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SUBCOMMITTEE ON STRATEGIC FORCES
HOUSE ARMED SERVICES COMMITTEE
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DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE
SUBCOMMITTEE ON STRATEGIC FORCES
HOUSE ARMED SERVICES COMMITTEE
U.S. HOUSE OF REPRESENTATIVES

SUBJECT: Fiscal Year 2019 Priorities and Posture of the National Security Space Enterprise

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Joint Force Space Component Commander

March 15, 2018

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INTRODUCTION

Chairman Rogers, Ranking Member Cooper and distinguished Members of the Committee, I'm honored to appear before this committee for the first time in my dual capacity as Commander of Air Force Space Command (AFSPC) and U.S. Strategic Command's Joint Force Space Component Commander (JFSCC). I have the distinct privilege to lead and represent the 36,000 dedicated men and women of AFSPC, and the joint space personnel under JFSCC command and control, who underpin successful operations for our joint force and the Nation. Since my last testimony before Congress, I have traveled throughout the command and discussed national security trends with our Airmen, the joint force, the Intelligence Community, and national leadership. From these discussions, I am firmly convinced we must aggressively accelerate our preparations to protect and defend against a conflict that begins or extends into space. Our goal is to deter conflict from extending to space, but should deterrence fail, we must be prepared to win.

Our National Security Strategy states that unfettered access and freedom to operate in space are vital interests of the United States. This year's National Defense Strategy clearly articulates the ill intent of revisionist powers, rogue regimes and non-state actors, and states that the central challenge to security and prosperity is the return of long-term, great-power competition. We must view this challenge in the context of a highly complex strategic environment with threats that are both multi-functional and multi-domain. Different from the past, potential adversaries are rapidly developing and fielding a diverse and capable range of counter-space capabilities able to hold our space systems at risk, on orbit, in cyberspace, and from the air, land, and maritime domains. They are also advancing their own space capabilities and desire to reduce the U.S. historical advantages of power projection, speed, precision, and global awareness. Today, space is a warfighting domain just like air, land and sea.

For over 35 years, AFSPC has made profound contributions to our Air Force and the Nation; we proudly remain at the vanguard of the American way of war – ensuring Global Vigilance, Global Reach, and Global Power. Consistent with the National Security Strategy and the National Defense Strategy, the fiscal year 2019 budget marks a bold pivot to warfighting. Our efforts in this budget also focus on three priorities: restore military readiness, strengthen alliances and attract new partners, and bring business reforms to national security space.

RESTORE MILITARY READINESS

AFSPC is posturing for a potential future conflict and is becoming a more combat ready force to deter the aggression of potential adversaries. In fiscal year 2018, the Air Force presented a budget that reflected a 20 percent increase in investment accounts from the previous fiscal year. That budget was an important first step in ensuring our unprecedented access to and freedom of action in space and the normalization of space as a warfighting domain. The fiscal year 2018 budget also sets the foundation for the type of resilient space enterprise necessary to operate in a contested domain. We laid the groundwork for protecting and defending space assets by transitioning the National Space Defense Center to an initial operational status, re-baselining our space situational awareness (SSA) enterprise to begin to provide indications and warning for possible threats, and training a Space Mission Force focused on a fight that extends to space. The fiscal year 2019 budget request is the next step in revolutionizing how we operate in space. Continuing to build a resilient and defendable architecture that seeks first to deter adversary aggression, then fight and win if deterrence fails. To that end, the Air Force has heavily adjusted our future years defense plan (FYDP) investment dollars (procurement and RDT&E), seeing a nearly $7 billion adjustment in investment, an 18 percent increase across the FYDP. This builds upon the fiscal year 2018 gains, shifts to a new investment strategy, and is a testament to an Air Force and whole-of-government approach that recognizes how important it is that we get this right.

Joint Force Space Component Commander

On 1 December 2017, U.S. Strategic Command (USSTRATCOM) re-organized its space forces, elevating the senior commander responsible for joint space operations from the three-star Commander, Joint Functional Component Command for Space to a four-star general officer. This new structure dual-hats the AFSPC Commander with the elevated operational command role, known as the JFSCC. While the title change may seem minor, the organizational change is significant. It helps normalize USSTRATCOM's command structure and relationships with other U.S. Combatant Commands, and combines the warfighting commander of joint space forces with the commander responsible for organizing, training, and equipping of Air Force Space Forces.

The USSTRATCOM Commander's operational end state is to improve warfighting effectiveness against agile, versatile, and ever-adapting adversaries through an organizational

restructure of space forces, which fosters mission command, promotes unity of effort with mission partners, improves USSTRATCOM's posture as a global warfighting command, and better postures the joint force to gain and maintain space superiority. Ultimately, the establishment of the JFSCC better focuses joint space forces on protecting and defending U.S. space assets and will ensure joint space forces are able to provide theater and global effects from space.

The National Space Defense Center (NSDC)

The NSDC is a Department of Defense and Intelligence Community partnership organization that focuses and improves our nation's ability to rapidly detect, characterize, attribute, warn and defend against threats to our nation's vital space systems. The NSDC directly supports space defense unity of effort and expands information sharing in space defense operations among the Department of Defense, National Reconnaissance Office (NRO), Intelligence Community and other interagency partners. A critical step to achieving this was transitioning the NSDC from experimental status to 24/7 operations on 8 January 2018. The NSDC is beginning to address the joint force's requirement to deliver multi-domain effects in defense of U.S. space capabilities. Additionally, this transition bolsters the ability to protect and defend the national security space enterprise and the delivery of space capabilities to U.S. leadership, the joint warfighter, and coalition partners. This organization has immediately improved our space situational awareness and improved our readiness, both of which are absolutely critical to maintaining space superiority.

Space Flag

In 2017, AFSPC conducted the first two Space Flag exercises. These advanced training events allowed operational crews and supporting intelligence personnel to rehearse operations in a realistic contested environment. Using personnel from the Air Force's Space Aggressor Squadron – a unit of specially trained and equipped Airmen from the USAF Warfare Center stationed at Schriever AFB, Colorado who emulate hostile forces – crews gained valuable experience operating their systems against "trained adversaries" to ensure critical space capabilities remain available to support joint operations. These events were the result of partnering with Air Combat Command and industry partners, and are now a key element of combat readiness for the Space Mission Force. Although initial training objectives were limited, AFSPC will use this venue to vastly expand advanced space warfighting training going forward.

Air Force Space Command Three-star Vice Commander

The Air Force directed the establishment of a three-star Vice Commander of AFSPC who will be located in the national capital region and report directly to the AFSPC Commander. This position will be responsible for assisting me with my responsibility to organize, train and equip Air Force space forces and working with Headquarters Air Force to ensure effective corporate advocacy for, and stewardship of, Air Force space missions and capabilities. Responsibilities of this position will also include the integrating and synchronizing of operations, policy, guidance, plans, strategy and requirements of AFSPC efforts with Headquarters Air Force, the Intelligence Community, the Joint Staff, the Office of the Secretary of Defense, and other agencies. Finally, this leadership position will represent the AFSPC Commander in daily interactions in the national capital region.

STRENGTHEN ALLIANCES AND ATTRACT NEW PARTNERS

With the strong support of the Secretary of Defense and the Department of the Air Force, AFSPC has made progress towards a goal of expanding both commercial, interagency, and international partnerships in 2017. Partnership and cooperative operations with the Intelligence Community are at an all-time high with the NSDC as a prime example of how we are committed to growing these relationships further. We recognize it is impossible to accomplish our mission alone and must continually work toward leveraging and enhancing all relationships in every area that enhances our position in the space domain.

Growing Commercial Partnerships

Commercial partnership and collaboration is vitally important to the AFSPC's ability to succeed in our mission and more importantly, move forward in a manner that outpaces our strategic competitors. In response to the increasingly contested space environment, Congress has asked the Air Force to examine commercial solutions to rapidly fill critical operational gaps and mitigate emerging threats. In a January 2018 report to Congress, the Air Force highlighted fiscal year 2018 budget inclusions of commercial capabilities when making content decisions on space surveillance sensor systems, space situational awareness software for operations, and battle management command and control software for operations centers.

Included in that report is the Air Force pursuit of the development and integration of commercially available space capabilities through the implementation of the Commercially Augmented Mission Operations concept located at the Catalyst Campus in Colorado Springs,

Colorado. With $5 million in fiscal year 2018 funding, this effort will provide a common and collaborative commercial demonstration, modeling and simulation, and operations environment. Ultimately, it will serve as a venue to assess the national security utility for commercial capabilities across multiple security classification levels. Through multiple lines of effort, the Air Force will pursue funding for commercially available tools to support the myriad of activities that enhance maturation of critical battle management command and control technologies.

Under the direction of the Space and Missile Systems Center (SMC), we have awarded an Other Transaction Agreement to establish the Space Enterprise Consortium (SpEC), managed by Advanced Technology International (ATI). This consortium enhances our ability to develop the most relevant space-related technologies at every stage of the acquisition process and facilitate the introduction of timely solutions to today's space challenges. SpEC will be made up of large and small businesses representing traditional and non-traditional defense contractors. The SpEC mission will include performing research, development, test and evaluation within prototyping projects that address Department of Defense requirements for space systems. Since the award to ATI, SpEC has over 100 members to date with over two thirds being small businesses or non-traditional defense contractors. In January 2018, two prototype solicitations were released to the consortium with an expected award date at the end of March 2018. Four additional prototype solicitation releases are planned over the next several months.

Joint Space Operations Center to Combined Space Operations Center

The Joint Space Operations Center at Vandenberg Air Force Base, California is the operations center responsible for integrating space effects, like missile warning and positioning, navigation and timing, into joint operations worldwide. Within the Joint Space Operations Center (JSpOC) we have expanded the Commercial Integration Cell (CIC) designed to allow satellite operators from commercial companies to sit alongside military personnel. Currently, the CIC consists of representatives from seven commercial partners (DigitalGlobe, Intelsat, Eutelsat, SES Government Solutions, Iridium, Xtar, and Inmarsat) who will interface and exchange data directly from the JSpOC Operations Floor. Its objective is to enhance the JSpOC commander's situational awareness of the space domain and develop tactics and procedures for combined operations to achieve better integration between commercial satellite operators and the warfighter. In March 2018, we plan to submit requests to electronically connect each of the partners' operations centers on classified networks to enable real-time communications for the

purpose of coordination and deconfliction. The next phase of the CIC transitions its management into a commercial consortium.

The JSpOC will transition to a Combined Space Operations Center this year to fully integrate current and future coalition partners at Vandenberg AFB, California. The CSpOC will build on present participation from the UK, Australia and Canada to improve combined space operations resiliency. This is now as critical in space as it always has been in other domains.

Multi-National Space Collaboration

Along with the CSpOC transition, we are expanding the USSTRATCOM Multi-National Space Collaboration (MSC) initiative. Established in 2017, the MSC is a construct that supports cooperation and relationship building with our allies, focusing on current space operations requirements, space situational awareness, and other future mission requirements. In the summer of 2017, the MSC gained representation from the German Air Force. We expect the addition of representatives from France and the United Kingdom in 2018 and have also extended invitations to Italy, Japan, Spain, the Republic of Korea, New Zealand and Australia. Canada will support the MSC with personnel already assigned to the Joint Space Operations Center.

Enhanced Polar System - Recapitalization

Further examples of international cooperation include a Department of Defense partnership with the Norway Ministry of Defence to host U.S. protected Satellite Communications (SATCOM) payloads in polar orbit. The Enhanced Polar System – Recapitalization (EPS-R) is the protected SATCOM follow-on to the EPS providing a 24/7 protected SATCOM capability to the North Polar Region. This cooperative strategy that hosts U.S. payloads on Space Norway satellites saves the U.S. $900 million as compared to building, launching, and operating free-flying spacecraft. The EPS payloads on two separate Space Norway spacecraft are scheduled for a dual launch in fiscal year 2023.

Wideband Global Satellite Communications Partnerships

In March 2017, the Air Force launched the ninth Wideband Global SATCOM (WGS) satellite, and USSTRATCOM later accepted it into operations. The WGS-9 satellite provides military forces and international partners with enhanced communication capabilities and extends coverage of the WGS constellation. Australia became the first international participant in the WGS system under a cooperative agreement with the Air Force in 2007. Since then, this system represents a broader international partnership, as five partner nations provided funding for WGS-

9: Canada, Denmark, Netherlands, Luxembourg, and New Zealand. The Czech Republic and Norway have since been added as partners on WGS. In return for funding, partner nations receive access to the WGS constellation.

Space Surveillance Network Expansion to Australia

On 7 March 2017, the U.S. and Australia Defense Departments declared full operational capability of the AFSPC C-band radar at the Harold E. Holt Naval Communications Station, Exmouth, Western Australia. The C-band radar, in a critical geographic location, extends the reach of the U.S. Space Surveillance Network (SSN) deep into the southern hemisphere, improving our ability to track and characterize objects in that region of space. The C-band radar system is an AFSPC-owned, dedicated sensor in the SSN; however, operations and level-one maintenance are being performed by the Australian Department of Defence.

Schriever Wargame

AFSPC annually conducts the Schriever Wargame, a scenario-based wargame designed to drive international cooperation along with future operational and investment planning for space and cyber. In 2017 the Schriever Wargame included the United States' Five-Eye partners (Australia, Canada, Great Britain and New Zealand), along with France and Germany. In 2018 we will expand the Wargame to also include Japan for the first time.

Partnerships promote peace and cooperation, economic growth, and are an anchor of deterrence against potentially aggressive states. More specifically, partnerships promote coalitions and coalitions are how we fight in every other domain. Space will be no different.

BRING BUSINESS REFORMS TO NATIONAL SECURITY SPACE

Delays in fielding capabilities that are designed to operate in today's space warfighting domain erode U.S. warfighting advantages and put our forces at risk. Critical to our ability to rapidly move forward is a simpler and more responsive requirements and procurement process. Warfighters and acquisition personnel must partner to meet the speed of operational needs while still developing war winning capabilities. It is imperative that acquisition risk decisions are balanced with the urgency of the operational need and demands that we take full advantage of the authorities at our disposal, and use alternative acquisition approaches such as Other Transaction Authorities and drive Milestone Decision Authority (MDA) and other acquisition decisions to the lowest practical level. Changing from today's highly risk-averse acquisition culture to this new mindset is critical, and will take leadership involvement; my leadership team

and I are personally engaged. Our world-class acquirers will field advanced warfighting capabilities on timelines that ensure we stay ahead of the threat.

AFSPC is shifting the order of precedence for operational requirements. In the post-cold war benign domain of space, availability and reliability were priority criteria for U.S. space system development. In today's increasingly contested environment, the priority is now survivability and outpacing the threat.

Acquisition Reforms for National Security Space Assets

We are taking advantage of congressional authorities and have worked with the Department of Defense staff to return other program decision authorities back to the Air Force, including 14 of the 19 Major Defense Acquisition Programs within the space portfolio. This is projected to reduce decision cycle time by 4-6 months. Also, using tools such as the Defense Acquisition Workforce Development Fund, we are investing in our people, ensuring they have the right skills and training to succeed.

Additionally, AFSPC's acquisition arm, the Space and Missile Systems Center, has begun to reform their processes with an emphasis toward speed. Lieutenant General John Thompson, the Program Executive Officer (PEO) for Space Systems and SMC Commander, has delegated MDA for all Acquisition Category (ACAT)-III programs (16 programs – 37 percent of the PEO-Space portfolio), from his office down to the program director level. This is forecasted to reduce decision cycle time by 1-2 months for each milestone decision. SMC has also reduced the amount of time it takes to award a contract by approximately 52 percent, from 769 days (2016) to 372 days (2017).

In 2017 SMC used the expanded Other Transaction Authority granted by the Fiscal Year 2016 NDAA to award an innovative prototyping agreement – the Space Enterprise Consortium (SpEC). This umbrella agreement, with a multitude of companies enables SMC to rapidly prototype space systems for the next five years. This saves time over the traditional process of awarding multiple prototype contracts, and allows the government to obtain solutions from non-traditional contractors, or those who do not have the overhead necessary to manage traditional Department of Defense contracts. Since award of the Consortium Manager Role in November 2017, SpEC Other Transaction released two prototype solicitations in January 2018. The plan is to award prototypes by the end of March 2018 and release four additional solicitations over the next several months. One of two prototypes being awarded is for the Tetra Bus at $5 million per

spacecraft; this will be a series of spacecraft used to demonstrate and evaluate tactics, techniques and procedures. The second prototype award is for the Missile Defense Agency Tracking System at $5 million. Ultimately, the goal is to develop a persistent space layer prototype concept to address warfighter requirements.

Space Rapid Capabilities Office

Consistent with the Fiscal Year 2018 NDAA, the Air Force is transitioning the Operationally Responsive Space Office into a new Space Rapid Capabilities Office (SRCO) under AFSPC. The SRCO must have the same rapid acquisition capabilities as the existing Air Force RCO. We are working hard on an implementation plan that will expand the former ORS office portfolio to include highly-classified, hand-picked, game-changing, space programs, that will move at an accelerated pace while not losing the demonstration, experimentation, warfighter-focus and Joint Capabilities Integration and Development System (JCIDS) exemptions covered in ORS statutory guidance. This will not be just a name change, AFSPC will look to broaden the scope and scale of this office to deliver real results.

A MORE RESILIENT SPACE ENTERPRISE

Command and Control

Essential to effective military operations in any domain is domain awareness and the ability to command and control forces. The fiscal year 2019 budget request improves essential space situational awareness and responsive command and control (C2) to provide tools, decision aids, and response options necessary to prevail if conflict extends into space. Enterprise Space Battle Management Command and Control (ESBMC2) will provide deliberate and crisis action planning products and decision support tools to enable the timely execution of authorities and command and control throughout the echelons of command, from strategic to tactical. The Air Force also recognizes that commercial companies are making real strides in technology and data management. We seek to leverage broad commercial industry innovation for national gain to maintain our competitive advantage.

AFSPC and the Air Force Rapid Capabilities Office (AFRCO) have partnered to rapidly develop the ESBMC2 capability needed to address emerging threats. This represents a new acquisition effort led by AFRCO to deliver an operational prototype which redefines the program formerly known as JSpOC Mission System (JMS) Increment 3 (now ESBMC2). This new acquisition approach is one example of AFSPC's new direction, enhancing the Air Force's

ability to command and control space assets in a contested environment. The Air Force is making use of rapid prototyping and a commercial consortium to assess new concepts and technologies, reduce risk to acquisition and field an early capability. Our goal is to energize the entire commercial industry around agreed upon standards to harness innovation. We have made great strides over this past year, and the prototype is on track for fiscal year 2021 delivery. In fiscal year 2021, this operational prototype will transition to SMC for continued rapid improvements and sustainment. Throughout all phases, SMC will act as the enterprise manager to coordinate interoperability and integration across multiple operation centers and acquisition efforts.

Space Situational Awareness

In 2016, AFSPC and the National Reconnaissance Office (NRO) developed a joint Space Situational Awareness and Indications and Warning Concept of Operations. As a result of this work, we seek to leverage synergies in AFSPC/NRO acquisition activities, where feasible, as the two organizations pursue architectures and operational approaches in support of their respective missions. As our first collaborative initiative, we have entered into a joint acquisition program known as SILENTBARKER. This program will provide threat Indications and Warning (I&W) and SSA information to better meet our warfighting mission. SILENTBARKER also represents a pathfinder for future collaborative acquisitions involving AFSPC and NRO, as appropriate.

The new Space Fence will provide un-cued surveillance of small objects and satellites, primarily in Low Earth orbit, but with secondary surveillance capabilities in Medium Earth and Geosynchronous orbits as well. This capability will enhance space flight safety, early detection and custody of potential threats, and awareness to satellite operators in the human space flight regime. Ultimately, it will be the most accurate high-capacity radar in the Space Surveillance Network, providing increased sensitivity and optimum coverage that will greatly increase the size and accuracy of the catalog of space objects. Fully funded in the Air Force's current budget request, initial operational capability of the first site is expected in fiscal year 2019.

To further improve the effectiveness, robustness, and resilience of the SSA mission, we must have the ability to interpret data from sources outside of the SSN. SMC is leading the way through implementation of the Non-traditional Data Pre-Processor (NDPP), which was operationally accepted in 2017. This flexible and extensible system, which is near-continuously updated, currently connects 29 companies using 111 sensors and satellites and provides well over

2000 messages per week into the JSpOC. NDPP is one of several data communications interfaces that will facilitate a SSA data repository. Initial buildout will be complete in fiscal year 2018, with expanded data sets available in fiscal year 2019. This data library will feed the use of both governmental and commercially developed mission applications that are delivered through Programs of Record such as JMS and legacy capability.

Enabled by interagency, commercial, and foreign partnering, thoughtful technology on-boarding strategies and empowered program managers, commanders and fielded forces will have the improved domain awareness necessary to compete, deter, and if necessary, win.

Missile Warning

Global missile warning remains a real strategic advantage for our nation. On 19 January 2018, the Air Force launched the fourth geosynchronous Space-Based Infrared System (SBIRS) satellite, which will be operationally accepted later this year. Today, the current SBIRS architecture is exceeding expectations, enabling the Air Force to develop a plan which balances the right speed, innovation and risk to counter adversary technological advances and ensure a survivable missile warning capability by the mid-2020s. However, SBIRS satellites were not designed to operate in a contested space environment. A new approach is necessary to address potential threats. With the support of the Department of Defense and USSTRATCOM, the Air Force is taking a bold step in the fiscal year 2019 request; we will not procure or field SBIRS Vehicles 7 and 8.

Continued buys of the SBIRS spacecraft (i.e. SBIRS 7&8) delay our response to current and future counterspace threats and mitigation of advancements in adversary capabilities. Our plan is to begin transitioning to AFSPC's next generation strategic missile warning program in 2025. Additionally, the Air Force and the Missile Defense Agency are engaged in development of an integrated set of requirements focused on advancing missile warning and tracking. Acquisition speed, cost control, and survivability are the priorities of this new approach.

Satellite Communications

Global SATCOM is essential to every warfighter. Emerging threats are being addressed by both current and next-generation SATCOM programs. The fiscal year 2019 budget request continues efforts to enhance current protected SATCOM systems, while addressing future risks with an architecture that meets both strategic and tactical needs. As mentioned earlier, the Enhanced Polar System will complete multi-service requirements in fiscal year 2018 and is on

track to declare full operational capability by the first quarter of fiscal year 2019. The Advanced Extremely High Frequency (AEHF) satellite program provides strategic and nuclear-hardened communications capability to the President and other high-level decision makers. The fiscal year 2019 request adds operational resiliency features to future AEHF satellites to maintain strategic nuclear command, control, and communications necessary to defend against emerging threats.

Wideband Global SATCOM remains the backbone of wideband military satellite communications systems supporting a wide mix of networks that support multiple missions to include weather, missile defense, search and rescue and disaster relief. WGS vehicles 1 through 9 are operational and WGS-10 is projected to launch in the first quarter of fiscal year 2019. Meanwhile, an OSD-led Wideband Communications Services Analysis of Alternatives is evaluating WGS follow-on solutions; it will complete in fiscal year 2018 and be used to inform the fiscal year 2020 budget request.

The Commercial Satellite Communications (COMSATCOM) Pilot technology demonstration project is working toward increased flexibility, affordability, and resiliency for the Department of Defense SATCOM enterprise. The Pilot is a three-phase effort, which will realize the Fiscal Year 2016 NDAA, Sec. 1612, goal of demonstrating order-of-magnitude improvements in SATCOM capabilities by using commercial systems and technologies more effectively. Pilot Phase 2 includes design and development of SATCOM Flexible Modem Interface prototypes, definition of industry standards for that interface, and a limited demonstration of interoperability across multiple modems that share a SATCOM terminal or antenna. The end-state vision is for a COMSATCOM user to be able to "roam" rapidly among different satellite service providers and/or constellations, ultimately enabling more flexible, resilient SATCOM.

Congress has directed that I assume responsibility for procurement of COMSATCOM services for the Department of Defense not later than December 2018. We have already formed an AFSPC/DISA/USSTRATCOM/DoD CIO team to develop courses of action and an implementation plan for transfer of that responsibility. When coupled with my JFSCC role, this effort represents yet another opportunity to make delivery of SATCOM services to the Joint Force more efficient and effective.

Global Positioning System

The nation's Global Positioning System (GPS) is essential to our way of war and the American way of life. The GPS III space segment is the next generation of satellites providing backwards compatibility with previous GPS satellites, new civil Galileo-compatible signal and enhanced Military code (M-code) earth coverage power. With space vehicle technical challenges behind us, the Air Force declared GPS III Space Vehicle 01 (SV-01) available for launch in September 2017. SV-01 is currently proceeding through the pre-launch campaign for a launch later this year, and will use OCX Block 0 for command and control.

The Air Force is funding the next generation of GPS satellites with upgraded jam-resistance capabilities and modernizing the enterprise across all three segments: ground, satellite, and user equipment. The fiscal year 2019 budget request increases funding for anti-jam, anti-spoof, and anti-tamper military GPS development and integration into multiple joint platforms. AFSPC remains committed to working through significant technical challenges to ensure our GPS system remains the world's gold standard for positioning, navigation, and timing. To that end, preparations are underway for GPS III follow-on production (GPS III-F) for full and open competition on SVs 11-32.

The Operational Control System (OCX) is making steady progress. The Air Force accepted Block 0 (launch and checkout of GPS III space vehicles) in November 2017. Nevertheless, OCX remains under our close scrutiny. Upon the resolution of these issues, OCX will provide a cyber-secure and extensible C2 system enabling advanced military capabilities.

Modernized Military GPS User Equipment (MGUE) is being developed to implement advanced features, including improved anti-jam and navigation warfare capabilities, enabled by the new M-Code signal for all services and branches. Lead platform operational testing and evaluation for Increment 1 is scheduled to conclude by calendar year 2021. Increment 2, a pre-major defense acquisition program projecting integration with space-born receivers, precision-guided munitions, and handheld devices, is currently being evaluated by the Joint Requirements Oversight Council. The fiscal year 2019 budget increases funding for both MGUE Increments 1 and 2.

Space Based Environmental Monitoring

The Air Force has a short and long-term strategy to meet Space Based Environmental Monitoring (SBEM) requirements for the Department of Defense; the fiscal year 2019 request

funds sensors to conduct timely, reliable, and high-quality space-based capabilities to meet joint force combatant command requirements for atmospheric, terrestrial, oceanographic, and space weather observations. The fiscal year 2019 request re-phased $42.7 million to fiscal years 2020/2021 to align with the Weather System Follow-on (WSF) service cost position and adds $28.4 million for enhanced remote sensor processing.

The WSF-Microwave is the Department's primary source for SBEM gaps 3 (Ocean Surface Vector Winds) and 8 (Tropical Cyclone Intensity) data. It was put on contract in November 2017. WSF-Electro Optical/Infrared, focuses on SBEM gaps 1 (Cloud Characterization) and 2 (Theater Weather Imagery) at high latitudes, with a planned initial launch capability in fiscal year 2024. WSF-Electro Optical/Infrared Geostationary will satisfy combatant command cloud characterization and theater weather imagery requirements at low latitudes over the Indian Ocean by relocating and utilizing a residual National Oceanic and Atmospheric Administration geostationary satellite.

The Air Force remains engaged with the Joint Staff on the development of both materiel and non-materiel solutions that will meet requirements in this important mission area.

Assured Access to Space

Space launch is becoming a dynamic, competitive, innovative, and market-driven mission area. Due to our nation's policy of promoting competition, launch costs are decreasing and innovation is thriving. The Air Force is executing a strategy using public-private partnerships to share development costs with industry for new launch service capabilities through Launch Service Agreements (LSAs). LSAs will modify existing and planned commercial launch systems to meet Department of Defense and Intelligence Community launch requirements. The goal remains to obtain at least two domestic launch service providers that are certified to meet all National Security Space requirements.

AFSPC's approach to assured access to space is one that promotes competition and eliminates reliance on the RD-180 while maintaining a focus on mission success. The Evolved Expendable Launch Vehicle (EELV) program is executing a multifaceted acquisition approach. The program is using Other Transaction Authority agreements through 2018 to invest in domestic rocket propulsion systems and launch service development to facilitate transition off the RD-180 engine. EELV continues to procure launch services using certified providers and plans to continue to on-ramp and certify new entrants as they mature.

AFSPC recently released the EELV Phase 1A-6 Request for Proposal (RFP) to industry. This is the sixth competitive launch service solicitation under the current procurement strategy, and includes NRO Launch (NROL)-85, NROL-87, SBIRS GEO-5, GPS III-6, AFSPC-44, SILENTBARKER, and STP-4. Proposals for these launches are due back in April 2018. The intent is to individually award each mission by the first quarter of fiscal year 2019, although the RFP allows for rolling awards to meet mission requirements. To meet NROL-87 and AFSPC-44 integration timelines, the intent is to prioritize those two launches for award in early fiscal year 2019.

We have made a significant leap forward by partnering with SpaceX to make autonomous flight safety a reality. With an autonomous range, we will no longer have to call up the vast range infrastructure and associated personnel to support a launch. This allows us to launch on shorter timelines, with greater frequency and at reduced labor cost. Ultimately, our goal is that both of our launch ranges will be fully autonomous. Additionally, we have started the certification process for Falcon Heavy with its recent inaugural launch. We are on a path to certify a family of SpaceX launch vehicles for all National Security Space mission profiles to all orbital regimes. Going forward, I see a partnership with the burgeoning commercial space launch industry to be a great source of strength and I look forward to tapping into that strength and closer partnerships.

THE WAY AHEAD

Space superiority in not a birthright; it must be earned. The Air Force is committed to delivering on that expectation. Set within the context of our strategic direction, we have chartered our path forward.

While the fiscal year 2019 budget represents a bold pivot in U.S. strategy to protect and defend our space capabilities, this transition will not be completed in one year. The fiscal year 2019 space budget represents my intent and Air Force commitment to making wise, risk-informed, space superiority investments. Within this budget, we crafted an 8.4 percent increase in investment over the previous year and an 18.4 percent investment increase across the FYDP. This funding increase is intended specifically to counter the space superiority threat from China and Russia. We will improve space situational awareness, increase our ability to defend our nation's most vital space assets, build more jam-resistant GPS satellites, improve missile

warning, and expand partnerships to shape the strategic environment to compete, deter, and if necessary, win.

I thank the Committee for your leadership and support; together we will be build readiness and strength to preserve the peace and promote American prosperity.