NOT FOR PUBLICATION UNTIL RELEASED BY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

STATEMENT OF

FREDERICK J. STEFANY
PRINCIPAL CIVILIAN DEPUTY, ASSISTANT SECRETARY OF THE NAVY
(RESEARCH, DEVELOPMENT AND ACQUISITION)
PERFORMING THE DUTIES OF THE ASSISTANT SECRETARY OF THE NAVY
(RESEARCH, DEVELOPMENT AND ACQUISITION)

AND

VICE ADMIRAL SCOTT CONN
DEPUTY CHIEF OF NAVAL OPERATIONS
WARFIGHTING REQUIREMENTS AND CAPABILITIES (OPNAV N9)

AND

LIEUTENANT GENERAL KARSTEN S. HECKL
DEPUTY COMMANDANT, COMBAT DEVELOPMENT AND INTEGRATION
COMMANDING GENERAL, MARINE CORPS COMBAT DEVELOPMENT COMMAND

BEFORE THE

SUBCOMMITTEE ON SEAPOWER OF THE

SENATE ARMED SERVICES COMMITTEE

ON

DEPARTMENT OF THE NAVY FISCAL YEAR 2023 BUDGET REQUEST FOR SEAPOWER

APRIL 26, 2022

NOT FOR PUBLICATION UNTIL RELEASED BY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

Chairwoman Hirono, 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) 2023 budget request for Seapower capabilities. First, we would like to thank Congress and this Committee for your leadership and support for the Department of the Navy (DON) acquisition, sustainment, research and development programs. The FY 2022 Authorization and Appropriation Acts strengthened the DON's shipbuilding, aviation and ground programs that allow us to build and operate a potent, integrated, forward-maneuverable Navy and Marine Corps.

As we look to our security and operational environment we face increasing regional threats from coercive and malign actors. We are looking broadly at the war in Ukraine and how it may embolden or deter others. Aggressive actions by the Chinese and Russian militaries threaten peace, stability, and rules-based order. The DON will continue to strengthen our maritime dominance through integrated deterrence and campaigning. Our advantage will endure by empowering our warfighters and acquisition and sustainment workforce and by expanding our many interagency and international partnerships. We will work to sustain and grow that advantage by achieving seamless integration, communication, and collaboration with allies and partners. We invest in the European and Pacific Deterrence Initiatives while supporting our industrial base partners here at home. Focused on mission readiness, we are increasing the Department's resilience to climate change and reducing adverse impacts on the environment. And we promote active campaigning through our operations, exercises, engagement, and interoperability with our allies and partners across the world.

To address growing demands on our warfighters, the DON is investing in lethal capabilities across a broad spectrum of platforms and programs. Since the start of FY 2021 we have delivered nine highly capable warships to the Fleet including two Arleigh Burke Class destroyers (DDG 51), two Virginia Class submarines (SSN), four Littoral Combat Ships (LCS), and one San Antonio Class amphibious transport dock. Today, the Navy has 76 ships under contract with 53 ships in construction. We expect to take delivery of seven more ships and plan to award contracts for eight more ships during FY 2022. On the aviation side, we have delivered 94 new aircraft for Navy and Marine Corps, improving capability and enabling the divestiture of less affordable legacy systems.

The Navy continues to mature critical warfighting investments. USS Gerald R Ford (CVN

78) successfully completed its post-delivery testing and trials period in April 2021 and Full Ship Shock Trials in August 2021. USS Gerald R Ford also completed its post-Shock Trial availability, turned over all Advanced Weapons Elevators to the crew, achieved Initial Operational Capability (IOC) on December 22, 2021, and is preparing for its first deployment later this year. FY 2021 saw the initial squadron standup of the EA-18G Growler Capability Modification fielding a modern electronic attack capability while 25 E-2D aircraft received critical radar and network upgrades. VFA-97 became the third operational F-35C squadron and the second deployment of CMV-22 is underway today. Unmanned advancements continued forward with the MQ-25 prototype completing 36 sorties and 124.5 flight hours, achieving the first ever unmanned-manned aerial refueling test flights with the FA-18E/F, E-2D and F-35C. The MQ-25 also conducted at-sea on-deck ship compatibility testing aboard USS George H W Bush (CVN 77), yielding valuable early test data and increasing program confidence in the low rate initial production (LRIP) design.

The Marine Corps has implemented significant modernization efforts through the continued implementation of Force Design 2030 initiatives. Through congressional support, the Marine Corps is fielding enhanced sensor platforms, fires capabilities, and communications networks while investing in the continued research and development of enabling technologies. These capabilities are directly tied to the implementation of new operational employment concepts, such as *A Concept for Stand-in Forces*, and are making the Marine Corps lighter and more lethal to win throughout the competition continuum.

Readiness remains a clear Department priority and FY 2023 continues prior year gains on ship and aircraft maintenance efforts to improve overall department readiness. By taking a more forward-looking approach to maintenance and modernization of our ship and aviation platforms, the DON can grow the operational capacity of the Navy. We will communicate future demand signals to our industrial partners through several government initiatives, including contract bundling, improved maintenance planning through Availability Duration Scorecard (ADS) 3.0, awarding contracts at availability start minus 120 days (A-120), improved long-lead time material acquisition, and Other Procurement, Navy (OPN) Pilot expansion. These initiatives will help stabilize the industrial base and ensure sufficient capacity.

For example, the Navy is continuing to see positive results from the pilot program to fund CNO Availabilities with multi-year OPN funding. Established by Congress in FY 2020 to fund Pacific Fleet availabilities, the pilot was expanded to U.S. Fleet Forces availabilities in FY 2022.

The OPN Pilot allows the Navy to implement commercial best practices for ship maintenance and more efficiently use surface ship maintenance funding through the entirety of the fiscal year without the pressure of expiring funds. The Navy is continuing to demonstrate significant improvement in ship maintenance execution, and efforts such as OPN-funded availabilities are helping maintain the positive momentum to ensure ships are delivered to the Fleet on time with work completed in full.

Unmanned systems will continue to play a key part in future Distributed Maritime Operations (DMO), and there is a clear need to field affordable, lethal, scalable, and connected capabilities. The *Unmanned Campaign Framework* continues as our strategy for fielding the DON's future unmanned capabilities into the fleet. The Department will take advantage of near-term opportunities for rapid experimentation, while investing in enabling technologies to include autonomy, land-based testing sites, high-reliability engineering systems, and networks in conjunction with Project Overmatch. The Framework directs an enterprise-wide partnership with industry and academia to coordinate efforts and resources, while also taking advantage of innovation opportunities such as U.S. Naval Forces Central Command's International Maritime Exercise 2022.

The Fiscal Year 2023 President's Budget Request

The President's FY 2023 budget advances key defense priorities. It resources a Navy and Marine Corps Team that supports the 2022 National Defense Strategy (NDS) priorities of integrated deterrence, campaigning, and building enduring advantages, with an agile and ready joint force. Moreover, the Secretary of the Navy's enduring priorities of strengthening maritime dominance in defense of our nation, empowering our people, and strengthening strategic partnerships is nested under this guidance and resourced to achieve these effects.

The FY 2023 budget request is 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 2023 continues key investments in advanced technologies and modernization of our current Seapower and Projection forces, prioritizing the recapitalization of the strategic ballistic missile submarine, the Columbia Class, which remains the Department's top acquisition priority. The budget requests full funding

for two DDGs, two SSNs, one FFG, one LPD Flight II, one T-AO, and one T-ATS, while providing the next increment of funding for construction of the Columbia Class SSBN, CVN 80, CVN 81, and LHA 9. The budget request procures a total of 96 fixed-wing, rotary-wing, and unmanned aircraft, and completes procurement of E-2D Hawkeye, while maturing production and maintaining vital aviation platforms to support a modernized and tactically diverse fleet.

The FY 2023 budget prioritizes readiness recovery, continuing prior year gains on ship and aircraft maintenance efforts to improve overall department readiness. The Department is investing in the Shipyard Infrastructure Optimization Program (SIOP) to provide modernized public maintenance facilities needed to sustain the future fleet. 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 prioritized Force Design 2030 programs, such as the Navy/Marine Corps Expeditionary Ship Interdiction System (NMESIS) and MQ-9A aircraft.

The FY 2023 budget makes investments to expand the industrial base partnerships that support our submarine and weapon systems and that are critical to our strength and capacity. This includes targeted investments to shipbuilder infrastructure, supply chain capacity, strategic outsourcing, workforce training, and new technologies.

Summary

Thank you for the strong support this Subcommittee continues to provide our Sailors and Marines. The Department of the Navy continues to deliver platforms with the capability to address today's maritime challenges while investing in future capabilities to address tomorrow's security environment. With the support of Congress, we will continue efforts to develop and field platforms, systems, and technologies to provide Sailors and Marines the capability overmatch required in this era of strategic competition.

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 Sea Based Strategic Deterrent with both the Columbia and TRIDENT D5 Life Extension 2 (D5LE2) programs will ensure the effectiveness and responsiveness of Navy's leg of the strategic Triad through the 2080s.

Funding for the lead ship and future Columbia Class submarines remains the Department's top acquisition priority. The lead ship started construction in October 2020 and is on track to deliver to pace the retirement of our current ballistic missile submarines, deploying for its first patrol in 2030. The FY 2023 budget supports the final year of incremental funding of the lead ship, advance procurement and advance construction of follow-on Columbia Class submarines, and continued class design efforts. General Dynamics Electric Boat and Huntington Ingalls Industries-Newport News continue to procure component and commodity material to maintain and grow the submarine industrial base as the program builds to annual procurements beginning in FY 2026. Supporting overall program risk reduction and required schedule execution to minimize strategic deterrence coverage gaps, the FY 2023 budget request continues to fund Continuous Production of missile tubes, propulsors, and various critical components thanks to authorities provided by Congress. Columbia's missile tube production is tightly coordinated with procurement of Common Missile Compartment material for the U.K. Dreadnought Class submarines being executed under the Polaris Sales Agreement. The budget request also funds multi-program material procurements to achieve best value across nuclear shipbuilding programs and Production Back-up Units to reduce schedule risks.

The Navy delivered two Virginia Class submarines so far this year, including the second and third Block IV ships, the future USS *Oregon* (SSN 793) and future USS *Montana* (SSN 794). Looking forward, the second ship of Block V introduces the Virginia Payload Module, and all Block V ships will incorporate Acoustic Superiority program improvements. While construction is progressing on the remaining Block IV and early Block V submarines, we are not meeting the sustained two per year delivery objective. The Navy is working closely with industry to regain

cadence and implement strategic improvements, including continued shipbuilder and supplier development initiatives. The FY 2023 budget includes funding to procure two Block V Virginia SSNs as well as funding to address Virginia Class parts obsolescence, and continued development of capabilities and technologies for future Blocks.

The Navy is taking proactive steps to improve the nuclear shipbuilding industrial base capability, capacity, quality, and workforce, which is essential for on-time delivery of one-per-year Columbia and two-per-year Virginia production (1+2). In 2021, the Navy partnered with the Office of the Secretary of Defense on a 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 2023 budget begins critical investments identified in the study, to execute focused actions to reach and sustain the annual 1+2 construction cadence. The investments address 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 expanded industrial base efforts. In FY 2022 the Navy is using the $130 million provided for industrial base support in the Columbia funding line to continue to execute supplier development efforts to improve the capability, capacity and stability of the industrial base, as well as the $35 million provided in the Virginia funding line for submarine industrial base / support facilities infrastructure at submarine production shipyards.

The Future Attack Submarine (SSN(X)) design intent is to maintain our asymmetric advantage in the undersea domain, ensuring assured access for the Joint Force in future decades. The Navy envisions SSN(X) to capitalize on Seawolf speed and payload capacity, Virginia acoustic superiority and sensors, and Columbia operational availability. SSN(X) is intended to retain multi-mission capability and sustained combat presence in denied waters, with a renewed priority in anti-surface (ASuW) and anti-submarine warfare (ASW) missions against increasing numbers of sophisticated threats. Design flexibility and margins in space, weight and power are intended to be included in the design to facilitate efficient integration of future capability upgrades to counter anticipated evolving threats. In FY 2022, the Navy is developing an Initial Capabilities Document and beginning trades studies in support of the Analysis of Alternatives.

As the Columbia design workforce requirements diminish, SSN(X) design efforts will ramp up, thereby maintaining the strength of our submarine design workforce. The Navy is targeting SSN(X) construction start in the mid-2030s, which should maintain a properly skilled

production work force as Columbia serial production ramps down.

Aircraft Carriers (CVNs)

The Navy continues to see increased reliability of the new critical technologies on USS Gerald R Ford (CVN 78) as it prepares for operational use. Having turned all 11 Advanced Weapons Elevators over to the crew, with over 17,000 cycles operating in port and at sea, Gerald R Ford achieved IOC on December 22, 2021. USS Gerald R Ford successfully completed its first Planned Incremental Availability in February 2022 and is preparing for its first employment.

USS John F Kennedy (CVN 79) is 85 percent construction complete. John F Kennedy transitioned to a single-phase delivery to achieve the most efficient path forward and deliver a more capable and lethal ship to the Fleet, and is on schedule to deliver in 2024 with a complete combat systems suite and fully outfitted with F-35C ship modifications. USS *Enterprise* (CVN 80) construction is 15 percent complete and USS *Doris Miller* (CVN 81) completed its first cut of steel in August 2021. Additionally, the first CVN 80 keel unit was laid in April 2022, with a commemorative ceremony to occur in late summer 2022.

The Nimitz Class Refueling Complex Overhaul (RCOH) is the full recapitalization of the carriers in support of the second half of their service life. The RCOH is refueling the ship's reactors, modernizing its capabilities, and repairing ship systems and infrastructure. USS George Washington's (CVN 73) RCOH is 94 percent complete. USS John C Stennis (CVN 74) is 21 percent complete. USS Harry S Truman (CVN 75) will begin RCOH in FY 2025.

Large Surface Combatants

Arleigh Burke Class (DDG 51) destroyers are the workhorse of the Fleet, with 70 ships delivered as of February 2022. Over the course of the FY 2018-2022 MYP, the Navy will procure a total of 12 Flight III DDGs, more than the planned 10 ship procurement, thanks to the strong support of Congress. The shipbuilders have a total of 19 DDG-51s under contract. The budget request funds procurement of a total of 10 ships from FY 2023 to FY 2027 at two DDG 51s per year, while the intended MYP contract will procure nine ships with an option for the tenth DDG 51. Similar to the FY 2018-2022 MYP, additional annual options will be requested. Including the tenth ship as an option in the MYP as a "nine plus one" profile provides the flexibility to adjust procurement quantities due to potential changes driven by world events or

production issues, while adjusting to force structure requirements.

These Flight III ships 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). 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 will deliver in FY 2023. As part of a two-phased testing approach, IOC in FY 2024 will include Air and Missile Defense Commander (AMDC) capability with core BMD capability (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 (IOT&E), which culminates with Flight Test Mission (FTM)-42 in the fourth quarter of FY 2027. The Flight III leverages the proven Flight IIA platform with modifications for hull stability, cooling (350-ton AC plants) and power (4 MW generators / 4160 VAC) to accommodate AMDR.

Aligned with congressional intent, risk reduction integration testing of critical Flight III systems (AMDR, BL10, and power 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. Land based testing of the electric plant concluded in January 2022, initiating integration and testing of the Machinery Control System software. Land based integration activities continue to groom “first-of” issues in advance of shipboard testing offering significant risk reduction for DDG 125 ship production milestones. The first combat system software incremental load was delivered to DDG 125 in February 2022.

The Zumwalt Class (DDG 1000) guided missile destroyers provide 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 (PDT&T), train the crew on ship functions, and demonstrate operational performance. USS Zumwalt (DDG 1000) and USS Michael Monsoor (DDG 1001) are both homeported in San Diego, California. The program is leveraging both ships to execute test and evaluation requirements in accordance with the Test and Evaluation Master

Plan with focus on Air Warfare, Surface Warfare, and Strike Warfare on DDG 1000; and ASW and Aviation on DDG 1001. This allows for simultaneous activation and testing of multiple warfare areas. IOC will occur following completion of PDT&T requirements. The Navy is evaluating the timeline to achieve IOC with the current estimate in the first quarter of FY 2023. Planned construction and Hull, Mechanical, and Electrical (HM&E) test and activation of USS Lyndon B Johnson (DDG 1002) at General Dynamics Bath Iron Works is complete and the ship has transitioned to Huntington Ingalls Shipbuilding for completion of Combat Systems installation as part of the planned single delivery approach. Final delivery is expected after completion of the combat systems installation in FY 2024. The Zumwalt Class is also planned for integration with Navy's Conventional Prompt Strike hypersonic weapon system in FY 2025.

DDG(X) will be the next enduring large surface combatant that follows the highly successful DDG 51 Class. Similar to 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. DDG(X) Top Level requirements were approved by the CNO in December 2020 and were based on an informed requirements process executed by a cross functional team of requirements, acquisition, naval architects, and cost estimators to deliberately reduce execution risk. 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. DDG(X) is currently focused on Concept Refinement and transition into Preliminary Design with industry partners. The Navy is committed to a smooth and successful transition from DDG 51 to DDG(X) starting around FY 2030. 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.

The FY 2023 request fully funds the required land-based testing efforts over the FYDP to reduce critical risks with the Integrated Power System and new hull form identified by the Senior Technical Authority in accordance with prior congressional direction. The Navy is incorporating lessons learned from prior platform transitions to deliberately reduce execution risk and position industry for a successful transition, by establishing informed requirements, use of non-developmental technologies, proven combat system elements, collaborative design process, and robust land based testing.

To date, Congress has provided a total of $335 million to support the surface combatant supplier base and to improve surface ship shipyard infrastructure. The Navy has awarded approximately $168 million of surface combatant supplier base funding across 51 suppliers and is working with industry for targeted investments in shipyards and the supplier base, supporting industry's capital expenditure strategies to increase efficiency.

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. Frigate requirements have been validated and were refined through early engagement with industry in a collaborative Conceptual Design process that completed in June 2019. 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. The Navy is establishing a FFG 62 Land Based Engineering Site to reduce integration risks and test power and propulsion systems. The first two ships, the future USS *Constellation* and USS *Congress*, are under contract, with the lead ship to start construction in FY 2022. The third ship, the future USS *Chesapeake*, will go on contract in FY 2022. The Navy is confident in the capability FFG 62 will deliver to the Fleet, especially its ASW capabilities against modern threat submarines.

The LCS program has delivered 26 of the 35 total funded ships. The Navy has installed Naval Strike Missile (NSM) on six Independence variant (IND) LCS platforms and continues to install NSM on LCS hulls this year and in the future, extending the offensive capability of the ship. Additionally, procurement of material for Lethality and Survivability (L&S) upgrades is on track for the first installations in FY 2024. Development of the L&S Common Combat System has begun and will support transition from shipbuilder procured contractor furnished equipment combat systems to program of record government furnished equipment. Eighteen LCS will have conducted their inaugural deployments to 5th/6th, 7th, or 4th Fleet by the end of FY 2022, providing a significant increase in assets for Fleet Commanders which will continue to grow as the remaining ships are delivered to the Fleet.

Large Deck Amphibious Warfare Ships

Amphibious warfare ships remain a key component of the Nation's global forward presence, supporting crisis and contingency response missions in order to provide decision space for our nation's leaders. These ships and their embarked Marines and Sailors strengthen relationships with our allies and partners on a daily basis to deter strategic competitors. In order to ensure the future naval expeditionary force is maximized for effective combat power, while reflecting and supporting the force structure changes addressed in USMC's Force Design, the Secretary of the Navy directed an amphibious requirement study that will inform refinement of amphibious ship procurement plans and shipbuilding profiles, as well as inform the ongoing overall Naval Force Structure Assessment.

The America Class Landing Helicopter Assault (LHA 6) is the key platform of the Expeditionary Strike Group/Amphibious Ready Group of the present and future. The LHA 6 Class program provides agile and versatile multi-mission platforms with increased lethality, command and control, and survivability. Among other capabilities, these ships host the fifth-generation F-35B Joint Strike Fighter aircraft that is critical to the high-end fight.

USS Tripoli (LHA 7) delivered in February 2020 and is preparing for its maiden deployment in 2022. Bougainville (LHA 8) is 46 percent construction complete with 82 percent of units erected to support a FY 2025 delivery. LHA 8 will include a well deck to increase operational flexibility and includes a reduced island structure that increases flight deck space to enhance aviation capability. LHA 9 has commenced long lead-time material procurement and preparing to start ship fabrication in FY 2023. The Department plans to procure a future LHA, replacing the capability lost with the decommissioning of the Bonhomme Richard (LHD 6).

Small Deck Amphibious Warfare Ships

San Antonio Class Landing Platform Docks (LPD 17) provides the ability to embark, transport, and land elements of a landing force by helicopters, tiltrotor aircraft, landing craft, and amphibious vehicles. The San Antonio Class LPD will continue to support the embarkation of Marine Expeditionary Units (MEUs) and facilitate Amphibious Ready Groups well into the future, as these ships provide strategic mobility, force projection, and the ability to campaign across the globe.

USS Fort Lauderdale (LPD 28) delivered in March 2022, while USS Richard M McCool Jr

(LPD 29) is 79 percent complete and planned for delivery in the fourth quarter of FY 2023. LPD 28 and LPD 29 leveraged many design innovations and cost reduction initiatives, including the first install of the Enterprise Air Surveillance Radar (EASR) on LPD 29, as the class transitions to Flight II. The first Flight II ship, the future USS *Harrisburg* (LPD 30), is 20 percent complete with a planned delivery in FY 2025. In addition, the Navy awarded the future USS *Pittsburgh* (LPD 31) Detail Design and Construction contract in April 2020 and start of ship fabrication is planned for later this year. Following advanced procurement in FY 2022, this year's budget requests the remainder of the funding for LPD 32.

Connectors

The Ship to Shore Connector (SSC) program provides the capability to rapidly move assault forces from ship to shore within the littoral operational environment to accomplish Unified Campaign Plan missions and ensures the Joint Force Commander's ability to conduct amphibious operations and operate over the high water mark, including movement over ice, mud, rivers, swamps and marshes. SSC provides the functional replacement for the Landing Craft, Air Cushion (LCAC) Class of craft, which began reaching end of extended service life in 2015. The Department remains committed to fielding SSC and has addressed program developmental setbacks and commensurate reductions in procurement quantities in FY 2020 and FY 2021. The 2022 Consolidated Appropriations Act added funding for three additional SSC for five total. In FY 2023 the Navy requests authority to enter into one or more block buy contracts for up to 25 SSCs. The initial block buy supported by the FY 2023 President's Budget would be for 10 SSCs from FY 2023 through FY2027.

The Navy has contracted for 24 craft. The first two craft, LCAC 101 and 102, have been delivered to the Fleet in Little Creek, VA. The Navy is also replacing its aging Landing Craft Utility (LCU) fleet with the LCU 1700 program which will restore LCU's complementary heavy lift payload in a more rugged, reliable, and affordable independent operations capable platform. While no LCU 1700s are requested in FY 2023 as the shipbuilder works off their backlog, LCU 1700 procurement is planned to continue in FY 2024.

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. The Light Amphibious Warship (LAW) will complement amphibious warfare ships and will provide added surface maneuver, mobility, sustainability, and survivability for Marine Corps Stand-in Forces in strategic competition. Preliminary Design efforts began in January 2022 to help inform requirements through industry engagement. Upcoming analysis will focus on requirements maturation and refinement of the concept of operations for integration with the Marine Littoral Regiment capabilities in support of the Stand-in Force. The Department is driving towards a lead ship contract award no later than FY 2025. These smaller ships are critical enablers of the USMC Force Design, but in no way replace traditional amphibious warfare ships. Both types of ships are required to posture the Naval Expeditionary Force to serve as a Stand-in Force and respond to global crisis.

The Expeditionary Sea Base (ESB) acts as a mobile sea base, providing prepositioned equipment and sustainment with flexible distribution to support deployed forces. FY 2022 appropriations included the addition of one ESB ship. The Navy commissioned USS Miguel Keith (ESB 5) on May 8, 2021. The ESB 6 and ESB 7 are planned for delivery in FY 2022 and FY 2024.

Expeditionary Fast Transport (EPF) is a shallow draft, all aluminum, commercial-based catamaran capable of intra-theater personnel and cargo lift. EPF provided combatant commanders high-speed sealift mobility with inherent cargo handling capability and agility to achieve positional advantage over operational distances. Apalachicola (T-EPF 13), Cody (T-EPF 14), and Point Loma (T-EPF 15) are under construction with deliveries planned in FY 2022, FY 2023, and FY 2024, respectively. T-EPF 14 and T-EPF 15 are Flight 2 Variants with enhanced medical capabilities that will improve Navy's ability to provide expeditionary medical support to forces conducting DMO and Expeditionary Advance Base Operations (EABO) in contested environments. FY 2022 appropriations included the addition of one EPF Flight 2 and an Expeditionary Medical Ship (EMS). EMS is an EPF variant that will provide expanded Role 2 Enhanced medical capabilities (Flight 2A). Given the flexibility inherent in fast transports, additional missions for the fast transport vessels are being evaluated.

The FY 2023 budget request continues 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. T-AOs are the primary fuel pipeline that sustains Carrier Strike Groups and Expeditionary Strike Groups, enabling them to project power for extended periods at sea, reducing the reliance on foreign ports for sustainment and increasing time on station to conduct operations. T-AOs are closely integrated with commercial maritime industry due to the use of U.S. commercial standards for construction and maintenance as well as the use of merchant mariners to crew them. T-AO 205 Class brings additional capability and capacity to the Fleet through a 20-ship program of record. USNS John Lewis, the lead ship of the class, is planned for delivery in May 2022. T-AO hulls 206 to 208 are currently under construction. Construction on the fifth ship, the future USNS *Lucy Stone* (T-AO 209), will begin in first quarter of FY 2023. The 2022 Consolidated Appropriations Act added funding for one additional T-AO and Affordability Initiatives.

Navajo, the first of a new class of combined towing, salvage, and rescue (T-ATS) ship is scheduled to deliver in late 2023. T-ATS is based on existing commercial towing offshore support vessel design, and will provide ocean-going tug, salvage, and rescue capabilities to support Fleet operations. The Navy received funding for two ships in FY 2022 and requests funding for the final ship in the class in FY 2023.

The Detail Design & Construction contract of the FY 2022 funded lead ship of a new class of Auxiliary General Ocean Surveillance ships (T-AGOS 25 Class) is scheduled to award in FY 2023, with serial production planned to begin in FY 2025. The T-AGOS 25 ships will replace the T-AGOS 19 and T-AGOS 23 Class ships. These vessels are critical to ASW and other tactical and strategic missions.

Strategic Sealift

The Navy continues to act on Congressional authorities to address strategic sealift readiness, executing the sealift recapitalization plan developed in cooperation with USTRANSCOM. This three-part approach includes acquiring used commercial vessels for the surge sealift force, constructing new ships for the Maritime Prepositioning Force (MPF), and extending the service life of the most viable platforms. On March 21, 2022, MARAD completed the purchase of the first used vessel, the CAPE Arundel, and will complete the purchase of the second used vessel in April 2022. Throughout 2022, the buy-used program will conduct the

conversion of the first two vessels for service with the Ready Reserve Force and will purchase an additional five used vessels; two of which are planned for conversion in 2022.

The FY 2023 budget supports readiness and recapitalization commitments by requesting two additional used vessel procurements per year over the FYDP, improving the material readiness of existing ships, retiring the least-ready vessels, and continuing to extend the service life of appropriate vessels. The newly procured used sealift vessels will continue their conversion and upgrade work to meet baseline readiness requirements of the Ready Reserve Force ships maintained in Reduced Operating Status. This work will be performed by U.S. shipyards.

The Navy and U.S Marine Corps are coordinating revision of MPF Next Generation requirements and transition plans. Navy will introduce an initial capabilities document into the JCIDS process in FY 2022 to validate MPF Next Generation requirements that will begin the process for new construction ships. Sealift new construction is most appropriate for the replacement of fully operational status ships in the MPF which support Marine Corps.

Sustainment, Modernization, Service Life Extensions and Divestments

Maintenance and modernization of the Navy's fleet ensures Fleet Commanders have the necessary assets with the required capabilities to respond to operational demands. As a collective maintenance and modernization community, the Navy is continually working to reduce deferred maintenance backlogs and deliver ships back to the Fleet on time and with all required work completed. Key efforts are underway that span the entire process of work package planning, contracting, and waterfront execution, including taking a Performance to Plan approach to improving work package quality, level-loading ports to establish predictability and stability for our industry partners, providing government equipment and material earlier, streamlining Navy inspection points, and reviewing waterfront roles and responsibilities to minimize unnecessary churn and delays in decision making. By providing predictable and stable workload to private shipyards, the Navy is enabling the efficient use of repair capacity available across the ports and allowing industry to understand future workload forecasts and identify opportunities for targeted infrastructure investments. Additionally, the Navy has completed an exhaustive thorough review into the USS Bonhomme Richard fire and is taking appropriate actions to avoid similar events on Navy ships completing repair, maintenance, and modernization availabilities.

Modernization efforts ensure the Navy's in-service Fleet has relevant combat capability

for our Fleet Commands. The FY 2023 budget requests funding for the modernization of four destroyers that will ensure sustained combat effectiveness, mission relevancy, and enable the AEGIS Fleet to achieve their full expected service lives. The budget funds the first procurement of a SPY-6 variant for back-fit on in-service DDGs, commencing in FY 2026. The Navy is incorporating lessons learned from Cruiser Modernization in the availability planning for DDG Modernization availabilities in the areas of contract type, system lay-up and reactivation, crew manning, and training. Additionally, stand-alone and incremental modernization will continually be reviewed and aligned to provide the necessary capability and mission effectiveness to defeat our adversaries throughout the life cycle of DDGs.

In this era of strategic competition, the Navy's submarine force provides an asymmetric warfighting advantage. Ensuring our submarines are maintained and modernized to dominate the undersea battlespace is an enduring Navy priority. The Navy is committed to seeking balance of the 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 launched a study to improve fast attack submarine (SSN) material availability that will include a 15-Year SSN Maintenance Plan outlining approaches to optimize submarine repair at all shipyards, including private-sector maintenance execution. 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 free up additional resources for priorities more closely aligned to the NDS, the FY 2023 budget proposes to decommission 24 ships in FY 2023. Of these 24 ships, eight ships are at or beyond expected service life (ESL) and 16 ships are prior to ESL (1 CG, 4 LSD, 9 LCS, 2 ESD). For the former eight ships, inactivation in FY 2023 is a normal part of the end of their lifecycle. For the latter 16 ships, the Navy closely reviewed operational needs and fleet requirements, and ultimately made the difficult decision that this force structure is too costly to operate and sustain and no longer provides the capabilities needed to best address the current and future national security challenges. Decommissioning less capable ships before the end of their expected service life provides critical resources to invest in procurement and development of higher capability platforms. The Navy is trading near-term capacity for long term capability, and the FY 2023 budget does not resource capacity beyond what can be reasonably sustained – manning, training, maintenance, ordnance, operations, and future modernization.

The CG and LSDs are in poor material condition and require significant resources to continue to maintain, modernize, and operate them. The substantial cost to retain these ships outweighs the potential warfighting contributions of these platforms over their limited remaining service life. For the LCS, the FY 2023 budget focuses the LCS class on mine countermeasures (MCM) and surface warfare (SUW) mission areas, eliminating the ASW mission for the class. The ASW Mission Package is no longer being pursued due to technical challenges and the forthcoming introduction of FFG 62 as a highly capable ASW platform. Consequently, eight FREEDOM class ships are planned for decommission in correlation with the eight ASW mission packages. In addition, LCS 3 is also proposed for decommissioning because it remains a non-deploying test ship that is no longer needed. Continued retention of this ship imposes significant cost to upgrade it to common configuration and capability with the rest of the Fleet. The T-ESD ship class is less relevant for peer military competition, as they were designed for non-contested environments to support ship-to-shore craft movements. These T-ESDs support the maritime prepositioning force. In the FY 2023 budget, Maritime Preposition Squadron Two will be placed into reduced operating status (ROS).

Shipyard Infrastructure Optimization Program (SIOP)

The Shipyard Infrastructure Optimization Program is essential to supporting the future needs of the Navy's nuclear submarine and aircraft carrier force. With the tremendous support received from Congress, to include $1.6 billion appropriated in FY 2022, the program is advancing several key initiatives. The Navy appreciates the Congressional support provided in the FY 2022 appropriation to derisk the construction schedule for the new Multi-Mission Dry Dock at Portsmouth Naval Shipyard, critical for the east-coast maintenance capability for the Virginia Class submarines. In FY 2022, the second increment of digital modeling will commence which will inform project design and construction. Area Development Plans will be completed at each public shipyard across the FYDP utilizing the digital modeling output. Additionally, funds will be utilized to begin project design for a Ford-capable dry dock at Puget Sound Naval Shipyard (PSNS), award the construction contract for DD8 Salt Water Upgrades at Norfolk Naval Shipyard (NNSY), award several restoration and modernization projects, and purchase capital equipment to replace aged elements to revitalize maintenance shop capabilities. Funding requested in FY 2023 budget requests for SIOP includes $8.3 billion across the FYDP, which

includes construction start of a new Multi-Mission Dry Dock at Pearl Harbor Naval Shipyard, critical for the west-coast maintenance capability of the Virginia Class submarines.

To ensure disciplined execution of construction efforts managed within the program while maintaining uninterrupted support to the Fleet, the DON has established a Program Executive Office for Industrial Infrastructure (PEO II) affiliated with the Naval Facilities Engineering Systems Command, and reporting directly to the Assistant Secretary of the Navy for Research, Development, and Acquisition. PEO II and the Program Management Office (PMO 555) are implementing agile acquisition methodologies to coordinate the programmatic execution of this complex effort. PEO II also remains integrated with the Naval Sea Systems Command and the Naval Sustainment System – Shipyards (NSS-SY) efforts to ensure that required ship maintenance at the shipyards is not impacted by SIOP efforts.

The program remains committed to applying lessons learned and, when applicable, applying industry best practices to an iterative process that utilizes industrial modeling and simulation data to inform program decisions that can improve Fleet operational availabilities. This process and ongoing coordination, across the major stakeholders, will ensure that thoughtful and informed actions toward optimization are made at the nation's public shipyards. SIOP is creating momentum as a cross-organizational initiative committed to creating predictable delivery of critical infrastructure for the four public shipyards of the future.

Unmanned Surface and Undersea Vehicles

The DON continues to experiment, develop and deliver unmanned surface and undersea capabilities to augment the manned force. These capabilities will increase capacity, standoff, reach, and protection of our manned platforms.

The Navy's Medium and Large Unmanned Surface Vessels (MUSV/LUSV) are a key element of the Future Surface Combatant Force that support the NAVPLAN "Capacity" priority to deliver a larger, hybrid fleet of manned and unmanned vessels. These USVs will expand Intelligence, Surveillance, and Reconnaissance (ISR) advantage and add missile magazine depth. Our FY 2023 efforts will execute a deliberate development plan to include reliable Hull, Mechanical and Electrical; advanced networks and radios; common core USV Combat System; vessel control software; sensory perception and autonomy; and platform and payload prototyping.

In February 2022, the Navy assumed ownership of the two Strategic Capabilities Office Overlord vessels for continued experimentation and learning. Of significant note, the Navy accumulated over 4000 hours and 47,000 nautical miles of autonomous mode operations to include teaming with other manned ships during FY 2021 through March 2022. Experimentation with the Overlord vessels will continue to inform development of MUSV/LUSV.

By the end of FY 2023, Navy will have an operational MUSV Land Based Test Site, will have initiated LUSV land based testing, and will operate six USV prototypes: three of the four Overlord USVs (OUSV), one MUSV prototype, Sea Hunter and Sea Hawk. Additionally, the first autonomy enabled EPF-13 will commence sea trials in July 2022 and be delivered at the end of FY 2022 to support EABO 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 Mission Package requirements. Mine sweeping is accomplished leveraging the mature craft and sweep payload developed for the Unmanned Influence Sweep System program that completed IOT&E in June 2021 and Underwater Explosive testing in the first quarter of FY 2022. Payload integration between the same mature craft and the AN/AQS-20 towed sonar has completed and technical evaluation is currently in progress, which will provide the mine hunting capability. The Barracuda program is the future mine neutralizing capability in early development, with plans to integrate onto the MCM USV.

The Navy continues to invest in a family of Unmanned Undersea Vehicles (UUVs) to aid in maintaining undersea domain superiority. These investments will expand Navy reach and persistence by augmenting manned platform capacity with unmanned autonomous systems. The Navy has begun fabrication of Orca, Extra Large Unmanned Undersea Vehicle (XLUUV), a pier-launched UUV capable of carrying large payloads, and anticipates delivery of the Test and Evaluation asset in Q3 of FY 2022. The Large Displacement Unmanned Undersea Vehicle which will support Subsea and Seabed Warfare and Intelligence Preparation of the Operating Environment capabilities delivered the first in class Phase 1 UUV in Q2 of FY 2022, and has commenced in-water testing. The Navy is taking a deliberate pause on LDUUV Phase 2 to realign Subsea and Seabed Warfare and hostability requirements.

The Navy delivered the last three, of nine, Dry Deck Shelter variant Razorbacks to UUVRON-1 in October 2021. These are the first Program of Record submarine launched and

recovered UUVs. A competitive RFP was issued in FY 2020 for production of a Medium UUV that supports both the submarine torpedo tube launched and recovered Razorback Intelligence Preparation of the Operating Environment mission, as well as the Maritime Expeditionary MCM UUVs mission. The Navy anticipates awarding an Engineering Development Model contract in the third quarter of FY 2022.

Lionfish is a small lightweight highly portable vehicle that can be mission configured to support Explosive Ordnance Disposal and Naval Special Warfare. This effort was a partnership with the Defense Innovation Unit and used accelerated acquisition authorities such as commercial solutions opening and other transactions. Lionfish will include advancements to the artificial intelligence, machine learning (AI/ML), Automated Target Recognition, and autonomy processes currently fielded with the MK18 MOD2 UUV, expanding the capabilities of the Navy's intelligent family of UUVs. The Navy anticipates awarding a contract in the third quarter of FY 2023 to procure 10 vehicles.

The Marine Corps' Long-Range Unmanned Surface Vessel (LRUSV), approximately 45 feet in length, is intended to be capable of conducting semi-autonomous maneuver in the open ocean for extended periods of time. LRUSVs will be capable of launching the Organic Precision Fires loitering munitions to engage targets on land and at sea, and thus increase the effective range and lethality of formations, such as the Marine Littoral Regiment. The Marine Corps' LRUSV and Organic Precision Fires are specifically purposed to enhance Naval and Joint Force Commanders' sea denial campaigns. Through prototyping, experimentation, and working closely with program vendors, the Marine Corps will ensure delivered capabilities are in line with funded requirements. The Marine Corps has accepted the first of five LRUSV prototypes for experimentation and analysis, and the Marine Corps anticipates receiving additional prototypes in the 3rd quarter of FY 2022 for continued testing and refinement.

The DON is continuing to invest in foundational enabling technologies in FY 2023. These include autonomy, command and control, energy, and payloads, as well as establishing the interoperable standards and open architectures for ease of technology transition.

Combat Systems

The Department continues to field the most capable and lethal surface and submarine combat systems in the world. AEGIS Baseline 9 delivers unprecedented offensive and defensive

capabilities, including simultaneous air and ballistic missile defense on destroyers and AMDC capability on cruisers. AEGIS Baseline 10 (BL10) with AN/SPY-6 will provide significant performance improvements over Baseline 9 with its AN/SPY-1D(V) radar, expanding the sensor coverage and enhancing the Navy's ability to perform the IAMD mission to defeat more advanced and more numerous threats with the integration of the AN/SPY-6(V)1 AMD system. Integration includes using a BL10 Virtualized AEGIS Weapon System at the AMDR test site in Hawaii, as well as BL10 integrated development and testing with the low-rate initial production AMDR system installed in the New Jersey development site.

Traditional AEGIS development has been aligned to new construction platforms or major modernization efforts. Navy's shift to open architectures seeks to take full advantage of evolving technology to rapidly deliver real-time and reliable capability to the warfighter and to break the paradigm of hardware-software dependent deliveries. The current method of combat system delivery, takes 4 to 8 years to deliver and is tied to specific hardware set limiting proliferation to a low percentage of the fleet. By employing proven industry standards of Infrastructure as a Service, Platform as a Service, and Software as a Service, Navy will be able to support the delivery of iterative updates to the AEGIS Weapon System at speed and scale. The Navy will also continue investment into its first combat system software factory, The Forge, which will enable rapid innovation and delivery of combat system improvements to the fleet. Work in this area is foundational to developing the future Integrated Combat System. As Navy continues these developmental efforts, new construction and in-service Aegis Baseline 9 and 10 ships will receive predictable upgrades in the form of Capability Packages.

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 delivers the first TI-20 installs to the Fleet in FY 2022, which brings added capability and improved system architecture, strengthens cybersecurity and integrates new payload capabilities to provide increased lethality. The FY 2023 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. The current CVW is transitioning to an optimal mix of 4th and 5th Generation strike fighter aircraft that incorporate advanced capabilities to support the objectives of the NDS. The Navy is managing 4th Generation F/A-18 inventory requirements through Service Life Modification (SLM) and 5th Generation requirements through F-35C procurement. SLM extends the existing 4th Generation capacity while adding advanced Block III capability at one-third the cost of new procurement F/A-18 aircraft. The Department has appropriate levers in place to manage the strike fighter inventory through ongoing F-35C production and F/A-18E/F SLM. Currently while the gap is not eliminated there are sufficiently funded resources and levers to support Global Force Management and operational capability through the FYDP.

The Navy continues to accelerate development of the Next Generation Air Dominance (NGAD) Family of Systems (FoS) to provide advanced, carrier-based power projection capabilities that extend the range of our carriers. The NGAD FoS will replace the F/A-18E/F Block II aircraft as they begin to reach end of service life in the 2030s and leverage Manned-Unmanned Teaming (MUM-T) in order to provide increased lethality and survivability. F/A-XX is the strike fighter component of the NGAD FoS that will be the "Quarterback" of the MUM-T concept, directing multiple tactical platforms at the leading edge of the battlespace. In FY 2021, F/A-XX began the Concept Refinement Phase and it remains on schedule. The Navy will continue collaboration between Government and industry teams to develop vendor concepts that balance advanced air dominance capabilities and long-term affordability.

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

The MEU Aviation Combat Element (ACE) remains a uniquely critical and capable component of our national strategic demand for forward presence, crisis response, power projection, and theater security cooperation. The ACE is a capable and 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 current MEU ACE is built around a squadron of MV-22B tiltrotor aircraft that deliver unmatched combat range and airspeed unlike any current vertical takeoff and landing (VTOL) aircraft. The capabilities offered by the new CH-53K heavy-lift platform allows the MEU ACE to organically support a wide variety of assault support missions and contingency operations to meet Combatant Commander needs. 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. The fixed wing component of the MEU ACE is continuing to transition to the F-35B that incorporates advanced capabilities to support the objectives of the NDS. The Navy and Marine Corps team is actively validating innovative concepts of employment of the F-35B on our amphibious fleet.

The future Marine ACE, much like the CVW, will leverage MUM-T to provide increased lethality and survivability through the Autonomous Collaborative Platform (ACP). The Marine Corps is actively working collaboration between Government and industry to develop and refine concepts through analytical simulation to balance advanced air dominance capabilities and long-term affordability within the ACP program.

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. Next Generation Jammer (NGJ) pods will augment and ultimately replace the legacy ALQ-99 Tactical Jamming System in the middle frequency range 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.

The NGJ-Mid-Band (NGJ-MB) program is in the completion phase of Engineering & Manufacturing Development (EMD), and completed Milestone C in May 2021. NGJ-Low-Band (NGJ-LB) successfully completed Milestone B and awarded an EMD contract in December 2020, which includes the delivery of eight operational prototypes. This contracting effort remains on hold as the protest process works through the courts.

AIRBORNE COMMAND AND CONTROL AIRCRAFT

The E-2D Advanced Hawkeye (AHE) 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 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 fifth Full Rate Production Lot 6 aircraft was delivered in December 2021, completing the MYP contract. 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 (NIFC); vital upgrades and improvements to enable Joint All-Domain Command & Control (JADC2) and Naval Operational Architecture (NOA) [Theater Combat ID (TCID) and Hawkeye Cockpit Technical Refresh (HECTR)]. 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)

Marine Corps MV-22 Ospreys currently have a continuous presence in INDOPACOM, CENTCOM, and EUCOM. The FY 2022 budget added substantial Congressional funding to the U.S. Air Force (USAF) for Nacelle Improvement implementation, successfully accelerating the timeline for this readiness- and reliability-enhancing effort within our sister service. The Marine

Corps is working to coordinate and fund an acceleration commensurate with new USAF timelines to ensure a smooth transition between service tiltrotor aircraft, and preservation of an uninterrupted production line.

The Navy is leveraging 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, completed its inaugural deployment in support of the USS Carl Vinson carrier strike group (CSG) in February 2022, and is already underway on its second deployment in support of the USS Abraham Lincoln CSG.

The FY 2023 budget requests $125.2 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 2023 also includes $207.6 million in APN for long-lead materials, modifications, common configuration, and nacelle improvements. The program is funded for 359 MV-22 aircraft for the Marine Corps and 44 CMV-22 aircraft for the Navy. FY 2022 was the last year of V-22 procurement under MYP III and Bell Boeing intends to initiate V-22 production line shutdown activities if no additional V-22 orders are received.

CH-53K

Having completed IOT&E, and with declaration of IOC soon to follow, the CH-53K will support Marine Corps operational concepts as the only fully marinized heavy lift helicopter in the DoD. Work to date has expanded the CH-53K's envelope through ground and flight testing and analysis, and has incorporated impressive real-world use of the aircraft to recover a downed Navy H-60, weighing 15,500 pounds, from an altitude of 12,000 feet in the mountains of California in September 2021. CH-53Ks continue to fly with Marine Operational Test & Evaluation Squadron 1 and are assigned to Marine Heavy Helicopter Squadron 461, the first fleet squadron to transition, preparing to support MEU deployments. A contract to procure the sixth Low Rate Initial Production Lot of nine aircraft was signed in January 2022.

The FY 2023 President's Budget requests $220.2 million in RDT&E to continue the CH-53K development and test, and $2.1 billion in APN for procurement of 10 Full Rate Production aircraft, initial spares, and modifications.

EXECUTIVE SUPPORT AIRCRAFT

The FY 2023 President's Budget requests $45.6 million in RDT&E for VH-92A Helicopter Improvements and $55.3 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 Wide Band 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 $55.3 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 remains a force multiplier for deployed Marine Air-Ground Task Force (MAGTF) success, bringing increased capability, performance, and survivability with lower operating and sustainment costs. The KC-130J has the highest deploy-to-dwell ratio in the Marine Corps, as it provides critical tactical air-to-air refueling and organic lift capabilities to deployed MEUs and future Marine Littoral Regiments. The FY 2023 budget requests $468.6 million in APN to procure five KC-130Js through a USAF contract. These aircraft will be fielded to a new Marine Corps active-duty squadron in Hawaii and support mobility in the Indo-Pacific region.

TAKE CHARGE AND MOVE OUT (TACAMO)

The Navy's TACAMO nuclear command, control and communications (NC3) mission provides assured communications to the nuclear triad through all phases of conflict and is a vital link to the Navy's SSBN fleet, the most survivable leg of the triad. Currently flown on the aging E-6B Mercury (Boeing 707 airframe), TACAMO recapitalization will be developed for the C-130J-30 (stretched Super Hercules) aircraft. TACAMO mission systems will be developed and integrated by a third-party contractor. In FY 2023, the Navy will invest $554.2 million of

RDT&E toward platform development and complete Milestone B. Funding in FY 2023 includes $395.2 million to fully fund the procurement of three C-130J-30 test aircraft, $74.5 million for non-recurring engineering contracts on the C-130J airframe, and $26.3 million for very low frequency transmit system modernization. Investments in FY 2023 set the stage for a successful Milestone B and subsequent mission integration. Integration of the TACAMO mission on the C-130J-30 leverages a proven platform and the mature TACAMO capabilities to support U.S. nuclear deterrence and Columbia's assured second strike for decades to come.

MARITIME PATROL AIRCRAFT

The P-8A Poseidon is the U.S. Navy's multi-mission maritime patrol and reconnaissance aircraft. The P-8A incorporates the commercial 737 airframes with modern avionics, military communications, and advanced sensors and weapons to provide a range of advanced warfighting capabilities. The P-8A consists of three Increments, ensuring the Navy paces the undersea threat and supports distributed net-centric maritime operations. Increments 1 and 2 have fielded and Increment 3 is scheduled to IOC in FY 2026. Increment 3, which consists of ECP 6 and ECP 7, increases ASW capabilities including ASW Signal Intelligence, Wideband SATCOM, Higher-Than-Secret processing, enhanced track management and sensor fusion (Minotaur), and Enhanced Multi-Static Active Coherent (MAC-E). The first P-8A test aircraft completed the ECP 6 modification in March 2022 to support developmental and operational testing beginning in FY 2022. ECP 7 (MAC-E) integration will occur prior to developmental testing.

The FY 2023 budget request includes $161.7 million in RDT&E for integration of ECP 6 and ECP 7 to complete baseline capability fielding, and rapid development efforts for evolving threats, and $249.3 million in APN for fleet modification kits, deficiency corrections, safety upgrades, and production line shutdown activities. Boeing intends to initiate P-8A production line shutdown activities in FY 2022 if no additional FMS P-8A orders are received. As of April 2022, 110 U.S. 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.

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, 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 2023 budget continues investment in MQ-25 and the Unmanned Carrier Aviation Mission Control System (UMCS) development and begins testing of Navy MQ-25A while beginning LRIP of four MQ-25A air vehicles to increase fleet inventory. MQ-25A will IOC in late 2025. The FY 2023 budget request supports the start of procurement for the MQ-25 Stingray with $799.7 million in APN and continues RDTE funding with $266 million.

MQ-4C Triton

The MQ-4C Triton is a persistent force multiplier that delivers unprecedented situational awareness of the battle space to shorten the sensor-to-shooter decision loop in the maritime and littoral battlespace. In 2020 two MQ-4C Triton IFC-3 variants deployed to INDOPACOM providing theater Maritime ISR coverage, executing 140 ISR missions and 3500 flight hours. One MQ-4C Triton IFC-3 remains flying in SEVENTH Fleet executing tasking of eight ISR flights per month. Multi-INT Operational Test and Evaluation and IOC are planned for FY 2023. The FY 2023 budget requests $663.1 million in APN to continue procurement of three MQ-4 Tritons, and $13.9 million in RDTE, with an additional $163.3 million for RQ-4 modernization RDTE.

MQ-9A

The Marine Corps is adjusting to meet future operating environments that require leveraging uncrewed aerial systems at the tactical to strategic level. As a critical enabler within

the MAGTF and Naval Expeditionary Force, MQ-9A squadrons will provide persistent communications extension, airborne early warning, maritime domain awareness, and electronic warfare support. As the Marine Corps builds the Unmanned Aerial Squadron of the future, the Marine Corps seeks funding for the required aircraft, ground control stations, spares, and support equipment across the next several years. Existing U.S. Air Force efforts are being leveraged actively throughout this process to reduce cost and risk, while providing advanced capabilities to the Marine Corps and the overall joint warfighting enterprise. Future potential mission sets for Marine Corps uncrewed systems include offensive air support and tactical transportation capabilities.

WEAPONS PROGRAMS

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 currently deployed TRIDENT II D5LE missiles will support initial load–outs of early Columbia hulls, but production of additional D5LE missiles is not practical due to technological obsolescence and an atrophied industrial base. 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 Administrations' recently released Nuclear Posture Review (NPR) states that D5LE2 needs to begin deploying on Columbia Class in the late 2030s in order 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.

Standard Missile-6 (SM-6) is the Navy's primary air defense weapon for surface combatants providing increased battlespace against threats over-the-horizon. SM-6 leverages the proven SM-2 propulsion and ordnance sections, and adds a modified Advanced Medium-Range Air-to-Air Missile active seeker and booster for extended ranges. Each new Block brings

additional capabilities and mission sets. The Navy awarded a five-year MYP contract for up to 625 SM-6 missiles in December 2019. The FY 2023 President's budget continues funding for the upgraded SM-2 Block IIIC. The program is anticipated to achieve an Initial Capability in FY 2022 and plans to transition from a rapid prototyping project exercising middle tier authorities into a Major Capability Acquisition in the second quarter of FY 2023. SM-2 Block IIIC leverages investments made in SM-6 Block I and Evolved Sea Sparrow Missile (ESSM) Block II to enhance performance against numerous threats and to increase depth of fire. The SM-6 Block IB program, which integrates a new government developed rocket motor with an existing SM-6 Block IA seeker, transitioned from a rapid prototyping effort to Major Capability acquisition and has been designated as major subprogram to the existing SM-6 ACAT IC program. The program intends to complete development, integration, and test efforts to field a cost-effective extended range capability in FY 2027.

ESSM provides another layer to the Navy's defensive battle-space. ESSM Block 2 is in Low Rate Production and declared IOC in December 2021. The inner layer of the Fleet's layered defense is the Rolling Airframe Missile. The RAM Block 2B includes hardware and software updates to counter complex raid scenarios, upgraded IR seeker to enhance multi-object and closely-spaced object discrimination, a missile-to-missile link, and an improvement in firepower. RAM Block 2B is on track to declare IOC in FY 2024.

Strike Weapons

The DON continues to focus on delivering a strong balance of offensive strike weapons by maintaining the readiness of our strike weapons inventories, enhancing capacity and performance of existing strike weapons, and developing next-generation strike missile capabilities. Through these efforts, the DON will increase overall force effectiveness and continue to address emerging threats from adversarial forces.

Tomahawk

In the FY 2023 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 2023 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 2023 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 2023 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 capability to the Tomahawk BLK V missile in FY 2026.

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

The FY 2023 President's Budget requests $226.0 million to fund Long Range Anti-Ship Missile (LRASM) efforts associated with filling congressionally directed Operational Testing, which includes telemetry kit installations and test support. FY 2023 also funds procurement and installations of updated Weapon Data Link to satisfy compliance of NSA crypto modification mandate, and procures 60 DON LRASM weapon systems. The FY 2023 President's Budget also requests $12.8 million for completion of the LRASM 1.1 capability improvements.

The FY 2023 President's Budget requests New Start authority to begin Technology Development in support of OASuW Increment 2, now referred as Hypersonic Air Launched OASuW (HALO). HALO supports the national imperative to mature hypersonic capabilities. The program represents a longer-term capability that encompasses increased performance 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 Navy will collaborate heavily with the USAF.

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

AARGM procurement completed in FY 2021 with the award of the last DON Full Rate Production (FRP) contract. There have been 1366 AARGMs (All Up Rounds, Training Missiles, and Spares) delivered to the Fleet (as of March 2022). 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 FY 2023 President's Budget requests $90.8 million in RDT&E to support operational and Integration testing of production representative hardware. The FY 2023 President's Budget requests $131.3 million in WPN to procure 69 AARGM-ER All Up Rounds and six Captive Air Training Missiles.

Hypersonic Program

U.S. near-peer competitors have weaponized and fielded hypersonic missile systems, creating warfighting asymmetry that must be addressed. The Conventional Prompt Strike (CPS) Program Office is developing a hypersonic weapon system that will enable precise and timely strike capability against deep inland targets in contested environments. CPS and the Army Hypersonics Project Office are jointly leveraging a common All Up Rounds missile design and test opportunities to field a non-nuclear hypersonic weapon system. Zumwalt Class DDGs will be the first Navy platform to field this hypersonic capability in the mid-2020's, followed by Block V Virginia Class SSNs in the late-2020's. In March 2020, the Services executed a highly successful flight test of the Common Hypersonic Glide Body (CHGB), and in 2021 successfully conducted three static fire tests of the newly developed Two Stage Solid Rocket Motor, tests to validate the Navy's launch approach, and tests of advanced capability for future insertion into the CHGB. The first flight testing of the common All Up Rounds is scheduled to occur in FY 2022. 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 2023 budget begins procurement of the first three All Up Rounds to be delivered to the first Zumwalt Class DDG in FY 2025 as well as two test rounds to support the Joint Flight Campaign. The request totals $1.2 billion in CPS RDTE. $18.6 million in funding is also dedicated to building supply chain resilience for hypersonic weapons components.

Navy Laser Weapons

The Navy is continuing its path forward for shipboard integration of High Energy Laser (HEL) systems, pursuing multiple projects to accelerate fleet integration with initial capabilities, assess operational concepts and platform options through experimentation, mature advanced technologies, perform lethality assessments against anti-ship missiles, and inform development of requirements for future acquisition. Initial capabilities, such as Solid State Laser-Technology Maturation (SSL-TM) on USS Portland (LPD 27), continue to be valuable for shipboard experimentation and integration to inform the Navy's long term consideration of other ship classes as host platforms for laser weapons. Future Navy surface combatants, FFG-62 and DDG (X), have included space, weight and power reservations to accommodate high power lasers systems. DDG(X) design includes reservations to accommodate HEL systems with power levels capable of countering ASCMs in a self-defense role when those systems are mature and proven.

In the FY 2023 budget request, the Department will further advance capabilities of laser weapons to meet ship defense missions, installing an eighth Optical Dazzling Interdictor, Navy (ODIN) system on DDG 51 Flight IIA ships. Additionally, the first fully combat system integrated laser weapons system, HELIOS, onboard a DDG 51 Flight IIA destroyer will be fielded. The DON will continue collaboration and partnering with the DOD and other Services to mature these advanced laser technologies and increase power scaling to defeat more challenging threats to support and shape the future acquisition of these systems.

Torpedoes

The Department is investing 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 MK48 Heavyweight Torpedo is the Navy's primary submarine-launched ASW and ASuW weapon. The Department is increasing both production of the MK48 MOD 7 and development of new capabilities with the MK 48 MOD 8 and MK48 MOD 9 to maintain our advantage over the threat today and in the future. The MK54 Lightweight Torpedo, which is employed by both surface ships and aviation ASW assets, continues to be produced and upgraded to keep pace with the ASW threat. Production of the upgraded MK54 MOD 1 continues, and development of the MK54 MOD 2 is underway to rapidly meet the high-end threat. The Department is also investing in developing a Very Light

Weight Torpedo capability to further our advantage in the undersea domain. The Compact Rapid Attack Weapon will deliver multi-mission capability as both a hard-kill torpedo countermeasure and a short range ASW weapon. These investments are critical to the Navy's efforts to prepare for both today's fight and the future fight, where ASW and submarine ASuW are vital to our warfighting readiness.

MARINE CORPS GROUND PROGRAMS

FY 2023 USMC investments enable the Marine Corps to close kill webs and deter strategic competitors. Some of the programs are emerging, while others are more mature in the acquisitions process. Maintaining momentum for the Marine Corps' modernization efforts expedites the USMC's ability to meet the requirements for critical warfighting concepts, such as *A Concept for Stand-in Forces*. Proactive modernization, balanced with the readiness needed to "fight tonight," will ensure the Marine Corps remains a naval expeditionary force-in-readiness. This budget provides a relevant and modern force that can sense, make sense, and act today and in the future in support of Naval and Joint campaigns.

Navy/Marine Corps Expeditionary Ship Interdiction System (NMESIS)

In this budget request, the Navy/Marine Corps Expeditionary Ship Interdiction System (NMESIS) continues to be the Marine Corps' top modernization priority and is the critical lethality component to our anti-ship missile capability. In conflict, NMESIS will allow the Stand-in Force to deny or protect key maritime terrain from the enemy. Additionally, this system can be employed to herd the enemy into areas where Joint and Coalition forces can exploit their relative advantages. NMESIS will create cost impositions for adversaries by introducing a credible threat into their decision-making at a relatively low cost to U.S. Forces.

The NMESIS consists of two NSMs mounted on a remotely operated Joint Light Tactical Vehicle-based chassis. Due to the mature technology in NMESIS, the Marine Corps has reduced programmatic risks. Indicative of this, the Marine Corps has successfully tested NMESIS twice, once in November 2020 and more recently in August 2021. Given the performance metrics over the last two years of testing, we believe NMESIS will have immediate effects in the operational environment. This year's budget request builds the NMESIS launcher and missile capacity.

Organic Precision Fires (OPF)

Organic Precision Fires (OPF) will provide multiple echelons of the Fleet Marine Force with an organic, loitering, beyond line-of-sight precision strike capability. The system is comprised of a surveillance capability, separate loitering munitions, and a command and control station. OPF will provide continuous surveillance before, during, and after conducting lethal strikes. OPF offers Marines less exposure to enemy fires by offering range outside of adversary direct fire weapons. The associated loitering munitions will have sufficient lethality to defeat armored, water-borne, and personnel threats. Funding requests will continue to support testing, experimentation, and user evaluations with Organic Precision Fires prototypes.

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

The Ground/Air Task-Oriented Radar (G/ATOR) is a proven platform that continues to exceed expectations. G/ATOR is a multi-role, ground-based, 3D radar system that is designed to detect air threats, rockets, missiles, and mortars, while aiding in the performance of air traffic control mission sets. The radar is transportable by organic Marine Corps means and provides a significant "engage on remote" capability in support of Expeditionary Advanced Base Operations. The Marine Corps has fielded these radars throughout the force, with several located in the Indo-Pacific region.

The Marine Corps, as the forward element of the Joint force, continues to invest in and improve the sensor capabilities of G/ATOR. In 2021, at the Army's Project Convergence exercise, G/ATOR successfully integrated with and supported a Navy-Marine Corps live-fire kill-chain event. This is yet another meaningful step towards greater Naval integration and adding existing Marine Corps platforms to the Joint and Naval IAMD mission. The Office of Naval Research (ONR) also developed an advanced, complementary system to the G/ATOR, the Multi-Domain Radar for a Contested Environment (MuDRaCE). ONR is maturing the technology and will transition this capability to the Marine Corps for incorporation as a program of record.

Marine Air-Ground Task Force (MAGTF) Electronic Warfare Ground Family of Systems (MEGFoS)

The MAGTF Electronic Warfare Ground Family of Systems (MEGFoS) is an electromagnetic warfare (EW) system designed to advance our capabilities in the electromagnetic domain. MEGFoS protects friendly spectrum access, senses spectrum usage, and provides a means for disrupting an adversary's decision-making cycle. MEGFoS is comprised of three variants – mounted, dismounted, and team portable. All three variants are networked and able to share data and coordinate EW missions with one another. In the 1st quarter of FY 2022, the Marine Corps began experimentation with a prototype of the MEGFoS team-portable variant. In this year's budget request, the Marine Corps is seeking to procure a mixture of mounted, dismounted, and team-portable systems.

Networking On The Move (NOTM)

Network on the Move (NOTM) is a satellite communications (SATCOM)-based command and control system mounted on a ground combat vehicle or aviation platform. NOTM provides terrestrial line-of-sight and beyond line-of-sight communications for Marines at-the-halt and while on-the-move. The system is purpose built for Marines fighting in a distributed manner, in alignment with naval and joint concepts, to effectively command and control forces in a contested all-domain environment. 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.