

NOT FOR DISTRIBUTION UNTIL RELEASED BY  
THE HOUSE ARMED SERVICES COMMITTEE

STATEMENT OF  
MR. KENNETH RAPUANO  
ASSISTANT SECRETARY OF DEFENSE FOR HOMELAND DEFENSE &  
GLOBAL SECURITY  
BEFORE THE  
SUBCOMMITTEE ON STRATEGIC FORCES  
HOUSE ARMED SERVICES COMMITTEE

MARCH 15, 2018

Chairman Rogers, Ranking Member Cooper, and distinguished members of the subcommittee, it is a pleasure to appear before you along with General Jay Raymond, Commander of Air Force Space Command and U.S. Strategic Command Joint Force Space Component Commander, and Ms. Betty Sapp, Director of the National Reconnaissance Office. I serve as the Assistant Secretary of Defense for Homeland Defense and Global Security. In this capacity I oversee and guide the development and implementation of the Department of Defense's strategy and policy to achieve its space mission.

The Department appreciates Congress's and this subcommittee's focus on addressing the challenges we are facing in space. The Department must accelerate, and is accelerating, its response to the changing dynamics of space. The Deputy Secretary of Defense has heard Congress's concerns and, consistent with the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2018, has already taken action through interim implementation guidance, which included disestablishing the position of the Principal DoD Space Advisor, disestablishing the Defense Space Council, extending the expected term of the Commander of Air Force Space Command, and designating the Operationally Responsive Space office as the Space Rapid Capabilities Office.

But much more needs to be done to improve our ability to fight and win should a war either begin in or extend to space. The Deputy Secretary of Defense has also initiated a holistic review of the Department's space organization and management. The review is focusing on (1) our research, development, acquisition, and sustainment system; (2) organization and governance; (3) joint warfighting; and (4) workforce development. This approach is designed to ensure that we are postured most effectively to make the informed and well-reasoned recommendations to the organizational and management structure of the Department's national security space components. Pursuant to Section 1601(c) of the NDAA for FY 2018, the Deputy Secretary of Defense submitted his interim report on the organizational and management structure for the national security space components of the Department of Defense (DoD) on March 1, 2018. The Department looks forward to submitting the final report on this matter no later than August 1, 2018.

In parallel, also pursuant to the NDAA for FY 2018, the Department is initiating a Federally Funded Research and Development Center study to develop an independent plan for establishing a Space Department. When that plan is complete, we will use it to inform further consideration and evaluation of potential organizational changes. We remain committed to working with

Congress and this subcommittee to establish an organizational structure for national security space that meets the demands of our joint force.

## **NATIONAL SECURITY STRATEGY & NATIONAL DEFENSE STRATEGY**

Space is a warfighting domain. Just as in air, land, sea, and cyberspace, the Department of Defense must prepare to address threats to our national security in the space domain. The new National Security Strategy and the National Defense Strategy prominently recognize space as an operating area from which capabilities are employed and forces are enabled, and acknowledges the potential for conflict to extend into space. These strategies direct that we compete as necessary to deter potential adversaries and, if directed, win any conflict that begins in or extends into space. Our ability to operate and leverage space to advance scientific knowledge, promote prosperity, and secure the freedoms of our citizens and allies and partners must remain unimpeded. We will compete, we will deter, and, if called upon to fight, we will win.

The National Security Strategy, published this past December, provides a plan to (1) protect the American people, the homeland, and the American way of life; (2) promote American prosperity; (3) preserve peace through strength; and (4) advance American influence. Each aspect of this plan is fortified and supported by the advantages our nation gains from space capabilities.

Our new National Defense Strategy (NDS) charts the course for how DoD will contribute to each of the National Security Strategy's four national interests. Addressing the challenges posed to our preeminence as a space power is fundamental to that effort. The Department will ensure the balances of power remain in our favor, and will advance an international order that is most conducive to our security and prosperity. Under the new NDS, long-term strategic competitions with China and Russia are the principal priorities for the Department, and because of the magnitude of the threats they pose to U.S. security and prosperity today, and the potential for those threats to increase in the future, require both increased and sustained investment.

To meet this challenge, the Department will enhance joint force lethality to compete with nations such as Russia and China; we will also deter and address challenges from North Korea, Iran, and terrorism; and we will hedge for uncertainty. In concert with making the force more lethal, we will develop a resource-sustainable approach by working with, and through, our allies and partners. We will also continue to bring business reforms to the Department to leverage

performance, affordability, and technological innovation while going after the bureaucratic excess and inefficient organizational structures that impede our effectiveness. We must deliver lethality and affordability at the speed of relevance. These approaches are as relevant and applicable to the space domain as they are to any other Department endeavor.

## **TRENDS AND THREATS**

Advanced technologies are revolutionizing accessibility to space and space-derived capabilities at dramatically reduced costs. Technology continues to progress rapidly in areas such as 3-D printing, artificial intelligence, and machine learning, while advances in electronics are enabling ever-smaller form factors. Space system developers are leveraging all of these trends. Many of yesterday's cutting-edge technologies are mere commodities today, greatly reducing the economic barriers to entry into space. Significant amounts of private financing is pouring into commercial space, fueling a new and evolving space industry. We are witnessing advances in high-throughput communication satellites and the development of commercial plans for mega-constellations offering new capabilities in low-Earth orbit. The commercial sector, enabled by traditional aerospace companies as well as entrepreneurs and venture capitalists, is driving down the cost of access to space through the development of re-usable launch vehicles and other techniques. These developments together are planting the seeds from which future economic and commercial opportunities may grow.

Space is no longer the purview of only superpowers or even a handful of nations; participation in space activities is growing more diverse. Space-derived information services such as imagery, weather, communications, and intelligence, traditionally reserved to the governments of just a few space-faring nations, are becoming more attainable to non-State entities, companies, and individuals. The Director of National Intelligence, Daniel Coats, recently testified before the Senate Select Committee on Intelligence that the “global space industry expansion will further extend space-enabled capabilities and space situational awareness to nation-state, nonstate, and commercial space actors in the coming years, enabled by the increased availability of technology, private-sector investment, and growing international partnerships.”<sup>1</sup> ”This growth presents new challenges for the Department as new States, non-

---

<sup>1</sup> “World Wide Threat Assessment of the US Intelligence Community” Statement for the Record, Daniel R. Coats, Director of National Intelligence, presented to Senate Select Committee on Intelligence, February 13, 2018, p. 13

State actors, and commercial entities, both foreign and domestic, are able to provide services and capabilities once only available to the U.S. Government and a few other space-faring nations. The pace of technological expansion and growing accessibility are forcing our military to think and plan differently as potential adversaries leverage increased capabilities to observe our force movements, track our activities, and communicate with their own forces at efficiencies and data rates not previously available.

Today's potential adversaries and competitors have studied how the U.S. joint force operates and are rapidly developing capabilities designed to challenge our freedom of action across all domains. Those potential adversaries view space as an area where they could weaken our advantages and cause cascading impacts on our sea, air, land, and cyber systems that rely on space-based capabilities. Denial of U.S. space advantages is a key component of their strategy. As a result, the United States no longer enjoys the freedom to develop and leverage space systems without deliberate regard to other nations' counterspace capabilities. Russia and China are developing, testing, and fielding space and counterspace capabilities and are aligning their operational forces and employment strategies, which could be used in an attempt to deny U.S. freedom of action. They are also developing and fielding destructive and nondestructive counterspace weapons, which may provide them flexible response options during potential future conflict.

These same countries, recognizing the value of space capabilities, are also expanding their use of space to support the lethality and effectiveness of their military forces in other domains. As the Director of National Intelligence recently reported, China and Russia "will continue to expand their space-based reconnaissance, communications, and navigation systems in terms of the numbers of satellites, the breadth of their capability, and the applications for use."<sup>2</sup> These emerging threats, in and from space, place our nation's security at ever-increasing risk and drive the U.S. imperative to improve integration and synchronize combat power across multiple domains. This includes both the ability to defend our space-based capabilities from attack and the ability to protect our terrestrial forces from space-enabled attacks.

---

<sup>2</sup> Ibid

## SPACE STRATEGY AND POSTURE

Our warfighting success is underpinned by our greatest strength – our people. The trends and threats we face require a cadre of professionals across all services and disciplines -- military, civilian, and contractor -- who recognize the capability, the commitment, the loyalty, the courage, and the cunning required to operate and succeed. To achieve this, we must continue to bring together the right training, the right technology, and the right people. Our space leaders are expected to think clearly about future conflict, learn through study of past and current operations, analyze capability gaps, identify opportunities, and implement solutions to improve the lethality of the joint force. This requires an approach that continues to enhance the joint force through stronger integration and through new developments and upgrades designed to close capability gaps. It includes a commitment to mission assurance and a strong posture to deter aggression. To compete, deter, and win in space, we must continue to develop, test, deploy, and sustain the innovative and resilient capabilities our warfighters need to fight and win in all domains.

The principles of war and joint operations guide our approach to warfighting and inform our strategy and posture. These principles have stood the test of time and act as a guide to approaching warfighting at the strategic, operational, and tactical levels. The validity of these principles does not dissipate at the boundary of the Earth's atmosphere. These principles are applicable across all domains in which conflict may occur. They guide our thinking about both deterrence and how to win the nation's wars in the event deterrence should fail.

On February 21, 2018, the National Space Council, chaired by Vice President Pence, endorsed and recommended that the President approve a national strategy that protects and advances our vital interest in space. The *National Strategy for Space* encompasses all aspects of our nation's space interest. It is composed of a strategic framework and implementation plan outlining four key strategic objectives. The first is to strengthen the safety, stability, and sustainability of space activities. The second is to deter and, when necessary, defeat adversary space and counterspace threats used for purposes hostile to the national security interests of the United States and its allies and partners. The third is to maintain U.S. commercial industry as the leading provider of traditional and innovative space technologies, goods, and services on the international space market while limiting potential adversaries' access to critical technologies and capabilities. The fourth is to maintain and extend U.S. human presence and robotic exploration beyond Earth to transform knowledge of ourselves, our planet, our solar system, and

our universe. The implementation plan describes four lines of effort: mission assurance, deterrence and warfighting, organizational support, and creating conducive domestic and international environments for U.S. space objectives. The lines of effort represent the key priorities of the strategy and, along with the supporting tasks, describe the ways and means necessary to achieve our strategic objectives.

The first line of effort focuses on Mission Assurance. We will accelerate the transformation of our space architecture by deliberately moving systems from the research and development phase to the actual fielding of capabilities. As a result, our space systems will be more resilient and more defensible. We are also looking to expand the ability to reconstitute space capabilities to reestablish lost functionality and we are exploring on-orbit satellite servicing capabilities. Fundamental to our strategy is our mission to deter, prepare for, and, if directed, prevail in any conflict, in any environment, against any threat.

The second line of effort focuses on Deterrence and Warfighting. Our strategy recognizes that – due to actions by our competitors and potential adversaries – the space domain is not a sanctuary. This line of effort seeks to develop options to deter potential adversaries from extending conflict into space. It entails a refocus of strategic guidance and doctrine; operational plans, capabilities, and culture; and rules of engagement to prepare most effectively for space as a warfighting domain. Although it is our desire that conflict not extend into space, the Department of Defense, if called upon, must stand ready to defend against all threats to our interests, even those posed 23,000 miles from the Earth’s surface.

The third and fourth lines of effort focus on Organizational Support and fostering a Conducive Environment. We will pursue improved foundational capabilities, structures, and processes in order to enable more effective space operations and will foster a conducive environment both at home and abroad. Domestically, this includes streamlining the regulatory environment to leverage and support U.S. industry more effectively, taking into account national security and public safety. Internationally, this includes promoting burden-sharing and marshalling cooperation against threatening adversary actions.

The President’s \$12.5 billion budget request for space in Fiscal Year 2019, outlined in Major Force Program-12, launches the Department on a course to build a more lethal force. It advances the lines of effort captured in the *National Strategy for Space* and integrates space into a multi-domain approach designed to deter potential adversaries and defeat hostile activity

should deterrence fail. This request, along with the projected \$8 billion increase from the Fiscal Year 2018 out-year planning profile to the 2019 Future Years Defense Plan, sustains our ongoing space operations and support to the joint force while developing and fielding critical capabilities. The Fiscal Year 2019 budget request funds space and ground-based systems such as satellite communications; overhead persistent infrared (OPIR) capabilities; positioning, navigation, and timing (PNT); space-based environmental monitoring; and space control and space launch systems, among others. The Department continues to sustain existing systems, while progressing the development of follow-on capabilities necessary to enable operations in a contested space environment. The simultaneous actions and approach to sustaining and modernizing these critical space capabilities reflect our emphasis on increasing the capacity and lethality of the joint force. We will work to ensure space capabilities for the warfighter in all phases of conflict through investments in resilience, defensive operations, and reconstitution. This is no easy task; protection of our space systems will require creativity, thought, new capabilities and technologies, and the flexibility to leverage commercial and allied architectures. The increase in research, development, test, and evaluation funding is indicative of the need to integrate emerging technologies rapidly, enabled by our innovation base, into our national security space systems and architectures. This approach allows the Department to field next-generation capabilities while capitalizing on commercial developments. We are committed to a strong and continued partnership with Congress, our interagency partners, our allies and partners, and the U.S. space industry to accomplish this goal.

The Fiscal Year 2019 President's Budget Request (PBR) prioritizes activities to address the space threat. To do so requires the necessary space threat situational awareness capabilities to identify, characterize, and then respond. The Department is also making targeted investments in capabilities that evolve our existing space architecture to respond to hostile adversary space and counterspace systems and is pursuing enhancements that strengthen capabilities to address critical warfighter gaps. With this Fiscal Year 2019 budget request, we are making critical investments in capabilities necessary to protect and defend the space domain, such as the Deep Space Advanced Radar, an all-weather, day and night deep space surveillance and tracking capability for the entire geosynchronous belt. We are also funding the development, testing, and fielding of an on-orbit and ground system situational awareness capability. This program, a



partnership with the National Reconnaissance Office, represents the continued and important collaboration within our national security space enterprise.

The Fiscal Year 2019 budget request is further focused on improving the performance provided by our space systems to provide space effects in the face of advancing threats and to enhance our combat edge. It funds the Air Force's Next-Generation Strategic Missile Warning system as part of a transition to the future OPIR architecture that implements mature resiliency features to bolster strategic survivability. The Air Force will incorporate a technology refresh of the sensor to ensure missile warning capabilities equal to or greater than today's Space-Based Infrared Systems (SBIRS), taking advantage of sensor technology improvements, and will invest \$643 million toward the research and development of a next-generation missile warning system necessary for the transition to a resilient, survivable missile warning system readied for launch in the mid-2020s. To advance our precision navigation and timing capability, the budget requests \$452 million to develop our follow-on Global Positioning System (GPS) III system to present warfighters a much-needed jam-resistant signal. It also provides funds to improve the GPS ground segment to enable implementation of advanced Military code (M-Code), further improving the anti-jamming and secure access of the military GPS signals in contested environments.

Recognizing that access to space is the cornerstone for any space-based strategy, the Department continues to support this national objective. Within this budget request, the Evolved Expendable Launch Vehicle (EELV) program is aligned with the satellite launch schedules projected in Fiscal Year 2018 and Fiscal Year 2019 and continues the strategy to pursue a public-private partnership approach for future launch service acquisitions. The Air Force approach leverages the commercial industry with the requirement to eliminate the use of foreign-made propulsion systems.

The United States does not fight alone. Cooperation and partnership in the space domain are beneficial, just as cooperation and partnership benefit our military on land and sea and in the air and in cyberspace. Our defense strategy depends on sustaining and building international alliances and partnerships. The work in this area is critical to advance our common and shared strategic and operational interests of deterrence and lethality. U.S. allies and partners provide an asymmetrical advantage that no competitor can match. We will seek partnerships with the aim to develop and deploy more capable, more assured space architectures and, where appropriate and

mutually beneficial, develop a combined operational capacity. We will leverage past successes and achieve new ones, such as cost-sharing agreements, hosting U.S. national security payloads on foreign systems, and data-sharing arrangements to bolster shared space situational awareness. The Department of Defense, working with the Department of State, strengthens our leadership and international relationship through participation in international governing bodies and with multilateral and bilateral arrangements. One such effort is the Department's collaboration initiative on a communication system with Space Norway. The Fiscal Year 2019 budget request contains funding to accelerate the development of a hosted payload to provide our warfighters a secure communications capability in the northern polar region. This international space collaboration opportunity would meet a critical warfighter requirement at a substantially reduced cost compared to a traditional acquisition approach. Not only would this plan deploy a much-needed capability, it would also demonstrate the advantages, opportunities, and potential of continued international collaboration in a geographical area of great importance.

To enable greater performance and affordability with our space investments, we must innovate and evolve. The greatness of the United States has its roots in an almost insatiable desire to push boundaries, and the needs of our fighting force require our commitment to push the boundaries of innovation and technology. However, our innovative spirit should not stop there. Technology is not a panacea; it is only as good as our capability to leverage and employ it to our benefit. We must continue to innovate in our command and control paradigms, in our use of existing capabilities, and in our business processes and organizational structures. The Department is committed to evolving to an organization and management structure that is optimized and focused on the joint fight. We remain steadfast in our work with Congress to meet the needs of the combatant commanders and recognize we can only do that by establishing an efficient and streamlined organizational structure. The Deputy Secretary of Defense, in accordance with the direction provided in the National Defense Authorization Act for Fiscal Year 2018, is seeking an organizational structure focused on an end-state that, first and foremost, increases and ensures the lethality of the joint force.

Space is a warfighting domain – albeit a nascent and evolving one. Adversaries are watching, listening, and testing our resolve. Mindful of this, we must always undertake action in space with an understanding that norms of behavior are created as we, and all other space-faring nations, deploy capabilities and conduct operations.

The Department's partnership with Congress is and will remain absolutely critical to our success. To that end, I remain grateful for this subcommittee's strong support and interest in this vital area, and its advocacy to deter aggression and establish a lethal and effective force with the unmatched ability to prevail in, from, and through the ultimate high ground.