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Statement of:
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THE DEPARTMENT OF THE AIR FORCE

The Air and Space Forces unite under the Department of the Air Force and are inextricably linked in defense of the crucial high ground, integral to the stability of the global security landscape. Under civilian leadership, the Department's nearly 700,000 Airmen and Guardians provide independent and integrated options to national leaders while defending democracy, an ideal that President Biden said, "holds the key to freedom, prosperity, peace, and dignity." The Department of the Air Force enhancesthe peaceful instruments of diplomacy, sustains instruments of deterrence that check the spread of conflict, and ensures credible consequences for aggression.

Today more than ever, we and our national security partners must be bold. The challenges are many: the People's Republic of China, the Russian Federation, contested domains old and new, the vulnerabilities of proliferated technology and weapons, climate change, a global pandemic and its aftermath, the accumulated results of past budget priorities and decisions, and corrosive, difficult human issues like extremism, sexual assault/harassment, suicide, and disparate treatment of others. Wemust think and act differently. We no longer have the luxury of time to evolve into what we need to be…we must harness this unique moment together taking action to change. We simply cannot maintain status quo.

Given China's exponential pace of weapons development and extensive marshalling of government and industry, we do not have the leeway to simply maintain our current approach. China is on track to exceed our capacity, so it is our obligation to act with a sense of urgency. China poses challenges unlike any other in our Nation's history. We must be clear-eyed about these threats and our response to them.We recognize the need for change AND must create the capacity for that change. We must substantially improve our understanding of China and the Indo-Pacific region and prioritize the threats accordingly. We cannot afford to keep prioritizing near-term operational posture and today's force structure at the expense of modernization and investment.

This Department is particularly suited for these challenges. We own the high ground with air and space today, but it becomes more contested every day. We cannot allow the erosion of our advantages in this crucial high ground in competition now or in a future conflict. The speed, reach, and responsiveness of the U.S. Air Force and U.S. Space Force reinforce all instruments of national power and norms of responsible behavior. We can see, sense, and strike targets near and far, and provide global warning, networks, and independent options in space. We provide global strike and effects that can hold any target at risk within 24 hours—this is not conceptual or theoretical, it is reality. Global strike requires a unique fusion of intelligence, surveillance, reconnaissance, logistics, access, and speed that only the Air and Space Forces provide at a moment's notice. Our ability to rapidly eliminate threats anywhere in theworld is a consequence of our inherent global persistence and reach, not necessarily dependent upon pre-positioning or forward basing. We have been exceptional at this, and **until now *we have also been unmatched.***

The Department of the Air Force requires a modernized force that is relevant today and long into the future. We are hard at work designing our future force. We must invest in the cutting-edge technologies and capabilities that are critical to securing our military advantage in the future—this includes updating our two legs of the Nation's nuclear triad, and our nuclear command, control, and communications systems. Enabling our military advantage in the long term means we need to shift away from legacy platforms and weapons systems that are decreasing in relevance today and will be irrelevant in the

future—our aircraft fleet is 30 years old on average, and 44% are beyond their designed service life. Maintaining our aging weapon systems is costly now and, without change, will mortgage our future. We must also create decision superiority by delivering information and capabilities to decision makers at all echelons through a "military internet ofthings." A critical step includes accelerating command and control infrastructure by investing in the Advanced Battle Management System (ABMS)—a vital contribution by the Department of the Air Forceto Joint All-Domain Command and Control. We must methodically and immediately move out on toughdecisions in order to compete.

Similarly, we must revise the Space Force's force design to be resilient against a significantly increasing threat. We must continue to innovate, adapt and diversify capabilities to meet the threats that challenge America's access and maneuverability in space and that of our allies and partners. As we advance space defense, we must simultaneously work with stakeholders across the Department of Defense, the whole-of-government, our allies and partners, and commercial industry to integrate and streamline spacepower efforts. Only then will America be able to fully leverage what we have built overthe last year.

The Air Force and Space Force have been on the leading edge of technology since their inception. By embracing novel authorities such as middle-tier of acquisition authorities, and innovative approaches such as agile software development, modular open systems approach, and digital engineering, we willstay on the cutting edge. We intend to capitalize on future investments in modeling and synthetic simulation environments to ensure both joint warfighters and operational platforms are ready.

As outlined in the Interim National Security Strategic Guidance, we are "committed to realizing and defending the democratic values at the heart of the American way of life." Outpacing threats in tomorrow's complex global security landscape requires innovative thinking and modern investments. We recognize the need for change in order to protect the American way of life. This budget lays out a plan to modernize our military capabilities, and will allow U.S. diplomats to negotiate from a position ofstrength.

EMPOWERED AIRMEN & GUARDIANS

America's Airmen and Guardians conduct combat operations, channel innovation, and conquer adversity around the globe all day, every day. We know that Airmen and Guardians are our greatest andmost precious resource. While weapons systems and tactics inevitably change, our Airmen and Guardians remain the core of our ability to deter and, if necessary, defeat our competitors. We need multi-capable professionals who bring diverse ideas, leverage digital tools, and outmaneuver and out think our adversaries. Our Airmen and Guardians have committed to service and taken oaths pledging their lives to the protection of our Constitution. And while we are working to provide the best environment possible as we recruit, train, retain, and leverage our strategic advantage—our people.

As a Department, we are working to increase diversity and inclusion, build and fortify resiliency, support our families, and develop empowered Airmen and Guardians. We must ensure a culture of dignity and respect. We must ensure our people have both high quality of service and high quality of life. This starts with ensuring Air Force and Space Force leaders represent the Nation and our Core Values. Our Nation's defenders must be empowered, resilient, agile, innovative, well-led and clear on how much they are valued.

Diversity

A diverse and inclusive force is a warfighting imperative. The Department of the Air Force must attract, recruit, and retain talented Americans from all backgrounds to leverage diverse ideas and experiences. By

harnessing Airmen's and Guardians' diverse experiences, geographic and socioeconomic backgrounds, cultural knowledge, and language abilities, we possess an asymmetric advantage over ourcompetitors.

To sustain our lethality and credibility, our force must be truly inclusive and reflect the best of the diverse society we serve. This includes removing barriers to service—from reviewing our accession andassessment tools and career development, to expanding outreach to underrepresented minorities through diversity recruiting and increasing scholarships at minority-serving institutions. It will also include modernizing how we develop Airmen and Guardians, transforming our personnel and talent management systems, and championing a culture of support and inclusion for all Airmen, Guardians, and their families.

Sexual Assault Prevention and Response

Sexual assault is a crime that undermines force lethality, readiness, and mission success. The Department of the Air Force is committed to eradicating sexual assault using effective, research-basedprevention. These efforts utilize assessment tools to identify those at high risk for unethical behavior, equip all leaders with information and goals to reduce assault risk factors, educate the force on intervention skills, and promote positive unit culture to eradicate sexual assault. When sexual assault does occur, the Department is dedicated to supporting victims and prosecuting those who would harmothers through the chain of command and Uniform Code of Military Justice.

Suicide and Personal Violence Prevention

The prevention of suicide and interpersonal violence remains a difficult challenge. To reduce the incidence of suicide, the Department of the Air Force is undertaking a leadership-driven public-healthapproach informed by data and analysis while partnering with academia, industry, and our sister Services to include diverse ideas and perspectives.

The Department of the Air Force is also committed to eliminating interpersonal violence in any form. Domestic violence, child maltreatment, workplace violence, and sexual assault negatively impact victims, families, units, mission effectiveness, and the Department as a whole. We are dedicated to a strategy that leverages the latest science, implements best practices, and incorporates feedback from our members. Should these acts of violence occur despite our prevention efforts, we are committed toproviding victims the necessary care and holding perpetrators accountable.

Quality of Life

We owe our Airmen and Guardians the best quality of life possible. We must continue work to improve all the professional and personal aspects of life for each of our Airmen and Guardians, and their families.It includes professional development, housing, child care programs, healthcare, education, and spousal employment, among many others. We are integrating the availability of quality housing, health care, occupational licensing reciprocity, and school caliber into our strategic basing criteria—ensuring our families have the best support possible. The Department is committed to continuing these worthy efforts. Our Airmen and Guardians deserve nothing less.

A DEPARTMENT OF THE AIR FORCE FOR 2030

As the Department of Air Force prepares to celebrate 75 years of service to our great Nation, the Air Force is transforming itself to address the challenges of near-peer adversaries while the newest branch of the U.S. Armed Forces—the Space Force—is creating and integrating a Service purposely built to compete, deter, and win in the space domain. Both Services, and the entire Department of the Air Force,are dedicated to protecting the Homeland and democracy around the globe. We must modernize and

integrate to meet the challenges posed by great power competition, climate change, cybersecurity, fiscal constraints, and worldwide pandemics. With Congress's support, we will maintain our dominance of the high ground, and we will ensure the American way of life for generations to come.

UNITED STATES AIR FORCE

VISION FOR CHANGE—AMERICA'S AIR FORCE FOR 2030

America fights as a joint team, and the U.S. Air Force is the only Service that can meet our Nation's adversaries with mass, speed, agility and survivability on near-immediate timelines. The Air Force sees, senses, and communicates globally. The Air Force monitors our adversaries' movements, deploys forcesen masse, deters competitors, and strikes enemies without warning. No one else can do it. Without theAir Force, the joint force loses. Only with a modernized and ready Air Force is the joint team—and our Nation—secure.

The American homeland is no longer a sanctuary. Our citizens face threats from a variety of actors in both the physical and digital arenas. Competitors, especially the China and Russia, continue aggressive efforts to negate our long-standing warfighting advantages while challenging America's interests and geopolitical position. While the Nation was focused on countering violent extremist organizations, greatpower competitors focused on the American way of war. They studied, resourced, and introduced systems specifically designed to defeat Air Force capabilities that have strengthened the joint force for a generation. That is why the Air Force must accelerate change now, so we can protect the American way of life in 2030 and for decades to come. Simply put, if we do not change, we risk losing. We risk losing ingreat power competition, we risk losing in a high-end fight, and we risk losing quality Airmen and families.

The President clearly stated that diplomacy is our primary means of engaging with the world: it must be our first tool of choice. The President likewise recognizes that our decisions and actions must come froma position of strength. The Air Force offers safe, secure, and effective nuclear deterrence, which strengthens national policies. It is also important to recognize that air dominance is not an American birthright. The Air Force is pivotal to deterring these aggressors and bolstering our allies and partners.
America remains committed to freedom of the commons to support maintaining the rules-based international order around the globe. Control of the air and enabling domains ensures that the jointforce has full freedom of maneuver.

The diversity of our Airmen is both a tactical and strategic advantage. We are committed to recruiting and retaining the best of America. While the COVID-19 pandemic provided new challenges to our force, we remain devoted to caring for Airmen. Suicide and sexual assault persist as challenges that we are tackling head-on. Likewise family support programs are vital to our resiliency as a Service. A diverse and inclusive Air Force helps us out-innovate adversaries today and overcome challenges tomorrow. And, weknow that each Airman—active duty, Guard, Reserve, and civilian, no matter their background—took an oath to defend the Nation for all Americans.

Airmen in the near future are more likely to fight in highly-contested environments. These complex, all-domain conflicts will result in combat attrition rates and risks to the Homeland that are more akin to World War II than the uncontested environments to which we have become accustomed. Given our ability to project power from afar, independent of forward access or lengthy prepositioning timelines, Airmen will be the first to respond to many emerging crises. In any scenario, the Air Force plays a uniqueand integral role to our collective deterrence and joint warfighting credibility. We must accelerate change to meet the challenges our Nation faces. This requires a relevant, modern force based on cutting-edge capabilities that will survive in future conflicts and shifting away from legacy platforms thatare increasingly irrelevant.

The Air Force is expected to provide enduring airpower capabilities irrespective of the threat encountered, the technology utilized, or the budget provided. The core missions of airpower—air superiority; global strike; rapid global mobility; command and control; and intelligence, surveillance, andreconnaissance—provide unequivocal advantage to the joint force. Only the Air Force provides air superiority, global strike, and rapid global mobility for the Nation. Without these missions, the Homeland is unprotected and America cannot project power around the globe. We are innovating and advancing our competencies with innovative capabilities such as the Advanced Battle Management System, which will increase commanders' decision advantage. Moreover, new approaches to our core missions enhance the joint force and answer the challenges posed by great power competitors.

The Air Force's future force design recognizes the need for change and the range of threats to the Nation, our allies, and partners. In 2021, we identified three key capability development areas for investment: connect the joint force, generate combat power, and conduct logistics under attack. Moving forward we will prioritize the resources that will allow us to continue to make investments in these areas, with more to come. Additionally, the Air Force will prioritize within its resources, affordable, analytically defensible, force structure and system capability proposals. Through partnership with Congress, the Air Force will prioritize resources to guard the foundations of national freedom and independence for America and our allies.

AIR SUPERIORITY

Combat power, regardless of Service, often depends on the Air Force's ability to deliver air superiority. Our competitors have fielded air forces, radar systems, and missiles that can attack our territory, bases, forces, and allies and partners, or defend against our military actions. Our job is to stop them through control of the air. To do this, we build understanding of the air situation and then use the right mix of capability and capacity to control the air while creating windows of air superiority—no matter the threat. As we stay ahead of our competitors, the Air Force needs flexible systems and agile design processes to field new capabilities at speed.

Current platforms will not fully support tomorrow's demands. Airmen are deliberately balancing today's readiness risk with capability modernization. Remaining ahead of adversaries who are committed to negating our technological edge requires investment in advanced capabilities. Likewise, access to domestic airspace allows us to train in realistic environments, which is essential to developing and maintaining these advanced capabilities. Near-peer competitors are challenging our capability to command the air. We must take action now to ensure the joint force's success tomorrow.

Future Air Superiority Capability

The F-35 Joint Strike Fighter is the cornerstone of our future fighter force and air superiority. Achieving air superiority in a future fight is strongly dependent on full-spectrum dominance. The F-35 and its 5th-generation capabilities are part of our fighter force design that outpaces key competitors. The Air Force is fully committed to the F-35 and needs it to be capable, available, and affordable. As we continue to receive the F-35 into the Air Force and increase our capability, it is important to manage our F-35 fleet in an intelligent and deliberate way to ensure we remain ready to deter adversaries, support our international allies and partners, and meet our Nation's security commitments worldwide.

The Air Force cannot successfully fight tomorrow's conflicts with yesterday's weapons. Our adversaries recognize that full-spectrum dominance is a national strength. As a direct result, competitors are investing to overtake our current warfighting advantage in the air. Next Generation Air Dominance (NGAD) ensures

we maintain air superiority in the future by introducing game-changing technology thatincludes digital engineering, open mission systems architecture, and agile software. NGAD is not a singleplatform—it is a capability focused on fielding capabilities to mitigate identified capability gaps, not on creating a "next-generation" aircraft. The capabilities NGAD provides will ensure survivability, lethality, and persistence while seamlessly integrating with the Advanced Battle Management System via a mix ofmanned, unmanned, and even optionally-manned aircraft along with advanced stand-off weapons.

We will complement NGAD and currently fielded 5th-generation fighters such as the F-22 and F-35 with the F-15EX. Acquiring this re-designed aircraft allows us to shore up our fighter force while driving down sustainment costs, our fleet's average age, and inherent risk. By leveraging our partners' investments in the F-15 platform, the Air Force is efficiently fielding a familiar aircraft with proven tactics. It also boastsan open mission software system, which allows us to easily update the computer and avionics software.

GLOBAL STRIKE

Global strike is critical to our national power and an enduring airpower capability. Regardless of the aircraft, weapon, or system employed, we must maintain the capability to attack at a time and place of our choosing. As China and Russia develop new weapons and defenses, we must modernize and develop capabilities to maintain a competitive advantage. Both nuclear and conventional strike must be integrated to compete against these near-peer adversaries. Air Force strike operations are precise, and these effects are delivered through standoff capabilities as well as penetrating platforms.

Nuclear deterrence allows the Nation to negotiate from a position of power. A credible, capable, andsafe nuclear deterrent provides the United States and our allies with an umbrella of protection while discouraging the use of nuclear weapons by all nations. Likewise, a strong nuclear strike capability deters conflict.

For precise, conventional attack capabilities to succeed, they must be capable of penetrating highly-contested environments. To maintain our advantage, the Air Force requires capabilities that incorporate domain awareness, full-spectrum survivability, extended range, and sufficient payload. It is vital that our capabilities keep pace as threats evolve. By leveraging human-machine learning, the right mix of manned and unmanned systems, and agile design processes, our global strike capabilities will provide responsiveness, precision, flexibility, connectedness, and integration across the joint force.

The United States Air Force has the unique ability to sense, see, and strike any target, anywhere, at any time, nearly instantaneously, from anywhere in the world. On a daily basis, one aspect of these capabilities is on full display as our bomber task forces execute training scenarios with our allies and partners. It is no secret that potential adversaries closely monitor global activity—these maneuvers make adversaries think twice about conducting malign activities while reassuring our allies and partners.

The Air Force's global strike capabilities have the range, speed, and flexibility required in a conflict andare far less as dependent on pre-positioning or forward-basing. A continued investment in modernization efforts to our bomber and tanker fleets will ensure our long-range capability for the future. Additionally, a renewed emphasis into air base defense, along with Agile Combat Employment and Joint All-Domain Command and Control concepts will ensure the United States maintains theworld's greatest military asymmetric advantage well into the future.

Ground Based Strategic Deterrent (GBSD)

The Nation requires a fully modernized nuclear triad and supporting infrastructure to maintain our nuclear deterrence capability. Deterrence operates in peacetime, through the gray zone, worldwide, across all domains, and into conflict. And, deterrence requires all three legs for a responsive nuclear triad. By not maintaining a reliable U.S. Intercontinental Ballistic Missile (ICBM) force, we risk deterrenceerosion against not one, but two strategic nuclear adversaries. This is too high of a risk to our Nation's security. Our ICBMs have provided a highly reliable and secure deterrent capability since 1959. Delaying their modernization for the last two decades necessitates a comprehensive weapon replacement.

The Ground Based Strategic Deterrent (GBSD), the ICBM replacement, capitalizes on the strengths of a land-based triad component that is survivable, efficient, and geographically dispersed, while replacing aging components and addressing asset attrition along with the ICBM force's declining infrastructure.

B-21 Raider

Our bomber force constitutes the second critical leg of our Nation's nuclear triad and the B-21 Raider aircraft will be the backbone of our future bomber force. The B-21 will possess the range, access, and payload to penetrate the most highly-contested threat environments and hold any target around the globe at risk. This new bomber will provide the capabilities to deter and, if needed, win in high-end, near-peer conflicts. And with bombers as the most flexible leg of the nuclear triad, the B-21 underscoresour national security. This aircraft will support combatant commanders across the range of military operations as both a nuclear and conventional bomber.

Over the past three years, the B-21 program accelerated from design to physical manufacturing of aircraft. While building test aircraft, the program is scaling manufacturing infrastructure and capacity across the industrial supply base. In parallel, B-21 beddown preparations continue on-track to supportthe Nation's newest bomber aircraft projected arrival in the mid-2020s.

Long-Range Standoff Weapon (LRSO)

The Air Launched Cruise Missile is nearly 30 years beyond its intended design life and faces evolving threats and availability challenges. Recapitalization of these missiles via the Long-Range Standoff Weapon (LRSO) is vital to our nuclear deterrence capability.

As our competitors improve their air defense systems, our stand-off delivery capability diminishes. In order to maximize our capabilities, the Nation requires a modernized bomber fleet and the LRSO. This weapon's ability to penetrate contested airspace and survive adversaries' defenses holds targets at risk and is a cost-effective way to modernize the nuclear triad. Additionally, bombers armed with LRSO provide a recallable and re-targetable capability which can hold any target at risk—it is both a visible andtailorable deterrent.

Hypersonics

The Air Force is also investing heavily in hypersonic weapons. This cutting-edge technology increases the Nation's rapid strike capabilities. By leveraging hypersonic weapons' improved maneuverability, America will have additional response options to deter adversaries and reassure allies. An operational hypersonic air-launched weapon enables the United States to hold fixed, high-value, and time-sensitive targets at risk in contested environments from stand-off distances. To that end, the Air Force is developing the Air Launched Rapid Response Weapon (ARRW) using the middle tier of acquisition rapid prototyping authority. ARRW is on track to be the Nation's first operational hypersonic weapon. Hypersonics—and global strike as a whole—enable diplomacy by strengthening the negotiating position of the United States.

RAPID GLOBAL MOBILITY

The Air Force capability that most directly, and physically, supports both the Air Force and our joint teammates is rapid global mobility. Airmen conduct Rapid Global Mobility operations to project and sustain combat power by moving personnel, material, fuel, and supplies across the globe, in and through permissive and contested threat environments on short timelines. The combination of speed, range, flexibility, and responsiveness is what differentiates air mobility operations from other forms of transport and is critical to multi-modal operations contributing to a higher pace for Joint All-Domain Operations. As threats evolve and the United States can no longer operate from well-established fixed bases, rapid global mobility is the lynchpin to persistent logistics, and we are examining unique ways to utilize mobility aircraft.

Air Refueling

Air refueling, one segment of rapid global mobility, is foundational to worldwide power projection. The ability to extend the range and persistence of air platforms provides a decisive advantage and deterrent against adversaries. To maintain our air refueling edge, the Air Force must continue investment in the KC-46 while moving beyond legacy KC-10 and KC-135 aircraft. The inability to phase the divesture of thelegacy tanker fleet shackles funding and manpower resources and hampers the fielding of the more capable KC-46 at the rate required to support combatant commanders. This negatively impacts air refueling capacity and tanker advancement. Offsets from legacy tanker divestment in both funding andmanpower are critical to the success of the KC-46 and air refueling as a whole.

Emerging Logistics

Every 4.2 minutes a mobility aircraft takes off from an airfield somewhere in the world. This is a unique opportunity as mobility aircraft are envisioned as critical nodes in the Advanced Battle Management System framework. Mobility platforms of all types can act as sensor nodes, inputting information into the sensing grid and increasing a commander's decision advantage. At the same time, we are exploring novel approaches to logistics through Agility Prime, which is developing electric vertical takeoff-and- landing vehicles (eVTOL). This innovative program will help us rapidly move small numbers of personneland equipment around a battlefield and quickly rise to respond to emerging challenges such as isolatedService members. We are also training Airmen and developing concepts and practices that allow fordispersed, defendable, and mobile logistics networks. We are establishing agreements with allies and partners that provide access, and the ability to expand access, to key aerial ports, seaports, storage nodes, and associated connections.

Command and Control (C2)

Inherent to outthinking adversaries is the ability to command and control (C2) the joint force. Combatant commanders require an agile military that operates seamlessly across domain boundaries atboth speed and scale. The Air Force's current C2 structure is based on a Cold War-era design that is vulnerable and slow—a roadblock to the goal of rapid and agile decision making. The enemy can easily target our C2 structure's centralized nodes with both kinetic and non-kinetic means. C2 must
be resilient to attack, responsive to rapid changes, integrated across all domains, and secure from exploitation. This core mission allows the joint force to create an advantage by converging units and capabilities at a time and place of our choosing.

Achieving decision advantage for combatant commanders requires both sensors to gather data and a C2 network to translate and share data across the joint force. Real-time dissemination of actionable information, aided by artificial intelligence and machine learning, allows joint warfighting across all domains at a pace faster than our competitors. This speed matters to the decision maker and the warfighter. And, with the proliferation of technology, future warfighters will have the ability to observe, orient, decide and act within minutes—as opposed to hours and days.

Advanced Battle Management System (ABMS)

A critical step towards accelerating command and control architecture is the Advanced Battle Management System (ABMS)—the Department of the Air Force's contribution to Joint All-Domain Command and Control. As a new approach towards information sharing and decision management, ABMS enables compressed decision making and converging effects without domain or geographic boundaries. As a family of capabilities—versus a single system—ABMS creates a digital environmentcapable of increasing awareness, creating greater understanding, and enabling superior decision making—all of which is critical to prevailing in future conflicts.

As a simple analogy, ABMS strengthens decisions by channeling necessary information and capabilities through a "military internet of things." This internet, designed with digital standards, is being purpose-built to deliver critical capabilities to the joint force including secure processing, connectivity, data management, applications, sensor integration, and effects integration. ABMS helps overcome the Cold War-roadblock of vulnerable command and control nodes. For instance, by transforming from a small number of air operations centers to a "military internet of things," ABMS allows for agile, distributed, and mobile capabilities able to execute mission command even when fractured by an enemy attack.

ABMS's infrastructure is critical to ensuring the joint force connects sensors to shooters with machine- to-machine precision and speed while increasing commanders' awareness. And just like the development of the internet, ABMS is being built across multiple fiscal years. FY20 and FY21 have focused on exploring how we can best connect sensors and shooters while building partnerships with our industry partners. Moving forward, the Air Force will prioritize resources to allow the continued building of ABMS's digital network environment and infrastructure. By prioritizing the resources to support ABMS investment, the Air Force will be able to initiate replacement of human-in-the-loop data transfer processes with machine-to-machine data exchanges allowing for delivery of multi- domain secure processing and data management, connectivity, and applications that synchronize sensors and networks. In turn, the joint force is enabled to make decisions faster than the adversary is able to respond.

Nuclear Command, Control, and Communications (NC3)

Nuclear Command, Control, and Communications (NC3) systems act as the central nervous system of our nuclear deterrent. They link the President and national leaders to the nuclear force—all day, every day, under all conditions, without fail. Without NC3, we cannot effectively command and control nuclearforces. And without effective command and control of nuclear forces, we cannot deter adversaries.

Previously, electromagnetic pulses posed the greatest challenge to our NC3 networks. Now, electronic warfare, cyber-attack, and threats from space all provide challenges to key nodes and systems. Russia, while embracing a doctrine of nuclear escalation in conventional conflict, is nearly complete with its recent full range of nuclear modernization efforts. Equally concerning is China's pursuit of new nuclear capabilities tailored to achieve its national security objectives while also modernizing its conventional military.

As we modernize our portion of the nuclear triad, we must also modernize our NC3. The Air Force is pursuing communication capability enhancements with respect to our bomber force and Ground Based Strategic Deterrent so they will be fully integrated into our current NC3 systems and has flexibility to adapt as NC3 systems are modernized. Moreover, we understand that the strategic environment evolves and is increasingly dynamic. Our NC3 architectures and modernization plans will be adaptable, look beyond the near-term, and integrate with the Advanced Battle Management System (ABMS). WhileABMS will enable conventional forces, it will also enable nuclear forces with rapid, multi-path transmissions that will transform NC3 from a Cold War-era relic into a C2 network operating at speeds our adversaries cannot match.

Successfully executing command and control across the joint force requires information. A major avenue for that information is the Air Force's intelligence, surveillance, and reconnaissance capabilities.

INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (ISR)

The Air Force conducts intelligence, surveillance, and reconnaissance (ISR) missions to analyze, inform, and provide joint force commanders with the knowledge needed to achieve decision advantage. This ISR sensing grid consists of a robust multi-layered network of sensors, platforms, people, devices, and services with the goal of delivering a holistic, accurate, predictive, and timely characterization of the operating environment. This network is interoperable with the joint force, the intelligence community, allies, and partners. Domain awareness is underpinned by automation, connectivity and analysis; is rooted in intelligence; and is critical to the future of warfare. In that future, ISR underpins the Advanced Battle Management System (ABMS) architecture and allows joint force commanders to achieve an accurate, real-time understanding of the environment. This understanding accelerates decision making, effectively conducts command and control, and achieves decision advantage ahead of competitors.

Future ISR capabilities must be survivable against high-end threats while leveraging forward-looking investments in command and control capabilities—including emerging technology like artificial intelligence—to present decision-ready information faster than our adversaries' capabilities. The Air Force's current ISR systems are viable in a counter-insurgency war, but may not effectively contribute in tomorrow's competitive environment. Without investment in additional capabilities necessary for the high-endfight, we will be reliant on ISR platforms that will be ineffective in highly-contested and denied environments. As a result, we risk fighting blind.

Survivable, Relevant Platforms

ISR platforms play a critical and continuous role in supporting a range of military operations. The most important role of intelligence in military operations is to provide analysis of key aspects of the operating environment to facilitate timely military decisions. Current ISR platforms have been able to accomplish this task with relative ease because they operated in uncontested and low-threat environments where the United States enjoys superiority across all domains of warfare. Such freedom of action will not be the case in the future. Future threats will challenge the ability of legacy ISR platforms to successfully execute their missions.

In the near future, ISR platforms will feed critical data through the Advanced Battle Management System (ABMS), which in turn will present near real-time information to joint force decision makers. Future airborne ISR platforms will need to survive and operate in a more challenging environment. Ongoing modernization efforts will focus on a family of platforms that are effective, resilient, and survivable against technologically-advanced threats, and able to pass data to necessary networks at machine speed. In our

discussions going forward, we will steer away from platform-centric conversations and focus instead on the capabilities needed to inform joint force operations.

Our adversaries are already fielding technologies that will hold our legacy platforms at risk to support the range of military operations in a future high-end fight, and the technological evolution will continue to accelerate. In order to keep pace ahead of emerging threats, we must work with the combatant commands to assess the demand signal on current fleets and where acceptable risk can be taken so the Air Force can accelerate modernization. Legacy ISR platforms, once considered irreplaceable to operations, are often unable to survive or deliver needed capabilities on competition-relevant timelines. These legacy platforms must be phased out, with resources used to invest in modern and relevant systems. Working together, we must take calculated risk now in order to reduce the greater future risk.

For instance, the RQ-4 Block 30 Global Hawk was crucial to the ISR requirements of yesterday and today. However, this platform cannot compete in a contested environment. And tomorrow's conflicts will be contested. Moving beyond this platform allows us to bring the ISR enterprise into the digital-age by using sensing grids and fielding advanced technology thatincludes penetrating ISR platforms. The Air Force will continue to pursue the FY21 NDAA RQ-4 Block 30 divestment waiver in order to repurpose the RQ-4 Block 30 funds for penetrating ISR capability. Overall,intelligence collection will transition to a family of systems that includes non-traditional assets, sensors in all domains, commercial platforms, and a hybrid force of 5th- and 6th-generation capabilities.

A comprehensive investment strategy that the Air Force is bringing forward synchronizes divestment of legacy platforms, takes calculated risk in upgrading existing platforms, and introduces the next- generation ISR family of systems that will feed into ABMS.

NEW APPROACHES

The Air Force's core missions encompass both enduring capabilities unique to our Service and some capabilities shared with the joint force. Airmen are rapidly iterating and innovating improvements to all core missions. These new approaches to airpower overcome today's roadblocks and focus on tomorrow's great power challenges. Both technology and operational concepts benefit from our Airmen's perspectives. Every day, Airmen increase the agility, speed, resilience, and lethality of our contributions to the joint force.

Force Generation Model

The Air Force is also re-examining how we present forces to combatant commanders. The core missionsof the Air Force continue to be in constant demand around the world. And because many of the capabilities we provide are exclusive to our Service, our forces have been under strain for two decades. This strain negatively impacts readiness and our ability to modernize.

Preparing for near-peer adversaries, the Air Force is implementing a new force generation model focused on building and sustaining long-term, high-end readiness. Our goal is to more effectively articulate readiness impacts and capacity limits, and instill discipline into the system. Our new, simplifiedmodel, realigns the Air Force with the Joint Staff's three phase model, is easily understood by combatant commanders, builds towards sustainable readiness, and balances current operations with the training necessary for future full-spectrum combat operations.

Agile Combat Employment (ACE)

The Advanced Battle Management System (ABMS) not only connects sensors and shooters but also enhances persistent logistics by sensing the threat landscape and material environment. Persistent logistics, with the inherent ability to posture, sense, and respond, is the warfighting answer to the key operational problem of logistics under attack and enables Agile Combat Employment (ACE). ACE is the ability to quickly disperse & cluster forces to a cooperative security location and conduct operations across all domains with minimal disruption, while maintaining operational flexibility. This new method of operating will allow the United States to confuse the enemy and strike at a time and place of our choosing with minimal risk. The ability of ACE to sustain combat operations through persistent logistics has already been validated through multiple exercises across both the Pacific and European theaters.

ACE requires technological advances like ABMS, novel equipment, and innovative Airmen. Our Airmenare tackling ACE, and the larger challenge of persistent logistics, by adapting techniques previously associated with special operators. Our commanders support these efforts by encouraging critical thinking skills and driving decision making to the lowest levels—in many cases our youngest frontline supervisors. These empowered Airmen are innovating new approaches to projecting combat power across the globe.

Base and Critical Infrastructure Defense

The Department's infrastructure defense efforts are currently focused on directed energy research, development, test andevaluation; counter-small UAS; and investments in cruise missile defense. In the coming years, we will steadily increase investment of critical infrastructure defense measures to meet the challenges of the future fight, ACE, and logistics under attack.

As China and Russia develop weapons that challenge our superiority in the air, they are also making strides that hold our bases at risk. While the Air Force will mitigate some risk through persistent logistics, the security of our air bases is essential to conducting combat operations. Like other aspects ofcombat operations, base defense is inherently joint. And just as the joint force is dependent on the Air Force to execute our core missions, the Air Force must leverage our sister Services for base defense.

If future expeditionary and permanent air bases are not protected from attack, the Air Force will be challenged to conduct combat operations. Without the Air Force's air superiority, the joint force is at risk of attack from the air for the first time since the Korean War. The Air Force acknowledges that this is a joint problem that requires a joint solution, which is why we have allocated experimental funding to explore and develop directed energy and kinetic and non-kinetic base defense options. Looking forward, the Air Force will prioritize resources that will allow it to continue prototyping the ability to detect, track, identify, and mitigate small unmanned aircraft system threats. Proper base defense encompasses significant decisions with far-reaching impacts—we must get this right.

Infrastructure

We project power, generate readiness, test new platforms, train to support joint operations, and provide safe and healthy communities for our families at our bases. As the joint force becomes increasingly dependent on an integrated battle network, installations also serve as key nodes in enablingmission success around the world. The readiness and resiliency of installations is a matter of strategic importance to ensure the Air Force can always provide combat capability. Changing climate and severe weather events are a continual threat to our installations, and we have seen first-hand the impacts climate and severe weather have on our installations.

The Air Force views installation resilience as the capability of a base to project combat power by protecting against, responding to, and recovering from deliberate, accidental, or naturally occurring events that impede operations. We are taking a deliberate, holistic approach to installation resilience through Department of the Air Force's Installation Energy Strategic Plan. This includes improving the resiliency of our energy, cyber, infrastructure, and response options.

AMERICA'S AIR FORCE FOR 2030

This year we celebrate America's 245th birthday and next year the Air Force celebrates its 75th anniversary. Throughout our history, the Nation prospered because of our willingness to adapt and evolve, to adjust course when the situation dictates. Democracy is not a birthright, and neither is airdominance. And although airpower is our great comparative advantage, tomorrow's competitive environment requires that we accelerate change or lose.

Tomorrow's battlespace will be shaped by human talent, climate change, constricting budgetary resources, and challenges posed by great powers. The Air Force and its core missions stand ready to exploit the air domain, provide nuclear deterrence, and underwrite the national security America expects and requires. By working with Congress, we will protect the Homeland and defend democratic ideals. Moving forward, the Air Force will prioritize its resources so it is able to adapt our equipment, support our Airmen, and bolster our core missions. We must continue to adjust course and overcome situational challenges so America maintainsits airpower advantage.

America cannot wait to modernize the Air Force any longer, not one year, one month, or one week. Todeter and defeat today's competitors and tomorrow's adversaries, we must re-capitalize our Air Forceand we must do it now… the call to accelerate change or lose is not hyperbole—it is a requirement.

UNITED STATES SPACE FORCE

SECURING AN ENDURING ADVANTAGE

The United States is a space-faring nation. We have long understood that our nation is strongest economically, militarily, and diplomatically when we have access to, and freedom to operate in, space. Unfortunately, potential adversaries have taken note of the United States' reliance on space, and this vital national interest can no longer be taken for granted; it must be secured. The rapid advancements of potential adversaries to threaten U.S. freedom of operation in space must be countered with immediate improvements to our space defense architecture and capabilities.

Competitors like China and Russia are challenging America's advantage in space by aggressively developing weapons to deny or destroy U.S. space capabilities in conflict. Both China and Russia have mobile ground-based laser and electronic warfare systems capable of jamming and blinding our satellite systems. . China has invested in satellite grappling technologies, like the Shijian-17 satellite's robotic arm, which could be used in future conflicts. Russia has tested an on-orbit system that has released a projectile designed to destroy U.S. satellites in low-Earth orbit.

The United States would prefer that conflict not begin in or extend to space. Our goal is to deter conflictin space from happening and from spilling over into other domains, and the best way to do so is from a position of strength. We are prepared to protect U.S. interests today and we are moving fast to ensure we can deter in the future, but our ability to deter conflict hinges on demonstrating both capability and resolve. Over-classification of existing systems threatens this ability, and we are developing a reveal and conceal strategy to ensure we can compete, deter, and win in this contested domain.

The Space Force was established to protect U.S. investments and freedom of operation in space, provide space capabilities to the Nation, the joint force, sister Services, the intelligence community, and our allies and partners. The Space Force is designed to be lean, agile, and innovative in order to move at speed and compete in the vast domain of space. Our small size also makes us the ideal pathfinder to validate new structures and approaches that can provide benefit across the joint force. While our budget is roughly two percent of the Department of Defense's request, the capabilities we deliver underwrite the force design of the entire joint force. Space capabilities have become a cornerstone of deterrence, not just in space, but in every domain. Without space, our forces abroad, security at home,and allies everywhere are at much greater risk. If we lose in space, America loses.

We spent the first year inventing the Space Force, with an organizational design that reflects the character of our operating environment and the nature of conflict that is likely to manifest. A headquarters and Field Command structure aligns complementary functions and streamlines command authority in the deliberate pursuit of speed and agility. Our first field command, Space Operations Command, stood up in October 2020 as the primary space forces provider to the combatant commands.We will establish the remaining two field commands before the end of 2021: Space Systems Command will develop, acquire, and field operationally relevant and resilient space capabilities in resilient and defendable architectures, and Space Training and Readiness Command will develop tactics, a testing enterprise, doctrine, advanced warfare training, and a dedicated cadre of warfighting professionals. We have already transferred space missions, billets, and monetary resources from 23 Air Force units to the Space Force, and we are preparing to merge operations, acquisition, and sustainment for some space

systems currently distributed across the Army, Navy, and the Office of the Secretary of Defense,including the Space Development Agency beginning next year.

In our second year, we are aggressively integrating the Service into the fabric of national and international security by collaborating across the Department of Defense, interagency, commercial industry, and our allies and partners. As the Space Force creates independent military options for decision makers, we are preparing a force presentation model to optimize integration and delivery of space capability to the joint force. We are working to streamline acquisition processes to increase decision speed and expedite capability development, creating an integrated test enterprise, and doing the analytical and developmental work to create the most effective and efficient force design for the domain to bring unity of effort across the department. Lastly, we have initiated planning for a National Space Intelligence Center to provide scientific and technical intelligence as well as foundational space intelligence to the Service and the intelligence community. These initiatives make us more resilient andcompetitive, and they will put us in a better position to sustain continuing advantage.

DEVELOPING AND CARING FOR GUARDIANS

The character of operations and aspects of potential conflict in space are fundamentally different from the military art of terrestrial domains. Vast distances and speeds, potential for first-mover advantage, and unique operating environment demand experts that are familiar with these physical characteristics.As in all other domains, Guardians must stay ahead of adversaries to give joint commanders and national civilian leadership new space-based security options. This requires a dramatic change in how we attract, recruit, develop, train, and retain talent.

We are committed to ensuring that the Guardians reflect the diverse character of the United States—it is a national security imperative. Diversity gives us the perspective and skills to meet the challenges of our security environment and ensures we can bring our nation's best talent to bear on the hardest problems. In order to meet these goals, we must work hard to address tough issues like sexual assault, extremism, and discrimination within the force; solving these problems is essential to building a Servicethat ensures talented people of all genders, orientations, races, ethnicities, and beliefs are included andempowered to reach their full potential.

Guardian Strategy

To win the battle for talent, we have created a Human Capital Office to develop a new strategy for unified talent management for all Guardians, in pursuit of an inclusive and team-centric culture. Our small size creates the opportunity and the mandate for a tailored approach to caring for and developingour Guardians from accessions to retirement and beyond.

This "Guardian Strategy" will lead digital enablement by creating a digital cadre, an optimized data infrastructure, increased process automation, and new digital platforms. Using interviews and other assessment tools as well as focusing our Reserve Officer Training Corps presence at select universitieswill support both diversity efforts and needs for space related research and technical grounding. We look to develop and employ talent by taking a competency-based development approach, mandating more robust feedback systems, and creating potential-based promotion assessments with sequenced talent management boards. In our first year, professional development opportunities and promotion rates have increased significantly; we must reinforce systemic change to make this an enduring effect.

The Space Force is developing its own officer and enlisted professional military education (PME) programs to fit within the broader concepts of the Guardian Strategy to ensure that all members are career-long learners, and that learning directly relates to the success of their current and future duties. Space Force PME will focus on the development of space-minded warfighters who are credible and effective in multi-domain warfare and the joint environment. We have already expanded space curriculaat Airman Leadership School; stood up a Space Force Non-Commissioned Officer Leadership Academy; expanded the Schriever Space Scholars Program at Air University; and created the West Fellowship for Senior Developmental Education. Finally, we are taking a proactive approach featuring teams at the unitlevel to strengthen social, physical, and mental attributes to energize personal and organizational resiliency. As the Space Force takes care of Guardians and their families, it must prepare them to defend our Nation. Space Force talent must be deliberately managed by well-positioned humanresources mission partners in the field commands and headquarters office to support both military and civilian Guardians.

Training and Doctrine

We have completely redesigned our space training and doctrine across all space operations competencies, beginning with publication last year of a foundational doctrine document. Our training has elevated from basic operation of space systems to threat- and target-based advanced space warfaretraining. Guardian training and doctrine focuses on seven core competency areas, through advanced training and education: orbital warfare, space electromagnetic warfare, space battle management, space access and sustainment, military intelligence, cyber operations, and engineering and acquisition. Our shift in training and doctrine must be complementary to our capabilities and reflect the reality of our current and future missions. Additionally, Space Training and Readiness Command is bringing together training and doctrine to support our tactics, strategies, and theories of victory.

VALUE OF PARTNERSHIPS

An independent Service focused on space has already provided greatly expanded opportunities for partnerships with civil and commercial space organizations within the United States and with allies and partners around the world. Working through the Department of Defense, close cooperation with the National Aeronautics and Space Administration and the Department of State has ensured a unified U.S. voice in discussions about responsible behavior in space with foreign governments. Similarly, through the Department of Defense, we continue to work hand in hand with the Department of Commerce on shared interests including space traffic management, positioning, navigation, and timing programs, applications, and efforts to maintain the space industrial base. We are working to expand cooperation with commercial partners using both traditional and innovative development pathways; seeking means for tighter fusion to take advantage of the enthusiasm and energy in the commercial space sector.

Internationally, our partnerships have historically been built around one-way data sharing agreements with a small number of countries. As the proliferation and importance of space capabilities increases around the world, we are fostering greater cooperation with international partners across the board. For example, a hosted payload agreement with the government of Norway will save us more than $900 million and helped us get capability on orbit two years faster. We are also working with NATO to further integrate space capabilities and knowledge in that alliance, including the stand-up of the first NATO Space Operations Center within NATO Air Command. Cooperation with allies and partners, on both capability development and operations, continues to provide opportunities to decrease cost and increase speed and innovation.

CREATING A DIGITAL SERVICE

Founded in the Information Age, the Space Force was "born digital." We are harnessing modern era advancements and tools to accelerate innovation and ensure our military advantages in, to, and from space. Under the leadership of the newly established Technology and Innovation Office, the Space Force focuses on partnering with U.S. government, science and technology industries, and academia to build a digital Service to support Space Force missions and business operations.

Digital Headquarters
Leaders at every echelon of the force require access to data and analytics in order to make informed decisions with speed and precision. A new data analytic environment and automation tools will streamline headquarter processes, enable seamless data sharing, increase decision space, and accelerate warfighting outcomes. Digital transformation is occurring in operational readiness, talent management (recruiting and onboarding), programming and budgeting, and capability development. Incapability development, digital models will enhance analyses of alternatives, iterate requirements decomposition, improve cost estimation fidelity, and ultimately accelerate the planning, coordination, and development of optimum solutions to meet critical warfighter needs.

Digital Operations
Commanders and unit-level Guardians are empowered to innovate inside their mission operations, explore novel concepts for space domain awareness, Joint All-Domain Command and Control, collaborate with small business innovators, and align innovation efforts for transition into operations. This effort includes partnerships with the Joint Artificial Intelligence Center, industry, and academia toadvance use of artificial intelligence applications and research.

Digital Workforce
Continuous transformation requires digitally-fluent military and civilian Guardians. Therefore, we are funding software-coding training for military and civilian personnel and leveraging Department-wide digital training efforts to improve digital literacy using industry-leading commercial courseware. To achieve the goal of a digital workforce we must cultivate our collective digital acumen, develop an expert cadre of "Supra Coders," and equip and empower them to apply agilesoftware practices, use artificial intelligence, and data science. Finally, we must place them strategically across the force to unleash their talent and energy toward inventive, innovative solutions in operations and acquisition.

ACCELERATING CAPABILITY DESIGN, DECISION, & DELIVERY

The Space Force must modernize its architecture to survive and execute spacepower missions in a contested domain and do so at speed. To this end, the Space Force is engaged in an end-to-end transformation of organizations and processes to accelerate delivery of operationally-relevant capabilities. Consistent with our effort to become a "Digital Service," we will exploit our digital engineering systems as a backbone to connect multiple processes and accelerate capability development activities from analysis to integration, decision, and acquisition.

Integrated Analysis for Optimal Design
The Space Warfighting Analysis Center (SWAC), currently aligned under the Space Operations Command, is leading analysis, modeling, wargaming, and experimentation to generate new operational concepts and force design options for the Department of Defense. The SWAC integrates domain expertise with unique

analytic tools, datasets, and intelligence todevelop operational architecture options to fulfill space missions. By driving unity of effort, we reduce cost, duplication of effort, and increase our speed of decision and action

Digital Engineering to Better Inform Requirements
Rather than static reports, the SWAC's design options are digital models, which enable testing of proposed capabilities through simulation in an environment that accurately reflects fast evolving threatsand the space domain. The Space Force Strategy and Resources Office (SRO) integrates SWAC's design options with the appropriate processes to develop Service capability and programmatic options for presentation to the Joint Requirements Oversight Council and Deputy's Management Action Group. TheSRO also ensures digital models generate required data artifacts to inform oversight; Planning, Programming, Budgeting, and Execution; and acquisition actions.

Streamlined Governance for Timely Decisions
In order to support the Assistant Secretary of the Air Force for Space Acquisition and Integration, who will eventually have Service Acquisition Executive (SAE) authority and chair the Space Force Acquisition Council (SAC), the Space Force has established a supporting Program Integration Council (PIC). As a collaborative interagency leadership council, the PIC facilitates cooperation and deconfliction between National Security Space Enterprise stakeholders and ensures planning, alignment, execution, delivery, and optimization of capabilities across all space mission areas. Streamlined coordination across the enterprise via the PIC and SAC improves collaboration and better enables timely decisions by the SAE. The Assistance Secretary of the Air Force for Space Acquisition and Integration is an essential element ofthis approach and we look forward to implementing this congressionally-directed change as quickly as permitted by law.

Consolidated Space Acquisition Enterprise for Agility
Finally, in the summer of 2021 the Space Force will stand up the Space Systems Command (SSC) to provide for cooperation across space acquisition within the Department of the Air Force. Initially comprised of the former Space and Missile Systems Center (SMC) and the Service's launch enterprise, SSC will also have a limited administrative support relationship with the Space Rapid Capabilities Office(SpRCO) and—as of the beginning of FY23, per statute—the Space Development Agency (SDA). By aligning three organizations with a pedigree in traditional acquisition, disruptive acquisition, and commercial acquisition, the Department of the Air Force can access best-of-breed solutions. Because SSC acquirers will receive digital models with traceable requirements, Program Managers and ProgramExecutive Officers will be equipped to make faster, more agile decisions and trades. In addition, the space acquisition enterprise will continue to improve both commercial and allied integration.

MISSILE WARNING AND MISSILE TRACKING

Strategic and theater missile warning and missile tracking capabilities provide indications and warning to protect the homeland, joint forces and allies abroad. The evolution of threats to on-orbit systems force us to re-think both how we protect and defend our strategic assets, and how future strategic capabilities should be designed to mitigate threats. The Space Force is partnering with combatant commands, the Missile Defense Agency, National Reconnaissance Office, and the Space Development Agency to design and build a resilient missile warning architecture for the collective defense of our nation, joint force, and allies.

Next-Generation Overhead Persistent Infrared (OPIR)
We are designing and developing the future architecture for missile warning and missile tracking. Next-

Generation Overhead Persistent Infrared (OPIR) will succeed the current Space Based Infrared System (SBIRS) and will provide increased missile warning, missile defense, battlespace awareness, and technical intelligence capabilities with resiliency and defensive features to counter emerging threats.
The ground system for Next-Gen OPIR, also known as Future Operationally Resilient Ground Evolution (FORGE), migrates satellite command and control to the Space Force's Enterprise Ground Services, modernizes Mission Data Processing to implement an open framework, and upgrades Relay Ground Stations to meet United States Space Command's operational requirements. We are using Middle Tier Acquisition authorities to rapidly prototype solutions. This pathfinder approach delivers the first resilient geosynchronous satellite and associated ground system in FY25 and the first polar satellitein FY28.

POSITIONING, NAVIGATION, AND TIMING

The Global Positioning System (GPS) remains the "gold standard" for positioning, navigation, and timing for the United States and the world. GPS underpins the global economy and our way of war. Adversaries have long recognized our dependence on GPS and have proliferated technologies to degrade, deny, and spoof GPS signals for civil and military users. We are pursuing modernization efforts across the entire GPS architecture to include upgrades in space, ground, and user segments. The Space Force's future GPS architecture provides more robust positioning, navigation, and timing to the joint force, ensuring at least one technical generation advantage over any adversary.

GPS Space Segment
The Space Force is pursuing significant satellite enhancements to our GPS constellation, including higher-power military signals, new civilian signals, upgraded nuclear detection system payloads, and hosted search-and-rescue payloads. GPS Block III features improved signal strength and accuracy, increased anti-jam power, and a longer expected design life. The next block of GPS, GPS Block IIIF— available for launch in FY26—will deliver regional military-code protection, a higher power signal in agiven geographic area of operation to boost anti-jam capabilities for contested environments.

GPS Operational Control Segment Next (OCX)
Operational Control Segment Next (OCX) will develop and field a modernized ground system required for the command and control of GPS satellites. The OCX program is on track to meet current Acquisition Program Baseline cost and schedule milestones. OCX provides expandable, robust information assurance architecture to significantly improve cyber resiliency, enabling the latest military and civilian GPS signals, improving cyber protection, and allowing the system to evolve to combat emerging threats.We have completed product test, are currently progressing through segment integration, and will transition to operations in FY22.

Military Global Positioning System User Equipment (MGUE)
Military GPS User Equipment (MGUE) will modernize user equipment to enable precision fires, safe navigation, and time coordination across multiple platforms in GPS-degraded environments. Military- code receiver cards embedded in weapon systems enable cyber-secure, anti-jam, and anti-spoof precision, navigation, and timing for the joint force and our partners. MGUE Increment one (1) completed developmental testing of the Army and Marine Corps lead platforms in FY20. MGUE efforts support finalization of card design, testing, and integration with Navy and Air Force lead platforms. MGUE Increment two (2) leverages the MGUE Increment one (1) technology to the maximum extentwhile addressing the production of M-Code integrated circuits far into the future.

COMMAND AND CONTROL (C2)

Our top priority is to develop a Joint All-Domain Command and Control System to ensure United States Space Command and their joint and coalition warfighting partners have the capability they require to command and control in a contested domain. We have made considerable gains this year, fully integrated in, and helping lead, the Advanced Battle Management System (ABMS) effort. In recognitionthat legacy space command and control capabilities are insufficient for us to prevail in future conflict, we have prioritized the delivery of space command and control capabilities using a development, security, and operations (DevSecOps) approach to acquisitions. Leveraging the agile approaches of commercial software developers, we are rapidly developing cyber-resilient capabilities that enhance U.S., allied, and partner nation operational-level space warfighting capabilities against the adversary.

The initiatives below build and sustain the infrastructure required to connect sensors to shooters using machine-to-machine planning and tasking of warfighting capabilities.

Unified Data Library (UDL)

The Space Force built and delivered the Unified Data Library (UDL), a cloud-based, cyber-accredited, multi-classification data store that facilitates universal data access and serves as the foundational element of the ABMS data architecture in partnership with the Air Force. UDL provides all-domain secure Space Domain Awareness (SDA) data sharing from all Services and sensors to support space- focused Battle Management and Command and Control; it is also extensible to fit the needs of Joint All-Domain Command and Control. This effort adds long-term access to a wide variety of space domain awareness data sources including commercial, allies, and academia. The UDL creates unified, agile procurement of commercial products to bolster Combined Space Operations Center and National SpaceDefense Center operations. Additionally, it protects satellite tracking data by seamlessly integrating defensive cyber operations.

Space C2 Open Architecture Operational Prototype (SCOOP)

The Space Force has also delivered the Space C2 Open Architecture Operational Prototype (SCOOP) program, a modern cloud architecture that is connected to 40 sites nationwide. Leveraging the Department of the Air Force's prior work on open architecture standards, SCOOP delivers a command and control capability for our most pressing needs, with the ability to connect into other domains, andserves as the foundation of our next generation C2 capability.

Space Domain Awareness (SDA)

Space Domain Awareness (SDA) is the cornerstone of our ability to command and control warfighting capabilities. The Space Force budget invests in new terrestrial radars, optical sensors, and space-based capabilities and commercial partnerships to increase the quantity and quality of space observations. A robust SDA architecture improves our indications and warnings, ensures freedom of action in space, and enables joint and coalition options to defend critical space capabilities. Additionally, investments in secure connectivity and data sharing tools improve our collective understanding of our adversaries' capabilities and intent.

Nuclear Command, Control, and Communications

As part of Department of Defense's efforts to modernize the nuclear triad, the Space Force will provide and modernize the space and mission control segments for worldwide, secure, jam-resistant, and survivable communications. We are pursuing digital development efforts for the future disaggregated strategic and tactical satellite communications systems to meet emerging threats in the 2030- timeframe. Evolved Strategic SATCOM will continue the strategic mission of the Advanced Extremely High Frequency (AEHF) satellite program with improved on-board resilience features, upgraded satellitecapabilities, and

cybersecurity features. We are leveraging rapid prototyping demonstrations to speed the delivery of the space segment to meet the warfighter need date in 2032.

Space System Prototype Transition (SSPT)
Space System Prototype Transition (SSPT) is a portfolio of programs that rapidly advance next- generation space capabilities to the warfighter at the speed of relevance. The portfolio leverages the commercial industrial base and demonstrates common defense through partnerships to enhance resiliency. One example is the development and integration of space domain awareness payloads on two Japanese Quasi-Zenith Satellite System spacecraft. The hosted payloads will increase sensor diversityand enable space surveillance and event detection over USINDOPACOM in the geosynchronous orbit regime.

Transition to Enterprise Ground System (EGS)
Enterprise Ground System (EGS) will enable the transition from a family of legacy stovepiped satellite C2 systems to an improved, open, resilient, and common platform. The effort funds modernized system interfaces, virtualization, and the translation of mission applications to ensure rapid response to emerging threats and integration of new capabilities. We continue to develop a Minimum Viable Product for foundational services and infrastructure to provide an initial Enterprise Capability. EGS will integrate multiple new mission partners within the Space Warfighting Construct & Missile Warning mission threads, scale multiple services for existing mission partners, and integrate them at one or more of three EGS locations. Continued investment provides foundational services and infrastructure to deliver enterprise-wide command and control services to all Space Force satellite programs. We are on track to deliver a fully integrated system by 2028.

ASSURED ACCESS TO SPACE

National Security Space Launch (NSSL) provides assured access to space for the nation's most critical warfighting and intelligence capabilities. To meet the full set of National Security Space requirements, we must continue to competitively invest in domestic launch providers' development of new launch systems. The Space Force, National Reconnaissance Office (NRO), and the National Aeronautics and Space Administration have a coordinated strategy to certify new entrants to launch payloads, and continue to work with different launch providers to reliably meet our national requirements. The SpaceForce recently completed a five-year strategy to bolster a commercially competitive market and transition to domestic launch systems by awarding the NSSL Phase Two procurement contract.

Leveraging this strategy, we are pursuing five National Security Space Launches to deliver warfighting capabilities on time. Following the outcomes of our Phase Two launch procurement strategy, we will continue to engage with industry partners regarding emerging launch requirementsand technologies to invest in continued assured access to space.

National Security Space Launch (NSSL) Enabling Investments
We are investing in multiple public-private partnerships to develop enabling technologies for future space access, mobility, and logistics. Targeted investments in orbital transfer, on-orbit servicing, digital engineering, and novel on-orbit propulsion technologies will increase U.S. access and freedom to operate in space. We will continue to invest in providers of domestic launch services enabling our transition from non-allied space launch engines to domestic rocket propulsion systems. We will also continue technical maturation, risk reduction, and public-private partnership investment to expand domestic and cost-effective solutions for assured access to space. Additionally, the Space Force's research and development standards must reflect both the mission areas and the threat environment. The Space Force is building a

more defensible and resilient space defense architecture by disaggregatingon-orbit capabilities. We are building agile and threat responsive systems to complicate targeting.
Additionally, we are building redundancy and resiliency countermeasures into the spacecraft andpayload designs of our systems.

WAY FORWARD

Congress established the Space Force to ensure freedom of action for the United States in, from, and to space. This Department of the Air Force Posture Statement builds on FY21 efforts in strengthening our ability to deliver flexible capabilities and strategic options at operationally relevant speeds to outpace emerging and dynamic threats. The Service's streamlined and integrated organizational design also creates new military options with the joint force, inter-agencies, industry, and our partners and allies. We are eager to work with Congress to build a common understanding of both the strategy and the investments needed to secure our Nation's vital interests.