extension that will allow USS Nimitz (CVN 68) to conduct one additional operational cycle in support of the Nation. The FY 2024 budget also provides investment in Sailor Quality of Service at Newport News Shipbuilding to improve the living conditions of our Sailors onboard aircraft carriers and other ships undergoing extensive maintenance or construction.

The USS Gerald R Ford (CVN 78) has fully transitioned into an operational platform and joined six NATO allies in completing its first service-retained deployment in 2022. During deployment the ship sailed over 9,000 miles, flew 2,400 hours, and performed over 1,200 sorties. Training is currently ongoing to prepare CVN 78, its Carrier Air Wing, and the other ships of its Carrier Strike Group for future operational commitments later this year. Performance of key systems continue to improve as more than 13,000 launches and recoveries have been completed aboard CVN 78. Advanced Arresting Gear (AAG) and Electromagnetic Aircraft Launch System (EMALS) average Availability (Ao) is greater than 0.977 for the last 5,500 launch and recoveries for both systems. John F Kennedy (CVN 79) is 89 percent construction complete and implementing a revised delivery/post-delivery strategy to prepare the ship for operations in the Indo-Pacific region and decrease the amount of time the ship will be required to be at the shipyard after ship delivery. Enterprise (CVN 80) construction is 28 percent complete, and Doris Miller (CVN 81) is in early production and pacing ahead of previous Ford Class carriers for material procurement. The Navy remains committed to reducing and controlling the cost of Ford Class aircraft carriers and continues to benefit from the up to \$4 billion savings expected to be achieved through the two-ship CVN 80 and CVN 81 contract award.

The Nimitz Class Refueling Complex Overhaul (RCOH) is the refueling of the ship's reactors and full recapitalization of the carrier in support of the second half of its service life. The USS George Washington's (CVN 73) RCOH is scheduled to complete in June. USS John C Stennis (CVN 74) is 42 percent complete, and USS Harry S Truman (CVN 75) will award its execution Advanced Planning (AP) contract this year to support commencing RCOH in FY 2025.

The Navy is nearing completion of the final Environmental Impact Study (EIS) for the disposal of the ex-Enterprise (ex-CVN 65) and expect results before the end of 2023. This EIS will inform the Navy's decision on how to commercially recycle the first nuclear powered aircraft carrier.

Large Surface Combatants

Arleigh Burke Class (DDG 51) destroyers are the workhorse of the Fleet, with 72 ships delivered as of February 2023. In FY 2023 Congress authorized MYP authority for up to 15 DDGs in FY 2023-2027, and provided funding for three ships. The shipbuilders have a total of 17 DDG-51s under contract and 11 ships in various stages of production.

Flight III DDG 51s will provide enhanced Integrated Air and Missile Defense (IAMD) with the AN/SPY-6(V)1 Air and Missile Defense Radar (AMDR) and AEGIS Baseline 10 (BL10). The Flight III leverages the proven Flight IIA platform with modifications for hull stability, cooling, and power to accommodate AMDR. AMDR meets the growing ballistic missile threat by improving radar sensitivity and enabling longer range detection of increasingly complex threats. The program demonstrated design maturity through its successful completion of all developmental testing. AMDR is in production for delivery to support Flight III ships. Initial shipboard testing of the radar and combat system has commenced on the first DDG 51 Flight III ship, USS Jack H Lucas (DDG 125), which has already undergone initial builders sea trials and will deliver in FY 2023. As part of a two-phased testing approach, Initial Operational Capability (IOC) in FY 2024 will include Air and Missile Defense Commander (AMDC) capability with core ballistic missile defense capability for Long-Range Search and Track and Sea Based Terminal. This aligns with Fleet priorities for Flight III to replace Cruisers in the AMDC role. Follow-on testing will support the IAMD key performance parameters with completion of Initial Operational Test and Evaluation, which culminates with Flight Test Mission (FTM)-42 in the Q4FY27.

Aligned with congressional intent, risk reduction integration testing of critical Flight III systems is ongoing. BL10 is being integrated with a LRIP SPY-6 array and power conversion equipment at a land-based development site to buy down risk of first-time integration at the

waterfront aboard DDG 125. The first two successful at-sea testing trials of the Flight III electric plant were conducted in December 2022 and February 2023, proving operational integration and testing of the Machinery Control System software. The first combat system software incremental load was delivered to DDG 125 in February 2022 with additional at-sea testing later in FY 2023.

The Zumwalt Class (DDG 1000) guided missile destroyers are multi-mission surface combatants designed to provide long-range, offensive surface strike capabilities. The DDG 1000 program continues to accomplish first-time integration of unique combat systems elements, complete Post Delivery Test and Trials, demonstrate operational performance, and planning efforts for the first integration of Conventional Prompt Strike (CPS) hypersonic weapon system. USS Zumwalt (DDG 1000) will be the first maritime platform to integrate the CPS weapons system, with work starting in October 2023.

In FY 2022, DDG 1000 conducted a deployment to the western Pacific that included port visits to Pearl Harbor, HI, Guam, and Yokosuka, Japan and included the first material inspection by INSURV for the class. DDG 1001 participated in submarine Command Course Mini-Wars February-March 2022, conducted Survivability test events in March 2022, and Deck Landing Qualifications in April 2022 to include 16 deck landings with UH-1Y (Huey) and AH-1Z (Cobra) helicopters and fueling during the landing operations. DDG 1001 participated in the 28th edition of the biennial Rim of the Pacific (RIMPAC) international maritime exercises in July 2022, and completed Failure and Recoverability Mode Testing / Enhanced Total Ship Survivability Trial in September 2022. DDG 1002 sailed from Bath, ME to Pascagoula, MS for the first phase of the Combat Systems Activation (CSA) which was awarded in August 2022. In December 2022, the Navy approved a plan to install CPS during the CSA, allowing for delivery of a complete DDG 1002 to the Fleet with CPS capability.

DDG(X) will be the next enduring large surface combatant (LSC) that follows the highly successful DDG 51 Class. Like DDG 51's evolution from CG 47, the initial flight of DDG(X) is a new hull form built around the DDG 51 Flight III's AMDR with AEGIS BL10 to deliberately reduce execution risk. DDG(X) will provide significant increases in range, efficiency, and time-on-station compared to the DDG 51 class, providing Fleet Commanders with increased operational flexibility and decreasing the demand on Fleet Logistics. When deployed with the FFG 62 class, which is designed to relieve LSCs of lower-tier missions, the resulting Fleet mix will directly contribute to the Navy's concept of DMO. DDG(X) will provide the flexibility and margins (space, weight, power, and cooling reservations) to accommodate required future capacity and capability upgrades to counter evolving threats. The Navy is committed to a smooth and successful transition from DDG 51 to

DDG(X), currently planned to begin around FY 2032. The transition will preserve the critical shipbuilding and supplier industrial base by executing a collaborative design process with current DDG 51 shipyards and transitioning to a proven limited competition model between these shipyards at the right point in ship construction.

Small Surface Combatants

The Constellation Class Frigate (FFG 62) is the evolution of a proven parent design built to Naval combatant design standards with increased lethality, survivability, and improved capability to support the full range of military operations as part of a more lethal Joint Force. The FFG 62 program is managing development risk by combining proven ship designs with mature, best-of-breed Government Furnished Equipment designated combat system elements. Consistent with congressional intent, the Navy is establishing a FFG 62 Land Based Engineering Site to reduce integration risks and test power and propulsion systems. Equipped with Navy standard Government Furnished Equipment (GFE) combat system elements, the Navy is confident in the multi-mission capabilities FFG 62 will deliver to the Fleet. The first three ships, the future USS Constellation, USS Congress, and USS Chesapeake are under contract, and the lead ship started construction on August 31, 2022. The fourth ship will go on contract in FY 2023.

The LCS program has delivered 29 of the 35 total funded ships. The Navy has installed NSM on eight Independence variant LCS platforms, and 14 LCS hulls are programmed to receive the weapon system in the future. Additionally, execution of the first LCS Lethality and Survivability (L&S) upgrade is on track for USS Gabrielle Giffords in FY 2024. Development of the L&S Common Combat System continues and will support transition from shipbuilder-procured contractor-furnished equipment to program of record government furnished equipment. Through the efforts of the LCS Strike team and Task Force LCS, reliability of the LCS platform has continued marked improvement, with successful LCS deployments in FY 2022 in 4th, 5th, 6th, and 7th Fleets and planned operations across the Fleets in FY 2023. In the past year, the Navy has made significant progress in its effort to modernize mine countermeasure (MCM) capability, as the MCM Mission Package (MP) completed initial operational test and evaluation in FY 2022 with declaration of IOC imminent. This capability is expected to fully replace the aging Avenger-Class MCM fleet by the end of FY 2027.

Large Deck Amphibious Warfare Ships

Amphibious warfare ships remain a critical component of the Nation's global forward presence, supporting deterrence, crisis and contingency response missions and providing decision space for our nation's leaders. These ships support the amphibious assault, special operations, and expeditionary warfare missions of U.S. Marines and often Special Operations Forces by providing sovereign bases at sea, offering flexible services that provide shelter and sustainment, and enabling Marines, Sailors, and Special Operations Forces to plan and train a tailorable force.

The America Class Amphibious Assault Ships (LHA 6) program provides a lethal and versatile platform to serve as the flagship for the Expeditionary Strike Group (ESG)/Amphibious Ready Group (ARG) now and in the future. Among other capabilities, these ships host the fifth-generation F-35B Joint Strike Fighter (JSF) aircraft that are critical to maintaining air combat superiority. USS Tripoli (LHA 7) transitioned to in-service and completed its maiden deployment in 2022. LHA 7 also completed the "JSF Heavy" operational test in 2022, embarking 20 Joint Strike Fighters for the first time compared to a normal embark of ten aircraft. Bougainville (LHA 8), first of the LHA Flt I class, is at 63 percent construction complete with launch planned for summer 2023. LHA 8 includes a well deck to increase operational flexibility and a reduced island structure increasing flight deck space to enhance aviation capability. The Fallujah (LHA 9) construction contract was awarded in October 2022 and fabrication started in December 2022. Following advance procurement funding appropriated in FY 2023, this year's budget request accelerates LHA 10 by four years to a FY 2027 ship.

Other Amphibious Warfare Ships

San Antonio Class Amphibious Transport Docks (LPD 17) provide the ability to operate offensively in a medium-density, multi-threat, anti-access littoral environment by being a seabase for the Marine Expeditionary Unit (MEU), capable of launching and recovering helicopters, tiltrotor aircraft, landing craft, and amphibious vehicles, and Special Operations Forces. The San Antonio Class LPD is an essential component of the amphibious warfare ship inventory, and continues to be constructed in a cost-efficient manner with capabilities critical to providing strategic mobility, force projection, and the range to campaign across the globe. NASA's Orion spacecraft for the Artemis I mission was successfully recovered inside the well deck of the USS Portland (LPD 27) in December 2022 off the coast of Baja California. USS Fort Lauderdale (LPD 28) commissioned in July 2022. Richard M McCool Jr (LPD 29) is 87 percent complete and is planned for delivery in the second

quarter of FY 2024. LPD 28 and LPD 29 are the last of the LPD 17 Flight I line to be constructed and are the transition ships to the LPD 17 Flight II. The first Enterprise Air Surveillance Radar antenna was fitted on LPD 29 in January 2023, bringing the Navy one step closer to having a common radar hardware variant for carrier and amphibious ships. The first Flight II ship, Harrisburg (LPD 30), is 34 percent complete with a planned delivery in FY 2026. Pittsburgh (LPD 31) started ship fabrication in September 2022.

Connectors

The Ship to Shore Connector (SSC) program provides a robust, modern operational capability to land credible combat power from amphibious ships across beaches not accessible by conventional landing craft, thus enabling the Marine Corps and Navy to project combat power ashore from the sea. The SSC provides a one-for-one enhanced replacement platform for legacy Landing Craft Air Cushion (LCAC), which are beginning to reach an average 30 years of age. While no SSC are requested in FY 2024 as the Navy works through orders under contract, SSC procurement is planned to continue in FY 2025. The Navy is continuing to support production progress in serial SSC deliveries and evidenced by the delivery of four crafts (Hulls 103 to 106) over the last 15 months. The 2023 Consolidated Appropriations Act added funding for three additional SSC for five total. The 2023 National Defense Authorization Act granted the authority to enter into one or more contracts for the procurement of up to 25 craft.

The Navy is also replacing its aging Landing Craft Utility (LCU) fleet with the LCU 1700 program which recapitalizes the capabilities and flexibility currently provided by the LCU 1610 Class in a more fuel efficient, cost effective, and updated design. The FY 2024 budget request continues to modernize the aging LCU fleet, which is currently approaching an average age of 50 years, with a request for two additional LCU 1700.

Expeditionary, Auxiliary, and Other Vessels

Expeditionary support vessels are flexible platforms used across a broad range of military operations in support of multiple operational phases. Moving forward the Light Amphibious Warship (LAW) is being referred to as the Medium Landing Ship (LSM) to better align name to mission and differentiate the platform from traditional larger, multi-purpose amphibious warfare ships classes. LSM is not a forcible entry platform. It is planned to fill the capability gap that exists between the Navy's large, globally deployable, high endurance, multipurpose amphibious ships and smaller

complementary landing craft. The Navy and Marine Corps have come to an agreement on requirements and will pursue a commercial parent design with vulnerability and recoverability improvements to support overall vessel survivability. LSM concepts were refined and matured with the five initial industry partners under preliminary design studies awarded in January 2022 with follow-on studies awarded in January 2023. The FY 2024 funding request continues the development of acquisition documentation, equipment baseline, and efforts to support a lead hull contract award in FY 2025.

In the interim, the DON is evaluating a diverse group of existing naval platforms (e.g., EPF, SLV, LCU, etc.) to act as the bridging solution to support Stand-in Forces operating in the Indo-Pacific until LSM is available. Interim material solutions can support limited subsets of the overall LSM operational concept and may require additional modifications. The Marine Corps has chartered a commercial Stern Landing Vessel (SLV) to experiment and prototype the SLV's use in providing logistics/sustainment capability to support EABO and Stand in Forces with a flexibility to navigate the littorals to deliver cargo initially or for resupply and maneuver Marines. The SLV offers the Marine Corps the ability to experiment with a roll-on/roll-off vessel capable of beaching on sand, gravel, shale, small stone, and man-made marine ramps. On February 13, 2023, the first SLV was officially undocked from its dry-dock location and is undergoing final shipyard modifications and various trials and inspections. Once complete and following acceptance, the vessel will undergo a thorough technical evaluation period and then conduct experiments and participate in exercises. The FY 2024 budget requests \$31 million to support the planned acquisition of a 3rd SLV to be delivered in FY 2025.

In addition to the SLV, the Marine Corps is pursuing a future strategy for a smaller surface distribution connector – the Ancillary Surface Connector (ASC). ASC will be built by the commercial market to answer a Service requirement for a III Marine Expeditionary Force inter-island connector that supports the delivery of logistics over the “last tactical mile.” In this effort, the Marine Corps is currently conducting trade space analysis and evaluating contracting options to pursue the most cost-effective options for continued experimentation.

Finally, the Navy is investigating the use of existing platforms to provide subsets of the overall LSM maneuver mobility and sustainment mission. These include, but are not limited to, the EPF which can provide a pier-to-pier role, and the LCU which can provide intra-island lift over limited ranges.

Fast Transport (EPF) provides rapid, agile, intra-theater personnel and equipment lift in support of DMO and Littoral Operations in a Contested Environment. These vessels have and continue to support critical partnerships throughout the Indo-Pacific, to include theater security cooperation events such as Task Force Koa Moana with the Republic of Palau. During this annual event in 2021 and 2022, USNS City of Bismarck (EPF-9) supported Marines and Sailors from I Marine Expeditionary Force. The newest EPF, the Apalachicola (T-EPF 13), includes installation of evolutionary autonomy functions, serving as an important point of learning as Navy advances its unmanned vessel efforts. Apalachicola was delivered in February 2023 and successfully completed Unmanned Logistics Prototype trials. Cody (EPF 14) and Point Loma (EPF 15) are under construction with deliveries planned in FY 2023 and FY 2025 respectively. EPF 16 is scheduled to start construction in FY 2023.

The EPF Flight II (EPFs 14-16) does not have the autonomous capability of EPF 13 but is a modified EPF design that incorporates engineering, design and operational improvements which will provide Combatant Commanders with a more flexible and capable platform, and enable an embarkable Role 2 Enhanced (R2E) medical capability. EPF Flight II will be capable of conducting the same missions conducted by the EPF but with a reduced lift capacity.

FY 2023 appropriations included the addition of two Expeditionary Medical Ships (EMS). EMS is an EPF variant that has a similar shallow draft, is all aluminum, and is a commercial-based catamaran design. However, it is optimized to provide dedicated R2E medical care and intra-theater patient movement. The EMS will provide combatant commanders high-speed transport mobility to move casualties over operational distances. Construction of the first EMS ship is expected to start in FY 2024.

The Expeditionary Sea Base (ESB) is a modified commercial ship that acts as an afloat forward staging base. ESBs are versatile ships that provide a flight deck platform, mission deck and cargo capacity, and command and control capabilities for mission planning and execution. The Navy accepted delivery of USS John L Canley (ESB-6) on March 1, 2023. ESB 7 had its keel laid in October 2022, and ESB 8 is planned to start construction in August 2023.

The FY 2024 request continues to expand DON combat logistics capacity with construction of the John Lewis (T-AO 205) Class fleet replenishment oiler to recapitalize the T-AO 187 Class, which has been in-service since the mid-1980s. USNS John Lewis, the lead ship of the T-AO 205 Class, delivered in July 2022. T-AO hulls 206 to 209 are currently under construction, and hulls 211 and 212 were put on contract in August 2022. The Navy is working through revised economic

assumptions to support inflation-related cost growth and schedule delays due to late material and shipyard workforce challenges.

The T-ATS Towing, Salvage, and Rescue vessels are intended to replace the mission requirements of both retiring T-ARS 50 and T-ATF 166 Classes. They provide ocean-going tug, salvage, and rescue capabilities to support U.S. fleet operations and will be a multi-mission common hull platform capable of towing heavy ships. There are nine T-ATS on contract and seven under construction across two shipyards. A second production source was established in June 2021 to support the shipbuilding industrial base and expedite delivery to the fleet.

The Auxiliary General Ocean Surveillance ships (T-AGOS 25 Class) consists of a seven-vessel program of record, with four vessels procured through the FYDP. Ocean Surveillance ships gather underwater acoustical data by providing a ship platform capable of anti-submarine passive and active acoustic surveillance. T-AGOS ships are operated by Military Sealift Command and support the anti-submarine warfare mission of Atlantic and Pacific Fleet Commanders. FY 2024 includes the SCN funds necessary to award the Detail Design & Construction contract for the first ship this year. The T-AGOS 25 ships will replace the T-AGOS 19 and T-AGOS 23 Class ships.

Strategic Sealift

The DON remains committed to sealift readiness and recapitalization, working with our partners in USTRANSCOM and the Maritime Administration (MARAD). This recapitalization strategy includes procurement and refurbishment of used commercial Roll-On Roll-Off ships for replacement of aging Ready Reserve Force capacity. The buy-used recapitalization program provides a stable acquisition profile with forecasted maintenance and repair costs to meet strategic mobility requirements at a moderate level of risk. The work to modify and outfit these used vessels will continue to be performed by U.S. shipyards. On February 27, 2023, MARAD completed the purchase of three ships that recapitalize over 660,000 square feet of Sealift capacity. In March 2023, two used vessels, the Cape Arundel and Cape Cortes, will complete modification and outfitting availabilities with commercial industry partners and enter into the Ready Reserve Force with 432,000 square feet of capacity.

In parallel with recapitalizing strategic sealift, the Navy and Marine Corps are in the early stages of developing requirements for the next generation of maritime prepositioned ships. The DON will initiate a new construction program to replace the current Maritime Prepositioning Force (MPF) ship portfolio. New MPF ships will include capability adaptations that support reliance on sea-basing

to persistently project, sustain, and maintain discrete forces forward in the competition space. Funding included over the FYDP will support industry studies to prepare for new construction design work. Currently, five of the twelve maritime prepositioning ships have returned to CONUS in FY 2023 and have been placed in reduced operating status-5 (ROS-5). ROS-5 is designed to have the ships fully ready to activate and load cargo five days after notification. All ships, regardless of status, will continue to be maintained by, and operate through, Military Sealift Command for MPF usage through FY 2024. Two of the five ROS-5 ships will remain partially pre-loaded with prepositioned materiel at Blount Island Command. The remaining three ships will be in various CONUS lay berths and not be loaded with prepositioned materiel. In FY 2025 those three ships are scheduled to transition to MARAD and be removed from the Naval prepositioned force.

Sustainment, Modernization, Service Life Extensions and Divestments

The Department continues to prioritize proper maintenance and modernization of the Navy's fleet to ensure the Fleet Commanders have the ships they need with the required capabilities to quickly respond to evolving operational demands. The Navy is making headway in reducing deferred maintenance backlogs and driving down the days of maintenance delay by improving the timely delivery of ships back to the Fleet on time and with all required work completed. The Navy is focusing efforts across the entire maintenance planning and execution spectrum from work package planning, procurement strategies, and waterfront execution to drive out unnecessary delays and improve performance. The DON is also leveraging the Perform to Plan approach across the portfolio to improve quality of specification packages, workload planning and port loading, earlier government material delivery to our industry partners, inspection streamlining, and ensuring roles and responsibilities are assigned to enable efficiency in execution without sacrificing proper oversight responsibilities. Proper planning and sharing of workload projections with industry allows for the Navy's partners to effectively manage their infrastructure and workforce and identify opportunities for targeted infrastructure investments.

Beyond maintaining the current Fleet, the Navy is also focused on critical modernization efforts that will ensure the Navy's in-service Fleet has relevant combat capability. The Navy is investing \$17 billion over 17 years to modernize 25 Flight IIA DDGs that will ensure sustained combat effectiveness, mission relevancy, and enable the AEGIS Fleet to achieve their full expected service lives. The FY 2024 budget funds the second procurement of a SPY-6 variant for back-fit on in-service DDGs, the combined hull, mechanical & electrical and combat system/AEGIS

modernization upgrade installations on three DDGs in FY 2024, the necessary procurements for another two installs planned in FY 2026, and the procurement of the first high efficiency super chiller shipset planned for installation in FY 2026. The Navy is working to ensure lessons learned from Cruiser Modernization are incorporated in the availability planning for DDG Modernization availabilities across acquisition planning, including contract type and procurement strategies, system lay-up and reactivation, crew manning, and training. Additionally, to ensure the Navy and its industry partners are properly prepared for the magnitude and complexity of DDG Mod 2.0 availabilities scheduled to commence in FY 2028, the Navy is utilizing a “crawl-walk-run” approach of stand-alone and incremental modernization for the early Flight IIA hulls.

The Navy is committed to balancing the submarine maintenance workload within the public and private shipyards, as well as maintaining a healthy industrial base for both submarine maintenance and new construction. To that end, the Navy has a new 15-Year Maintenance Strategy to improve SSN material availability and outline approaches to optimize submarine repair at all shipyards, including private-sector maintenance execution. In FY 2023, the Navy with OSD(CAPE) is conducting a shipyard capacity and capability study to identify additional areas for improvement. The Navy will continue to work with our industry partners to improve cost and schedule performance for submarine maintenance, providing valuable maintenance surge capacity.

To ensure the Navy’s resources are most effectively utilized across the portfolio and support the NDS priorities, the FY 2024 budget proposes decommissioning 11 ships in FY 2024. Of these 11 ships, three are at or beyond expected service life (ESL) and eight are prior to ESL. For the three ships at or beyond their ESL, inactivation in FY 2024 is a standard practice at the end of a ship’s lifecycle. For the eight ships the Navy plans to divest of in FY 2024 (3 CG, 3 LSD, 2 LCS), substantial maintenance, repair, and modernization costs significantly outweigh warfighting contribution, and the cost savings from these divestments allow for realignment to higher priority, more capable platforms for strategic competition. The Navy is continuing to trade near-term Fleet size and capacity for long-term capability. The FY 2024 budget does not resource a Fleet size beyond what the Navy forecasts can be reasonably sustained, accounting for manning, training, maintenance, ordnance, operations, and future modernization.

The CG and LSDs have exceeded their expected utility for current and future conflict. Keeping these platforms longer than the Navy plans would require significant resources to maintain, modernize, and operate them with limited return on that investment. The Navy cannot justify the resultant limited capability these assets would provide over their remaining service life when

compared with the benefits of investing in critical modernization and new construction efforts. For the LCS, the FY 2024 budget maintains the Navy's plan to divest LCS 6 and LCS 8 in FY 2024. These hulls are the oldest of the "block-buy" Independence Class LCS and are in excess to the planned LCS force requirements.

Shipyard Infrastructure Optimization Program (SIOP)

The Navy's four public shipyards perform an essential role in national defense by executing maintenance on submarines and aircraft carriers to provide combat-ready ships to the fleet. SIOP, when fully executed, will deliver required dry dock repairs and upgrades to support current and planned future classes of nuclear-powered aircraft carriers and submarines, optimize workflow within the shipyards through significant changes to their physical layout, and recapitalize industrial plant equipment with modern technology that will substantially increase productivity and safety.

The Navy is instituting a first-of-its-kind infrastructure acquisition process for SIOP, similar to major defense acquisition programs. The SIOP-tailored acquisition process will guide program execution and establishes threshold and objective parameters for overall cost, schedule, and performance of the SIOP at each shipyard with total program cost.

With the tremendous support received from Congress – to include the \$1.9 billion appropriated in FY 2023 – the program is advancing three lines of effort: dry dock modernization, optimization, and capital equipment. The Navy has completed construction of the \$158 million Super Flood Basin at Portsmouth Naval Shipyard (PNSY) and commenced the construction of two new dry docks; completed construction of the \$73 million Norfolk Naval Shipyard (NNSY) Production Training Facility; completed \$167 million of design for Pearl Harbor Naval Shipyard (PHNS) Dry Dock (DD) 3 Replacement, and on March 10, awarded a \$2.8 billion task order for the construction of the PHNS DD3 Replacement. Planning for DD3 Replacement successfully employed early contractor involvement at multiple milestones throughout design development and continuous macroeconomic assessments which contributed to a competitive bid environment and multiple bids being received. The FY 2024 budget confirms the Administration's commitment to this program and requests \$2.7 billion for SIOP.

Unmanned Surface and Undersea Vehicles

The DON continues to invest and mature all the enabling and core technologies needed to deliver unmanned surface and undersea capabilities. These capabilities along with the platforms are

foundational to creating the hybrid fleet of the future. MUM-T will increase capacity, standoff, reach, and provide protection of our manned platforms while reducing risk to our sailors and marines. USVs will expand Information Operations and missile magazine depth.

In keeping with the USV systems engineering pillars, FY 2022 efforts continued work with the Navy's industry partners on maturing reliable Hull, Mechanical and Electrical capability; advancing the required networks and radios; common core USV Combat System; vessel control software; sensory perception and autonomy; and platform and payload prototyping. In FY 2022, the Navy's autonomous-enabled ships traveled over 45,000 miles in the autonomy mode, and SeaHawk, a medium USV, provided operational support to US Pacific Fleet for an extended period of time.

By the end of FY 2024, the Navy will have an operational MUSV Land-Based Test Site, will have initiated LUSV land-based testing, and will operate several USV prototypes including, four Overlord USVs, Sea Hunter and SeaHawk. Additionally, the first autonomy-enabled EPF-13 will be available for operations to support experimentation and CONOPs development.

The MCM USV program includes the development and production of MCM USV craft and Payload Delivery Systems to deliver multiple capabilities to meet MCM MP requirements. MCM USV reached IOC in July 2022 alongside the Unmanned Influence Sweep System (UISS), one of its two baseline payloads. Initial operational test and evaluation of the MCM MP concluded in August 2022, followed by operational testing focused on mine hunting capability from the MCM USV which completed in September 2022. A MCM MP onboard USS Cincinnati (LCS 20) successfully executed the full MCM sequence. This included both the semi-autonomous MCM USV operating with the AQS-20 mine-hunting sonar, minesweeping payload, and MH-60S operating with the Archerfish Airborne Mine Neutralization System (AMNS) and Airborne Laser Mine Detection System. Together, these systems were able to find, fix, identify, target, and neutralize mines. The program continues to develop Barracuda to provide future mine neutralizing capability.

Investing in a family of Unmanned Undersea Vehicles (UUVs) will expand Navy reach and persistence by augmenting manned platform capacity with unmanned autonomous systems. The Navy remains committed to completing the fabrication of the Orca, Extra Large Unmanned Undersea Vehicle (XLUUV), a pier-launched UUV capable of carrying large payloads. The Navy christened the XLUUV Test and Evaluation asset in Q3FY22 and internal component testing completed in Q2FY23. The Large Displacement Unmanned Undersea Vehicle (LDUUV) which will support Subsea and Seabed Warfare (SSW) and Intelligence Preparation of the Operating Environment

conducted in-water testing during FY 2022, but was divested in FY 2023 due to deferment of the primary host interface platform (SSN Payload Handling System) and to support higher Navy priorities. The LDUUV program aimed to address a critical gap with increased depth, endurance, and payload capacity. The Navy is re-evaluating LDUUV hosting requirements while continuing to conduct LDUUV experimentation and demonstrations of SSW capabilities.

The Navy awarded the Medium UUV (MUUV) Program of Record contract in July 2022. It supports the development of a common Medium vehicle merging Expeditionary Mine Countermeasures Viperfish with Submarine Force Razorback Torpedo Tube Launch and Recovered requirements, demonstrating Navy commitment to identify efficiencies in procurement and sustainment of unmanned systems.

Through a partnership with the Defense Innovation Unit, the DON used accelerated acquisition authorities such as commercial solution openings and other transactions to award the Lionfish contract. Lionfish is a small, lightweight, highly portable vehicle that can be mission configured to support Explosive Ordnance Disposal and Naval Special Warfare, Underwater Construction Teams, and Mobile Diving & Salvage Units. The program continues prototype development and user testing, and plans to award a production contract for 10 MK18 MOD3 Lionfish vehicles for the Marine Corps and three NSW vehicles for the Navy in Q3FY23. Lionfish will include advancements to the artificial intelligence, machine learning, Automated Target Recognition, and autonomy processes currently fielded with the MK18 MOD2 UUV, expanding the capabilities of the DON's intelligent family of UUVs.

The Marine Corps continues developing the Long-Range Unmanned Surface Vessel (LRUSV). LRUSV will be capable of launching the Organic Precision Fires loitering munition to engage targets on land and at sea to enhance Naval and Joint Force Commanders' sea denial campaigns. The Marine Corps accepted delivery of five LRUSV prototypes between 2QFY22 and 2QFY23 for experimentation and analysis, and an early operational assessment will be conducted in Q3FY23. The Marine Corps remains on schedule and within budget to deliver an LRUSV Experimental Platoon for further development and unit training.

In accordance with our plans to build a DMO hybrid fleet, the Navy and Marine Corps are conducting studies to assess the supporting infrastructure requirements of unmanned systems, to include "motherships" to provide on demand command and control nodes in a denied environment, launch and recovery, maintenance, and resupply/refuel for all unmanned systems at sea, in all domains in addition to evaluating potential new concepts of operations.

Combat Systems

The Navy continues to field the most capable and lethal surface and submarine combat systems in the world, making investments that take full advantage of open architecture and continuously evolving commercial technology to rapidly deliver real-time and reliable capability to the warfighter and to break the paradigm of hardware-software dependent deliveries. Continued investment in the Forge, the Navy's combat system software factory, supports the continuing advancement in implementing industry standards of Infrastructure as a Service, Platform as a Service, and Software as a Service to rapidly deliver iterative updates to the AEGIS Weapon System. As the Navy continues Integrated Combat System development efforts, new construction and in-service Aegis BL9 and BL10 ships will continue to receive upgrades via Capability Packages. AEGIS BL10 with the integration of the AN/SPY-6(V)1 Air and Missile Defense Radar (AMDR) will deliver significant performance improvements over BL9 and the AN/SPY-1 radar, expanding the sensor coverage and enhancing the Navy's ability to perform the IAMD mission to defeat more advanced and more numerous threats. The DON is leveraging the AMDR's design and testing maturity as well as the common training and sustainment benefits to field the AN/SPY-6(V)2 and SPY-6(V)3 to CVNs, LPDs, LHAs and FFGs, and to backfit existing DDG Flight IIA destroyers with SPY-6(V)4.

The Navy continues to equip its submarines with ever-evolving undersea combat systems, utilizing the Submarine Warfare Federated Tactical Systems (SWFTS) modernization process for hardware Technology Insertions and Advanced Processing Build software upgrades. This process leverages commercial off-the-shelf technologies to provide advanced capability improvements at lower cost. SWFTS has successfully delivered a progression in warfighting capabilities for decades to our Fleet SSNs, SSGNs and SSBNs including advancements in the combat, sonar, electronic warfare, and imaging systems. SWFTS delivered the first TI-20 installs to the Fleet in FY 2022, bringing added capability and improved system architecture, strengthening cybersecurity and integrating new payload capabilities to provide increased lethality. The FY 2024 budget supports continued implementation of Agile and DevSecOps software development best practices at SWFTS vendors to increase quality, expedite capability delivery, and improve cybersecurity by engraining cyber resiliency into the system architecture. These efforts improve the Fleet's ability to protect against known threats, detect unknown threats when they occur, and respond and recover quickly to an operational state.

TACTICAL AVIATION

Carrier Air Wing (CVW)

The striking power of the CVW remains the cornerstone of power projection capability from 11 of the world's most survivable airfields, our aircraft carriers (CVNs). The modernization of the air wing, and weapons, keeps the aircraft carrier relevant through the carrier's 50 year service life. Today's Air Wing is transitioning to a mixture of 4th and 5th Generation strike fighter aircraft that continue to incorporate advanced capabilities to support the objectives of the NDS. The F-35C is replacing the early lot F/A-18E/Fs. E-2Ds, with an advanced airborne radar, networking, and aerial refueling capability are replacing the legacy E-2C. The CMV-22B is replacing legacy C-2As in support of strike group logistics, and Next Generation Jammer (NGJ) pods will replace the legacy ALQ-99 pods on the EA-18G and provide full spectrum integrated non-kinetic effects.

The Air Wing of the Future (AWOTF) refers to the composition of the CVW as it on-ramps advanced capabilities and capacity, measured at key milestones in the near-, mid-, and long-term. The CVW will adapt and transform from an all "manned" to a teamed "manned-unmanned" force structure over the next two decades. When discussing the AWOTF, a time horizon may be included to specify the force composition at that time.

In the near-term, the AWOTF achieves a mix of F-35C Lightning II, F/A-18E/F Block III strike fighters, and EA-18G Growlers, and introduces the MQ-25 Unmanned Air Vehicles (UAV). The MQ-25 will take over the aerial refueling mission, extending strike range, enhancing maneuverability, and enabling all strike fighters to focus on the high-end fight. In the mid- and long-term, the AWOTF will deliver game-changing lethality and survivability through the NGAD FoS.

The DON has submitted a legislative proposal to remove the Title 10 requirement to stand up a 10th CVW by October 1, 2025. The current CVN maintenance schedule efficiently pairs nine CVWs to nine operational CVNs according to ship availability; 11 total CVNs with two under maintenance protocols. The Navy prioritizes investments in AWOTF over constituting a 10th CVW ahead of need.

Marine Expeditionary Unit (MEU) Aviation Combat Element (ACE)

The MEU is the embodiment of the Marine Air-Ground Task Force (MAGTF) as a self-contained, forward-deployed response force. The ARG/MEU is a lethal, forward-deployed, sea-based, expeditionary force that can operate across the range of military operations with a tailorable and uniquely suited complement of aircraft. The MEU's available inventory includes the F-35B, MV-

22B, H-1, and CH-53K. The F-35B is the only 5th Generation platform designed to operate aboard amphibious warfare ships and expeditionary landing fields. The F-35B is a vital part of the Marine Corps' modernization efforts, is part of the Stand-in Force, and is a critical enabler for the Joint Force. The F-35B provides commanders with strategic agility, enhanced situational awareness, and greater freedom of maneuver in a highly contested environment.

The MV-22B tiltrotor aircraft continues to be the most capable assault support platform in the joint inventory and has revolutionized how assault support is conducted with its superior speed, range, and survivability. The new CH-53K is the only fully marinized heavy-lift rotorcraft, and is a critical asset for mobility and logistical support to distributed operations in a contested environment. The future ACE will also feature a Group 3 UAS capability that provide both an organic land- and maritime-based intelligence, surveillance, and reconnaissance capability. Additionally, Marine Corps efforts are underway to conduct a demonstration of an afloat mission control element (MCE) for MQ-9A ER. This capability could potentially be tethered to the MEUs, adding a critical, over-the-horizon, persistent surveillance, reconnaissance, and target acquisition capability and airborne network gateway services to the MEU's overall abilities.

AIRBORNE ELECTRONIC ATTACK (AEA)

The EA-18G Growler is a critical enabler for the Joint Force, bringing fully netted electronic warfare capabilities to the fight and providing essential capabilities in the Electromagnetic Maneuver Warfare environment. The FY 2024 budget retains and fully funds the EA-18G aircraft and squadrons across the FYDP. Next Generation Jammer (NGJ) pods will replace the legacy ALQ-99 pods on the EA-18G and provide full spectrum integrated non-kinetic effects. The delivery of NGJ increases EA-18G Growler's lethality and provides a multi-generational leap in capability against radar and communication targets utilizing advanced AEA techniques as well as improved reliability and maintainability. NGJ is phased by threat, with initial focus on Mid-Band (MB), followed by Low-Band (LB).

NGJ-MB is a cooperative development and production program with Australia, with IOC scheduled in 4QFY23. Delivery of the six production representative System Demonstration Test Articles (SDTAs) began in July 2022, with 5 of 6 SDTA delivered as of February 2023 and the 6th to be delivered the end of March 2023. These Test Articles will be used to support the completion of Developmental Test and the entirety of Operational Test (OT). OT is currently on track to start spring

2023, with a focus on the completion of aeromechanical and mission systems flight test. The FY 2024 budget includes \$40.5 million in RDT&E funding to complete the Verification of Correction of Deficiencies (VCD) of the baseline NGJ-MB program and to begin development of the NGJ-MB Extended (MBX) Engineering Change Proposal (ECP) to extend the upper frequency range coverage limit of the system to counter modern and adaptive threats. The FY 2024 budget request also includes \$426.4 million in APN funding for nine Full Rate Initial Production I shipsets, associated support equipment, training equipment and production support. Three LRIP I shipsets are scheduled to begin delivery 4QFY23.

NGJ-LB is a critical AEA capability to augment and replace the legacy ALQ-99 Tactical Jamming System on the EA-18G in the low frequency bands, and is a cooperative development program with Australia. The FY 2024 budget request \$250.6 million RDT&E for NGJ-LB to focus on pod design, advanced capabilities development, and the build of aeromechanical and mission systems test pods to support ground and flight testing.

Growler Block 2 (GB2) will deliver capabilities to the warfighter to detect, locate, identify and counter advanced Integrated Air Defense Systems and Complex Emitters. GB2 will utilize a phased approach for spiral development of AEA capabilities to modernize processing, sensors, and aircrew decision aids to maintain dominance in the modern electromagnetic spectrum. Phase 1 will include an upgraded Next Generation Electronic Attack Unit with Open Mission Systems architecture, Multi-Level Security, and incorporation of the Reactive Electronic Attack Measures capability. Phase 2 is the addition of the advanced Multi-function Array into the inboard leading edge flaps of the aircraft, augmenting the ALQ-218 functionality and capability. GB2 serves as a critical technology development and risk reduction effort to support Naval Aviation's Air Wing of the Future.

The Marine Corps, through the INTREPID TIGER II program, is bringing advanced Electronic Warfare (EW) to all its aviation platforms, and is focused on MUM-T to answer the MAGTF's requirements for AEA. The Marine Corps has worked in conjunction with OSD to purchase the first two XQ-58 Valkyrie CCA platforms to test EW effects in partnership with F-35 and our Assault Support platforms.

AIRBORNE COMMAND AND CONTROL AIRCRAFT

The E-2D Advanced Hawkeye is the Navy's carrier-based Airborne Command and Control aircraft, equipped with an advanced airborne radar, aerial refueling capability, and network connectivity required by Naval and Joint Force commanders to provide command and control to

achieve and maintain air and sea superiority, and counter adversaries Anti-Access and Area Denial strategies. The E-2D provides unique Theater Air and Missile Defense capabilities, and is a cornerstone of the Naval Integrated Fire Control system of systems linking Navy and Marine Corps fighter aircraft, Navy surface combatants, and Marine Corps ground units.

The sixth Full Rate Production Lot 7 aircraft delivered in January 2023. Modernization priorities focus on Fleet capabilities to pace the threat, including Interoperability, Crypto Modernization, Communication and Navigation Hardware; essential Command and Control; networking and sensor performance capabilities that are critical enablers to Naval Integrated Fire Control; vital upgrades and improvements to enable Joint All-Domain Command & Control (JADC2) and Naval Operational Architecture [Theater Combat ID and Hawkeye Cockpit Technical Refresh]. These modernization efforts are interdependent and required to keep pace with the rapidly advancing JADC2 environment and equally rapidly advancing adversary capability.

ASSAULT SUPPORT AND LOGISTICS SUPPORT AIRCRAFT

Tiltrotor Aircraft (USMC MV-22 Osprey and Navy CMV-22B)

The V-22 tiltrotor capability has revolutionized military air transport with its unmatched combat range and airspeed. The Marine Corps MV-22 continues to support worldwide operations and provide a forward presence in INDOPACOM, CENTCOM, and EUCOM. In FY 2023, the U.S. Air Force (USAF) continues nacelle improvement implementation, with an accelerated timeline for this readiness- and reliability-enhancing effort. The Marine Corps is working to coordinate and fund a tailored nacelle improvement program based on USAF efforts. This program is designed to enable a much faster fleet incorporation rate at a price the Marine Corps can afford, providing a significant reduction in required fleet maintenance hours than would have been otherwise possible.

The Navy continues to leverage MV-22 investments to recapitalize the legacy C-2 fleet with CMV-22B aircraft in support of strike group logistics. The program declared IOC in December 2021, and completed its first two deployments in support of the USS Carl Vinson carrier strike group (CSG) and the USS Abraham Lincoln CSG in 2022. The third deployment will commence in 2023.

The FY 2024 budget requests \$137.6 million in RDT&E for continued V-22 development and product improvements, including a Helmet Mounted Display/Degraded Visual Environment to improve pilot situation awareness and safety in degraded visual environments. FY 2024 budget also includes \$243.2 million in APN for production line shutdown, modifications, common configuration,

and nacelle improvements. With the FY 2023 congressional add of five V-22s (one MV-22 and four CMV-22), the program is funded for 360 MV-22 aircraft for the Marine Corps and 48 CMV-22 aircraft for the Navy. Both programs are now fully funded to their programs of record. FY 2022 was the final year of V-22 procurement under MYP III.

CH-53K

CH-53K is an optimized vertical, heavy lift, sea-based, long-range solution for the naval force, providing agile maritime logistical connectors with greater payloads and speed than any current or emerging rotorcraft. The CH-53K will complement connectors to enable littoral maneuver and provide logistical support to a widely disaggregated naval force. The Marine Corps achieved IOC for the CH-53K in April 2022, and in December 2022 the program was approved for Full Rate Production. This closely follows completion of a thorough Initial Operational Test and Evaluation period that resulted in over 3,000 mishap free hours flown in various challenging environments and terrain. In January 2023, Marine Operational Test and Evaluation Squadron demonstrated the CH-53K performance with an external load certification lift of a 22,000 pound F-35 airframe. A contract to procure the sixth Low-Rate Initial Production Lot of nine aircraft was signed in January 2022, and the DON has been granted the authority to enter a block buy contract for the first Full Rate Production lots - Lot 7 in FY 2023 and Lot 8 in FY 2024. A block buy contract leverages aircraft volume quantity to realize significant cost savings, providing stability to the industrial base and improved production efficiencies while supporting the Marine Corps' plans to deploy the first CH-53K MEU detachment in FY 2025.

The FY 2024 President's Budget requests \$222.3 million in RDT&E to continue the CH-53K development, test, and standup of organic test capabilities for follow-on improvements and \$2.2 billion in APN for procurement of 15 Full Rate Production aircraft, initial spares, and modifications.

EXECUTIVE SUPPORT AIRCRAFT

The VH-92A Presidential Helicopter replaces the legacy VH-3D and VH-60N and will provide safe, reliable, and secure executive transportation. The FY 2024 President's Budget requests \$35.4 million in RDT&E for VH-92A Helicopter Improvements and \$60.5 million APN for Executive Helicopter Series (VH-3D, VH-60N and VH-92A). RDT&E funding is required for

continued VH-92A improvements and follow-on test and evaluation activities. These efforts include VH-92A Mission Communications System upgrades to both software and hardware, enhancements to required Wideband Beyond Line-of-Sight capabilities, test aircraft and facilities; and test and evaluation efforts for distributed network communications, high-hot aircraft performance enhancements and cockpit upgrades. APN in the amount of \$60.5 million is required for retrofit modifications to the VH-92A Mission Communications System and continued modifications to the VH-3D and VH-60N to ensure communications interoperability through the remainder of the lifecycle.

FIXED-WING AIRCRAFT

KC-130J (USMC)

The KC-130J Super Hercules remains a force multiplier, supporting humanitarian, contingency, and expeditionary operations worldwide. The KC-130J has the highest deploy-to-dwell ratio in the Marine Corps as it provides critical tactical aerial refueling and organic lift capabilities to deployed MEUs and Combatant Commanders. Incorporation of the Block 8.1 upgrade and the Department of the Navy Large Aircraft Infrared Countermeasures will increase the platform's capability, performance, and survivability. The FY 2024 budget requests \$241.3 million in APN to procure two KC-130Js through a USAF contract. These aircraft will be fielded to a new Marine Corps active-duty squadron, VMGR-153, in Hawaii in support of Indo-Pacific mobility.

TAKE CHARGE AND MOVE OUT (TACAMO)

The Navy's TACAMO mission provides survivable, reliable, and endurable airborne nuclear command, control, and communications (NC3) capabilities to the nuclear triad and is a vital link to the Navy's SSBN fleet, the most survivable leg of the triad. The TACAMO mission is currently flown on the E-6B Mercury (Boeing 707 airframe), an aging platform currently undergoing simultaneous sustainment and modernization. TACAMO mission recapitalization requires a new platform to ensure continued success of the mission in the future. The C-130J-30 (stretched Super Hercules) aircraft has been selected as the recapitalization platform and TACAMO mission systems will be developed and integrated by a third-party contractor. In FY 2024, the Navy will invest \$213.7 million of RDT&E toward platform development and completion of Milestone B. Funding in FY 2024 includes \$12.2 million towards spares to support the three C-130J-30 test aircraft procured in FY 2023, \$76.7 million

for non-recurring engineering contracts on the C-130J airframe, and \$71.2 million for very low frequency (VLF) transmit system modernization. Investments in FY 2024 set the stage for successful TACAMO mission integration on the C-130J-30 supporting U.S. nuclear deterrence and Columbia's assured second strike for decades to come.

MARITIME PATROL AIRCRAFT

The P-8A is a heavily modified and militarized variant of Boeing's 737 commercial airframe and is DoD's only long-range full-spectrum ASW, cue-to-kill platform, with substantial armed Anti-Surface Warfare (ASuW) and networked Intelligence, Surveillance, and Reconnaissance (ISR) capabilities. The P-8A warfighting inventory requirement is 138 aircraft and is fielding in three Increments. Increments 1, 2, and Increment 3 Block 1, which consisted of ECP 4 and ECP 5, have fielded. Increment 3 Block 2, consisting of ECP 6 and ECP 7, significantly improves Navy operational plan (OPLAN) outcomes with P-8A Increment 3 modified aircraft – specifically in ASW warfighting scenarios. Block 2 includes ASW Signal Intelligence, Wideband SATCOM, Higher-Than-Secret processing, enhanced track management and sensor fusion (Minotaur), and the ASW critical warfighting capability Enhanced Multi-Static Active Coherent (MAC-E), and is scheduled to initially field in FY 2026.

The FY 2024 budget request includes \$168.5 million in RDT&E for integration of ECP 6 and ECP 7 to complete baseline capability fielding and P-8A rapid capability development efforts to pace emergent threats. \$347.4 million in APN is requested for fleet modification kits, deficiency corrections, safety upgrades, and the initiation of Boeing's P-8A production line shutdown activities. Boeing intends to initiate P-8A production line shutdown activities in FY 2024 if no additional P-8A orders are received. Funding requested in the FY 2024 budget achieves 128 of 138 warfighting inventory objective addressing current threat and strategy. As of February 2023, 117 aircraft have been delivered.

UNMANNED AIRCRAFT SYSTEMS (UAS)

Naval Aviation continues to integrate unmanned systems into the Fleet to enable a fundamental shift in the way the DON conducts naval aviation operations. Broadening unmanned aviation efforts will decrease risk to personnel, allow greater persistence, longer ranges, improved data speed and accuracy, and a faster decision cycle. These capabilities offer the DON increased asymmetric operational opportunities and tactical advantages that provide the warfighters an edge to

dominate and win in ongoing and future conflicts. The FY 2024 budget prioritizes the continued development and production of Unmanned Aircraft Systems (UAS) to support current Fleet ISR requirements and future UAS integration into the CVW, ARG, and MEU.

MQ-25A Unmanned Carrier Aviation

MQ-25A will increase the strike range, capability, and lethality of the CVW through organic mission and recovery tanking, and provide an ISR capability to the CSG. As the primary CVW mission and recovery tanker, MQ-25A will increase available CVW Strike Fighter assets and preserve F/A-18E/F Fatigue Life Expenditure. MQ-25 is integral to the Air Wing of the Future and establishes the foundation for MUM-T and autonomous operations from the CVN. The FY 2024 budget continues investment in MQ-25 and the Unmanned Carrier Aviation Mission Control System (UMCS) development, begins testing of Navy MQ-25A and procures three MQ-25A air vehicles to increase fleet inventory. MQ-25A will IOC in late 2026. The FY 2024 budget request supports procurement for the MQ-25 Stingray with \$596.3 million in APN and continues RDTE funding with \$220.4 million.

MQ-4C Triton

The MQ-4C Triton is a persistent force multiplier that delivers situational awareness of the battle space to shorten the sensor-to-shooter decision loop in the maritime domain. MQ-4C Triton's persistence and sensor mix is integral to Navy's Maritime Strategy to deliver a more lethal and effective global Joint Force.

VUP-19 completed an Early Operational Capability (EOC) deployment with two aircraft in an IFC-3 configuration to INDOPACOM and executed 2419.9 hours from Jan 2020 – Oct 2022.

The program has delivered the first two fleet MQ-4C Triton Multi-Intelligence (Multi-INT) Integrated Functional Capability Four (IFC-4) Increment 1 configuration Unmanned Aircraft (UA) on-schedule supporting Unit Level Training (ULT) and Operational Test (OT) ahead of IOC in August 2023.

The FY 2024 budget requests \$416.0 million in APN to continue procurement of two MQ-4C Triton UA and associated support elements, and \$12.1 million in RDTE, with an additional \$300.4 million for MQ-4 modernization RDTE for Increment 2 capability development.

MQ-9A Extended Range (ER)

The Marine Corps MQ-9A ER is a critical enabler for the Naval and Joint Force providing an extended range, long-endurance multi-mission ISR capability through a suite of sensors designed to detect surface and air threats. The MQ-9A ER is a linchpin in providing Maritime Domain Awareness (MDA), as well as providing resilient and persistent information flow, enabling command and control of EABO and DMO forces against near or peer threats.

The Indo-Pacific has unique challenges requiring the Stand-in Force to be able to operate over significant distances between ground units. An MQ-9A ER overhead equipped with an Airborne Network Extension (ANE) payload facilitates connectivity for Stand-in Forces operating at the forward edge of the battlespace. MQ-9A ER will also provide an Electronic Warfare and Airborne Early Warning capability to enhance the situational awareness of decision-makers, and provide input to the joint common operational picture. With the addition of a Smart Sensor autonomous capability, the MQ-9A ER will be enhanced through automatic cueing and fusing of tracks to other onboard sensors. The Marine Corps is set to have 20x MQ-9A Block 5 air vehicles, 14 x Ground Control Stations (GCS), and payloads to conduct assigned missions.

Existing U.S. Air Force and Air National Guard efforts are being leveraged to reduce cost as the Marine Corps matures this nascent Service-level capability, reducing risk.

WEAPONS PROGRAMS

Munitions Inventory and Industrial Base

The President's FY 2024 budget requests \$6.9 billion for the Weapons Procurement account. This level of funding represents a significant increase over FY 2023, allowing for continued modernization of our weapons inventory with critical capabilities to enhance warfighter readiness, as well as significant investment in production capacity to increase critical munitions inventories.

Ongoing U.S. support to Ukraine has highlighted the need for investments in key areas across the industrial base to support U.S., ally, and partner nation readiness. The DON is working closely with industry to expedite replenishment of stocks provided to Ukraine, engaging with industry partners to understand the barriers to accelerating production and determining how and where the Department can make strategic investments to improve inventory, capability, and capacity. The Department is investing in the industrial base to expand and accelerate production throughput, streamline testing, and strengthen critical component supply chains. Simultaneously,

the Department is placing investments in recertification as a cost-effective way to improve near-term inventories. Coupled with the ongoing replenishment of DON stocks, these investments into the munitions industrial base send the demand signal that building munitions inventories is a top priority

The Department is leveraging the authorities granted in the FY 2023 National Defense Authorization Act to pursue MYP contracts for critical munitions programs such as Standard Missile-6 (SM-6), and Naval Strike Missile (NSM). MYP contracts for Advanced Medium-Range Air-to-Air Missile (AMRAAM) and LRASM will be joint efforts with the USAF. The strategy allows the Department to use savings generated through EOQ financing to procure additional lots of missiles under a Buy-to-Budget concept, to further improve efficiencies and yields.

Missile Programs

As the Navy carefully manages the approach to end of life of Ohio Class SSBNs, addressing the viability of the Strategic Weapons System (SWS) throughout the life of the Columbia Class SSBNs remains a priority. The current TRIDENT D5 Life Extension (D5LE) remains an effective and credible Strategic Weapon System on both the Ohio Class and Columbia Class SSBNs into the 2040s, supporting the Ohio Class submarine through end of service life and serving as the initial Strategic Weapon System for the Columbia Class SSBNs. Modernization of the SWS, D5LE2, is required to maintain the Sea Based Strategic Deterrent starting with the ninth Columbia Class submarine by ensuring sufficient missile inventory and seamlessly supporting USSTRATCOM requirements. D5LE2 incorporates the necessary flexibility and adaptability needed to maintain demonstrated performance and survivability in the dynamic threat environment until Columbia Class end of life. The Administration's Nuclear Posture Review (NPR) states that D5LE2 needs to begin deploying on Columbia Class in the late 2030s to sustain sufficient missile inventories to support the U.S. sea-based strategic deterrent as well as the United Kingdom's independent nuclear deterrent. The Navy will prioritize near-term investments in accordance with the NPR to ensure that D5LE2 is effective in the expected threat environment and delivers on time. FY 2024 funding will support industrial base development, flight subsystem engineering, and flight component suppliers that are critical to the execution of D5LE2.

Tomahawk

The Navy is continuing investment into Tomahawk Block V new production, Maritime Strike Tomahawk, and recertification/modernization of Tomahawk Block IV. The FY 2024 budget request adds \$23.4 million to reduce Tomahawk production lead time. These funds are being invested to increase industrial capacity, specifically by relieving chokepoints within the Tomahawk production line.

In the FY 2024 budget request, the Department sustains the Tomahawk as the nation's premier all-weather, long-range, survivable deep strike offensive weapon to include new production of and recertification of current inventory into modernized BLK V Tomahawk missiles. BLK V(a) Maritime Strike Tomahawk (MST) provides a long-range moving maritime strike capability to meet current and future threats, supporting the Surface Warfare Mission area through the inclusion of a seeker suite in the Tomahawk BLK V missile. The FY 2024 budget request for MST provides continuation of Test and Evaluation (T&E) plans that include missile functional ground testing and missile test flights from a ground launcher apparatus to assess seeker performance, mature and refine seeker algorithms, and provide verification and validation data for Modeling and Simulation. MST IOC is planned for FY 2025. The FY 2024 budget request continues engineering, manufacturing, and development of the Joint Multiple-Effects Warhead System (JMEWS), which will deliver a hardened target penetration capability with the Tomahawk BLK V(b) missile in FY 2027. The FY 2024 budget request continues engineering, manufacturing, and development of the Military Code Global Positioning System (GPS) receiver, which will deliver significant increased resiliency in spoofing and jamming threat environments to the Tomahawk BLK V missile in FY 2026.

Offensive Anti-Surface Warfare (OASuW) Increment 1/ Long Range Anti-Ship Missile (LRASM), LRASM C-1/C-3, and OASuW Increment 2 / HALO

The FY 2024 President's Budget requests \$639.6 million to initiate LRASM MYP with the USAF. The FY 2024 procurement funding covers the EOQ materials along with the buy of 91 DON LRASM weapon systems in the initial year of the five-year MYP. The FY 2024 President's Budget request also includes RDT&E funding for the completion of the LRASM 1.1 capability improvements.

The LRASM C-1 and C-3 variants add near-term, cost-effective capacity to the DON's long range strike capability while enhancing the OASuW mission. The FY 2024 budget requests funding for Navy strike mission integration and employment by upgrading the existing AGM-158 product to

respond to rapidly changing threats. Navy AGM-158 development efforts also involve development and integration of a Beyond Line-of-Sight radio subsystem to enable dual mission capability and enhanced operational flexibility, optimizing carrier magazine capacity to complement OASuW warfighting capability. The FY 2024 President's Budget requests \$141.9 million to continue developing AGM-158 derived capability and radio integration on F/A-18; develop software for strike mission planning, Universal Armament Interface and missile Operational Flight Plan. The FY 2024 President's Budget request also includes \$83.7 million for procurement of the initial 10 LRASM in the C-3 configuration.

The FY 2024 President's Budget includes \$95.8 million in support of OASuW Increment 2, which is now referred as Hypersonic Air Launched OASuW (HALO). HALO supports the national imperative to mature hypersonic capabilities and will provide the Navy a necessary air-launched, carrier-based weapon to address evolving long range, high speed threats from near peer competitors. In order to deliver this capability to the warfighter when needed, the DON will collaborate heavily with the Air Force.

Advanced Anti-Radiation Guided Missile (AARGM) & AARGM Extended-Range (AARGM-ER)

AARGM domestic procurement completed in FY 2021 with the award of the last DON Full Rate Production (FRP) contract. There have been 1450 AARGMs (All Up Rounds, Training Missiles, and Spares) delivered to the Fleet as of March 2023. Program of record delivery is 1803 missiles. Deliveries continue through FY 2024 in support of the transition to AARGM-ER. AARGM-ER provides the DON with a 5th generation compatible extended-range asset to project power and provide Suppression of Enemy Air Defenses, both at-sea and on land. The first AARGM-ER delivery is scheduled for 4QFY23. The budget requests \$195.7 million in Weapons Procurement, Navy (WPN) to procure 77 AARGM-ER all-up-rounds and six Captive Air Training Missiles. The FY 2024 President's Budget requests \$51.8 million in RDT&E to support operational and Integration testing of production representative hardware.

Hypersonic Program

The DON is developing a hypersonic weapon system that will enable precise and timely strike capability against deep inland targets in contested environments. In collaboration with the Army, the Department is leveraging a common All Up Rounds missile design and test opportunities

to field a conventional hypersonic weapon system. Zumwalt Class DDGs will be the first Navy platform to field this hypersonic capability in the mid-2020s, followed by Block V Virginia Class SSNs starting in the early 2030s. In March 2020, the Services executed a successful flight test of the Common Hypersonic Glide Body, and in June 2022, the Services followed up that testing with several static-fire tests and a flight test of the newly developed two-stage Solid Rocket Motor. The DON has validated the design of the Navy's cold-gas launch approach and continued sounding rocket testing in support of future capability, manufacturability, and affordability improvements. This rapid development and demonstration of hypersonic strike weapon systems supports the U.S. ability to deter, and if necessary, defeat potential adversaries.

The Department's FY 2024 budget request funds continued build of the first three All Up Rounds to be delivered to the first Zumwalt Class DDG and All Up Rounds for future flight testing, supports construction of the Underwater Launch Test Facility, and executes two flight tests, including the first launch of the CPS All Up Round using the cold-gas launch approach for sea-based fielding. The request totals \$901 million in CPS R&D funding. Additionally, the request includes \$341 million in funding to procure additional rounds in support of Zumwalt Class fielding.

The Marine Corps is working towards the capability to employ smaller, highly mobile hypersonic weapons through science and technology initiatives. The Marine Corps is pursuing an acquisition strategy that leverages the developmental work of other Services and agencies, investing when the capability has reached a higher technology readiness level that allows for expedited prototype experimentation at reduced costs.

Torpedoes

The Department continues to invest heavily in increasing the capacity and capability of both the Heavyweight and Lightweight Torpedo inventories to maintain our advantage in the undersea domain against our strategic competitors. The MK 48 Heavyweight Torpedo is the Navy's primary submarine-launched ASW and ASuW weapon. While the Navy has continued to upgrade its existing inventory to incorporate the latest technology and capability, the Navy restarted production of the MK 48 to meet munitions requirements and during the summer of 2022 accepted the first new production heavyweight torpedoes in over twenty years. In addition, the Department is progressing development of new capabilities with the MK 48 MOD 8 and MK 48 MOD 9 to maintain our advantage over the threat today and in the future. The MK 54 Lightweight Torpedo, which is employed by both surface ships and air platforms, continues to be produced and upgraded

to keep pace with the ASW threat. At current production demand, the torpedo industrial base remains healthy, producing the MK 54 MOD 0 for the Nation's allied partners in addition to the upgraded MK 54 MOD 1 for the U.S. Navy.

The Department has also partnered with industry and University Affiliated Research Centers to rapidly develop and field new and advanced capabilities to further our advantage in the undersea domain. This includes the MK 54 MOD 2, which will improve performance against the high-end threat, as well as a Very Light Weight Torpedo that will deliver multi-mission capability as both a hard-kill torpedo countermeasure and a short range ASW weapon. The Navy is also expanding the methods in which the MK 54 is employed to provide greater flexibility, effectiveness, and lethality. From high altitude via the P-8A and the High Altitude ASW Weapon Capability (HAAWC) wing kit, to the Hammerhead encapsulated effector and future stand-off ASW capabilities, MK 54 payloads will continue to be essential to the US Navy's and its Allies' ASW mission.

MARINE CORPS GROUND PROGRAMS

FY 2024 Marine Corps investments are prioritized to enhance combined and Joint Force lethality. Marine Corps modernization has involved replacing legacy approaches with threat-based operating concepts, new command arrangements, emerging technology and modernized programs. These new concepts and technologically advanced capabilities enable our Stand-in Forces to gain sharpened situational awareness, set conditions in case of crisis or conflict, and contribute to Joint All Domain Command and Control (JADC2). With a clear understanding of the NDS and the current operating environment, the Marine Corps' budget provides a modern force that can sense, make sense, and close the kill webs in support of the Naval and Joint Campaigns.

Ground/Air Task-Oriented Radar (G/ATOR)

The Ground/Air Task Oriented Radar (G/ATOR) is a multi-role, ground-based, expeditionary three-dimensional radar system employed by both the Aviation Combat Element and Ground Combat Element within the MAGTF, satisfying the Marine Air Command and Control System and Ground Counter Fire/Counter Battery capability requirements. Deployable via KC-130J, the G/ATOR provides mobile, multi-functional, three-dimensional surveillance of airborne targets, detection of cruise missiles, Unmanned Aircraft Systems, Rockets, Artillery, and Mortars. Once those threats have been tracked, the G/ATOR will then cue the appropriate air defense

weapons. Providing persistent surveillance and detection of enemy air threats in the littorals and participating in a cooperative engagement network of sensors and shooters via the Common Aviation Command and Control System (CAC2S), the G/ATOR contributes to both Naval and Joint Force domain awareness.

Serving as the forward component of the Joint Force, the Marine Corps continues to invest in and enhance the sensor capabilities of the G/ATOR. FY 2023 appropriations funded \$304 million to procure eight additional radars, bringing the total number to 53 of 57 planned. Additionally, the FY 2024 budget requests \$25.3 million for critical G/ATOR maintenance and software upgrades. This program was on full display in Spring 2022, when a Marine Corps G/ATOR deployed to Lithuania to support NATO's air policing mission for the first time. Building upon the radar's successes, G/ATOR seeks to further integrate with the Medium Range Intercept Capability (MRIC), providing protection to defended assets against airborne and cruise missile threats. Ultimately, as a modern and highly capable program, G/ATOR expands the Service's integration into Navy and Joint integrated air and missile defense missions.

Common Aviation Command and Control System (CAC2S)

Common Aviation Command and Control System (CAC2S) connects and collates sensor inputs to facilitate MAGTF employment and targeting decisions. CAC2S fuses real-, near-, and non-real time data to provide a common operational picture across the Marine Air Command and Control System—this picture allows leaders to then task the air defense “arms” of the MAGTF, the Marine Air Defense Integrated System and the Medium Range Intercept Capability, to punch back and destroy threats as necessary. CAC2S fused information enables enhanced air control, improved situational awareness, sensor integration, full tactical data link integration, improved planning, and command functionality, as well as sensor-netting integration. CAC2S also provides integrated airspace command and control for the MAGTF and integrates real time sensor data into the Navy's Cooperative Engagement Capability network. As the primary C2 system that integrates MAGTF aviation operations with Joint, combined, and coalition aviation agencies, the Marine Corps intends to continue to procurement of these small form factor variants until FY 2029. The small form factor (CAC2S SFF) aspect of CAC2S reduces the footprint of the system to transit cases that can be utilized from the front seat of a dune buggy. The FY 2024 budget requests approximately \$55.8 million to produce 32 CAC2S SFF that can be flown and resupplied via assault support aircraft to

dispersed locations and will provide both the Joint force and the Marine Corps with a complete, common air command and control operational picture.

Marine Air Defense Integrated System (MADIS)

Marine Air Defense Integrated System (MADIS) is designed to counter the expected swarms of enemy drones and aircraft that will assault Marines on modern battlefields. MADIS provides an expeditionary, upgradable, state-of-the-art capability, developed to protect maneuver forces, installations, and other designated critical assets from Fixed and Rotary Wing aircraft along with Group 1-3 Unmanned Aircraft Systems (UAS). MADIS will also utilize sensors to provide Beyond-Line-of-Sight cueing and targeting. Organically transportable via KC-130J aircraft, MADIS incorporates a pair of Joint Light Tactical Vehicles that are designed to defeat airborne threats with a turret mounted 30mm cannon, Stinger missiles, and an electronic warfare jammer. MADIS will also employ CAC2S and its own organic radar sensors to collect, interpret, and pass radar tracks for target engagements. Funded to 113 of 131 systems, MADIS will begin fielding in late FY 2024.

While MADIS represents the Marine Corps' larger air defense program of record, the Light-MADIS (L-MADIS) provides similar capabilities to Marine Expeditionary Units (MEU), but with a smaller form factor on a pair of ultra-light tactical vehicles. Utilizing sensors to provide cueing and targeting, the L-MADIS employs electronic warfare jammers to defeat airborne threats. This system is actively employed by the Fleet Marine Force and during a Straits of Hormuz transit aboard the USS Boxer, the 11th MEU employed the L-MADIS in support of the defense of the amphibious task force. Utilizing electronic jamming, the L-MADIS successfully defeated an Iranian drone flying within 1km of the ship. L-MADIS is fully funded to 21 systems; 12 urgent-need variants are fielded to the Fleet at the present time. Whether MADIS or L-MADIS, the Marine Corps continues to pursue these critical force protection capabilities to defeat aerial threats.

Medium Range Intercept Capability (MRIC)

The Medium Range Intercept Capability (MRIC) defends the MAGTF against inbound cruise missiles and other precision munitions. Fully deployable via KC-130J aircraft, MRIC defends forward-deployed forces primarily against cruise missile threats, and secondarily against UAS and other aerial threats that enter the MRIC's Weapons Engagement Zone. This capability is accomplished through the integration of fielded Marine Corps and Israeli systems that include the

CAC2S, G/ATOR, the Iron Dome Battle Management Controller, and the Tamir missile and guidance uplink. Force Design plans to provide a cruise missile defense capability to each Marine Expeditionary Force (MEF) with a battery comprised of a headquarters element and four independently deployable firing platoons able to protect four defended assets. The FY 2024 budget requests approximately \$43.9 million to fund the prototype platoon and build out three batteries, one for each MEF, that will allow Marines to survive within the adversary's Weapons Engagement Zone

Unmanned Aircraft System Payloads

The Marine Corps currently operates two MQ-9A Extended Range (ER) and is scheduled to receive four additional aircraft by Q3 FY24. The MQ-9A ER serves as the platform solution for the MAGTF Unmanned Aircraft System Expeditionary Medium Altitude Long Endurance (MUX/MALE), hosting a suite of interoperable and complementary payloads that provides a persistent, networked, multi-domain reconnaissance, surveillance, and target acquisition capability to the Marine Corps, Naval and Joint Force. It enhances battlespace awareness by fusing information from onboard sensors and mission systems; detecting, identifying, and tracking targets in multiple domains; and disseminating information in advance of distributed friendly elements. Moreover, sensors are augmented by robust communications and data relay capabilities, enabling distributed platforms and systems to receive mission-critical sensor information in real-time via multiple networks, enhancing the lethality and survivability of force echelons at the tactical edge.

Onboard systems provide airborne early warning (AEW), maritime domain awareness (MDA), electromagnetic support (ES), and communications bridging. AEW and MDA is delivered through autonomous scanning, detection, identification, sorting, and tracking of targets. Operationally relevant, full-spectrum electronic warfare capabilities enable persistent stand-off ES. Supporting these capabilities, the MUX/MALE's Airborne Network Extension capability provides additional communications pathways for forces across the battlespace and allows for the transmission of intelligence, surveillance, reconnaissance, and targeting data via multiple, redundant networks and information systems. As UAS sensor payloads mature, the Marine Corps, through the MUX/MALE capability, will continue to enhance situational awareness and sensor overwatch with the goal of reducing ambiguity in the operational area around Naval and Joint Forces while mitigating human exposure to threats.

Networking On The Move (NOTM)

Networking-On-The-Move (NOTM) provides the MAGTF with a robust, over-the-horizon and beyond line-of-sight (BLOS), digital command and control (C2) capability while on-the-move and at-the-halt. NOTM is a critical enabler for C2 in a degraded environment. It enables a continuous and reliable flow of information inside contested environments, and provides the communications gateway needed to conduct sea control and sea denial operations as part of the Naval Expeditionary and Joint Force. This is achieved by providing an open architecture solution that enables forces to exercise C2 across operational domains - land, sea, air, space, and while transitioning between domains. The NOTM program encompasses three subordinate components, the NOTM Ground Combat Vehicle, incorporated onto the Ultra-Light and Joint Light Tactical Vehicles, as well as the Amphibious Combat Vehicle, the NOTM Airborne, incorporated on MV-22Bs and KC-130Js, and NOTM Tactical Entry Point kits, integrated with amphibious warfare ships to provide BLOS services to Marine forces ashore and afloat. The Marine Corps continues to procure and field these systems to distributed Fleet Marine Force units, enabling command and control, now and in the future

Secure Expeditionary Resilient Positioning, Navigation, and Timing

Secure Expeditionary Resilient Positioning, Navigation, and Timing (SERPNT) provides Marines with the ability to navigate reliably and acquire precise timing information for both themselves and their platforms. Positioning, Navigation, and Timing (PNT) capabilities across the enterprise will be maintained and future PNT capabilities supported by funding proposals in the FY 2024 President's Budget request. The Marine Corps will update its Military-Code PNT capabilities, which offer improved defenses against hostile jamming and spoofing threats, as part of the SERPNT program. A crucial component of the program is that it further enables the Marine Corps' ability to participate in Joint All-Domain Command and Control efforts across the Department of Defense.

Satellite Communications (SATCOM)

Marine Corps Wide Band Satellite Communications FoS provides the MAGTF with resilient and diverse spectrum capabilities, enhances command and control of the distributed maritime force, and enables dissemination of intelligence and sensor-to-shooter communications. The Marine Wideband System (MCWS) FoS is modernizing our aging and very small aperture terminals. MCWS increases the MAGTF's orbital and spectrum options and the Satellite Communication

Agile Reachback (SCAR) provides the MAGTF with options to incorporate low earth orbit capabilities at time of need.

Geospatial Intelligence (GEOINT)

Geospatial Intelligence (GEOINT) and Satellite Communications (SATCOM)/Re-Broadcast is the primary means for tactical units to rapidly receive and transmit Intelligence, Surveillance, and Reconnaissance (ISR) data from national and theater assets. The SATCOM solution consists of the AN-PRS-11A system which provides the high bandwidth required to ingest large GEOINT datasets from globally streamed national, theater, and tactical sensors and data repositories. The Re-Broadcast transmits ISR data from local sensor collection over a Defense Information Systems Agency (DISA) enabled global broadcast network for near-real-time data access to decision making and targeting solutions. Both capabilities are compatible with existing Marine Corps ISR and Operations systems and enable organic sensing capabilities, supporting Long-Range Precision Fires as part of the Naval Expeditionary Force and Joint Force, writ-large. The Marine Corps intends to increase fielding of the AN/PRS-11A and Re-Broadcast suites to 37 systems for Fleet Marine Forces to employ in support of Combatant Commander's requirements.