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BY THE SENATE ARMED SERVICES
COMMITTEE SUBCOMMITTEE ON
SEAPOWER

STATEMENT

OF

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BEFORE THE

SUBCOMMITTEE ON SEAPOWER

OF THE

SENATE ARMED SERVICES COMMITTEE

ON

MARINE CORPS MODERNIZATION

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Marines – Contribution to National Defense

Introduction

As set forth by the 82nd Congress and reaffirmed by the 114th, the purpose of our Corps is to provide maritime expeditionary combined arms air-ground task forces that are "most ready, when the Nation is least ready." We are a naval force whose mission requires us to be ready – a fight-tonight, forward deployed, Next Generation force – able to respond immediately to emergent crises around the globe either from the sea, forward bases, or home station. The new *National Defense Strategy* (NDS) has further prioritized major power competition, in particular reversing the erosion of the U.S. military advantage in relation to China and Russia. Amphibious forces, in competition against the full range of potential adversaries, have significant roles in three of the four layers of the global operating model (contact, blunt and surge layers). While our organization, training, and equipment must continually adapt to meet changes in the operational environment, our fundamental purpose remains unchanged.

Globally Engaged, Force in Readiness

Combatant Commander (CCDR) demand for Marines and tailored Marine Air-Ground Task Forces (MAGTFs) continues to drive an aggressive operational tempo. We consistently maintain about 35,000 Marines, or one-third, of our operating forces forward deployed across the globe. Our current posture encompasses several global tasks: Marines supporting multiple CCDRs with offensive air support and strikes from our Amphibious Ready Groups / Marine Expeditionary Units (ARG/MEU) afloat; building partner capacity in both Iraqi and Afghan Armies confronting Islamic State and Taliban fighters; providing critical fixed-wing and artillery fire support to coalition-enabled Syrian Democratic Forces as they fought to clear the Islamic State from Raqqa, Syria; providing tailored military combat-skills training and advisor support to foreign forces as part of Marine Corps Forces Special Operation Command (MARSOC); deterring provocations in the East and South China Seas through the forward posturing of 5th Generation aircraft within the Pacific; providing immediate disaster response from our ARG/MEU and Special Purpose Marine Air-Ground Task Force (SPMAGTF) to Americans in the wake of four hurricanes; supporting continued efforts to ensure freedom of navigation through the Bab al-Mandab strait; and enabling full spectrum cyberspace operations while

supporting Joint and Coalition Forces as part of Marine Forces Cyber Command (MARFORCYBER). Marines are continuing to evolve as an inside force by fostering and strengthening relationships with our allies and partners, demonstrated by executing 62 joint, bilateral, and multinational exercises last year.

A Strategy Driven Budget

The National Defense Strategy (NDS) prioritizes major power competition, and in particular, reversing the erosion of the U.S. military advantage in relation to China and Russia. The Marine Corps' FY 2019 budget aligns budget priorities with strategy and guidance enabling the Corps to compete, deter, and win in the future operating environment. The request fulfills DoD and DON objectives by addressing Secretary of Defense direction to increase lethality; resilience; agility; and the building of a flexible and dynamic force. Guided by the NSS and NDS, the Marine Corps made specific decisions about the FY 2019 budget that support a more capable, ready, and efficient force.

The surest way to prevent war is to be prepared to win one under the most difficult of circumstances. Doing so requires new operational concepts, an aggressive approach to force development and a consistent, multiyear investment to restore warfighting readiness. The goal is to field a more lethal, resilient, and agile force. We have focused on preventing and deterring conflict by providing combined-arms task forces to theaters either already in crisis or at the risk of crisis to meet the Congress' mandate to be "…ready to suppress or contain international disturbances short of large-scale war."

As stated, your Marine Corps already provides key elements within three of the four layers of the global operating model described in the NDS – contact, blunt, and surge. Our forward deployed forces are part of the Nation's contact and blunt Layers – that competitive space where the military element of national power preserves the alignment of shared interests with our partners and allies—while the balance of Marine Corps forces are prepared to rapidly deploy as part of the Surge Layer, as one would expect given our role as an expeditionary-force-in-readiness. Our competitors, however, are continuously seeking to challenge us in new ways within the littorals, advancing their ability to locate, track, and attack the naval fleet and associated amphibious forces. Thus, future amphibious contact, blunt and surge layer operations will require many capabilities to allow us to be effective within the most likely future operating

environment. Our wargames and experiments indicate that the current gap in requirements between today's force and the future force is a critical vulnerability.

This statement aims to do two things: 1) Broadly describe how your Marine Corps is adapting to increase its competitive advantage and reduce the vulnerability against pacing threats ; 2) Explain how our ground programs budget priorities for the President's Budget Fiscal Year 2019 (PB19) submission will result in a more lethal force that is better postured to deter conflict, while remaining ready to prevail if one ensues.

Adapting to Increase our Competitive Advantage

Unlike experiences following past major U.S. military campaigns, where the world was generally stable enough that our Corps' overseas commitments decreased in quantity, today's Marines are employed more frequently, more widely, in more complex missions, and in smaller units than ever before. In recent years ARG/MEUs have been forced to operate in an increasingly disaggregated fashion, often times spread out over thousands of nautical miles in order to prosecute varied missions in littoral regions. This disaggregation strains the traditional capabilities of these units as currently organized and forces us to consider a wide variety of future ship mix and type options. Additionally, the proliferation of advanced weapons technologies, mass urbanization and migration, regional conflict and the challenges of the information age all combine to further drive the need for a properly manned, trained and equipped next generation Marine Corps.

Your Marines continue to innovate and build this next generation Marine Corps – a lethal, adaptive, and resilient Corps that implements combined arms and conducts maneuver warfare across all domains,. This transformation began in 2016 with the implementation of the Marine Corps Operating Concept (MOC). The MOC represents our institutional vision for how the Marine Corps will operate, fight, and win despite the challenges described above. While the Corps' fundamental purpose does not change, our concepts – and the organization, training, and equipment changes they drive – must adapt to effectively accomplish it. The MOC provides the foundation and context for subordinate operating and functional concepts – like Littoral Operations in a Contested Environment (LOCE) and Expeditionary Advanced Base Operations (EABO) – and it guides our analysis, wargaming, and experimentation. Further, the MOC drives the evolution of our Service doctrine, organization, training, materiel, leadership and education,

personnel, and facilities (DOTMLPF) through a detailed and thorough Concepts Based Requirements System.

The development and acquisition of long-range precision weapons by our Nation's chief rivals – China, Russia, North Korea, Iran, and Violent Extremist Organizations (VEO) – have placed many of our forward deployed forces within the effective range of their weapons systems, or "threat rings." Forward deployed and stationed Marines are now vulnerable to attacks in ways we have not considered for decades. Forward positioned forces require a resilient, dispersed basing posture with sufficient forward stockpiles of logistics and a reliable command and control (C2) networks. Conversely, most of our forward bases and stations lack sufficient resilience against long-range kinetic and non-kinetic attacks; thus, jeopardizing our ability to prepare, project, and sustain combat power. Efficiencies in the construction and configuration of these bases, made possible by a previously existing security environment have now created risks to forward deployed forces. The PB19 begins to remedy these problems. Remediation efforts include increased dispersion of our forward elements, additional hardening of our existing facilities, to include aircraft hangars and command posts, the capability to rapidly repair damage to our air stations, effective counters to precision guided munitions and advanced integrated mobile air-defense capabilities. Many of these remedies will also prove effective to sea-based forces and to forces positions on expeditionary advanced bases.

Increasing the Lethality of Our Corps

In addition to increasing the survivability and resilience of our forward forces, we must also strive to make all forces more lethal. Building a more lethal force is not defined solely by hardware; it requires change in the ways the Marine Corps readies, postures, employs, and develops the force. The rapid changes in the character of warfare and the problems presented by current and future pacing competitors create fundamental challenges to ground programs, the associated concepts of employment, and the personnel that will operate the systems. We have discovered that key enablers such as unmanned systems, Manned/Unmanned Teaming, networked sensors/weapons and C2, and AI-enabled systems will all shape the next generation force's lethality. Some or all of these elements will appear in all future ground systems. We must prioritize modernization of ground programs to support our new operating concepts, regain lost

competitive space and fully leverage capabilities that other elements of the MAGTF and the Joint Force are fielding.

Ground Programs Budget Priorities

Modernizing – The Foundation of Our Future Readiness

What we desire to achieve is a Corps capable of exploiting, penetrating, and destroying advanced adversary defenses in all domains in support of naval or Joint Force operations. To do that, we must be afforded the flexibility to experiment with new technologies available on the market, determining what will work best in the future operating environment, and then delivering those capabilities to the force quickly to mitigate the rapid rate of technological change. Our newly chartered Marine Corps Rapid Capabilities Office (MCRCO) accomplishes that end, seeking emergent and disruptive technologies to increase our lethality and resiliency. The MCRCO leverages FY16 and FY17 NDAA provisions and partnerships to accelerate the acquisition process – with the consistent and steadfast support of Congress – we will continue to fund this office. Accelerated modernization is the most effective remedy to our long-term readiness problems and we must abstain from burying our modernization efforts under cumbersome acquisition processes – we have to get this right.

The PB19 investment approach is synched with the implementation of Marine Corps Force 2025, specifically investing in ground systems that enhance our capabilities in areas such as: Information Warfare (IW), Long Range/Precision Fires, Air Defense, Command and Control in a Degraded Environment, and Protected Mobility/Enhanced Maneuver. These capability areas support building a Next Generation Marine Corps across the Active and Reserve components of the force. Additionally we have foundational efforts which are critical to modernization efforts (such as infrastructure, training sustainment, and manpower) that enable that enable our warfighting capabilities. This approach includes changes to the structure of our into equipment sets that balance affordability with the need for a networked, mobile, and expeditionary force.

Information Warfare (IW)

We continue to prioritize the integration of information capabilities throughout the MAGTF. Within the Command Element, investments in the Marine Intelligence Program

allowed the formation of the MEF Information Group (MIG). The MIG establishes IW coordination centers for MAGTF Commanders, filling the IW gap at the operational level. Additionally, we have increased funding to MARFORCYBER to man, train, and equip cyber forces and conduct full-spectrum cyberspace operations. The coordination, integration, and employment of information and cyber capabilities will enable the MAGTF Commander to facilitate friendly force maneuver and deny the enemy freedom of action in the information environment.

The Marine Corps is making rapid progress in the use Small Unmanned Aerial Systems (SUAS). We are currently fielding to every infantry battalion in the Marine Corps SUAS platforms for conducting Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISR), enhancing the reach of current communications equipment, and for use in training for countering enemy UAS platforms. The Marine Corps is using some commercial off-the-shelf systems as well as systems produced through the use of additive manufacturing. Simultaneously, the Marine Corps is advancing the digital interoperability between these systems and digital communications systems in order to synchronize as well as control SUAS platforms.

Long Range/Precision Fires

The Marine Corps must advance its long range and precision fires capabilities. In support of this requirement, we have prioritized the reactivating 5th Battalion, 10th Marines as a High Mobility Artillery Rocket System (HIMARS) unit. Due to reach IOC in FY21, this battalion will expand long range fires capability to II Marine Expeditionary Force based in Camp Lejeune, North Carolina. In addition, we are exploring with the Army the ability to modify Guided MLRS rockets from aboard ships and modifications to the rockets to enable engagement of moving targets.

Technological advancements have also made it possible to operate precision guided munitions at lower echelon units. In this area, the Marine Corps has fielded Loitering Miniature Aerial Munitions (LMAM) as part of an urgent requirement to operating forces for use on the battlefield. Also, in conjunction with ONR is working on the Advanced Capability Extended Range Mortar (ACERM) Future Naval Capabilities (FNC) program. This partnership looks to utilize the existing 81mm mortar tubes to increase range of the system through the development of a precision guided gliding munition. Considering the changes in the complexity of the battle

space and increased congestion due to the increase prevalence of SUAS and LMAMS, the Warfighting Laboratory is experimenting with various air space planning tools and procedures to assist operators in planning and executing of fire missions. They are also exploring the use of SUAS and Radio Frequency geolocation to cue and target threats at increased ranges.

Air Defense

To modernize our air defense systems and capitalize on our current investments in the Ground Air Task Oriented Radar (G/ATOR) and Common Aviation Command and Control System (CAC2S), the Marine Corps is pursuing a Ground Based Air Defense (GBAD) kinetic means to defeat the latest threat. The rapid rise in threat air platforms requires the Marine Corps to rapidly modernize its GBAD capabilities in both Short Range Air Defense (SHORAD) and Beyond Visual Range (BVR). These modernization efforts began in 2017, and will protect our forces from an array of emerging air threats including: unmanned aerial systems (UAS); aircraft; and cruise missiles.

The first of these initiatives is the Marine Air Defense Integrated System (MADIS). MADIS is a maneuverable JLTV mounted short range air defense capability that is being designed to detect, track, identify and defeat emerging threat UAS, as well as Fixed Wing (FW)/Rotary Wing (RW) capabilities. The MADIS program is directly leveraging the Army's Program Director Counter Rockets, Artillery, Mortar (PD CRAM) developmental efforts. MADIS is designed to protect both ground maneuver forces and fixed sites. Future modernization efforts will include integration with G/ATOR and CAC2S as well as beyond visual range systems.

Command and Control (C2) in a Degraded Environment

PB19 invests in our C2 capabilities needed to build the Next Generation Marine Corps that will dominate the information domain.

Critical to the success of the MAGTF ashore is our ability to coordinate and synchronize our distributed C2 sensors and systems. Our modernization priorities in this area are the Ground/Air Task Oriented Radar (G/ATOR) and the Common Aviation Command and Control System (CAC2S). These systems will provide modern, interoperable technologies to support real-time surveillance, detection and targeting and common C2 suite to enable the effective

employment of that and other sensors and C2 suites across the MAGTF.

G/ATOR ensures no other service is more capable than the Marine Corps for controlling MAGTF airspace. It serves as the foundation for Commander, Joint Force Air Component delegation of airspace control to the future MAGTF, and provides MAGTF commanders the freedom of action to employ organic surface and air fires.

CAC2S provides the tactical situational display, information management, sensor and data link interface, and operational facilities for planning and execution of Marine Aviation missions within the MAGTF. CAC2S will eliminate the current stove-piped, dissimilar legacy systems and will add capability for aviation combat direction and air defense functions by providing a single networked system. CAC2S will be the primary C2 system that integrates MAGTF aviation operations with Joint, combined, and coalition aviation C2 agencies.

The MAGTF of 2025 must also improve the networking capability of ground systems. Networking on the Move (NOTM) is being procured to enhance networking among both ground vehicles and aviation platforms. NOTM provides the MAGTF with robust beyond-line-of-sight command, control and communication capabilities while on the move or stationary. Using existing commercial or military broadband SATCOM, this system extends the digital network to Marines at the furthest reaches of the battlefield. This system will enable the distributed Marine forces of 2025.

Protected Mobility/Enhanced Maneuver

Our Ground Combat and Tactical Vehicle Strategy (GCTVS) provides a framework for portfolio management and enterprise decision support. The Marine Corps is investing approximately 29 percent of its modernization resources into GCTV systems within the FYDP. The overarching combat and tactical vehicle investment priority is the modernization of Assault Amphibian capability through the Amphibious Combat Vehicle (ACV) program as the means to incrementally replace the legacy AAV.

The first phase and increment of the ACV program (ACV 1.1) is on schedule for Milestone C decision and down-select to a single contractor in June of 2018. It is successfully performing at or above the required performance parameters with both vendors demonstrating the capacity to meet objective requirements for ship-to-shore water mobility. Both manufacturers have delivered their required number of vehicles and are currently undergoing

rigorous developmental testing including water mobility and under-vehicle blast protection tests as well as operational testing with the user community. ACV 1.1 is on track to meet an FY20 initial operation capability target and has set the conditions for a seamless transition in the production of second increment (ACV 1.2) personnel carriers and supporting mission role variants for command & control and maintenance & recovery. Finally, ACV 1.2 is resourced to also deliver an initial active protection system capability and a lethality upgrade to improve support by fire to the infantry.

The second highest priority for combat and tactical vehicle investment remains the replacement of the legacy high mobility, multi-purpose, wheeled vehicle (HMMWV) fleet beginning with that portion which is most at risk; those trucks that perform a combat function and are typically exposed to enemy fires. In partnership with the Army, the Marine Corps has sequenced the Joint Light Tactical Vehicle (JLTV) program to ensure affordability in conjunction with the execution of the ACV program. This approach enables an affordable, incremental, and simultaneous modernization of the two most stressing gaps within the GCTV portfolio.

In this budget year, we are also beginning to look at a replacement for our legacy Light Armored Vehicles (LAV), the Marine Corps' current light armored reconnaissance platform. The Office of Naval Research (ONR) is leading the effort develop revolutionary technologies that will inform requirements development for what we are calling the Armored Reconnaissance Vehicle (ARV). This effort will identify the "realm of the possible" for the LAV replacement and will help accelerate movement to the acquisition phase within the next four to five years. The research will explore advanced technologies within size, weight, time and price point limitations, as well as generation-after-next-technologies using size and weight constraints only.

A subset inherent to our Protected Mobility/Enhanced Maneuver efforts is the requirement to increase Close Combat Lethality. We have made great strides in several areas such as; enhancing small arms and ammunition; virtual training tactical decision kits; sensing Unmanned Air Systems (UAS) and Unmanned Ground Systems (UGS); small situational awareness devices for Distributed Operations and decentralized decision making; loitering munitions; lightening the individual Marine’s load and addressing power needs; Electronic Spectrum and Signature Management; and Active Protection Systems.

The Marine Corps rifle squad currently possesses a tactical advantage with its small arms overmatch capabilities for ranges up to 500 meters. To maintain relevance against recent small arms capability advancements made by potential adversaries, significant modernization efforts are planned within the next decade.

The Marine Corps is pursuing capability improvements to small arms with the goals of increased lethality and improved mobility. For lethality, the Marine Rifle Squad requires the ability to accurately engage and neutralize threats out to 600 meters. For mobility, Marines require the ability to move efficiently and effectively while carrying a standard combat load and weapon in order to accomplish combat related tasks.

The Marine Corps has also been supporting DARPA's Squad X program by providing personnel for testing. Squad X is maturing key technologies, developing system prototypes, and refining the prototypes to maximize the squad's performance against emerging threats. Squad X looks to develop a multi-domain combined arms squad through the integration of shared situational understanding, optimized resource management, synchronized action and increased lethality.

Further, the Marine Corps is working with the Army in regards to ground robotics with the future CRS-I program. It is also expects to participate more significantly in the Army's Leader Follower, Robotic wingman and Squad Multi-purpose Equipment Transport efforts to develop CONOPS, interface standards, open software architectures, and better define capability requirements. We are looking at its applicability with our EOD and engineer functions.

Modernization Foundational Effort - Training

As our capabilities continue to expand and the threat continues to adapt, our ability to train the MAGTF is challenged. As we implement the Marine Corps Operating Concept, we must modernize our synthetic training environment, making it more integrated and adaptable. Our units must be able to conduct collective training and mission rehearsals wherever they are; not only in training areas and simulation centers, but in barracks, in headquarters, at service-level training centers and while forward deployed on ships or in country. Our Live, Virtual and Constructive Training Environment Program will improve our ability to exercise multiple elements of the MAGTF from disparate locations as if they were collocated on the same battlefield. Neither live training nor synthetic training alone is sufficient. The strategy that will

offset our readiness beyond that of our opponents involves multiple synthetic repetitions leading to highly effective live training exercises and evaluations, followed by continual live, virtual, and constructive sustainment events.

Weapons proficiency, weapons employment, and the integration of combined arms and maneuver through live-fire training remain core components of our combat readiness. To meet these demands, our operating forces must rely on access to safe, modernized, and well maintained training ranges. The Marine Corps' range modernization efforts are designed to provide realistic training environments that simulate contemporary and future operating environments. Ongoing modernization efforts include a new generation of interactive targets that move autonomously, expanded military operations in urban terrain capabilities, improved instrumentation technologies, realistic threat representations, and scoring systems.

The Marine Corps' current and future immersive training environments are designed to enhance our Marines' abilities to make sound tactical and ethical decisions in chaotic, stressful and complex environments. These venues are equipped with contracted role players, the Tactical Video Capture System, battlefield effects simulators, special effects, and range instrumentation equipment that facilitates detailed after-action reviews. These training capabilities enable unit commanders to assess tactics, techniques and procedures in real time and to provide learning points for follow-on training. The expanded procurement and utilization of advanced force-on-force training will further allow Marines to improve their decision making abilities through engagement against a thinking, adaptive enemy.

Summary/Conclusion

The Marine Corps' Ground programs Modernization strategy will ensure the individual Marine enjoys a qualitative military edge over any adversary. Our goal is not to man the gear, but to adequately equip the Marine to ensure we can provide combat formations capable of closing with and destroying the enemy. In the near-term, our first priority is to increase capability and competency within the information environment, while concurrently actualizing structure design, leader development and training with corresponding updates to doctrine and policy. Equipment enhancement in the near-term will consist of balanced investment in existing capabilities while exploiting technological advances. In the mid-term, Marine Corps modernization targets increasing naval integration, expeditionary power projection, lethality, and

protection; the results of which will address restoration of multi-domain combined arms overmatch against peer and near-peer adversaries. In the long-term, the Marine Corps seeks new capability development and investment to enhance the next generation MAGTF, exploiting Science and Technology and applied research to attain significant improvements in capabilities, addressing identified warfighting challenges, capability gaps, and requirements to achieve asymmetrical advantages.

In future competition for international stability and security, the Marine Corps will provide a globally responsive expeditionary force that includes forward deployed, rapid response, and surge force elements. This expeditionary force is designed to maintain contact, blunt emergent aggression, and surge to prosecute a major campaign, thereby providing a wide range of options to command authorities to message, deter, combat, or defeat those that would attack the global order or threaten the global commons. As Marines have always done, when our Nation calls upon us, we will fight and win regardless of the dimension or domain.