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HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE SEAPOWER AND PROJECTION FORCES
UNITED STATES HOUSE OF REPRESENTATIVES

PRESENTATION TO THE
HOUSE ARMED SERVICES COMMITTEE
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UNITED STATES HOUSE OF REPRESENTATIVES

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STATEMENT OF:

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INTRODUCTION

Chairman Courtney, Ranking Member Wittman and distinguished members of the subcommittee, thank you for having us here today to provide testimony on Air Force modernization. Additionally, thank you for your leadership and dedication to rebuilding the United States military. The modernization of America's Air Force is a critical national security issue worthy of attention and action.

Today's security environment is perhaps one of the most challenging we've faced as an Air Force when you consider the scale and scope of what our Nation demands of us. We face challenges in and across all domains in which the Air Force operates. Our ability to compete, deter, and win are being challenged by others. We are in global competition across the spectrum of potential operations, ranging from countering malign influence in gray zones all the way to deterring nuclear war. Others have made gains, and we cannot allow any gap between national security demands, and the resources provided to meet more demands to grow while continuing to operate at a pace that challenges readiness.

Thanks to your help, in recent years, together we have made solid gains in improving wartime readiness and returning some fiscal stability, but there remains work to be done, particularly in the area of modernization and force structure capacity; and our warfighting capability. The dialogue we have today will help us as we design and build a better future Air Force worthy of tomorrow's Airmen and out Nation.

STRATEGIC ENVIRONMENT

The National Defense Strategy captures the national security challenges we face as a Nation. The United States faces an increasingly complex global security environment, characterized by overt challenges to the free and open international order and characterized by

long-term, strategic competition. A rapidly growing China and resurgent Russia aim to coerce their regional neighbors, undermine long-standing alliances, and displace American influence from critical regions around the globe. North Korea remains a regional actor requiring vigilance as long as it possesses destabilizing capabilities. Iran's ambitions in the Middle East are paired with a willingness to undermine American allies' sense of security and regional stability. And lastly violent extremist organizations still possesses the will to target the innocent.

Our United States Air Force must be ready to compete, deter, and win in this complex and evolving security environment. We must defend the homeland; provide a safe, secure, and effective nuclear deterrent; and be able to defeat a powerful conventional enemy while we deter opportunistic aggression in another theater, and continue to disrupt violent extremists.

All of this drives how we design and modernize our forces. As the bipartisan National Defense Strategy Commission (NDSC) stated in its final report, "The United States needs a larger force than it has today if it is to meet the objectives of the strategy. The Air Force, Navy, and Army will all need capacity enhancements." Additionally, the same report acknowledges that the, "Air Force will need more stealthy long-range fighters and bombers, tankers, lift capacity, and intelligence, surveillance, and reconnaissance platforms."

CURRENT CAPACITY AND CAPABILITY

Our analysis aligns with the conclusions of the NDSC. When we assessed the operational plans and scenarios, we validated that the Air Force We Need to meet the demands of the National Defense Strategy needs to grow from 312 to 386 operational squadrons, about a 25% increase. In out estimation, this would permit us to execute the National Defense Strategy with moderate risk. Just to be clear, this was a pure strategy-based analysis – not a budget one – and it took a detailed looked at the entirety of Air Force force structure. This analysis has not been

independently validated or endorsed by the Department of Defense, but it provides the Air Force with information about how we can shape our investments to best support the NDS.

Bomber Force Structure

We must continue to modernize and sustain the legacy bomber fleets to ensure they remain viable and capable until we transition to the B-21. Our budget proposal supports the Defense Department's principal priority to maintain a safe, secure, and effective nuclear deterrent that safeguards the homeland, assures allies, and deters adversaries.

B-21

The National Defense Strategy provided strategic direction to develop a new stealth bomber, and the B-21 Raider is the answer. The B-21 has a mature and stable design and is transitioning to development of the first test aircraft. The FY20 funding requests $3.0 billion, $20 billion across the FYDP, to continue Engineering Manufacturing and Development to progress towards fielding this fleet.

The B-21 will be a highly survivable asset with the ability to penetrate modern air defenses to accomplish mission objectives in an anti-access/area denial environment. We will need a minimum of 100 B-21s in our inventory. We are also pursuing legacy bomber fleet upgrades in order to keep those assets sustainable and viable, which is necessary until the B-21 becomes operational in sufficient numbers.

B-52

The last B-52H Stratofortress entered service in the United States Air Force in 1962, we expect to continue operating the B-52 through 2050 and will continue to invest in modernization programs to keep the platform operationally relevant. Major modernization efforts include the Commercial Engine Replacement Program, $1.4 billion across the FYDP; Radar Modernization

Program, $1.1 billion across the FYDP; and Combat Network Communications Technology, $74 million across the FYDP. The B-52 Commercial Engine Replacement Program will replace legacy engines with new commercial engines using Section 804 processes to remove more than three years from the traditional program schedule. The Radar Modernization Program will modernize the current Strategic Radar (AN/APQ- 166), which is based on 1960s technology and was last modified in the 1980s.

B-52 Combat Network Communications Technology (CONECT) provides an integrated communication and mission management system, as well as a machine-to-machine interface for weapons retargeting. CONECT's digital infrastructure and architecture provides the backbone for the 1760 Internal Weapons Bay Upgrade, which allows for internal carriage of J-series weapons through modification of the Common Strategic Rotary Launchers, thus significantly increasing the B-52's capability to store and deliver the Joint Direct Attack Munition (JDAM), Laser-JDAM, Joint Air-to-Surface Standoff Missile (JASSM) and its extended range variant, and the Miniature Air Launched Decoy (MALD) along with its jamming variant. Finally, the integration of the long-range standoff (LRSO) nuclear air-launched cruise missile will ensure the continuation of the B-52's role in the airborne leg of the Nuclear Triad. The Air Force remains committed to B-52 modernization to ensure the nation's oldest and most versatile frontline long range bomber remains relevant through at least 2050.

B-1

The B-1B is a long-range, air-refuelable multirole bomber capable of flying intercontinental missions with the largest payload of guided and unguided weapons in the Air Force inventory. We continue to invest in B-1 modernization and sustainment to ensure the platform remains lethal and viable through 2040. The Integrated Battle Station upgrade, $60

million across the FYDP, will enhance crew situational awareness and precision engagement capabilities and is the B-1B's largest modernization effort ever. The first aircraft with this upgrade was delivered in January 2014, and a total of 50 B-1s are currently modified with this capability. This modernization effort will complete in 2020. Other efforts to update the B-1B's navigation and radar systems were completed in early 2016. These efforts improve the reliability and maintainability of these critical systems.

The B-1B was the Air Force threshold platform for early operational capability of the Long Range Anti-Ship Missile, which transitioned from a Defense Advanced Research Projects Agency (DARPA) demonstration to the Navy-led Offensive Anti-Surface Warfare Program. Integration of this weapon, coupled with the B-1B's long range, high speed and large payload capacity, will posture the B-1B for an important role in any conflict in the Indo-Pacific region.

B-2

The B-2 is the only long-range strike aircraft capable of penetrating and surviving advanced Integrated Air Defense Systems to deliver weapons against heavily defended targets. Its unique attributes of intercontinental range, precision strike, large conventional or nuclear payloads, ability to penetrate defenses, and low observable profile allow it to execute Nuclear Deterrence Operations, Nuclear Response, Global Strike, and Global Precision Attack missions. The Air Force will continue to modernize the B-2 to ensure it remains effective as enemy defensive systems advance. Current efforts to modernize the Defensive Management System, $1.5 billion within the FYDP, will ensure the B-2 can continue to counter sophisticated air defense networks and operate in highly contested environments.

The Air Force has completed development efforts to re-host the Stores Management Operational Flight Program software in the Flexible Strike program, enabling the B-2 to take

advantage of advanced digital weapon interfaces, such as those used by the B61-12 nuclear weapon. The Flexible Strike capability will begin fielding this year as part of the B-2 P6.2 block effort, which includes Military GPS User Equipment and B-2 hardware to support carrying the B61-12 weapon. The Air Force began installing the Common Very-Low-Frequency / Low Frequency (VLF/LF) Receiver and will complete fielding the system in all twenty B-2 aircraft in FY2020. This program provides the B-2 with a VLF/LF receiver for secure, survivable strategic communications capability. Other on-going B-2 programs address modernization efforts with $176M across the FYDP to enhance the Identification Friend or Foe (IFF) system, replace the Crash Survivable Memory Unit, and integrate hardware upgrades for the employment of the GBU-57 Massive Ordnance Penetrator, as well as the B61-12 nuclear weapon. The Radar Aided Targeting System software upgrade began development in October 2018 and will provide improved navigational handoff to weapons in a GPS-denied environment. Next year the Air Force will begin exploring modifications, $23M within the FYDP, to the B-2 to enhance the aircraft's capability against hardened, deeply buried targets. And, finally, the B-2 will continue sustainment efforts, $139M across the FYDP, for the on-going Low Observable Signature and Supportability Modification effort, to improve aircraft maintainability and availability.

Tanker Fleet

Tankers are the lifeblood of our joint force's ability to respond to crises and contingencies quickly and are essential to keeping our Air Force fueled as a global force. The tanker fleet is comprised of 396 KC-135s, 59 KC-10s, and 6 KC-46s that provide the backbone of rapid U.S. global operations. Delivery of 179 KC-46 Pegasus aircraft by 2028 will replace less than half of the current tanker fleet and leave the Air Force with 300 aging KC-135s awaiting recapitalization.

KC-46

While we continue to sustain the current tanker capability, building the future tanker fleet remains one of the Air Force's top acquisition priorities. The KC-46 will deliver greater operational readiness, flexibility, and survivability to the Global Reach mission. The Air Force awarded Lot 4 on 10 September 2018, increasing the number of production aircraft on contract to 52. Lot 5 (15 aircraft) is projected to award in July 2019.

The first four KC-46 aircraft were delivered to McConnell AFB, KS (Main Operating Base 1), 25-31 January 2019. Two additional KC-46s were delivered to Altus AFB, OK (Formal Training Unit), 8-9 February 2019. The Air Force will continue taking delivery of KC-46s over the next year at a rate of approximately 3 per month until the backlog of aircraft is exhausted, at which point the delivery rate will reduce to approximately 1.25 per month. The Air Force will begin Initial Operational Test and Evaluation (IOT&E) in Spring 2019.

Partnered with Air Mobility Command, we have worked hard to accept the KC-46 while ensuring its major deficiencies—the Remote Visual System (RVS) and boom—are properly addresses without undue burden on taxpayers or warfighters. We initiated a subject matter expert team that derived critical performance parameters for both the RVS and boom and codified these parameters in a legally-binding agreement with the vendor. Due to the extensive nature of the fixes, especially the RVS, both actions will take 3-4 years to implement and retrofit fully across our fleet. Consequently, our warfighters strongly desired the KC-46 in their hands, vice the vendor's, while these corrections are being implemented for training and readiness purposes. Despite its current deficiencies, the KC-46 is safe to operate (adhering to flight manual cautions we have provided to our operators) and is the Air Force's best tanker for contested environments due to enhanced situational awareness, battle management, and countermeasures.

The FY20 Budget requests $59.6 million in RDT&E funding for the ongoing KC-46 Engineering and Manufacturing Development and post production modification efforts. Additionally, FY20 also has a request for $2.2 billion in procurement funding to award Lot 6 (12 aircraft).

KC-10 and KC-135

The average age of our KC-135 and KC-10 tankers is 57 and 34 years old respectively. Both fleets are challenged by aircraft parts obsolescence and diminishing manufacturing source issues. However, with the help of organic Air Force depots and industry, we are able to maintain these platforms as effective and safe weapon systems for the warfighter. We are executing several key modernization, safety, and compliance initiatives to ensure our KC-135 fleet remains viable through at least 2045.

The FY20 Budget requests $124.5 million to continue KC-135 modernization efforts. The Block 45 program addresses supportability, reliability, and maintainability issues with legacy flight and engine instruments by integrating a digital flight director, autopilot, radio altimeter, and electronic engine instrument display for our operators. Additionally, the Real Time in the Cockpit program provides real time situational and battlespace awareness to aircrews.

Furthermore, FY20 also requests $13 million through the FYDP to keep our KC-10 fleet operational through its planned retirement and includes funding for service bulletins and low cost modifications to ensure Federal Aviation Administration (FAA) certification.

Presidential Airlift

VC-25B

The VC-25B program will replace the U.S. Air Force Presidential VC-25A fleet, which faces capability gaps, rising maintenance costs, and parts obsolescence as it ages beyond 30 years.

The VC-25B program will deliver two new aircraft to meet the requirements for the President to execute the three roles of Head of State, Chief Executive, and Commander-in-Chief. The Boeing 747-8 aircraft will be uniquely modified to provide the President, staff, and guests with safe and reliable air transportation with an equivalent level of communications capability and security available in the White House. The modifications to the 747-8 aircraft will include an electrical power upgrade, dual auxiliary power units that are usable in flight, a mission communication system, an executive interior, military avionics, a self-defense system, autonomous enplaning and deplaning, and autonomous baggage loading. The FY20 Budget request aligns funding with the Acquisition Program Baseline and requests $757.9 million to continue Engineering and Manufacturing Development to design, modify, test, and field VC-25B aircraft by 2024, or sooner.

Other Presidential Airlift Modernization

C-32

The Air Force and Navy are engaged in a combined Analysis of Alternatives to recapitalize the National Military Command System fixed-wing airborne layer and large capacity Executive Airlift fleets. This study encompasses the E-4B National Airborne Operations Center, C-32A Executive Airlift, and E-6B Airborne Command Post/Take Charge and Move Out aircraft and missions. These platforms are aging and increasingly difficult to support. The study explores the realignment of missions amongst platforms and examines potential benefits of acquiring common airframes without sacrificing operational effectiveness or increasing overall costs. The Air Force and Navy expect to complete the effort in the December 2019 timeframe. C-32 Recapitalization is currently in the Materiel Solutions Analysis Phase and is not a formal acquisition program. The FY20 Budget requests $9.93 million to complete the study, support the

Materiel Development Decision, begin Materiel Solution Analysis activities, and start Technology Maturation Risk Reduction activities.

C-37

The C-37 Fleet Expansion program purchases additional C-37 aircraft to fill approved Department of Defense operational requirements for executive airlift and resolve shortfalls created by C-20 aircraft retirements. The C-37 is a FAA certified commercial derivative of the Gulfstream GV/G550 twin-engine, long range, jet transport with executive interiors, a robust mission communications system, and self-defense systems to support the worldwide travel needs of the Vice President, Cabinet members, Combatant Commanders and Members of Congress. The FY20 Budget requests $161 million for the purchase of two C-37 aircraft. The procurement will bring the number of C-37s purchased to a total of four aircraft and grow the fleet size to 16 aircraft by FY22.

Airlift

C-5

The C-5 Super Galaxy provides all-weather worldwide strategic airlift for combat forces, equipment, and supplies, exemplifying Rapid Global Mobility outlined in the National Defense Strategy. Current investment programs focus on fleet obsolescence, maintainability, and safety of flight.

The FY20 Budget requests $73.6 million in procurement funding, predominately for C-5 core mission computer/weather radar system equipment. This system replaces an antiquated radar system with diminishing manufacturing sources and upgrades the core mission computer processor to meet the demands of future software modifications.

Additionally, FY20 Budget requests $10.2 million in RDT&E funding to support communications, navigation, surveillance/air traffic management upgrades, including Automatic Dependent Surveillance-Broadcast (ADS-B) Out modifications required for global airspace compliance. Replacement of the Multi-function Control and Displays is a new start in FY20 also included in this RDT&E funding request.

C-17

The C-17 is the only aircraft in the Air Force inventory that combines tactical capability with strategic range to operate from austere airfields. The fleet of 222 aircraft provides our Nation unmatched flexibility to conduct theater and inter-theater direct delivery, airdrop, aeromedical, and special operations airlift missions. Agile and efficient software and hardware updates will ensure timely readiness, safety, and capability improvements as this premier airlift platform contributes to our national security objectives.

The FY20 Budget requests $138 million in procurement funding to continue critical modifications to the C-17 fleet. This includes ADS-B Out to satisfy FAA and civil airspace compliance mandates, Identify Friend or Foe (IFF) for the identification and control of military aircraft, and Large Aircraft Infrared Countermeasures defensive systems. Additionally, $25.1 million of FY20 RDT&E funding will address obsolescence and flight safety issues. The development of a replacement heads-up display will address obsolescence of the current C-17 heads-up display and improve the system's availability, reliability, and maintainability. The Beyond Line-of-Sight communication system effort modernizes multi-channel voice and data communication subsystems to ensure the C-17 keeps pace with changes in DoD communication infrastructure.

C-130

The C-130 fleet consists of legacy C-130H and C-130J aircraft, as well as special mission aircraft (AC/LC/EC/MC/HC/WC-130s). The C-130Hs and C-130Js are medium-size transport aircraft capable of completing a variety of tactical airlift operations across a broad range of missions. The fleet delivers air logistics support for all theater forces, including those involved in combat operations.

The Air Force continues to modernize the C-130H legacy fleet through a four-pronged approach emphasizing aircraft safety, airspace compliance, modernization, and partial recapitalization. We remain committed to ensuring C-130H aircraft remain safe to operate through efforts such as center wing box replacements. By replacing aging center-wing boxes, we are able to breathe new life into some of our hardest flown aircraft enabling them to continue to safely operate well into the future. The C-130H Avionics Modernization Program (AMP) Increment 1 ensures the legacy fleet is able to fly in international airspace by complying with 2020 U.S. and international airspace mandates. The AMP Increment 2 program is key to the modernization of the C-130H fleet. This program will improve the fleet's maintainability and reliability by providing a new digital avionics suite mitigating obsolescence and diminishing manufacturing source issues. The Air Force is also partially recapitalizing the legacy fleet with C-130Js. The FY20 PB requests $140 million in RDT&E and $52 million in procurement funding to support the legacy C-130H fleet.

Partial C-130H recapitalizing also supports our Air Force special operations forces. The newer C-130Js provide our special forces with the extra weight carrying capacity, longer range, and better fuel efficiency. These special mission variants of the C-130J conduct airborne psychological operations and offensive electronic warfare (EC-130J), weather reconnaissance (WC-130J), search and rescue (HC-130J), and special operations (MC-130J and AC-130J).

Along with purchasing new aircraft, the Air Force has multiple modification efforts for the C-130J to include center wing box replacement, large aircraft infrared countermeasures, and an accelerated avionics upgrade to meet 2020 international airspace mandates as part of the C-130J Block 8.1 upgrade. The C-130J Block 8.1 modernization program, currently in production, will begin delivering new communication and data link capabilities, a flight management system, and other key capabilities to the field. In addition, the Air Force plans to upgrade our C-130H and C-130J fleets with a Mobile User Objective System satellite communication system to ensure we can maintain key communication links anywhere in the world.

The FY20 Budget requests $8.7 million for C-130J RDT&E and $142 million for C-130J modification efforts. There is also a request for $17.2 million for HC/MC-130J RDT&E and $958 million for HC/MC-130J procurement and modification efforts.

FUTURE CAPABILITY

To compete against rising peer adversaries during this time of unprecedented commercial technology change requires a competitive acquisition system: one that is faster and more agile than all rivals'. Our analysis, including multiple war simulations, workshops and wargames, clearly shows we must adopt the latest technology and deliver capability faster to stay ahead in the near-peer fight.

To achieve our National Defense Strategy, "*the delivery of performance at the speed of relevance*" matters. We must design, build, integrate and field systems faster than any adversary. That is why we have taken full advantage of rapid acquisition authorities to accelerate our programs to maintain our cutting edge. Through authorities given to us by Congress, like section 804 and tailoring traditional acquisition approaches to match the program needs, we are trimming excess, non-statutory steps that have previously slowed programs down. As of the end

of February 2019, we have saved 78.5 years through the use of tailored acquisitions and Section 804 authorities. The initial goal of saving 100 years will be accomplished in less than one year of pursuit. As a result, we are getting better results and meeting warfighter needs faster. For instance, using section 804 authorities, the Air Force is leading the development of two air-launched hypersonic weapon rapid prototyping efforts: the Hypersonic Conventional Strike Capability and the Air Launched Rapid Response Weapon. Stripping a total of 10 years from these programs, we expect to demonstrate the Department's first operational flight test in 2020 and achieve early operational capability in 2021.

Another contributor to fielding tomorrow's Air Force faster is agile software development. With the establishment of the Program Executive Office Digital, Kessel Run and Kobayashi Maru software factories, and Software Engineering Squadrons, we are scaling the successes of recent pathfinders to implement modern commercial software development practices across the Air Force to speed delivery and close cyber vulnerabilities more rapidly. Major programs like F-22, Unified Platform, and Protected Tactical Enterprise System are reaping the benefits as they shift to Agile Development Operations, accelerating delivery to the warfighter by over seven years.

Faster acquisitions go hand-in-hand with smarter ones. One area where we are applying innovative thinking is in the area of sustainment. The new Air Force Rapid Sustainment Office has Program Executive Office authorities to drive innovation in sustainment programs, lower cost and improve readiness. The office is developing, transitioning and training Air Force maintainers to use technologies found in commercial manufacturing. Technological advances such as artificial intelligence, robotics and 3-D printing are being incorporated into our labs to lower costs and speed-up repairs for our warfighters. To date, the Air Force has certified broad

swaths of metal and plastic additively manufactured parts, cold spray repair at our depots in Tinker and Robbins AFB, and over 140 predictive maintenance algorithms, saving cost while increasing readiness.

Other smart practices center around the industrial base, both growing it and getting performance out of it. Over the past year, the Air Force saved the taxpayer over $15 billion through competitively awarding major contracts. We are committed to getting the most out of competition through maintaining stable requirements and remaining transparent with industry. We are also using new authorities, including Section 804, for competitive prototyping in major space programs like Launch Services Agreements, Next Generation Overhead Persistent Infrared, Enhanced Strategic SATCOM, and Protected Tactical SATCOM to expand our space industrial base while lowering risk to the overall program. Without the Rapid Acquisition Authorities there would still be a half-century worth of unnecessary time in 20 of our programs that are using the new authorities in Section 804 to develop and field faster. Additionally, we appreciate the delegation of Milestone Decision Authority to the Service Acquisition Executive; we have subsequently delegated all medium and small programs to the field, increasing overall decision-making capacity and speed. Because of Congressional action, we can focus on performance-rather than process-in our rapid capability development efforts. Robust experimentation and prototyping are also enabling the Air force to develop disruptive technologies to retain our cutting edge while we sharpening industry's. New organizations, such as the Air Force Warfighting Integration Center, AFWERX, and the Strategic Development Planning and Experimentation Office, are providing new ideas and tools to increase overall speed of idea to pathfinder to program.

Outside of the Defense Industrial Base, we know many innovative ideas are being birthed in U.S. startup companies and that we are largely missing out on them. In order to break down barriers for small businesses who want to work on our toughest challenges, we have created an innovative new contracting approach. Using a one-page contract and a small-dollar contracting mechanism that can "pay-in-a-day", we invited small businesses to pitch their ideas to the Air Force on March 6th and 7th. Based on the success, we plan to repeat Pitch Days to increase Air Force access to a broader demographic of small disruptive companies revolutionizing U.S. and global technology industries.

We want to give credit and thanks to Congress. Without the Rapid Acquisition Authorities there would still be a half-century worth of unnecessary time in 20 of our programs that are using the new authorities in Section 804 to develop and field faster. Additionally, we appreciate the delegation of Milestone Decision Authority to the Service Acquisition Executive; we have subsequently delegated all medium and small programs to the field, increasing overall decision-making capacity and speed. Because of Congressional action, we can focus on performance—rather than process—in our rapid capability development efforts.

We have many other initiatives that will commence later this year, all centered speeding our process to remain competitive for tomorrow's Airmen as we remain dominant for today's. There will be no silver medal for building the world's second-best Air Force. We hope the steps we have taken with the authorities you have given us demonstrate that we do not intend to.