NOT FOR PUBLICATION UNTIL RELEASED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

STATEMENT OF

THE HONORABLE JAMES F. GEURTS
ASSISTANT SECRETARY OF THE NAVY FOR
RESEARCH, DEVELOPMENT AND ACQUISITION

AND

LIEUTENANT GENERAL ERIC M. SMITH
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

MARINE CORPS GROUND PROGRAMS

MARCH 11, 2020

NOT FOR PUBLICATION UNTIL RELEASED BY THE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

Introduction

Great power competition has fundamentally altered the manner in which the U.S. military must operate in the maritime domain. Our competitors have carefully studied U.S. forces for the past two decades and built a force specifically designed to counter American maritime power and influence. Consequently, they have rapidly expanded their capabilities to deny U.S. forces freedom of access within critical maritime terrain and are increasingly motivated by pursuits of political, economic, and military hegemony in key regions.

The *National Defense Strategy* acknowledges this increasingly complex global security environment, and the Department of Defense has focused on strategic competition. Joint Doctrine Note 1-19, *Competition Continuum*, posits that, rather than a world either at peace or at war, there is "a world of enduring competition conducted through a mixture of cooperation, competition below armed conflict, and armed conflict." The Navy and Marine Corps, therefore, are revising our organizations, training, and equipment to best support long-term strategic competition across the competition continuum. Integrated American Naval Power remains focused on deterring and, if necessary, defeating peer adversaries in a contested environment through persistent forward presence and action in an all-domain battlespace.

Our first priority remains deterrence, as the cost of competition will always be less than the cost — in both blood and treasure — of armed conflict. When called upon, however, the Navy and Marine Corps will fight forward together for sea control and sea denial, forcing potential adversaries to react to our naval efforts.

Over the past 18 months, multiple wargames have concluded that the best way for the Marine Corps to support the naval and joint force is to persist as "stand-in forces" inside the range of adversary fires, to maintain contact with our allies and partners overseas, and to compete below the level of armed conflict. Combined, these actions complicate an adversary's decision calculus. Should deterrence fail, these forces will be postured to blunt the enemy's actions and impose costly and disruptive dilemmas on him. To do so, the Marine Corps seeks to arm its Fleet Marine Forces with long range precision weapons which can strike enemy ships at extended ranges to assist the Navy in sea denial. Additionally, the Marine Corps will pursue command and control systems that allow our weapons to fire based on information obtained from joint U.S. assets across the battlespace. These systems will also ensure that information obtained

by the Marine Corps' "stand-in forces" can be passed to any U.S. strike asset across the joint force. This capability is called "any sensor, any shooter" and supports the entire joint force.

In order to create this new warfighting construct, the Marine Corps must realign our efforts and resources to pursue capabilities that provide the best counter to peer adversaries. With the assistance of the United States Congress, the fiscal year 2021 budget request will invest in the modernization for a more lethal force in support of the *National Defense Strategy* and the *Commandant's Planning Guidance*. Key investments include ground-based long-range precision fires; command and control systems for a degraded environment; air and missile defense; unmanned systems; ground mobility modernization; and emerging capabilities.

Ground-Based Long-Range Precision Fires

The *National Defense Strategy*, as well as emerging naval concepts, identifies the need for naval forces capable of conducting lethal strikes at range, in depth, and with precision in support of sea control and sea denial missions. To support this requirement, the Marine Corps is committed to fielding ground-based weapons with sufficient range and precision to provide operationally effective surface-to-surface fires in the land and maritime domains.

The Marine Corps' highest ground modernization priority, a Ground-Based Anti-Ship Missile (GBASM) capability, will provide these anti-ship fires from land as part of an integrated Naval Anti-Surface Warfare campaign. This forward-deployed and survivable capability will enhance the lethality of our naval forces and will help to deny our adversaries the use of key maritime terrain.

The Marine Corps' GBASM solution is the Navy Marine Expeditionary Ship Interdiction System (NMESIS), consisting of an unmanned Joint Light Tactical Vehicle-based mobile launch platform, called the Remotely Operated Ground Unit for Expeditionary Fires (ROGUE-Fires), and Naval Strike Missiles (NSM). The NSM is identical to the Navy's Over the Horizon Weapon System deployed on the Littoral Combat Ship and will provide the Marine Corps with a missile capable of sea-skimming, high-g maneuverability, and the ability to engage targets from the side, rather than top-down. This maximizes lethality and missile survivability. The first live-

fire test of NMESIS took place in December 2019 and a second live-fire demonstration with a guided NSM is planned for June 2020.

To increase lethality, the Marine Corps' ground-based long-range precision fires will consist of a variety of capabilities that complicate the adversary's decision-making processes and ability to defend themselves. In line with this concept, in fiscal year 2019, the DoD's Strategic Capabilities Office (SCO) initiated development of a Ground-Launched Cruise Missile (GLCM) capability that will provide increased range to complement NMESIS. The Marine Corps will work with SCO to continue design and development of a mobile launch platform in order to prototype and field a Marine Corps ground-based, long-range, land attack cruise missile capability for employment by its rocket artillery units. Prototype launchers will undergo firing and endurance testing through fiscal year 2022, with the aim of fielding a battery of launchers to an operational unit in fiscal year 2023. This capability will add additional firing capacity to the Integrated Naval Force in support of both maritime and land operations in any theater.

The Marine Corps is also expanding the operational capacity of the High Mobility Artillery Rocket System (HIMARS); a battalion will stand up within 2d Marine Division during fiscal years 2021 and 2022 which will bring HIMARS capacity to two Active battalions and one Reserve battalion. HIMARS provides the capability to employ the lethal Multiple Launch Rocket System (MLRS) Family of Munitions (MFOM), which was developed and is also employed by U.S. Army HIMARS and MLRS equipped units. The MFOM includes GPS-guided precision munitions and will include the Precision Strike Missile (PrSM) now in development. The PrSM will enable rocket artillery units to accurately engage land and maritime, stationary and mobile, targets at ranges significantly greater than currently fielded munitions.

The combination of the above weapons fielded to the Fleet Marine Forces will provide the naval force with precise, lethal, offensive, surface-to-surface fires that enable sea control, sea denial, and the prosecution of landward objectives.

Command and Control for a Degraded Environment

Fleet Marine Forces require a sustainable, defendable, and resilient Command and Control (C2) network. This network is part of the Naval Tactical Grid and supports Joint All Domain Command and Control (JADC2), providing timely, secure, and persistent information exchange while enhancing battlespace awareness to dispersed tactical units. Critical to that effort is the ability to coordinate and synchronize distributed fires and sensor systems to inform decision makers so that they can take decisive and timely action at the speed of relevance. Assured C2 capabilities enable and enhance combat effectiveness as well as protect forces operating from remote, globally deployed locations.

Command and control in a degraded environment requires a layered approach with the ability to adapt to changing electromagnetic environments beyond the line of sight. This layered network approach, coupled with a command philosophy that allows commanders at all echelons the freedom to make decisions while operating within their higher commander's intent, provides a resilient, dynamic C2 structure that harnesses new and emerging technology to support decision superiority.

Tactical Communications Modernization (TCM) provides crypto-modernized radio systems to meet National Security Agency mandates. High Frequency (HF) radios have been prioritized for modernization in order to support naval concepts in a spectrum contested environment. These new radios, coupled with advanced waveforms in development, provide a more robust, resilient, and secure radio frequency networks that support dispersed forces operating inside the range of adversary fires.

Networking On the Move (NOTM) provides Fleet Marine Forces with a robust, over-the-horizon and beyond line-of-sight, digital C2 capability while on-the-move and at-the-halt. NOTM provides maneuvering forces with the ability to seamlessly conduct digital C2 through access, collaboration, and exchange of tactical voice, video, and data while using a full suite of Combat Operations Center tactical software applications and services to support decision-making, fires, and increased multi-domain situational awareness from anywhere in the battlespace. NOTM provides access to three external network enclaves (NIPR, SIPR, and Mission Specific) via wideband satellite (Ku, Ka- currently developing X-band) communications services, and it bridges aerial Link 16 networks to ground forces to increase lethality of dispersed forces. Mounted and dismounted users are connected to these network enclaves via Type 1

encrypted wireless local area networks. NOTM is purpose built to support our naval and joint concepts that require our forces to fight distributed while allowing commanders the ability to effectively command and control forces in a contested all-domain environment.

Terrestrial Wideband Transmission System (TWTS) provides high capacity, beyond the line of sight and line of sight communications via tropo-scatter capabilities in a space-denied, terrestrial-only environment. This family of systems provides more flexible, scalable, and maneuverable terrestrial capabilities that also allows landing forces terrestrial ship-to-shore communications, retransmissions, and relays. Furthermore, the line of sight system will be augmented by free space optics communications which has line of sight low probability of intercept, low probability of detection, and anti-jam characteristics.

Marine Corps Wideband Satellite Communications Family of Systems (MC-WSATCOM FoS) is a comprehensive, integrated, and sustainable solution designed to address current and future warfighting capability needs using military and commercial SATCOM systems in an electro-magnetic spectrum contested environment. The MC-WSATCOM systems will be fully interoperable with joint and naval wideband SATCOM systems, and will provide the capabilities enabling C2 in Expeditionary Amphibious Base Operations.

Combat Data Network (CDN) provides firewalls, servers, and data infrastructure components that allow tactical and deployed forces to connect to the Defense Information Systems Network, Theater, and Marine Corps Enterprise Networks. Critical applications and services, as well as artificial intelligence and machine learning algorithms, will be hosted on the CDN to operate in a disconnected and degraded environment until connectivity is restored to enable replication and high data rate information sharing.

G/ATOR is a state-of-the-art, ground-based, short-to-medium range, expeditionary radar system designed as a single materiel solution to satisfy air surveillance, air defense, ground counter-fire and counter-battery, and potentially air traffic control mission requirements. Block I achieved Initial Operational Capability in February 2018 and Block II did so in March 2019. Full Operational Capability will be achieved in fiscal year 2025. G/ATOR detects the most formidable air threats to our forces and will out-pace our adversaries for years to come.

CAC2S provides the tactical situational display, information management, sensor and data link interface, and operational facilities for planning and execution of Marine manned and unmanned aviation missions in support of the fleet. CAC2S eliminates the current dissimilar legacy systems and adds capability for aviation combat direction and air defense functions. It provides a single networked system that integrates Marine manned and unmanned aviation operations with joint aviation C2 agencies. The Marine Corps intends to fully field CAC2S by fiscal year 2021.

Air and Missile Defense

In great power competition, forward bases and legacy infrastructure will likely be vulnerable to an enemy strike; therefore, the Marine Corps must ensure our forces possess the capabilities required to mitigate those threats for themselves, the fleet, and the joint force. Additionally, naval forces around the world face risks posed by adversaries with ready access to low-cost asymmetric capabilities – whether traditional rockets or unmanned systems – that can strike our forces. With the increasing lethality of these low-cost systems as well as long-range precision fires, air and missile defenses provide critical capabilities for the Marine Corps to protect personnel, equipment, and installations and to persist as the Nation's "stand-in" naval expeditionary force.

The Marine Air Defense Integrated System (MADIS) family of systems is the Marine Corps' primary program for providing short-range surface-to-air fires and electronic attack capability. The MADIS is being developed in three versions: a JLTV-integrated version, a light version, and an installation version. In July 2019, the light MADIS successfully defeated a hostile Iranian unmanned aerial vehicle in the Strait of Hormuz.

The Marine Corps also continues to pursue the Medium Range Intercept Capability to provide a defense against cruise missiles. A demonstration in August 2019 at White Sands Missile Range successfully evaluated the integration of the Israeli Tamir missile and Battle Management Control system with the Marine Corps' CAC2S and G/ATOR.

Unmanned Systems

Given our adversaries' abilities to strike with increasing range, precision, and lethality, we must reduce exposure of our Marines wherever possible and correspondingly increase our reliance on unmanned systems. These platforms and payloads will be pivotal on the future battlefield. The ability to flood an adversary's decision-making and targeting processes with an array of low signature, affordable, and risk-worthy platforms in the air, on the ground, and on the surface will greatly expand the survivability and capabilities of Marines operating within the adversary's weapon engagement zones.

For two decades, the Marine Corps has relied on unmanned aerial systems to provide reconnaissance for our ground forces, and the Marine Corps will continue this investment in the future. On the ground, the aforementioned ROGUE-Fires system is an example of employing an unmanned system to increase Marine Corps ground forces' lethality.

Another program that will support Marine Corps operations in the future is the Long Range Unmanned Surface Vessel. This surface vessel will provide an autonomous platform for precision fires against sea and land targets as well as the launch and recovery of smaller unmanned aircraft, unmanned surface craft, and unmanned underwater vehicles for reconnaissance, surveillance, hydrographic survey, and mine detection. In 2019, the Long Range Unmanned Surface Vessel completed the Advanced Naval Technology Exercise-East Super Swarm Exercise and demonstrated the ability to launch autonomous systems, keep station, and conduct autonomous navigation while avoiding hazards on a route from Norfolk, Virginia to Cherry Point, North Carolina. With our budget submission for 2021, the Marine Corps will seek to procure three vessels to conduct further evaluation and demonstration.

These unmanned systems will not replace manned platforms but will team with them to maximize and expand our ability to sense and shoot across the domains. The further integration of aerial, ground, and surface unmanned systems across Fleet Marine Forces will provide the warfighter enhanced capability to operate sensors, deliver fires, and shorten the naval and joint force kill-chains.

Ground Mobility Modernization

The distribution and maneuver of Fleet Marine Forces ashore will be a key enabler of operations to sense, engage, and defeat adversary forces occupying the maritime domain on land, in the littorals, and in blue water. Capabilities for the warfighter must include vehicles that can operate in complex urban terrain as well as in austere environments. To this end, our ground mobility modernization programs remain healthy and critical to providing protected mobility, enhanced maneuver, and flexibility to support the full range of future operations capabilities.

In 2019, the Amphibious Combat Vehicle (ACV) program progressed into a Family of Vehicles approach. The fiscal year 2021 budget request will further the success of the program by continuing to fund the procurement of the personnel variant and the development of the mission role variants (MRV) for command and control and medium caliber cannon. Procurement of the MRVs is planned for subsequent years. As a power projection enabler and key source of dual domain protected mobility, the ACV aligns with the *National Defense Strategy* and the *Commandant's Planning Guidance*.

Paralleling our efforts with the ACV, the Marine Corps achieved initial operational capability with the Joint Light Tactical Vehicle (JLTV) program in August 2019 with the fielding of vehicles to 3d Battalion, 8th Marines and select elements in the training base. The program is currently planned to fully replace the High Mobility Multipurpose Wheeled Vehicle (HMMWV) by 2030. The fiscal year 2021 budget request prioritizes the fielding of vehicles to all active infantry battalions and designated supporting units, which will occur by fiscal year 2022. The vehicle's design includes the capacity to power, host, and integrate current and future capabilities, such as GBASM and MADIS. Additionally, the Ultra-Light Tactical Vehicle (ULTV) will be fielded during this period. This vehicle lends tactical units a lower cost, flexible platform across a broad array of terrain sets and mission sets to include logistics, command and control and maneuver.

Emerging Capabilities

Key warfighting investments along with the increased readiness of our force lay the foundation for the Marine Corps' fulfillment of its requirements in the *National Defense Strategy*. Continued and critical investments in science, technology, research, and development will further enhance the ability of the Fleet Marine Forces and the naval team to impose costly and complex dilemmas on adversaries and will enable those forces to deploy in new and more lethal formations.

Capitalizing on the transformation which began in fiscal year 2020, the Marine Corps continues to reallocate resources from legacy capabilities that do not meet our future requirements to modernized capabilities aligned specifically with the *National Defense Strategy* and *Defense Planning Guidance*. In concert with the Office of Naval Research, the Defense Advanced Research Programs Agency, and the Strategic Capabilities Office, the Marine Corps is aggressively pursuing the development of disruptive capabilities in the areas of signature management, artificial intelligence, autonomy and robotics, expeditionary logistics, and long range precision fires in order to increase the survivability and sustainability of our expeditionary advanced bases within an adversary's weapon engagement zones.

Conclusion

Your United States Marine Corps remains a key component of the Nation's naval expeditionary force-in-readiness. As we undertake an era of new challenges, a new force design coupled with emerging capabilities will be critical to creating the competitive overmatch desired by the *National Defense Strategy* and to supplying the joint force with an "any sensor, any shooter" capability that persists within an adversary's threat rings. The Marine Corps is not embarking on this mission alone. Through the Integrated Naval Force Structure Assessment, collaboration on naval warfighting concepts and doctrine, and joint wargaming and experimentation, we will build a naval force design that integrates capabilities across the warfighting domains, defines how we operate, and results in solutions that are creative, relevant, and resilient.

Your Marines, alongside our Navy shipmates, remain ready to defend our Nation, and with advances in our training and education establishment, they will continue to evolve and to build the critical skills necessary to maximize our capabilities on the battlefield. Your continued support for the warfighter with full and on-time funding, your assistance in realigning our efforts and our resources for great power competition and peer conflict, and your thoughtful oversight will ensure your Integrated American Naval Power remains ready, relevant, and prepared to deter and defeat current and future threats.