

**DEPARTMENT OF DEFENSE AUTHORIZATION FOR  
APPROPRIATIONS FOR FISCAL YEAR 2016 AND  
THE FUTURE YEARS DEFENSE PROGRAM**

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**HEARINGS**

BEFORE THE

**COMMITTEE ON ARMED SERVICES  
UNITED STATES SENATE**

ONE HUNDRED FOURTEENTH CONGRESS

FIRST SESSION

ON

**S. 1376**

TO AUTHORIZE APPROPRIATIONS FOR FISCAL YEAR 2016 FOR MILITARY  
ACTIVITIES OF THE DEPARTMENT OF DEFENSE, FOR MILITARY CON-  
STRUCTION, AND FOR DEFENSE ACTIVITIES OF THE DEPARTMENT OF  
ENERGY, TO PRESCRIBE MILITARY PERSONNEL STRENGTHS FOR  
SUCH FISCAL YEAR, AND FOR OTHER PURPOSES

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**PART 4  
AIRLAND**

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MARCH 19 AND APRIL 14, 2015





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Printed for the use of the Committee on Armed Services



Available via the World Wide Web: <http://www.fdsys.gov/>

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U.S. GOVERNMENT PUBLISHING OFFICE

99-656 PDF

WASHINGTON : 2016

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For sale by the Superintendent of Documents, U.S. Government Publishing Office  
Internet: [bookstore.gpo.gov](http://bookstore.gpo.gov) Phone: toll free (866) 512-1800; DC area (202) 512-1800  
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**DEPARTMENT OF DEFENSE AUTHORIZATION  
FOR APPROPRIATIONS FOR FISCAL YEAR  
2016 AND THE FUTURE YEARS DEFENSE  
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**THURSDAY, MARCH 19, 2015**

U.S. SENATE,  
SUBCOMMITTEE ON AIRLAND,  
COMMITTEE ON ARMED SERVICES,  
*Washington, DC.*

**AIR FORCE FORCE STRUCTURE AND MODERNIZATION**

The subcommittee met, pursuant to notice, at 2:34 p.m. in room SR-222, Russell Senate Office Building, Senator Tom Cotton (chairman of the subcommittee) presiding.

Committee members present: Senators Cotton, Rounds, Ernst, Sullivan, Lee, Manchin, and Donnelly.

**OPENING STATEMENT OF SENATOR TOM COTTON, CHAIRMAN**

Senator COTTON. The hearing will come to order.

I want to thank everyone for their attendance.

The Airland Subcommittee convenes today to hear testimony regarding Air Force structure and modernization in review of the defense authorization request for fiscal year 2016 and the Future Years Defense Program (FYDP). I welcome the witnesses from the Air Force and thank them for their service to our country.

As repeatedly stated by many expert and well-respected witnesses before the full committee in numerous recent hearings, our country is facing the most diverse, complex, and potentially dangerous threats to our national security in recent history. However, instead of strengthening our military and ensuring our men and women in uniform have the comprehensive training and world-class equipment they need, sustained defense budget cuts, in combination with mindless sequestration, are damaging our military's force structure, modernization, and readiness.

In their testimony before the full committee, Secretary of the Air Force Deborah Lee James and Chief of Staff of the Air Force General Mark A. Welsh III described how the Air Force is both the smallest and oldest it has ever been, even while the demand for airpower continues to increase. They also stated that the qualities of capability and capacity are inextricably linked, that the Air Force cannot get any smaller and still provide the airpower capabilities the country needs and expects from the Air Force. I could not agree more.

This conundrum comes at the same time as our hard-earned gains in the Middle East are challenged by the extremists of the Islamic State, President of Russia Vladimir Putin's aggressive activities to test the resolve of the North Atlantic Treaty Organization (NATO) alliance in Eastern Europe, and China continues a massive arms buildup to threaten the stability of the Asian-Pacific region and beyond. As Senator John McCain and Representative Mac Thornberry, chairmen of the Senate and House Armed Services Committees, stated in a recent op-ed, these increasingly aggressive activities by our adversaries is no coincidence as they observe our fiscal struggles, and therefore Congress must act to repeal the damaging effects of the Budget Control Act (BCA) of 2011 funding caps and sequestration.

Turning to Air Force operations, plans, and programs, I am deeply concerned with the Air Force's ability to execute the administration's stated defense strategy with its current inventory of combat squadrons. The Air Force today has 54 fighter squadrons. The fiscal year 2016 budget proposes to reduce that number even further to 49 by retiring the venerable A-10 fleet and before the F-35A reaches full operational capability. When compared to the Air Force of Operation Desert Storm, today it has less than one-third of the combat power mustered for that air campaign. By your Chief of Staff's own statement, less than half of today's already insufficient number of fighter squadrons are fully combat ready and will not return to full readiness until 2023 due to the damaging effects of sequestration suffered in 2013 and will only be able to achieve those readiness levels barring another destructive round of sequestration in fiscal year 2016.

With regard to the proposed A-10 fleet retirement, I hope our Air Force witnesses can explain to the subcommittee their plan for how to mitigate the loss of such a critical capability and reducing capacity even further and whose brave men and women are prosecuting the air war against the Islamic State as we speak. The retirement of 164 A-10s in fiscal year 2016 takes another five combat-coded squadrons out of the rotation, putting even more stress on the remaining force by increasing the frequency of their deployments, decreasing their dwell time at home station, and in turn reducing overall full spectrum readiness of combat forces even further. It is a capacity and readiness death spiral the Air Force can help avoid by deferring the retirement of these critical warplanes until the F-35 is fully operational and crews sufficiently trained and certified to replace the critical missions these aircraft perform.

With regard to modernization, the Air Force is facing many large procurement programs over the next decade: the F-35A; the KC-46A; the long-range strike bomber (LRSB); the T-X T-38 trainer replacement; the presidential aircraft replacement; the Joint Surveillance and Target Attack Radar System (JSTARS) replacement; next generation air dominance. The list is long and represents hundreds of billions of dollars required to recapitalize and modernize the force.

While Congress only looks at one budget year at a time and the Department of Defense (DOD) and the Services formulate a Future Years Defense Plan covering 5 years of projected funding, I will be interested to hear how the Air Force will take a longer view on how

to fit all of these required capabilities into its future budgets and how the fiscal year 2016 budget proposal supports your plan.

Additionally, the subcommittee is looking forward to hearing what actions the Air Force is taking to ensure this multitude of expensive programs keep cost growth under control, deliver on schedule, and make sure they deliver the capabilities our combatant commanders need to carry out their responsibilities.

Finally, the committee received the Air Force's responses to the National Commission on the Structure of the Air Force report with its 42 recommendations for optimizing the use of the Reserve component. I understand your initial response is the first in a series of four annual Air Force reports on implementation of the commission's recommendations required by law. I understand that you agree with all but one of the recommendations and are in the process of either implementing or reviewing the other recommendations for potential implementation.

However, I am concerned that while several of the commission's recommendations addressed the optimization of the force mix balance between the active and Reserve components, in your responses you refer to results of high velocity analyses that you have not yet shared with the subcommittee. I urge you to bring the results of your analytical reviews to us soon, prior to us beginning deliberations on the National Defense Authorization Act (NDAA) for fiscal year 2016.

Again, I thank the witnesses for appearing before the subcommittee. I look forward to hearing your testimony.

Senator Manchin?

#### **STATEMENT OF SENATOR JOE MANCHIN**

Senator MANCHIN. Thank you, Mr. Chairman. Since this is your first hearing in the chair, I want to congratulate you on being named chairman of the subcommittee. I know that you and I both are looking forward with our entire subcommittee this coming year.

I too want to extend a welcome and thank each of our witnesses for appearing here before the subcommittee today. I also want to thank each of you, representing the men and women of our armed forces, for the wonderful jobs they are performing in Afghanistan and elsewhere around the world. We keep all of those who are serving right now in our thoughts and prayers and also remember that both they and their families are serving and sacrificing for each one of us every day.

Our witnesses this afternoon face huge challenges as they strive balance the need to support ongoing operations and sustain readiness with the need to modernize and keep the technological edge so critical to military success. These challenges have been made particularly difficult by the spending caps imposed in the Budget Control Act (BCA) of 2011, caps that were modestly relieved for fiscal year 2015 in the Bipartisan Budget Act that we enacted earlier this year. However, these caps are scheduled to resume full blast in fiscal year 2016 and beyond. These caps already seriously challenge our ability to meet our national security needs and have already forced the military departments to make painful tradeoffs. Unless modified for fiscal year 2016 and later fiscal years, these caps will threaten our long-term national security interests.

Every year we are challenged to make decisions balancing a number of competing demands for resources, including resources for current operations and investment in future modernization. In this case, we will be assessing plans and programs regarding the current status and future prospects for tactical aviation programs.

We meet today to talk about a range of Air Force programs, including the F-35 Joint Strike Fighter program and aviation programs. Previous Air Force witnesses at our aviation hearings have also projected a potential shortfall of Air Force tactical fighters in excess of 800 aircraft around 2025. Several years ago, the Air Force, as part of the new defense strategy reduced Combat Air Forces (CAF) fighter force structure under the so-called CAF Redux. Again this year, the Air Force is proposing further reductions, including eliminating the entire A-10 aircraft fleet to generate savings of more than \$3 billion.

There are several other force structure adjustments that are of concern. The Air Force plans to eliminate seven Compass Call EC-30H aircraft in fiscal year 2016. There are other reductions, including the Airborne Warning and Control System (AWACS) and JSTARS, that are planned for later in the FYDP. While there is a plan to recapitalize the JSTARS with a new aircraft and radar program, I am concerned that the Air Force plans to retire aircraft like AWACS and Compass Call with no planned replacement in sight.

There is also the continuing disagreement between Congress and the Air Force over modernization of the existing C-130H aircraft, including the C-130 avionics modernization program, or C-130 the Avionics Modernization Program (AMP). I believe that there are two issues within this discussion. The first is what should be done on the overall avionics modernization for the C-130H aircraft. The second issue relates to whether C-130H aircraft will be modified in time to comply with the Federal Aviation Administration (FAA) rules governing access to controlled airspace that take effect in 2020. The Air Force has established a program called the Viability and Airspace Access Program to deal with meeting the FAA deadline. This program would install automatic dependent surveillance-broadcast out, or ADS-B Out, avionics on C-130H aircraft. Whatever we do, I believe that we should ensure the Air Force can continue to operate the fleet of C-130H aircraft in the FAA-controlled airspace after 2020.

There are a number of other issues that we may discuss, but in the interest of time, I am going to stop here. Again, I want to thank our witnesses for being here. I look forward to hearing your testimony.

Thank you again, Mr. Chairman.  
Senator COTTON. Dr. LaPlante?

**STATEMENT OF DR. WILLIAM A. LAPLANTE, ASSISTANT  
SECRETARY OF THE AIR FORCE FOR ACQUISITION**

Dr. LAPLANTE. Thank you. Good afternoon, Mr. Chairman, Ranking Member Manchin. Thank you, distinguished members of this panel. Thank you for holding the hearing.

It is always an honor to be here and I thank you for the opportunity to testify on the subject of force structure and moderniza-

tion. These are two things, obviously, that are critical to the force of our Air Force.

It is also an honor to be here with two incredible general officers, General Mike Mobile Holmes next to me on my left, your right, who is our Air Force planning and strategy. On my right is General Tod Wolters who is our A-3 operations, and so it is just a privilege to serve with great airmen like these two leaders.

With your permission, I would like to submit my written statement for the record—

Senator COTTON. Without objection.

Dr. LAPLANTE. Thank you, and then just make some opening remarks.

As you said, Mr. Chairman, in your opening statement better than I can say, the global security environment is incredibly complex, dynamic, changing. We have the fight today, the situation today which you described, but then we also have the issue that we have to deal with, which is not lose sight of modernization. For the pure adversary—and it is not even so much the pure adversary of the future, it is really even the pure adversary of today. That is kind of what our world is.

I am privileged to say that we are the greatest air force in the world and remain so. But, to be honest—and I think this is true not just for the Air Force but this is true at the technology and systems level in the Department—many of us are growing concern that we are losing our margin. The enemies and potential adversaries of the United States have been watching us fight certainly for 15 years, but really, if you think about it, since the first Gulf War they have been watching what we have done, watching very carefully. They have watched and they understand where our seams are. They understand how to apply asymmetries against us, other large quantity against our quality, whether exploiting cyber, whether it is looking at EW [electronic warfare] as its own domain, and also, frankly, the effects of space. This has all been happening right in front of our eyes over the last few years, and we are all watching this. We are all concerned.

It has often been said that one of the best things and most important ways our American military power is used is in the ability to shape and deter, what people call phase zero, phase one ops typically. The concern that some of us have is that is going both ways. In other words, there is shaping and deterring going on and it is not all one way. So this is a situation we are all very concerned about.

But let me be clear. Again, we are the world's greatest air force. So what are we doing about some of these issues?

First of all, we must protect our science and technology (S&T). We must protect our S&T. That is our future. We must learn and be able to innovate and we must rapidly bring in ideas and concepts and new players and work on this issue that is developing. You have heard the Deputy Secretary talk about a third offset strategy. That is the kind of thing we are all beginning to talk about and focus on, all in this environment, actually very difficult fiscal environment.

So last year, last summer, Secretary James and Chief Welsh put out a strategy about the Air Force called A Call for the Future. The

strategy was centered around a concept called Strategic Agility. Basically in my words, strategic agility is how do you build adaptability not just into your people, which you need, and your leaders but into your systems that you apply, how you fight, how you learn. It basically is about speed. We have to be faster than the adversary and we have to be faster than the technology that is breaking up. That is the fundamental metric of agility.

So we are building this into how we are thinking, but we also have to innovate. We also have to assume that we are going to be operating and fighting our wars and fighting in ways we cannot predict, ways where the operator is going to be as inventive as always and learning new ways to operate the system. We have to assume we are going to discover things. We cannot build things assuming exquisite knowledge of the threat that then we have to change. We have to figure out how to change it.

So what does that mean in our world? Well, in our world what it means is we, first of all, have to protect our high priority programs to make sure they are built that way. That is the whole strategy behind the LRSB, and I can talk about that later. But also for our new capitalizations. Mr. Chairman, you mentioned JSTARS recapitalization. We are building that right from the start assuming we are going to discover new technology. It is going to be an open architecture and new processing can go into it. We are not just assuming it is going to be a prime that is going to just have subs and it is going to be a closed system that is going to be the same for 30 years. We are going to build it in at the very beginning. We are also going to build in sustainment considerations. 70 percent of costs in the lifecycle of the program is not in the development, not in the procurement, but in the sustainment. So you have to build that in at the very beginning. So we are putting that into our programs. We are also doing with the new trainer.

I also want to talk a little bit about the Air Force's 2016 budget. The Air Force's number one mission priority—indeed, the Department's number one mission priority—is our nuclear deterrent. We use our nuclear deterrent every day and have had so for 50 years. It is the number one priority. We have to strengthen that. We have to invest in it. We also have to keep these high priority programs on track. We talked about the LRSB, but there is also, of course, F-35 and the tanker, and we have to protect them even in a sequester environment. I can answer questions about the protection of those programs and which ones we do not think we can protect in the sequester.

We also have to put investment into space. We have to put investment into space. So this Call to the Future eloquently speaks for our need to stand—for our service to innovate and get at what stands between us and this future and to rapidly adapt. The gentlemen here at this table, along with our counterparts at the Defense Advanced Research Projects Agency (DARPA) and the Office of the Secretary of Defense (OSD), are embarking on that kind of an effort related to the third offset called “developmental planning.” We are getting back to our roots in the Air Force. We are going to work—the first subject we picked was air dominance, air superiority, say, in the 2030 timeframe. What are the technologies, what are the concept of operations (CONOPS), tactics, techniques,

and procedures (TTP), how do we experiment, and how do we make sure that we are the superior Air Force in 2030? I remind everybody this is not about the next platform only. Air dominance has everything to do with—yes, it has stealth but it has weapons. It has electromagnetic warfare. It involves space, cyber all together. So we have to think about this and the whole kill chain. So we are all getting on with that and we are also going to do the same thing on the future of the nuclear ground-based deterrent.

So let me just finally say a few comments about the taxpayer and then turn it back over to the chairman and my other colleagues here.

Obviously, we have to be a good steward of the taxpayer resources. Every dollar must count. We are implementing better buying power. We are having actually huge successes in better buying power. We are on 3.0 right now, huge savings and something called ‘should cost.’ But we have to do more. We also have to do more in collaborations with industry. We have many projects under a “bending the cost curve” initiative over the last year with industry that are actually quite exciting. So we have to do that as well.

So I look forward to answering your questions, Mr. Chairman, and with your committee’s help, I think working together we can do this. We can do this and we will remain the best, greatest Air Force in the future. So, again, thank you very much.

[The prepared joint statement of Dr. LaPlante, General Holmes, and General Wolters follows:]

JOINT PREPARED STATEMENT BY DR. WILLIAM LAPLANTE, LT. GEN. JAMES M. “MIKE” HOLMES, USAF, AND LT. GEN. TOD D. WOLTERS, USAF

#### I. INTRODUCTION

Chairman Cotton, Ranking Member Manchin, and distinguished members of the Airland Subcommittee, thank you for the opportunity to provide an update on the United States Air Force’s Force Structure and Modernization. Effectively balancing our scarce budget resources across readiness, modernization, and force structure accounts is arguably now more important than ever before. We need your help; without bold leadership today—difficult decisions and a commitment to air, space, and cyberspace investment—America’s airpower advantage is increasingly at risk.

The U.S. Air Force is the most globally engaged air force on the planet. Whether dropping bombs, commanding satellites in space, delivering humanitarian relief, or protecting the homeland with an array of air, space, and cyberspace capabilities, American Airmen are in constant defense of our national interests. Alongside its Sister Services, the Air Force delivers the power, influence, agility, and global reach no other country currently possesses. But 24 years of continual combat operations, coupled with constrained and unstable budgets, has taken its toll. America needs a force ready for a spectrum of operations more global and complex than ever before. Instead, a relentless operations tempo, with fewer resources to fund, coordinate, and execute training and exercises, has left a force proficient in only those portions of the mission necessary for current operations. While the fiscal year 2016 President’s Budget takes a critical step toward recovery, we remain stressed to deliver what the Nation asks of our Air Force. We must reverse this trend.

#### II. STRATEGIC APPROACH TO MEETING 21ST CENTURY DEFENSE CHALLENGES

After more than 2 decades of nonstop combat operations, dominant trends point to a complex future that will challenge the Air Force in new and demanding ways. Adversaries are emerging in all shapes and sizes, and the pace of technological and societal change is increasing—with a corresponding increase in the demand for airpower. Furthermore, we cannot buy our way out of this one; we realize that it is time for the Air Force to think differently. Accordingly, senior Air Force leaders have developed a single, integrated strategy to guide the way our service organizes, trains, and equips the force to conduct future operations. Our strategy points the way forward and does not limit us to an intractable view of the future. It is action-

able, with clear goals and vectors for implementation, assessment, and revision. A strategy-driven, resource-informed plan that emphasizes strategic agility will enable the Air Force to meet 21st century defense challenges.

The Air Force's new strategic framework will guide us as we move forward. Last summer, we released the Air Force's strategic vision in America's Air Force: A Call to the Future. We are about to release the Air Force Strategic Master Plan (SMP), which translates the conceptual strategy in A Call to the Future into comprehensive guidance, goals, and objectives. Together these documents will drive the Strategy, Planning, and Programming Process that will arm and empower the Air Force, in collaboration with our partners, to defeat adversaries and defend the Nation and our allies in a complex future. An upcoming Air Force Future Operating Concept will further illuminate this strategy by broadly depicting how an agile, inclusive, and innovative Air Force should employ capabilities in the future.

Understanding that we cannot "see" into the future, four emerging trends provide a strategic context for the strategy. The Air Force will need to win in complex battlespaces characterized by: rapidly changing technological breakthroughs, geopolitical instability, a wide range of operating environments, and an increasingly important and vulnerable global commons. These trends will shape the operational environment, and highlight the broader strategic issues for national defense.

The Air Force will be proactive in meeting these challenges. As A Call to the Future states, "We must commit to changing those things that stand between us and our ability to rapidly adapt." Faster adaptation and response—what we call strategic agility—will sustain the Air Force's unique contributions that are critical to the Nation. Agility is the counterweight to the uncertainty of the future and its associated rate of change. We will take significant, measurable steps to enhance our ability to wield innovative concepts and advanced capabilities in unfamiliar, dynamic situations.

By embracing strategic agility, the Air Force will be able to move past the twentieth century's industrial-era processes and paradigms and be ready for the globally connected, information-based world of the coming decades. This approach requires an inclusive Air Force culture that fosters diversity of thought and inculcates a multi-domain mindset to solve challenges that span across traditional Air Force mission sets. We will become more agile in the ways we cultivate and educate airmen and in how we develop and acquire capabilities. Our operational training, employment, organizational structures, and personnel interactions will also become more agile to suit the dynamic security environment.

The soon-to-be released Strategic Master Plan (SMP) describes what we will do to implement strategic agility. It translates strategic vision into action by providing authoritative direction for service-wide planning and prioritization. The SMP includes four annexes—"Human Capital," "Strategic Posture," "Capabilities," and "Science and Technology"—that provide more specific guidance and direction, further aligning the SMP's goals and objectives to future resource decisions. An ambitious and far-reaching undertaking, the base SMP will be updated every 2 years, with the annexes reviewed annually, to ensure a consistent and relevant connection between today's realities and tomorrow's potential. Certain sections will remain classified to ensure critical elements of the future force stay linked to the overall strategy.

The Air Force strategy and the SMP provide authoritative guidance to planners across the Air Staff and major commands. These planners will align their supporting plans with the goals and objectives of the SMP as they apply their expertise to inform planning and resourcing. The guidance and direction in the SMP are designed to enable better enterprise-wide solutions to challenges and close the gaps that can form in execution. In this more robust strategy-driven environment, commanders and staffs will have proper direction and the necessary authority to reach goals by working discrete but connected actions—epitomizing the balance of centralized control with decentralized execution.

This summer, the Air Force will release a new Air Force Future Operating Concept that will further inform strategic planning by describing how we will use future Air Force forces to accomplish our five core missions across the range of military operations. A natural companion to the SMP, this document will provide an innovative portrayal of how an agile, multi-domain Air Force will operate in 20 years' time. It will describe future integrated operations in terms of broad capabilities and the key competencies we desire in future airmen, and explain how these capabilities and competencies will address anticipated challenges in the future environment. The concept will depict a desired future Air Force that is the product of two decades of successful evolution in strategy-informed planning and resourcing; furthermore, it will serve as a baseline for continued concept development, experimentation, and refinement.

Because strategy is not prescient, it must be adaptive as it seeks to balance the present with the future. There are no easy choices, and there is no time to lose—but the Air Force must make the right prioritization decisions now in order to be prepared to respond in the face of uncertainty. Our strategy-driven, resource-informed approach will enable us to achieve the strategic agility we need to meet twenty-first century defense challenges in a complex world.

### III. OPERATIONS UPDATE

The Air Force flies and fights in air, space, and cyberspace—globally and reliably—as a valued member of our Joint and Coalition teams. Approximately 205,000 Total Force Airmen are “committed in place” supporting daily Combatant Command (COCOM) operations to defend the homeland, provide command and control of our nuclear forces, operate remotely piloted aircraft, provide rapid global mobility, and many other requirements. Approximately 23,000 airmen are deployed across the globe, including more than 16,000 in the U.S. Central Command area of responsibility. The Air Force is an active partner in Department of Defense planning that will shift our emphasis from today’s wars to a broader range of challenges and opportunities. The Department of Defense is currently reassessing the strategic guidance issued last year, but we anticipate continued emphasis on and planning for a rebalance to the Asia Pacific region. Our challenge is to provide those who deploy in support of our global commitments an Air Force that is capable, agile, flexible, ready, and technologically advanced.

During 2014, Air Force aircraft flew over 87,000 sorties in support of Overseas Contingency Operations (OCO). On the home front, Air Force fighter, air refueling, and early warning aircraft have flown over 67,000 total sorties supporting Operation Noble Eagle since September 11, 2001. As a testament to the capability of our Total Force, the Air National Guard and Air Force Reserve have flown more than 65 percent of these sorties.

Today, the Air Force is actively engaged in two major efforts; providing training and operational support to strengthen the Afghan Security Forces and Afghan Air Force in Afghanistan as part of Operation Freedom Sentinel (OFS) and the United Nations’ International Security Assistance Force (ISAF) Resolute Support mission, and conducting operations against the Islamic State (ISIL) in Iraq and Syria as part of Operation Inherent Resolve (OIR).

Our objectives as part of OFS are a counterterrorism (CT) mission against the remnants of al Qaeda and the NATO Resolute Support Train, Advise, and Assist (TAA) mission in support of Afghan security forces. The CT and TAA efforts are concurrent and complementary. While the U.S. and Afghan forces continue to attack the remnants of al Qaeda, we are also building the Afghan National Defense and Security Forces (ANDSF) so that they can secure the Afghan people and contribute to stability throughout the region. Both of these efforts will contribute to a more secure and productive Afghanistan and prevent the re-emergence of terrorist safe havens.

The U.S. Air Force has helped develop the Afghan Special Mission Wing (SMW), which provides the Afghan Special Security Forces (ASSF) with the operational reach and manned Intelligence, Surveillance, Reconnaissance (ISR) capability to support counter terrorism and counter narcotics missions. The SMW is now executing long-range, full-mission profiles in low illumination. Working together with the ASSF, the commando units and SMW are consistently running unilateral direct action missions against insurgent leaders and facilitators.

The ISAF Resolute Support mission provides training, advice and assistance in eight key areas: multi-year budgeting; transparency, accountability and oversight; civilian oversight of the Afghan Security Institutions; force generation; force sustainment; strategy and policy planning, resourcing and execution; intelligence; and strategic communications. U.S. Air Force advisors work to develop the Afghan Air Force across their entire air enterprise—from fixed and rotary wing operations and maintenance, to engineering and logistics, to force development and helping them build a budget. The Afghan Air Force operates the Mi-17 transport helicopter, Mi-35 attack helicopter, Cessna 208B basic trainer and light lift aircraft, MD-530 light attack helicopter and the C-130 medium lift Hercules. Additional efforts are underway to include the A-29 Super Tucano light air support fighter, with future Afghan pilots currently in training in the United States. In the last year, the Afghan Air Force has taken over much of the mission, providing casualty evacuation and aerial attack in support of Afghan ground forces and are providing the majority of helicopter and much of the fixed wing maintenance.

Our objectives as part of OIR are to support Iraqi and Kurdish forces on the ground as they take the fight to ISIL and to disrupt ISIL’s use of Syria as a safe

haven and degrade its ability to sustain itself via resupply, finance, and command and control. U.S. Airpower has already achieved positive effects in Iraq and Syria. By virtue of the pressure we're putting on ISIL from the air, we've changed their tactics and the way they communicate: they've dispersed, they're hiding among the population more, they aren't as free to operate as they once were. In Iraq and Kobani, Syria, airstrikes and resupply efforts have helped Iraqi and Kurdish forces to retake and hold key territory, although the situation on the ground remains dynamic. In Syria, airstrikes have attacked ISIL command and control (ex: headquarters buildings), logistics (training camps and vehicle staging areas), and revenue sources (modular oil refineries), making it harder for ISIL to sustain itself as a fighting force.

The U.S. Air Force takes great care in everything from our intelligence collection and analysis to our choice of weapons used for targeting to minimize the chance of harming civilians. No other military in the world takes the responsibility to protect civilians more seriously than we do. In addition, the U.S. Air Force has alleviated civilian suffering in Iraq through delivery of 131,000 meals, 58,000 gallons of water, and other vital supplies via airdrops in the vicinity of Mount Sinjar and Amirli—and, more importantly, by providing advice and training that have enabled the Iraqi air force to continue independent humanitarian relief and operational resupply efforts.

Despite differences, the United States and our International Coalition partners are united over the long term against the common threat posed by ISIL. More than a dozen nations are supporting air operations against ISIL, where they are responsible for more than 20 percent of all sorties and more than 15 percent of all strikes. More than 40 nations have expressed willingness to participate in the effort against ISIL, and more than 30 nations have indicated their readiness to offer military support. All 22 nations of the Arab League have adopted a resolution calling for comprehensive measures to combat ISIL.

Despite these successes, we recognize there are limits to what U.S. Airpower can accomplish. Airstrikes alone will not achieve our full military objectives. The forces that matter most are indigenous ground forces. We have an Iraq-first strategy: air operations in Syria help shape conditions in Iraq. This is going to be a long, difficult struggle that requires strategic patience.

#### IV. FORCE STRUCTURE AND MODERNIZATION

##### *Fighters*

Air Force fighter force structure is dependent on both fighter aircraft and rated manning. Four years ago, the Air Force determined through extensive analysis that a force structure of 1,200 primary mission aircraft and 2,000 total aircraft was required to execute the NMS with increased operational risk. Three years ago, based on the 2012 Defense Strategic Guidance (DSG) and fiscal constraints, the Air Force rebalanced our force structure across core functions. Analysis showed the Air Force could decrease fighter force structure by approximately 100 aircraft with higher risk, resulting in the current fighter requirement of 1,100 primary mission aircraft and 1,900 total aircraft. The 2014 Quadrennial Defense Review (QDR) report also advances an updated national defense strategy that embodies and builds on the DSG priorities. The Chairman's assessment of the QDR strategy states we will continue to need capabilities that can operate effectively in contested environments. During the build of the fiscal year 2015 Presidents budget, fiscal constraints led to a plan for force structure divestments of 334 fighters, leaving a fighter force structure significantly below the 1900 total aircraft requirement. Fiscal pressures continue to drive these tough choices—balancing today's needs against tomorrows—and accepting near-term risk today to be ready and viable tomorrow.

The Air Force's fighter fleet is approaching an average age of 30 years—the oldest in the history of the Air Force. At 55 combat coded squadrons, moving to 49, it is also our smallest force ever—by comparison, there were 134 combat coded fighter squadrons in Operation Desert Storm. Beyond this capacity shortfall, this primarily fourth-generation fleet also lacks the combat capability to prevail in future contested environments. Accordingly, across the fiscal year 2016 PB, we pursue efforts to recapitalize with new fifth-generation aircraft, and modernize and extend the service life of select aircraft in the existing fleet. This includes recapitalization through procurement of the F-35 Lightning II, and modernization programs like F-22 Increments 3.2A and 3.2B and F-16 and F-15 avionics upgrades.

Unfortunately, even with funding assigned to these critical investments, the President's budget funding levels do not provide the resources to retain aircraft force structure capacity needed to execute all COCOM requirements without risk to our ability to execute the defense strategy." Furthermore, beyond this "risk to mis-

sion,” or operational risk, our aircraft capacity shortfalls also present “risk to force” challenges, risks to the management of our rated force. Currently well short of our total fighter aircraft manning requirement, projections under current funding levels indicate this deficit will continue to grow, deficits that degrade vital air-operations, test and training expertise.

The Active component Air Force is currently 520 fighter pilots short of the total fighter pilot manning requirement and our projections indicate this will worsen in the future. This shortfall is predicated on multiple factors, to include issues such as force structure changes and airline hiring. The Air National Guard and Air Force Reserve also have fighter pilot shortages which are helped by airline hiring. However, both Reserve components have an aged fighter pilot inventory and the new pilots affiliating now are replacing this older inventory. The impact of airline hiring is still being analyzed and these estimates will be refined. The shortfall evolved from force structure reductions that cut active duty fighter squadrons and fighter training squadrons to a number that cannot sustain billet requirements. As a result, the Air Force is currently unable to produce and experience the required number of fighter pilots across the total force. The Air Force is prioritizing overall available rated manpower to fill our operational cockpits, at significant risk to institutional requirements. Projected impacts include reductions in air-operations expertise during the development of war plans and a gradual erosion of fighter pilot experience in test and training. Without these fighter pilots, the Air Force will be very challenged to continue to provide the air supremacy upon which all our other forces depend.

#### *A-10*

The A-10 provides our Joint Force Commanders with responsive, lethal, precise and persistent firepower for close air support and combat search and rescue. It has been a steady, stellar performer in all recent conflicts. Nevertheless, the A-10 is simply unaffordable in today’s fiscal environment. Consistent with fiscal year 2015 Department of Defense Fiscal Guidance favoring multi-role aircraft to satisfy the DSG, the fiscal year 2016 PB again reflects the difficult decision to divest the A-10. Divesting the entire A-10 fleet frees up \$4.7 billion across the Future Years Defense Program (FYDP), funding higher priority capacity, capability and readiness needs.

Additionally, the A-10 cannot survive or operate effectively in a highly contested environment where there are more advanced aircraft or air defenses. Other weapon systems, from multi-role fighters to B-1 bombers to remotely piloted aircraft, demonstrated in Iraq and Afghanistan that they can provide effective Close Air Support (CAS). These decisions, however, do come with certain risks and potential impacts to the mission. One of the impacts to using other platforms for CAS is that use of these platforms for CAS must be balanced with their other missions, putting stress on the force in certain scenarios. Divesting the entire fleet enables us to harvest savings we could then apply to efforts that allow us to be ready and viable tomorrow.

The fiscal year 2016 budget does not fund future modernization efforts for A-10 aircraft; however, we will continue to sustain the aircraft and keep it operationally viable until 2019.

#### *F-16*

The F-16, the Air Force’s primary multi-role fighter aircraft, comprises 50 percent of our fighter fleet. The fiscal year 2016 PB invests \$1.0 billion across the FYDP for F-16 modernization and service life extension, meeting critical warfighter needs beyond 2025. This investment funds key investments like avionics software enhancements for the integration of new weapons, avionics and improved targeting pods. Unfortunately, there are important capabilities we were not able to fund. These include major upgrades like the F-16 Combat Avionics Programmed Extension Suite (CAPES) program originally planned to upgrade 300 aircraft, and a Service Life Extension Program (SLEP) to extend by approximately 25 percent, from 8,000 hours to over 10,000 hours, the airframe structural service life for 300 F-16s, adding 8 to 10 years of service life to the Block 40-52 fleet. To partially mitigate the impact of terminating CAPES, the Air Force will upgrade the F-16’s electronic attack pod, bringing self-protection capability in line with current and emerging threats. While the fiscal year 2016 PB resumes many of the highest priority F-16 modernization efforts, the absence of the aforementioned modernization programs will adversely impact the F-16’s effectiveness in future contested environments.

#### *F-15 C/D*

Presently, we project the F-15C/D fleet will remain viable until at least 2040, with the potential for an airframe service life extension following full-scale fatigue

testing concluding in 2015. The fiscal year 2016 PB invests approximately \$1.7 billion across the FYDP for F-15C/D fleet modernization and sustainment. This investment continues modernization of the F-15C/D with Active Electronically Scanned Array (AESA) radars, a more capable aircraft mission computer, a new electronic warfare self-protection suite, and the Eagle Passive/Active Warning Survivability System (EPAWSS). While the EPAWSS is crucial to ensuring F-15C/D operations in future contested environments, fiscal constraints forced a 2-year delay in fiscal year 2016 PB. Nevertheless, we believe currently funded modernization and sustainment programs will facilitate safe and effective operations for all 196 F-15C/D aircraft through at least 2040, pending results of the full-scale fatigue test.

#### *F-15E*

The Air Force expects the F-15E to be an integral part of the Nation's force through at least 2040. Similar to the F-15C program, a full-scale fatigue test, due for completion in 2016, will provide insight into the need for, and feasibility of, a service life extension program. The fiscal year 2016 PB invests approximately \$2.2 billion across the FYDP for F-15E modernization and sustainment. This includes integration of the latest precision weapons, a helmet mounted cueing system for all front seat cockpits, a state-of-the-art AESA radar system to advance target identification, a more capable aircraft mission computer, and a self-protection electronic warfare system (EPAWSS). As with the F-15C/D, the EPAWSS is crucial to ensuring F-15E operations in future contested environments.

#### *Fifth Generation Fighters*

The F-22 and F-35 aircraft are absolutely essential to America's global superiority, ensuring air, sea, and ground force's freedom of action. Each aircraft possesses exclusive, complimentary and indispensable capabilities that provide synergistic effects across the spectrum of conflict. As future adversaries modernize, the F-22 and F-35 will become even more critical as legacy fourth generation aircraft will have increasingly limited capability to operate in contested environments.

Our Air Force must rapidly re-capitalize our tactical fighter fleet with sufficient capacity in fifth generation capability in order to maintain our ability to execute our National Defense Strategy in the near- to mid-term, and begin looking even further into the future at further modernization efforts that ensure continued dominance of American Airpower.

#### *F-22*

The F-22 attributes of stealth, super cruise, integrated avionics and sensors combine to deliver the Raptor's unique operational capability, and F-22 modernization will counter advancing threats that specifically target the F-22. The F-22 is operating safely across the globe, averaging about 26,000 flying hours per year since its return to flight in September 2011. It has been over 36 months since the last unknown-cause hypoxia-like event occurred. Notably, the retrofit of the Automatic Back-up Oxygen System to the entire fleet is on track for completion by mid-April 2015.

Focused on maintaining operational superiority against the evolving threat, the fiscal year 2016 PB includes \$403.2 million in Research, Development, Testing, and Evaluation (RDT&E) and \$202.4 million in procurement for F-22 modernization. Increment 3.1 is fielding now and is scheduled for completion in fiscal year 2017; it is designed to deliver advanced air-ground capabilities including Synthetic Aperture Radar (SAR) ground mapping, threat geolocation, and a Small Diameter Bomb (SDB) carriage. Increments 3.2A and 3.2B remain on track for fielding in 2015 and 2018, respectively. These increments will deliver advanced electronic protection and combat identification, AIM-120D and AIM-9X missile capability, and significantly-improved ground threat geolocation.

#### *F-35*

During fiscal year 2016, the Air Force will continue to manage risk across the global precision attack portfolio by prioritizing investment in fifth-generation aircraft while sustaining legacy platforms as a bridge to the F-35 Joint Strike Fighter.

The multi-role F-35A is the centerpiece of future fighter precision attack capability. In addition to complementing the F-22's world class air superiority capability, the F-35A is designed to penetrate air defenses and deliver a wide range of precision munitions. This modern, fifth-generation aircraft also brings the added benefit of increased allied interoperability and cost-sharing across the Services and eight partner nations. The fiscal year 2016 PB includes \$4.9 billion for continued development and procurement of 44 F-35A, conventional take-off and landing (CTOL) aircraft. The program continues to make steady progress in overcoming software devel-

opment delays and technical issues and is on track to meet its Initial Operational Capability (IOC) in 2016.

The F-35 program reached several training milestones in 2014. May 28, 2014 marked delivery of the 26th and final F-35A CTOL to Eglin Air Force Base, making the 58th Fighter Squadron the first complete Air Force F-35 unit. Earlier in the year, the Pilot Training Center at Luke Air Force Base received its first F-35A, and through the end of 2014, Luke's inventory included 17 U.S. F-35A aircraft. On July 24, 2014, AU-1, Australia's first F-35A rolled off Lockheed Martin's Fort Worth assembly line. AU-2 was delivered in late 2014, joining AU-1 in the inventory at Luke. On August 7, 2014, the inaugural F-35A Crew Chief Mission Ready Airman class graduated nine airmen, paving the way for thousands of future F-35 maintainers.

Like every developmental program over the past 50 years, the F-35 program has made discoveries during test and development that have been and continue to be addressed and corrected. This is to be expected, and the Air Force remains confident in the program, as it continues to make solid and steady progress toward fielding the required capabilities to meet the Air Force's IOC criteria in 2016. In May 2014, the test team completed an AIM-120 weapons delivery accuracy test that was the first live fire Advanced Medium Range Air to Air Missile (AMRAAM) mission for the F-35B STOVL and the first dual AIM-120 launch for any variant. Also in May, the program completed its first test missions with Block 3i software, a critical step for Air Force IOC. In late Summer 2014, the first F-35A night CAS tests occurred at the National Training Center at Fort Irwin. A Joint Terminal Attack Controller (JTAC) used a laser designator to interact with the F-35 electro-optical targeting system, and the JTAC communicated with the F-35 pilots via electronic and voice messaging systems, successfully identifying ground targets. This successful demonstration of CAS capability was a major step toward IOC. To close out 2014, the test team successfully conducted multiple Joint Direct Attack Munition (JDAM) and AMRAAM weapons delivery accuracy tests and accomplished multiple SDB I weapons releases during a single delivery pass, a first for the program.

While the program achieved substantial development and test progress in 2014, the test program experienced delays due to an engine anomaly at Eglin Air Force Base in June. Throughout the summer and into the fall, the Joint Program Office, Service System Commands and industry worked diligently to analyze the problem, prioritize test assets and return to flying status in a safe, methodical fashion. The program was subsequently able to determine root cause and developed an interim solution: a "pre-trenched" rub material that will be implemented in the field later this year. Pratt and Whitney has agreed to cover the costs for the repairs to engines in the field and the cut-in of the solution to the production line, while the program office will pay for the design activity as per the development contract. The program continues its work on a long-term fix to the engine and expects to review and select from the design solutions this spring, followed by design and qualification testing, and finally, incorporation of the solution into the production line. This work is expected to be completed in 2015.

Today, the program is on the road to IOC for the Air Force, and we expect the warfighter to be able to declare IOC as planned in 2016. Flight test for Block 2B is nearing completion and is underway for Block 3i, formal training operations at Luke Air Force Base are set to begin in May, and first aircraft arrival is projected for Hill Air Force Base in August. The first two F-35A aircraft are in place at Nellis Air Force Base to support tactics development for the warfighter, and we project over 25 more F-35A aircraft to deliver through the end of 2015, including the first deliveries for our Norwegian and Italian partners. Going forward, we will continue to closely monitor progress toward IOC, including completion of development and flight test for Block 2B/3i, final resolution to the engine issue, and continued maturation of Autonomic Logistics Information System (ALIS), a system that is critical to F-35 operations at home and abroad. The Air Force will also continue to watch progress for Block 3F (full warfighting capability), currently projected to complete 4-6 months later than planned. In fiscal year 2016, the Air Force plans to procure 44 F-35A CTOL aircraft. Sequestration did not affect Air Force procurement quantities in 2015. Affordability remains a major priority, and the F-35 program continues to make great strides on this front. The price of F-35s continues to decline steadily Lot after Lot. For example, the price of a Lot 7 F-35A was 4.3 percent less than a Lot 6 F-35A aircraft and a Lot 8 F-35A aircraft was 3.6 percent less than a Lot 7 F-35A, including the engine and profit for both contractors. Reductions are expected to continue into the future, leveraging the program's on-going affordability initiatives. By 2019, the expected price of an F-35A, with an engine and including profit, is expected to be between \$80 and \$85 million, in 2019 dollars.

### *Air-to-Surface Weapons*

All three air-to-surface weapon mission areas—Stand-Off, Direct Attack, and Penetrator—are short of inventory objectives. Joint Air-to-Surface Standoff Missile (JASSM) and SDB weapons, employed by Low Observable platforms, provide unsurpassed force multiplier capability in a highly contested environment. In the event of a conflict, insufficient inventory of these weapons could result in the inability to target adversary critical capabilities, increasing aircraft attrition and driving a higher level of effort to attack critical targets.

Combat operations and support for our coalition partners in Iraq and Syria are reducing the direct attack munitions (JDAM) inventories faster than we are producing them. These combat operations are expected to continue long term (3+ years). Combat expenditures have been being replaced under OCO funding, however it takes over 3 years before the assets make it back to the Air Force inventory. Direct attack munition shortages drive the use of non-preferred munitions with decreased effectiveness and resulting in increased time and Air Force attrition to accomplish combatant commander objectives.

### *JASSM and JASSM-ER*

JASSM and JASSM-ER (Extended Range) are currently the Nation's only stealthy, conventional, precision, launch-and-leave, standoff missiles capable of fighter and bomber aircraft employment. Both are capable of penetrating next generation enemy air defenses to strike high value, hardened, fixed, or mobile targets. The JASSM (baseline) has a range greater than 200nm while the JASSM-ER has a range greater than 500nm.

The JASSM (baseline) weapon is in full rate production; the 13th production contract for 100 baseline missiles is expected to be awarded in March 2015. fiscal year 2016 represents the last JASSM (baseline) buy, a total procurement of 2,034 missiles. JASSM-ER will start Full Rate Production in fiscal year 2015 with a March 2015 contract award for 115 JASSM-ER. The combined JASSM production line transitions to JASSM-ER only at the maximum and most efficient rate of 360 missiles per year. The last JASSM-ER procurement is planned for fiscal year 2023, culminating a total JASSM ER buy of 2,866 missiles.

### *SDB I and II*

SDB I is a legacy weapon planned to help achieve mandated cluster munition reduction by 2019. In fiscal year 2016, the Air Force plans to procure an additional 1,960 SDB I weapons utilizing OCO funding; fiscal year 2015 OCO replenishes 268 weapons expended in combat. The follow-on SDB II weapon will be capable of attacking mobile targets at standoff ranges in any environment. SDB II will increase the number of targets an individual platform can attack per sortie while inherently limiting collateral damage. SDB II will provide a four-fold payload increase and allow a more limited number of combat forces to achieve operational objectives early in future conflicts. SDB II is an Acquisition Category (ACAT) ID program, with the Air Force as the lead service, in partnership with the Navy. Initial aircraft integration of the SDB II is planned for the F-15E, F-35B & C, F/A-18E/F and AC-130W.

Currently, SDB II is in Engineering, Manufacturing and Development with an LRIP decision planned by the end of this fiscal year. In fiscal year 2015, SDB II will continue developmental testing, complete live fire testing, and conduct government confidence test shots. fiscal year 2015 procurement plans are to buy 144 weapons with deliveries starting in fiscal year 2017, and total planned procurement for SDB II is 12,000 weapons. Current projections call for SDB II fielding on the F-15E in January 2017.

### *Air-to-Air Weapons*

AIM-120 Advanced Medium Range Air to Air Missile (AMRAAM) and the AIM-9X enable the joint force to achieve Air Superiority by providing a first look, first kill capability. The current shortage of Air-to-Air missiles may increase the number of days it takes to gain and maintain Air Superiority in any future conflict. Meanwhile, adversary capabilities and capacity continue to challenge the Joint Force's historical advantage in the air superiority arena.

### *AIM-120D AMRAAM*

The AIM-120D AMRAAM is the Department of Defense's premier beyond-visual-range missile to counter existing and emerging air vehicle threats, operating at high or low altitude with electronic attack capabilities. AMRAAM is a key enabler for gaining air superiority and providing F-15, F-16, F/A-18, F-22 and eventually F-35 aircraft the ability to achieve multiple kills per engagement. The latest evolution of AMRAAM is the AIM-120D, which delivers increased range, improved targeting, and an enhanced two-way data link for improved accuracy and lethality at range.

AIM-120D is an ACAT 1C joint program, with the Air Force as lead service in partnership with the Navy. The AIM-120D completed operational testing in July 2014. The Navy fielded the missile and declared IOC for the F/A-18E/F on January 7, 2015. The Air Force fielding decision was released on January 26, 2015 for the F-15, F-16, and F-22 aircraft, with IOC expected the third quarter of fiscal year 2015. Total procurement for fiscal year 2015 is 200 units with increases in future procurement quantities for both the Air Force and Navy. The program will continue to update the AMRAAM technical data package to ensure a viable, producible design through the expected production life of the AMRAAM program.

#### *Space*

We view our national security as inextricably dependent on space-enabled capabilities. Space is no longer simply an enabler for other domains; it directly impacts the calculus of national security. At the same time, space has become contested, congested and competitive, with our space capabilities today facing advanced, demonstrated, and evolving threats, which require fundamental changes in the way we organize, train, and equip our forces. Congestion has increased the complexity of maintaining space situational awareness. There are over 60 active space-faring nations, 9 of which have indigenous space launch capability. Almost any nation or state actor can access space services globally and globalization has made the latest technology available to our competitors and enemies.

Legacy space acquisitions relied on packing as much as possible into few systems making them critical vulnerabilities. Budget realities have driven reliance on legacy systems, with few new acquisition programs employing the latest technologies, while warfighter demands have driven the need for more capable systems.

Future acquisitions should focus on providing capabilities/services cheaper, faster, and more resilient. We must provide space capabilities that assure performance of military space functions, regardless of the hostile action or adverse condition. We must invest smartly in the highest payoff capabilities that enhance space domain mission assurance to include resilience, defense operations, and reconstitution of our space systems and architectures to ensure U.S. and Allied use of space through all phases of conflict. We seek to balance military and commercial systems and leverage international partner capabilities to allow the United States to share the cost of space power; provide additional coverage in areas the U.S. requires assistance in, and create a coalition structure that can promote deterrence.

We recognize a conflict in space would hurt world economies and global stability; therefore, to address growing space threats, we are focusing on sustaining our space capabilities, deterring threatening activity, and if necessary, pursuing means to mitigate counterpace threats.

#### *Cyber*

The Air Force is building its Cyber Mission Forces. We must continue to execute defense plans, adding manpower for offensive and defensive cyber operations, but we are doing more. We will ensure cyber forces are equipped with the right capabilities to ensure effective operations. We are building a standard cyber mission platform to simplify training and enable full-spectrum operations. We are investing in converged cyber and electronic warfare capabilities. We are working with others across the Department of Defense to build a persistent training environment, consisting of jointly-interoperable ranges, dedicated operating forces, and supporting structures. We are enhancing our capacity to test our critical weapon, intelligence, and business systems for survivability in the increasingly hostile cyber environment.

Further we are leading the effort, in partnership with the other Services and Department of Defense agencies, to build Joint Regional Security Stacks. When fielded, this defensive boundary will provide global insight into activity, enabling rapid, coordinated Joint defensive operations. The standardized approach will enable sharing of Tactics, Techniques, and Procedures (TTP) across the Department of Defense, so that detection of an attack on one Service, and the resultant mitigations, can be seamlessly applied across the entire Department of Defense. This reduces operational response times and mission impact. No individual service could have afforded this level of capability with its own resources; it's only by pooling funding across the entire department can we get the level of capabilities we require to counter the growing cyber threats. This new defensive boundary is the foundational step toward a trustworthy, efficient Joint Information Environment.

In short, we are on the path to put Cyber on par with Air and Space forces to achieve a multi-domain approach to mission accomplishment.

#### *Airborne Electronic Attack*

The Air Force is committed to providing airborne electronic attack capability in support of operations across all operational warfighting domains. The decision to di-

vest half of the fleet of EC-130H Compass Call's in fiscal year 2016 was a difficult decision driven by U.S. Air Force topline reductions and the need to balance current capacity against the need to modernize. The EC-130H Compass Call is required in multiple war plans; the divestiture incurs and accepts the risk of nonsupport to all but the current operations. The Air Force will continue to investigate alternatives for airborne electronic attack capabilities in support of the Joint Airborne Electronic Attack Family of Systems concept.

*Rapid Global Mobility and Personnel Recovery*

The Rapid Global Mobility fleet continues to pursue capability enhancements balanced by recapitalization and required modifications to operate in international airspace and avoid diminishing manufacturing source issues. The KC-46A Pegasus tanker acquisition program is fully funded and the first 18 of 179 tankers are slated for delivery in fiscal year 2017. Production of the C-130J continues; we plan to field 142 total aircraft. Our C-130H is being outfitted with FAA and European compliance modifications to ensure the tactical airlift fleet is able to respond to future tasking's. The strategic airlift fleet of C-5s and C-17s is capable of supporting the million ton miles per day metric established in our most stressed response scenarios.

To meet our Personnel Recovery mission, the Combat Rescue Helicopter program of record of 112 aircraft will replace our aging HH-60G fleet. Four test aircraft are on contract with IOC targeted in 2021, and full operational capability in 2029.

Air Force efforts toward acquisition reform to ensure the best value for the American taxpayer. The Air Force Acquisition community is committed to providing winning warfighter capabilities while being mindful of limited resources and being responsible stewards of American taxpayers. The acquisition community has been challenged to achieve five priorities: get programs right, increase transparency to external stakeholders, own the technical baseline, continue our efforts on Better Buying Power (BBP), and build our systems towards a future Air Force. All of these initiatives contribute to a stronger, cost conscious acquisition community.

The Air Force Acquisition community has a commitment to getting programs right and exhibiting strong program management is the lynchpin of what we do. While our top three acquisition programs, F-35 Joint Strike Fighter, KC-46 Tanker, and Long Range Strike Bomber (LRS-B), continue to receive the most attention and scrutiny, we remain committed to keeping all of our programs on track. Effective execution of these programs, along with stable funding will keep us from having to make difficult tradeoffs such as delivering reduced capabilities or reduced quantities.

Under our transparency initiative, we are working with OSD (AT&L) to delegate Milestone Decision Authority to the Air Force Service Acquisition Executive on ACAT ID programs where appropriate, increasing our efficiency and streamlining requirements. The Air Force is also engaged in a new initiative, Bending the Cost Curve (BTCC), which facilitates strategic agility in our acquisition efforts. Its hallmark is a collaboration with our industry partners to identify, evaluate, and implement transformational cost saving reforms.

Owning the technical baseline requires the government to understand and exert leadership in the technical aspects of its programs, therefore enabling it to be a more effective weapons system acquirer. This is not to be confused with or limited to government-owned data rights as we know our industry partners need to own their intellectual property to remain profitable. But by working together to strengthen our technical capabilities within our program offices, we are helping ourselves become better stewards of taxpayers' dollars.

BBP is the Office of the Secretary of Defense (Acquisition, Technology, and Logistics)'s (OSD(AT&L)) compilation of tools and best practices designed to strengthen the Department of Defense's buying power, productivity, and affordability, while improving capabilities for the warfighter. One of our many success stories from BBP, which is currently in its third iteration, is our adoption of Should Cost Management. Should Cost is a management tool designed to proactively target cost reduction and drive productivity improvement into programs. The Air Force's fiscal year 2014 Realized Savings were \$1.4 billion. While that is a tremendous start, we will continue to challenge all PEOs and Program Managers to seek out additional Should Cost opportunities.

The fifth priority is to continue building our systems for the future Air Force. The Air Force Acquisition 20 year Flight Plan is fully aligned with "America's Air Force: A Call to the Future", General Welsh's 30 year strategy. In our Flight Plan, we are guiding, facilitating, and resourcing workforce initiatives across the acquisition enterprise. At the core of our mission is our workforce—our world-class workforce is paramount to achieving and maintaining acquisition excellence. To accomplish these

ends, we heavily rely on the Defense Acquisition Workforce Development Fund established by Congress.

A number of legislative initiatives are underway to achieve these priorities. In concert with Congress and OSD(AT&L), we are reviewing statutory requirements imposed on acquisition programs with a focus on streamlining them while trying to maintain their original intent. By reducing unnecessary bureaucracy and red tape, we hope to eliminate redundant requirements for information, and enable tailored reviews and documentation while emphasizing sound planning and risk reduction. We are also working to ensure the delegation of acquisition authority to the lowest appropriate level, modifying requirements for specific contract types for major development programs, and requiring acquisition strategies for each Major Defense Acquisition Program. Together, we believe these efforts will ensure the acquisition community remains committed to providing essential capabilities to the warfighter while respecting the taxpayer.

#### *Industrial Base*

When considered in its entirety, the Nation's aerospace industrial base is a bright spot in the economy with a favorable trade balance in 2014 of \$61.2 billion. However, this success is primarily due to the commercial aircraft sector. The concerns and challenges we expressed in our testimony last year over the future of the aerospace industrial base supporting the Air Force remain. If anything, the Nation is 1 year closer to abdicating its historic role as the global technical leader in military aerospace. As a nation, we can no longer take for granted the widespread availability of engineering and design teams, production workers, facilities, and equipment required to meet emergent national security requirements. The observations made by Secretary James and General Welsh in the Air Force Posture Statement concerning the capability and capacity of our Air Force apply as well to the aerospace industrial base supporting the Air Force.

The result of the difficult decisions driven by budget reductions and fiscal uncertainties is that as a nation, we have been giving up industrial capacity to design, develop, produce, and sustain the next generation of military aerospace systems while attempting to maintain some level of capability in those areas. In a few areas, we have accepted risk and have allowed a gap between former and future capability. One highly visible example is the Nation's use of the Russian-made liquid rocket engine on one of the vehicles that launches defense satellites, but this will not come without significant technological challenges. Simply replacing the Russian-made RD-180 with a new engine is not the answer. We know from our prior experience in developing rockets throughout the past several decades that a rocket engine and its associated launch vehicle must be designed concurrently. In essence, we build the rocket around the engine. Further complicating this effort, we will also attempt to maximize competition in an environment where the inventory of our current provider's most cost competitive launch vehicle is limited. One of the Air Force's top priorities has been to reinvigorate competition in the launch arena by reaching our ultimate goal of two domestic commercially viable launch service providers able to support the entire National Security Space manifest. We are refining a four-step approach to meet this goal, and the \$220 million addition in the National Defense Authorization Act for Fiscal Year 2015 for a new rocket propulsion system will help to transition off of the RD-180. In other areas, for example advanced turbine engines, Air Force investments to maintain capacity and develop future capability have continued. In the case of advanced turbine engines, our investments are cost shared with industry, prudently leveraging our limited resources.

Our strategy-based fiscal year 2016 budget submission supports investments in key programs (KC-46, F-35, and Long-Range Strike Bomber), in the critical requirements of the combatant commanders and in capabilities for Intelligence, Surveillance and Reconnaissance, nuclear, space and command and control. These focused investments, while propping up elements of the aerospace industrial base, do not fully address the national commitment required to sustain our global aerospace leadership.

#### V. CONCLUSION

The Air Force continues to be the world's finest across the spectrum of conflict, but the gap is closing. A return to sequestration-level funding would result in a less ready, less capable, less viable Air Force that is unable to fully execute the defense strategy. At fiscal year 2015 Balanced Budget Act level funding, the Air Force has some ability to manage risk in supporting the strategy, but significant challenges will remain. In order to defeat advancing threats, the Air Force must continue investments in top recapitalization and key modernization programs, and gain and maintain full-spectrum readiness.

Our sister services and allies expect the Air Force to provide critical warfighting and enabling capabilities. We remain focused on delivering Global Vigilance, Reach and Power, through our core missions of Air Superiority, Space Superiority, Global Strike, Rapid Global Mobility, Intelligence, Surveillance and Reconnaissance and Command and Control. We look forward to working closely together as we address the challenges of near-term uncertainty and risk to provide the ability to deliver combat air power for America when and where we are needed.

Senator COTTON. General Holmes?

**STATEMENT OF LT. GEN. JAMES M. HOLMES, USAF, DEPUTY CHIEF OF STAFF OF THE AIR FORCE FOR STRATEGIC PLANS AND REQUIREMENTS**

General HOLMES. Thank you, Chairman Cotton, Ranking Member Manchin, ladies and gentlemen of the committee. Thank you for your continued support to the U.S. Air Force, our airmen, and their families. It is an honor to be here in front of you, and it is an honor to be here.

I want to speak for just a second about Dr. Bill LaPlante and Lieutenant General Ellen Pawlikowski, his military deputy. In my time in the Air Force, the Air Force is very fortunate now to have the best team I think we have had in that acquisition office. They have made great strides in changing the way we acquire, develop, and build new technologies, and I think it is going to pay off for us in the future.

I am also proud to be here with Lieutenant General Wolters, my old friend and one of my heroes, and it is a pleasure to work with him in the building every day.

Our Air Force remains the most globally engaged air force on the planet, and we continue to do our best to deliver global vigilance, global reach, and global power for America every day.

However, after more than 24 years of sustained combat operations and years of constrained budgets, it has become more and more difficult to achieve our mission. As the Air Force's budget planner, we talk about sequestration and we talk about the effects of the 1-year budget that we are working, but part of the factors that influence the position we are in is because of the 3 years of reduced budgets from the baseline we had planned in 2012 to the baseline of where we are now, we have lost \$25 billion to \$30 billion worth of buying power. It is the difference when you add up those years. That \$25 billion to \$30 billion leaves a hole in our ability to modernize the forces we have and our ability to maintain our readiness and our ability to plan for the future. So as we look at another year of constrained budget, it is not just this year's constraint. It is adding up the cumulative effect of those 3 years in the past.

The fiscal year 2016 President's budget provides additional funding above budget caps. It allows us to reinforce our investments in nuclear deterrence and space control operations, to emphasize our global long-range and non-permissive capabilities, to maximize the contributions of the total force—and, Mr. Chairman, I look forward to discussing the report and our response to it with you—and to preserve the Air Force's top three procurement programs, the F-35, the KC-46, and the long-range strike bomber.

It also gives us the ability to halt reductions in total force end strength and relieve the pressure on our most important weapon,

our airmen, and to continue efforts to regain full spectrum readiness, and to lay the groundwork for future innovation efforts with seed investments, as Dr. LaPlante talked about.

After subtracting pass-through, the Air Force's share of the 2016 defense budget is roughly 22 percent. Within this share of defense resources, the Air Force submission attempts to balance risk driven by shortfalls in three areas, capacity, readiness, and modernization, again to continue to provide global vigilance, reach, and power in support of the strategy today and in the future.

The shortfalls in capacity mean we must accept some risk in our ability to everything that we are expected to do if we had to do it all at the same time. The first of many difficult capacity decisions we faced was the decision to divest the A-10. There is no question that the A-10 has been a steady and stellar performer in recent conflicts. The A-10 provides our joint force commanders with responsive and lethal fire power for close air support, particularly in the permissive environments we operate in today.

Nevertheless, our current force structure was simply unaffordable in today's fiscal environment. Within the limits that are placed on us on where we can take force structure risk, some provided by Congress to safeguard capabilities, we have a limit in strategic airlift and a limit in C-130s and a limit in some other capacities, and the guidance provided to us by DOD—our fighter force structure was the area that we focused on to make reductions. Consistent with that DOD fiscal guidance to accept risk in current force structure and to favor multi-role aircraft to satisfy Defense Strategic Guidance, the fiscal year 2016 President's budget again reflects the hard choice to divest the A-10. Divesting the entire A-10 fleet would free up \$4.7 billion across the FYDP, providing funding for other priority capacity, capability, and readiness shortfalls.

Next, budget realities have forced the Air Force to make the decision to reduce the EC-130 Compass Call fleet by nearly half after fiscal year 2015, providing an additional \$470 million in savings across the FYDP that we have applied toward enterprise capability upgrades. While the Air Force will maintain essential capabilities to support current combat operations, this decision is not without risk, and once the fleet size drops to eight aircraft in fiscal year 2016, we will only be able to support the current operational obligations for the C-130 Compass Calls engaged every day.

We face another significant capability challenge in preferred munitions where 3 years of constrained budgets have left the Air Force thousands of weapons short in both air-to-surface and air-to-air weapon inventories. The joint air-to-surface standoff missile (JASSM) and small diameter bomb (SDB) employed by low observable platforms provide unsurpassed force multiplier capability in a highly contested environment. In the event of a conflict, insufficient inventory of these weapons could limit our ability to target critical adversary capabilities. The AIM-120 advanced medium-range air-to-air missiles and AIM-9X infrared air-to-air missiles enable the joint force to achieve air superiority by providing the first look, first kill advantage against improving threats. The current air-to-air missile inventory shortage may increase the number of days it would take to gain and maintain air superiority in any future con-

flict. To begin to address these munitions capacity shortfalls, the fiscal year 2016 PB provides \$1.8 billion in fiscal year 2016 and \$7.3 billion over the FYDP to increase procurement rates, so above what we planned to buy in 2015.

The shortfalls in readiness that General Wolters will highlight in his statement continue to exacerbate the effect of capacity shortfalls. Your forces are also less ready. In addition to shortfalls in capacity in readiness, the Air Force faces shortfalls in critical capabilities, as Dr. LaPlante described. This means that potential adversaries are closing the capability gaps that separate the U.S. military from potential foes, and this narrow gap adds future risk to both mission and to the forces that would fight.

The Air Force's fighter fleet is approaching an average age of 30 years, the oldest in the history of the Air Force. The fourth generation F-15s and F-16s that comprise the majority of our fighter fleet require upgrades to both extend their lifespan and provide the improved combat capability required to prevail in today's increasingly contested environments. The advanced capabilities of fifth generation fighters, the F-22 and the F-35, are critical to ensuring our ability to fight and win in contested environments.

The savings generated by divesting the A-10 help us invest \$1 billion and \$3.9 billion across the FYDP for F-16 and F-15 modernization and service life extensions and \$600 million across the FYDP to ensure we maintain the superiority of the F-22 against rapidly improving threats.

The multi-role F-35 is the centerpiece of our future fighter precision attack capability. It is designed to penetrate air defenses and deliver precision-guided munitions in a contested high-end threat environment. The fiscal year 2016 budget includes \$4.9 billion for procurement and development of 44 F-35As.

24 years of continual operations, coupled with constrained and unstable budgets, have taken their toll on our Air Force and our airmen. In anticipation of even greater challenges over the next 2 decades, we have developed a strategy-driven, resource-informed plan to guide the way our Service organizes, trains, and equips to prepare for future operations. Mr. Chairman, we built a 20-year plan at a resource-constrained level based on zero real growth from the 2013 budget, kind of a worst case scenario, to make sure that we could fit the programs that you talked about into that long-range plan. At your convenience, I would be happy to come down sometime and walk you through that and have a discussion with you about your views on that.

In order to achieve the strategic agility necessary to meet the ever-evolving changes of the century, we must be able to adapt to changing conditions faster than our potential adversaries. When we think about a third offset strategy, I believe that is what it is. It is building a military and a force and a DOD that regains its ability to do things faster, to rapidly change our abilities, to rapidly change our capabilities. That will mean we will have to think faster. We will have to acquire weapons faster, and we will have to be able to build decision points into our programs so we can decide to change them or, if they do not work out, to abandon them.

Our fiscal year 2016 budget takes steps to balance the many challenges we face in capacity, capability, and readiness, but any

return to sequestration level funding will directly impact all three areas, leaving a smaller, less ready, and with less of an advantage over potential adversaries.

Although our Nation has reduced its presence in Afghanistan, we continue to face evolving threats to our security in a world that seems to become less and less stable. Given our current challenges, we must still remain ready to respond quickly and effectively across the spectrum of conflict. Our airmen are proud to serve alongside soldiers, sailors, and marines and will continue to respond quickly and effectively within the constraints imposed at any budget level.

Thank you, Mr. Chairman, Ranking Member Manchin, and ladies and gentlemen of the committee, for your continued support of the Air Force and the chance to discuss with you as we work together to face these challenges. I look forward to your questions. Senator COTTON. General Wolters?

**STATEMENT OF LT. GEN. TOD D. WOLTERS, USAF, DEPUTY  
CHIEF OF STAFF OF THE AIR FORCE FOR OPERATIONS**

General WOLTERS. Chairman Cotton, Ranking Member Manchin, and distinguished members of this subcommittee, it is truly an honor to have the opportunity to testify before you today and also an honor to appear alongside my colleagues, our Chief of Acquisition, Dr. LaPlante, and my dear friend over the last 3 decades, Lieutenant General Holmes.

The U.S. Air Force is unquestionably the best and the most globally engaged air force on the planet, and the demand for what we do is at an all-time high. But 24 years of continual combat operations and recent budget constraints have taken their toll on our readiness. We have the smallest and oldest Air Force since our inception in 1947. Less than half of our combat-coded squadrons are sufficiently ready for the high-end fight. There is no excess. There is no bench. Everything is committed.

The Air Force cannot respond in one corner of the Earth without diluting its presence elsewhere. America needs a force ready for a full spectrum of operations. Approximately 205,000 total force airmen are committed in place, supporting daily operations to defend the homeland, control our nuclear forces, operate remotely piloted aircraft, provide rapid global mobility, and many other requirements. Approximately 23,000 airmen are deployed across the globe, including over 16,000 in U.S. Central Command (CENTCOM).

On the eve of 2014, we expected to draw down combat forces in Afghanistan and reset the force. Instead, we faced a resurgent Russia in the Ukraine, an Ebola epidemic in Africa, and aggressive expansion of the Islamic State in Iraq and Syria (ISIS), demonstrating just how unpredictable world conditions can be.

In spite of drawing down forces, the Air Force is still engaged in Afghanistan, conducting counterterrorism operations and providing training and operational support to strengthen the Afghan national defense and security forces as part of Operation Freedom Sentinel and NATO's Resolute Support mission. These efforts will contribute to a more stable and secure Afghanistan and deny terrorists safe havens in the region. Air Force advisors are working to develop the Afghan air force across their entire air enterprise, from fixed wing

and rotor wing operations and maintenance, engineering, and logistics to force and budget development. In the last year, the Afghan air force has taken over much of the mission, providing casualty evacuation, aerial attack, and aircraft maintenance.

Since August of 2014, the Air Force has been conducting operations against the Islamic State in Iraq and Syria as part of Operation Inherent Resolve. U.S. airpower has already achieved positive effects. We have forced them to change their tactics and the way they communicate. They have dispersed. They are hiding among the population and they are not as free to operate as they were before. Air strikes and resupply efforts have helped Iraqi and Kurdish forces to retake and hold key terrain. In Syria air strikes have attacked their command and control, logistics, and revenue sources, making it harder for them to sustain themselves and weakening their resolve.

In addition, the Air Force has alleviated civilian suffering in Iraq through delivery of 131,000 meals, 58,000 gallons of water, and other vital supplies via airdrops and by providing advice and training that enabled the Iraqi air force to continue independent humanitarian relief and operational resupply efforts.

The Nation deserves a ready Air Force that can not only outmatch its most dangerous enemies but also maintain an uncontested sky over our ground forces. While the fiscal year 2016 President's budget takes a small step towards recovery, it only preserves the minimum requirement to meet current strategy and reach our goal of an 80 percent ready Air Force by 2023. American airpower requires sustained commitment, stability, and the resolve to invest where it can best deliver the most combat power. We need your help to be ready for today's fight and still win in 2025.

Again, Chairman Cotton, congratulations, and I thank each and every one of you for your persistent support of our U.S. Air Force.

Senator COTTON. Thank you all for your testimony, and thank you again for your service, as well as the thousands of airmen you represent all around the world. I had a chance to serve with my myself on provincial reconstruction team Laghman in 2008 and 2009 where I had the privilege of meeting General Holmes in his earlier incarnation as the wing commander out of Bagram.

As an infantryman, as you might imagine, I would like to talk about the A-10. I fortunately never had to call in A-10 fire in Iraq or Afghanistan, but it was something on which we were prepared from the earliest days at Fort Benning.

General Wolters, General Holmes, the NDAA for Fiscal Year 2015 allowed the Air Force to place up to 36 A-10 aircraft into backup inventory status to free up maintenance personnel to start the transition to the F-35. I understand that you opted to do this with 18 aircraft from three different bases, also that the aircraft in backup status must still fly to avoid the so-called 21-day hangar queen status which requires periodic maintenance and other repairs as required. Furthermore, the Air Force currently has an A-10 squadron from the Indiana Air National Guard deployed to the Middle East in support of the fight against the Islamic State, and an A-10 squadron in Arizona is currently deployed to Europe to reassure our allies and partners in light of recent Russian aggression.

If the A-10 fleet were not available, what aircraft would the Air Force then have to deploy?

General WOLTERS. Mr. Chairman, thanks for the opportunity to comment on the A-10. As you well know, sir, it wound up being the less ugly of ugly choices in order to divest as a result of the fiscal year challenges.

At this time, our arsenal consists of F-15Es and F-16s and B-1s that possess the capability to supplement and complement the A-10 aircraft in its close air support role.

Senator COTTON. General Holmes, do you have anything to add?

General HOLMES. General Wolters flew the A-10, Mr. Chairman. I commanded the A-10 twice in two different wing commands. It is not a question of is it a great airplane with great capability. It is. It is a question of how can we fit all the capabilities that are requested into the budget that we have.

When we looked at the alternatives where we could reduce force structure, we dialogued with the combatant commands (COCOM) and we asked what is most valuable to you of the things the Air Force presents. One hundred percent of the COCOMs valued our intelligence, surveillance, and reconnaissance (ISR) resources and asked us to expand those resources and to buy back any places that we had taken cuts there, and they would rather have that than the A-10.

We like the airplane. We would like to keep it, but we could not find a way to work it into our budget level.

Senator COTTON. General Wolters, from a pure combat capability perspective, do you view the fighters and the B-1 as an adequate substitute for the A-10 to ground forces in need of close air support?

General WOLTERS. Mr. Chairman, I do. As you well know, there are certain situations with a show of force and show of presence opportunities over soldiers where the A-10 is one of those insertion resources in combat that produces positive effects on the battle space. That is one area where the A-10 probably outmatches some of our others. But the F-15E, the F-16 and the B-1 can adequately perform the close air support mission and satisfy the requirements of our combatant commanders.

Senator COTTON. The long-term plan is to replace all those with the F-35's capabilities. Right?

General WOLTERS. Mr. Chairman, that is correct. As you well know, the F-35 will possess a level of close air support capability and initial operation capability, and by its fully operational capability in 2021, we suspect it will contain all of the capabilities that currently reside in the close air support (CAS) force requirements today for the combatant commander.

Senator COTTON. So I have to say then that if today is 2015, 2021—you said that those other fighters and the bomber are adequate to replace, but adequate in my opinion is not necessarily enough when it comes to supporting the troops on the ground that are in need of close air support.

General HOLMES. Mr. Chairman, as a wing commander at Bagram during our year there, I flew the F-15E. I flew the F-15E completely in a CAS role. I flew 83 combat missions. I employed 20 weapons. We took modifications to that airplane starting about

7 or 8 years ago. We added an advance targeting pod so that you can see things from altitude and distance that you could see with your eyes if you were closer. We added the radios to the airplane that the A-10 has so that I could talk directly to a ground commander. I could talk to the battalion commander and his Tactical Air Control Party Specialist (TACP) on one radio to the Joint Terminal Attack Controller (JTAC) on the ground on another radio and to the command and control authority on a third radio. I had the range of weapons that allowed me to do almost everything.

There were certainly situations where if I was without a JTAC on the ground and I was caught with troops up very close to me, that if I was the guy on the ground, I would prefer to have the A-10. But there were certainly situations where if I got into trouble and the closest airplane to help me was 300 miles away, then I would like to have that F-15E come in to get to me.

We will provide a CAS capability and we will continue to do so in the future. We are accepting risk in capacity between now and when we start to build up in F-35 squadrons and we are doing that to pay bills.

Senator COTTON. While we are talking about solutions that are good enough or better than nothing, let us shift for a moment to the macro budget picture. You can read the headlines just like we can. Both Budget Committees of the Senate and the House have proposed legislation that would keep the base budget at \$498 billion, which is the sequestration number, but include so-called OCO funding, overseas contingency operations, of as much as \$90 billion. Without commenting on any particular budget, could you give us quickly your thoughts on that approach?

General HOLMES. So, Mr. Chairman, as again the guy with the team that plans what goes into the Air Force program, our preference would be to have a reliable, predictable budget stream out there so that we can plan in multi-years as you outlined in your introductory comments there. But our second best choice would be able to get the resources we need to continue to do the things that people expect us to do from year to year. So we need more money. We would prefer to have it in the base budget so that we can count on it and predict it across the FYDP, but we want to work with Congress to see what we can do to get the money we need to do what we are asked to do.

Dr. LAPLANTE. Just to add on from an acquisition perspective, any additional money is good and is useful for the system. Where it affects us, particularly with, let us say, if you have the base budget being fixed and then OCO, it still is harmful for us because we need some level of predictability on a long-term program—I mean by long-term just in the next 3 years—or it would be irresponsible for us to start the program. So we cannot in good conscience—we are not in good conscience going to start a JSTARS recapitalization, for example, even assuming OCO somehow would cover it. That would be actually irresponsible.

So what I see happening by this uncertainty in acquisition is a lot of times you are forced to do things that are short-term, in other words, not do a bigger buy, not do a multiyear. If we are going to retire this thing, we do not know if we are going to retire it. Okay. We will fund it enough this year and then do it again next year.

Actually it would be much better for us to know we are definitely retiring it, we are definitely not because then you would actually put the right plan in place.

We are now having to tell our folks, even if the thing that you are working on is supposed to be retired, put in place a budget and a plan as if it was not because we need to know how we would long term sustain it. So it is our way of having to deal with the uncertainty. It is actually costing us more money.

We had a program last year called Space Fence, which was a new program, a very important program for space situational awareness. We had gone through the source selection, ready to award it. This was in September 2013. It was right—if you guys remember the 2013, September-October was a very uncertain time. Rightfully so, we do not award the contract because we had no idea what the budget was going to be. We do not want to start a program that we are going to have to turn around a year later and cancel and waste that money. Right? So we rightfully—and the leadership of the Department—held it off. We had to stop the competition, stop the award, wait until after the dust settled. Ryan-Murray (Bipartisan Budget Act) came in. So in February, we had to start over again with the request for proposal (RFP). We did the source selection in June, and we awarded the contract and the program is underway.

But here is the thing. We calculated it. It cost us \$70 million more because of all the gyrations. The warfighter will get the Space Fence a year later than they were originally going to get it because when you have to stop something, then restart it and reask for proposals, the industry teams are spending.

So I can go through lots of stories where—we do not do performance-based logistics contracts. Usually they are about 10 years to get the cost savings. It is harder to do them on a 1 year-to-1 year basis. So we really crave stability in our world.

Senator COTTON. So my time has elapsed. But if I could make an attempt to synthesize what I have heard, this approach, keeping sequestration in effect for fiscal year 2016, plusing up OCO spending, not good, better than nothing. It depends on the details and in any regard, modernization and recapitalization will continue to suffer.

General HOLMES. Yes, sir.

Senator COTTON. Thank you.

Senator Manchin?

Senator MANCHIN. Thank you, Mr. Chairman, and thank you all again.

It gets quite confusing from the standpoint—and I said this before. We have to go home and explain to our constituents how we spend their tax dollars, how we commit their tax dollars short-range, long-range, and also how we defend them. When you look at the cost factor, what we are dealing with, basically I think that when you look at the gross domestic product (GDP) of the United States of America, we are \$17 trillion and growing, which is good. We are the largest by far. We spend about 3.8 percent on military. When you look at Russia, Russia is a little over \$2 trillion Gross Domestic Product (GDP), and they spend I think about 4.2 percent.

Then you look at China, about \$9 trillion, and they spend I think in the 2.6–2.8.

In a nutshell, they say, well, why are they getting a bigger bang for their buck than we are. Why are we so costly as a military? What are we not doing efficiently? What can we do? How much redundancy do we do? I have had people ask me a simple question. We have the National Guard and we have the Reserve. They both do the same thing. Is there a way to work this out more efficiently? Why does every branch of the military have an air force? Procurement, getting something to market.

The F–35 strike fighter is going to be the one and done. Right? It is going to do it all. Do you all truly believe that it will replace all of the platforms you are taking off? General, we will start with you.

General HOLMES. Thank you, Senator Manchin. I think on the issue with the other countries and their investment, what makes us unique is that we have global responsibilities or we believe that we must be able to act globally that Russia and China do not necessarily take on. It is difficult to know exactly how much they spend, where we know pretty much exactly how much we spend—

Senator MANCHIN. These figures come from the World Bank. So they are watching it pretty close.

General HOLMES. Yes, sir. But the difference I think is that our military, your military—we are expected to be able to operate all around the globe and be able to get there and back on short notice.

As far as the—

Senator MANCHIN. I am sorry to interrupt. Those two countries we are most concerned about. Cybersecurity, cyber warfare, basically platform capabilities and what they are investing into. They are investing in this direction here. We are pretty much flat or going this way. Those are concerns, 10, 20, 30 years out where they are going to be and where we are going to be. I think that is what we are asking. Where is our cost? Where can we as Congress help you in a more efficient, streamlined, lack of redundancies, if you will? I know we put all of our eggs in one basket. Here is an infantry combat person who says I kind of like that A–10. But we bought into the Joint Strike Fighter.

Dr. LAPLANTE. So clearly there is a lot to think about under that question and it is a great question.

To start with, I think in the Air Force—and I am not the expert on this. So you can ask me two or three questions. Then I will have to defer you to someone else.

But my understanding is we have about 30 percent excess capacity in terms of our infrastructure that we carry.

Senator MANCHIN. Excess capacity?

Dr. LAPLANTE. Yes. There is no way a private business would carry 30 percent extra capacity in their infrastructure. Maybe 5 percent, you might do it. 30 percent? I know Base Realignment and Closure (BRAC) is a four-letter word, but we have to start—and I am not a BRAC expert. We have to take that stuff head on.

We also have to do things like recognize the fact—it is the analogy maybe perhaps to the third world. Did you ever hear the story of somebody who is in a part of the third world, Africa or something, and you have better cell phone coverage than you do in

Washington, DC? Part of the reason that some of the infrastructure in new countries is because it is new. We are still living with our old. But we have that issue with the Air Force, for example. Many of our airplanes are older than the pilots flying them.

I was in a meeting yesterday down at the Reagan building where the head of the Defense Logistics Agency (DLA), civilian head of DLA, who was sitting next to me said, boy, we got a request for 707 parts. I did not even know we still had 707s. I turned to him and I said, yes, AWACS. I mean, we are keeping airplanes around that—unbelievable.

Senator MANCHIN. Speaking of AWACS, you are going to retire seven AWACS and seven Compass Call EC-130Hs.

Dr. LAPLANTE. Yes. I can speak quickly to the AWACS and then turn it to my colleagues.

To the credit of General Welsh, the Chief, his philosophy—and I will give you the logic of it—is to say, okay, let us take AWACS, for example. All right. We need to recapitalize AWACS, 707. We talked about that. Okay. Where am I going to get the money? Where am I going to get the money? Well, maybe what I do is I take down the fleet now at some level with—it is going to be all the risk you are taking to the warfighter, the unhappiness of the warfighter to take that money and pump it back into building a new thing. It is the equivalent of living—while your house is getting the addition put on, you live somewhere cheaply and you try to cut your costs and hope you can get through the few years. I mean, generally, that is what General Welsh has thought of doing here. Now, of course, there are pros and cons of that approach, but that is what he is coming up with with these ideas.

In the case of JSTARS recap, remember JSTARS had its introduction in the first Gulf War. Those were used airplanes then. Some of those airplanes had been flying cattle around. We still are flying JSTARS today in the fight, and the price to keep those going every year is going up. So we can sit and let this happen, or we can take risk today to try to recapitalize. But that is why you are driven in those directions.

Anyway, I will stop and turn it over to my colleagues here.

Senator MANCHIN. General Wolters?

General WOLTERS. Ranking Member Manchin, I think that is a fantastic question, and we do not refute the challenges that you posed with respect to procurement. We are in the business, as are you, sir, to squeeze every penny out of every dollar. Some of the decent initiatives that are currently taking place that I think you would agree with with respect to the be all/end all F-35, it is an aircraft that is multi-role. It possesses the capability and capacity to work in the close air support environment, to work in the interdiction environment, to also work in the strike environment. Those attributes are ones that are not present in other aircraft.

With respect to getting the most bang for the buck, with respect to the dollars, I have to go back to the chairman's comment. When you take a look at warfighting, as you well know, sir, wars do not occur on 1-year intervals. What we would like to do is impose a strategy with the appropriate planning and prosecute fights, but they do not occur on 1-year intervals. As we work with the budget and we are in a position to where we do not possess the capability

to have the stability to plan for next year's funding level and the following year's funding level, it becomes challenging with respect to the munitions that you use, the platforms that you require, and the attempt to impose a strategy upon the enemy. So all those factors together put us in a position to where it is a challenge, sir.

One of the good things the U.S. DOD has done with your assistance since 1986 is pushed very, very hard for joint integration and coalition integration. Today, as we attempt to prosecute the fight in Operation Inherent Resolve, we are reaping significant benefits as a result of our joining at the hip with our coalition partners to prosecute that campaign.

Senator COTTON. Senator Manchin, thank you very much for the important points, as well as the relatively closing gap between Russia and the United States. I would point out that Russia, because of the falling price of oil, has implemented its own version of sequestration. Their finance minister recently announced across-the-board, government-wide cuts with the exception of their military.

Senator Rounds?

Senator ROUNDS. Thank you, Mr. Chairman.

Gentlemen, I have appreciated the candor with which you have responded. With regard to the current proposals for funding, I do not think there is anybody on this committee that does not want to see the appropriate funding levels offered and maintained.

Part of the discussion that we have had, as you are well aware, is the use of OCO funding, and part of your concern is the fact that it does not provide you anything in a base. But would it not be appropriate with appropriate direction with the OCO funds that you would be able to perhaps reconsider the way that you would view the use of those funds? But you are asking for a specific direction within the legislation. Fair statement?

Dr. LAPLANTE. I do not know that I would say we are asking. I would say this and I will turn it over—

Senator ROUNDS. Perhaps suggesting?

Dr. LAPLANTE. Yes. Where an example might be—and I will turn it over to General Holmes here in a second. For example, what is the criteria that you could use OCO for? Is it for procurement, is it—I mean the traditional thing in the last few years is if you lose an aircraft like an F-16 crashes or something, that tends to be something that OCO rules would apply for a loss replacement. Well, are the rules willing to be widened and changed from that, for example?

Senator ROUNDS. Precisely, but what you are saying is under the existing OCO rules, as you have had them presented to you in the past, it presents a problem.

Dr. LAPLANTE. I will defer to General Holmes. He is the expert.

General HOLMES. Yes, sir, it does. I mean, there has been some creative use of funds. We funded some Army end strength for several years to control their drawdown through OCO. So there are ways to use it and to use it effectively. Our concern is more the 1-year nature of OCO and not being able to plan ahead into the future.

Senator ROUNDS. I understand. Thank you.

Now, let me turn very quickly to the long-range strike bomber. Dr. LaPlante, the Air Force leaders have consistently stated that

the aircraft per-unit cost of the LRSB would be at or below \$550 million. The House Armed Services Subcommittee on Seapower and Projection Forces hearing on March 4th, you seemed to intimate the cost today when accounting for inflation would be somewhat higher. Extrapolating annual inflation out to 2025 would indicate that the then-year cost would be well over \$640 million per aircraft. Do you believe sticking by the \$550 million unit cost without always qualifying it with the 2010 base year dollars is somewhat misleading to the American public? Where do we go?

Dr. LAPLANTE. I am really glad I got the question. I just wish I had a chance to be in my classroom because I love this. This is great. With 3 minutes on the clock, I am going to have to figure this out.

So nothing has changed in LRSB. We have completely designed the program around affordability. Nothing has changed. It is do everything exactly the way all of us who have researched it—we have looked at what has gone wrong in acquisition. We are addressing every one. The requirements are completely unchanged. We actually baked in as a key performance parameter the cost per airplane. At 100 airplanes, the cost is \$550 million. Ironically because we are so paranoid about changing the requirement—the document was signed in 2010—we are like can we adjust it for inflation. So we should remind everybody. We know and the budgeteers know that inflation happens just like you know with your constituents and people with their salaries. You could do an Internet calculator and see that \$55 in 2010 is \$57 today. We know that. It is all taken into account.

Do I think we probably need to change it so people are not confused? Sure. I am sure it is not going to stop the questions.

We did the same thing in the F-35 about 2 years ago. I guess in 2013, we were still quoting 12 numbers, and we found then that some people were using then-year dollars. Finally, we said stop, stop. Here are the rules. The F-35 is always going to be talked about in price per plane in then-year dollars with the engine. So now everybody is saying the same thing. Lockheed says the same thing.

It is now 2015, so yes, we probably should do it. But there should not be a lot of intellectual energy I spent on that other than we just need to be clear.

Let me make one other point. Again, I am really sensitive of our time. This is really important.

There are three pots of money and ways you fund phases of an acquisition program. The first is when you develop the program. It is typically research and development (R&D), and that is what you do. We do not have the privilege of letting industry develop on their own nickel most of the time. We have to develop it ourselves. So that is called development. Then you switch, hopefully pretty reasonably, into production. That is when you produce the airplanes, and then you sustain them. As I said earlier, most of the money, when you look at the lifecycle of a program, is in that sustainment phase. In fact, that is the biggest risk, by the way, of the F-35 of getting the costs. It is sustainment.

So let us talk about what is the right contracting strategy in each one. We have been trying to really show people—and Frank

Kendall has been doing this very well—of getting people to think and understand the literature. There is not a checklist. You do not use a checklist. You actually have to think. It turns out in the data 70 percent of development programs—and this is actually intuitive to me. It makes perfect sense—are cost-type programs. They are reimbursable costs, and that is typical in R&D because what happens is you have a goal of what you want to get done in the development, but you oftentimes do not have enough precision on exactly how much it is going to cost. So you just do cost reimbursable.

Now, if you just left it alone at cost reimbursable and did nothing, that might be a problem. But then what you do is you put incentives in, and this is what we are teaching people. An example of an incentive. You would put in and say, okay, the target you are going to spend in that development is this much. This is your target. It is cost reimbursable. You go above that target, we are going to start whacking your profit. You go even this higher, you are going to get zero profit. So that is what we are teaching people.

Now, still sometimes you want to do fixed price in development. We are doing the tanker fixed price in development for certain reasons. We are doing the combat rescue helicopter fixed price.

Senator ROUNDS. Let me just—I am out of time, but let me just ask this. What you are saying is that we are on target.

Dr. LAPLANTE. Yes.

Senator ROUNDS. You are on top of it.

Dr. LAPLANTE. Yes.

Senator ROUNDS. This very, very valuable long-range piece of machinery that we are looking at is moving ahead without any surprises so far.

Dr. LAPLANTE. No. This is really important. If I could, Mr. Chairman, give 20 seconds.

Okay. Here is LRSB, procurement, procurement, fixed price, fixed price. By the way, 100 airplanes. Even the first one that comes off the line is going to be fixed price. That is unprecedented in this kind of a program. So you better believe we have this thing controlled. I do not know if people are confused or they are bringing up inflation, but it is actually pretty straightforward and nothing has changed.

Senator ROUNDS. Thank you, sir.

Senator COTTON. Senator Donnelly?

Senator DONNELLY. Thank you, Mr. Chairman. Thanks to all of you who are here with us today.

I wanted to ask about some specific programs, the weather satellites. We were counting on the European Union (EU), and the EU's decision not to launch a replacement for the Meteosat-7 is causing concern in our ability to collect certain weather data over CENTCOM's region. How are we adjusting our plans to compensate for that?

General HOLMES. So we have the—and I may get my acronyms wrong, but we have a weather satellite that we have not launched. There have been different views on whether we should launch it or not from different places in the Government, and as a result, we have not. We know there is congressional language that tells us to launch it by the end of 2016 or retire it. We want to launch it, but it takes longer than that to get it on contract and launch it. So our

plan is to work with Congress to see if we can get language that would allow us to do it and then launch that satellite to provide that capability.

Dr. LAPLANTE. Yes. Just let me add to that from an acquisition perspective. The general rule—there are differences from when you get the satellite on contract, it takes nominally 2 years of integration work. This is engineering work to integrate it with the launch vehicle. So we have a general rule of thumb that we have to award 2 years prior to a launch. So if you are saying in the language that we have now that it has to be launched by December 2016, that kind of does not work. So we could do it if directed. It just will not be before December.

Senator DONNELLY. Well, here is another operational question. We are moving F-35s into Hill Air Force Base. What are we going to do with the F-16s?

General HOLMES. Well, we cannot ask the same people to maintain both of them. So the plan that we had built would take those F-16s and make them available as A-10 replacements for Air Force Reserve and Air National Guard units at Fort Wayne, IN, and at Whiteman in Missouri. If we are not able to come to an agreement with Congress on what we are going to do with the A-10, then we will have to look at what we do with those airplanes, as we have to bring them down to make maintenance people available.

What we would like to do is to move them on and to replace those A-10s at those units with block 40s that have a lot of service life left and have a lot of length left.

Senator DONNELLY. Terrific.

I just want to ask one more operational question, and then I want to ask about drones.

The KC-46—and this is more of an installations question. When can we expect an announcement on the candidate bases for the Reserve-led operating parts?

General HOLMES. Sir, we expect to make that announcement in September 2016 I believe is the last information I got. So for OPS-3, which should be a Reserve base, we expect that in September 2016.

Senator DONNELLY. Now, in regards to drones, how much more would you need if you had the optimal plan for yourself on drones, the number of drones, the number of operators? In order to meet what you think is the threats you need to meet, the things you face, would you be at the present number or would you be much higher?

General HOLMES. Sir, I am going to defer that question to General Wolters.

General WOLTERS. Senator, that is a great question.

As you well know, we as services provide resources to the combatant commanders on their request. Typically the number one request item from our combatant commanders is ISR followed by ISR followed by more ISR, and that typically equates to medium-altitude remotely piloted aircraft that we possess in the U.S. Air Force. Right now, our U.S. Air Force will be postured in fiscal year 2016 to support 60 CAPs, and the CAPs stands for combat air patrol. It can best be described as aerospace vehicles overhead to tar-

geted medium altitude that possess the capacity to surveil from 18 to 24 hours.

We believe, given the other elements of the enterprise in DOD and of our coalition partners that 60 is the correct number for the near term. It is that way because in the U.S. Air Force, we need to freeze the stick, establish a force that can innovate with 60 CAPs, let that settle for several years to where we have the appropriate number of pilots per CAP per vehicle so that the enterprise will be in a position to where we can keep the force for the long term and then in the out-years we will be in a position, as we work with our partners, to feed the fight.

Senator DONNELLY. Let me ask you this. You mentioned that the requests are for ISRs and then the next highest is ISRs and then the next highest is ISRs. In terms of the actual vehicles, how many more do you think you need to meet all the requests that are out there?

General WOLTERS. Senator, that is a great question.

We know that what we currently possess is not enough to meet the demands of the combatant commander in the Air Force, in the other services, and in the enterprise that services intelligence, surveillance, and reconnaissance.

Dr. LAPLANTE. I am not a warfighter, but as somebody who has been around the analysis community for a long time, I am at the point where I hear people say we need to do analysis on how much ISR we need. I just say I will tell you the answer. More. Every time they do the analysis of warfighters coming back, it is just insatiable just watching this.

Senator DONNELLY. Would that also reflect on the number of pilots that you need as well?

General WOLTERS. Senator, it does. This goes back to the challenge that we face in the U.S. Air Force with the number of airmen that we possess and the capacity and capabilities that we need to deliver for the joint fight.

The second largest area that our combatant commanders asked for support is in command and control and air superiority. So we are threading the needle between the size of our ISR force and the size of the force to serve those requirements that are given to us by the combatant commanders.

Senator DONNELLY. Dr. LaPlante, I am out of time now, but one of the most striking things to me, since I have been on this committee, is the need for drones and drone vehicles and the constant statements of every single vehicle we have—there are three or four people who want to get their hands on it for the next trip it takes. So as you said, as you look at this acquisition system and you look at what we really need the most, it is like the old saying of the simplest explanation is often the best. What you need the most is probably the thing they are asking for the most.

Dr. LAPLANTE. Yes. Here is the problem with us in acquisition particularly the last 10 years. Most of the ISR demands come in through these things called Joint Urgent Operational Needs. So what it is, is basically take things like Predator or Reaper and put this sensor or that sensor on it. It is a rapid acquisition thing with the CENTCOM.

So what was happening was a lot of our ISR that was getting this big demand was being run basically in this urgent need area, and none of the regularity, which is good and bad, of acquisition was being done. So we are trying to figure out what is normal in ISR. For a while there, I kept saying, well, the demand in all this crazy, urgent operational need stuff will end as soon as we get out of Iraq. It did not happen.

Senator DONNELLY. It will not happen.

Dr. LAPLANTE. I think you are right, and so here is what we are doing on Predator and on Reaper. We are saying, guys, accept that this is always going to be this way. Build a baseline and then build a rapid part of the acquisition that will assume this stuff will keep dropping in. Just to get exactly at your point, because this is not normal. It is not a classic thing. The demand signal just keeps going up. So you are right.

Senator DONNELLY. Thank you, Mr. Chairman.

Senator COTTON. Senator Ernst?

Senator ERNST. Thank you, Mr. Chairman, and congratulations.

Thank you, gentlemen for being here today. I appreciate your testimony and your candor.

The good Senator Cotton took a lot of my A-10 line of questioning, but I would like to just go back a little bit because maybe this has been provided to previous committees. I am not certain. But when we are comparing the cost of A-10 sorties versus the F-35 as a replacement, I have not seen any numbers on that. In my simple Army National Guard mind, I know that the A-10 flies a lot slower. I know it is preferred by ground troops. The F-35 might be a lot faster. I do not know. The F-15 is a lot faster. But time spent in the air—how long do the replacement aircraft stay in the air before they have to see the tanker? What kind of payload can they carry as far as munitions? All of that matters to those troops on the ground. That is very important. Most of the ground pounders that I have talked to, the men and women that I served with, when you ask them, they say they would rather see an A-10 in the air.

I know that is, again, unqualified by numbers. I would like to see those numbers so that if we are proposing we make this change, that I can defend it because right now I cannot, and in my mind I am not prepared to defend it. I do not want to defend it at this point. I would love to see the A-10s remain. So if you would just comment briefly to that.

General HOLMES. Yes, ma'am. Senator, thank you.

I think we like the A-10 too. It is not just that the guys on the ground do. We do too. We like the airplane. It was built to shoot tanks in the Fulda Gap to stop a Russian invasion of Europe is what it was built to do. Over time, it has been modified and updated, and it is a very good platform for the environment that it is operating in now where there is almost no ground threat, there is no air threat, and so it can use its advantages of long loiter time and being able to fly close and carry a large weapon load and be effective. It is not the only airplane that can be effective, as we talked about.

It certainly costs less to operate than an F-35 will, and there is no set of math that would tell you anything different. The A-10 is

always going to be cheaper to operate than an F-35 will be, and I would stipulate that.

The question is that in the environments of the future, can it get there. So what we are trying to do is make sure that we have a way to support soldiers in the future as well that may be operating in a place where there are sophisticated surface-to-air defenses.

We estimated that the loss rate of the A-10 in the Fulda Gap scenarios back in the 1970s was really, really high. They were not going to last through the conflict and they were going to take a really high attrition rate. If you looked at the places that they employed in the first Iraq War, if they got up into a sophisticated ground threat, they took a pretty good beating. It is a tough airplane and they were able to fly a lot of those home with the damage they took, but they could not fly them again. So they could not support ground troops the next day because of the damage that they took.

So what we are trying to do is balance our ability to support our brothers and sisters on the ground today, make sure we have the capability to do it 20 years from now if they are operating in place where they may be on the defensive, for once where the enemy is bringing their fire power with them like the Russians were going to do and they have sophisticated defenses with them. We think it is worth paying a little bit more, cost per flying hour, to be able to get there instead of having a cheaper airplane that you cannot use. I think that is the simple part of it.

We would love to keep the A-10 until the wings fall off of them if we could afford to do it. It is just how do we fit that capability in and plan to support the ground troops of the future within the same limited budget.

Senator ERNST. Thank you.

Yes, General Wolters.

General WOLTERS. Senator, if I could. I served as the Air Chief in Afghanistan for a year and had the good fortune to command A-10s, F-15Es, F-16s, and B-1s in harm's way. All were referred to as fantastic CAS platforms depending upon which soldier you talked to who happened to be in the middle of a troops in contact scenario.

One of the challenges that we faced with the A-10 was the fact if we had multiple engagements separated by distances greater than 100 nautical miles, you are potentially in a position to where some of the other aircraft that possessed the capability to dash quicker between targets would be able to serve multiple targets. That is a classic illustration to where the A-10 was slightly challenged due to its inability to achieve a high-end speed.

But I could not agree more with what General Holmes said and with what your candid observations are about the A-10. It is a wonderful close air support aircraft. I have flown it. I have flown its predecessor, the OV-10, in the early 1980s. But there are some things that become challenging certainly in a non-permissive environment, and there are still things that occur in today's combat permissive environment where other aircraft possess a little bit better ability to dash to other targets.

Senator ERNST. Thank you. I do appreciate that, gentlemen.

I know we had spent some money modernizing the A-10s, and now I see in part of the discussion with the C-130 fleet, another aircraft that is well beloved by many members of our armed services. My husband took off in a lot of C-130s, did not land in a whole lot of C-130s. So just a little bit of discussion, if you would please. Talk through the modernization plan with the avionics. If we spend this money, then are we going to turn around and in another 5 years say the C-130 is not good enough, we need a different aircraft?

General HOLMES. Thank you again, Senator, for that question as well.

We had some very productive meetings with staffers this week on both your staff and with your House counterparts, and we think we understand the intent of Congress in the 2015 NDAA language and we are going to move that and execute that intent. So our intent is to spend the AMP money in the budget on AMP, as we were directed to do. There is prior year money there that we can spend to begin buying radios required for the Avionics Modernization Program (AMP) and to finish the research, development, testing, and evaluation (RDT&E) for AMP that would do a tech refresh on the avionics modernization program, the program that we are having a hard time finding the money to pay for because in the years since, we have let that pause, there are newer components and there are manufacturers that are not making them anymore. It will take a little R&D money, and we will expend that money to do that.

We believe the NDAA also gave us the authority with the certification by the Secretary of Defense to take the money we had in there for airspace compliance, the communications, navigation, surveillance, and air traffic management money that Ranking Member Manchin talked about, and start to apply that to make sure that the airplanes are compliant and able to fly in the airspace. We have to do both.

We had brought a plan for a couple years that would do a modernization plan that was compatible with a very quick effort to go make those airplanes compliant. The time has delayed now to where we are going to go ahead and move ahead with the avionics modernization program as our modernization program, and then we hope to work with a lesser program to make them compliant in the airspace, and then at some point those programs will meet.

What we found is when we took another look, after the time that we had been stuck deciding on the way forward—we took another look at it and as we reduce the C-130 fleet down, we are down to about 328. If we are able to get down to 300 next year, which we think still exceeds the requirement, then the costs start to come together between the aviation modernization program and the program that we had proposed to the point that the costs were close to the same. So we are going to move forward and follow the direction of the 2015 NDAA.

Now, it will still be hard to come up with that money. We will need help to do that. It is multiple billion dollars over a couple of FYDPs, and that means there is something else that will not get done in the defense budget. But we are going to budget the money for the compliance part. We are going to move out with the prior

year money in AMP and then we want to work with Congress to figure out how we are going to pay for that modernization program.

Senator ERNST. Thank you very much, gentlemen. I understand we have a need to protect our taxpayers, but we have a need to protect not only our men and women in uniform but also all of our Americans here in our homeland.

So thank you, Mr. Chairman.

Senator COTTON. Senator Lee?

Senator LEE. Thank you, Mr. Chairman.

Thanks to each of you for joining us. Thanks for all you do to keep our armed services running well. I am a big fan of the Air Force and appreciate what you do.

Late last year, the Air Force began a study into the future needs of test ranges and their infrastructure on those ranges, a key to maintaining readiness and innovation within the Air Force. What would you say—and this is open to all of you and any of you who want to answer it. What do you believe are the most critical needs for Air Force test ranges in order to make sure that those ranges are able to adequately test fifth generation aircraft and weaponry against the threats that they are likely to be facing in the next few decades.

General HOLMES. Yes, sir. So we dealt this year—as we start to build our 2017 budget, we took a brief that you may have seen from our test and evaluation people that outlined the state of our test and evaluation enterprise. As we know that we are contemplating, as the chairman said, spending hundreds of billions of dollars on the Air Force here over the next 20 years in the modernization effort, that we need to make sure that we have the test and evaluation enterprise that will support testing those things and making sure that they work.

So we spent a multiyear project kind of bringing together exactly what needs to be done to accomplish that. The kinds of things we are talking about are simulated threat emitters so that you can go out and fly against a particular surface-to-air missile (SAM) system and see if it works or not, the test stands where you can put aircraft on a test stand and look at different wavelengths of energy against them so to see whether they are detectable or not by different radars and to test those capabilities that we are bringing forward. Then there are also some S&T issues of things like wind tunnels and test facilities and those areas.

We have put a plan together. We think we have a plan to start going toward to pay for it. As we start talking about our test and evaluation enterprise, because of those programs that we are going to test and evaluate, it gets difficult to talk about in an open session. But we can come back and provide you some more information.

[The information referred to follows:]

General HOLMES. Fifth generation aircraft and weapons need to be tested on updated open air ranges and in ground test facilities that present the system under test with an environment that represents existing and emerging threat systems world-wide, including Pacific theater threat systems. Further, our ranges need to be upgraded to address the increased distances for air-to-air and air-to-ground weapons employment inherent in our 5th generation systems. There are also enhancements required to our sensor, datalink, and propulsion facilities to fully accommodate development for 5th generation systems and beyond. Finally, we will need to make in-

vestments in our test and evaluation infrastructure to support continued relevance in testing. This would include technology updates for data collection and instrumentation systems in addition to basic facility sustainment, repair, and modernization.

Dr. LAPLANTE. I would say many of us are keenly aware, as we move to this next generation, whatever you call it, Anti-Access Area Denial (A2AD), fifth generation air superiority, we need the testing and then the accompanying modeling and SAM because of the scales we are going to be doing to make this realistic so those of us an feel confident we really understand these systems. If you really look at the scales that are now involved—and we have multiple platforms. One of the things that the F-35 brings F-22 is the fact that the forward ship and all that and the fusion. We would love to be able to test that robustly over large areas, at least somewhat to validate it against, as General Holmes said, realistic emitters, realistic threats. We do not want to be testing against 2-foot tall adversaries potentially. We need to test against modern stuff, and it is a challenge.

Just as somebody who comes out of testing in my heritage is that it is increasingly harder to test things because our ranges get more encroached on. Our restrictions become closer. But we have to do it. There is no substitute for a test. As we say, all models are wrong. Some are useful. You have to test.

Senator LEE. That is right. Thank you for that insight. I hope you know how much support there is in Utah for the great work that you do in the Utah Test and Training Range (UTTR). One of the great assets that we have is the UTTR, given the sheer expanse of land that we have there, uninterrupted land that can help with the very things you are describing.

Dr. LaPlante, the Air Force is migrating the logistics function under your office in an attempt to create better efficiencies and cost benefits between acquisition programs and the sustainment and lifecycle processes. Can you give us an update on this process and tell us about what provisions exist within the structure to ensure that the logistics deputy has an opportunity to adequately influence the process of acquisition so that sustainment considerations are built into the weapons systems from the beginning?

Dr. LAPLANTE. So this has actually been really exciting. It is March now. We did it on October 1st. What we did, just for the chairman and for the rest of the committee, we brought in the headquarters of the Air Force, the logistic policy experts, into the acquisition. Now, the risk was, for people who really know how good the Air Force does logistics and how wonderful our depots are, hey, you acquisition people, you better not screw up what is going really, really well. But on the other hand, if you could pull this thing off and you can get acquisition experts in at the beginning of these programs—as I said earlier, 70 percent is in the cost—it could be a pretty wonderful thing. It is a pretty wonderful thing.

I ran into my two-star equivalent who leads that part of my organization just last week, Daniel A. Fri, Deputy Assistant Secretary of the Air Force for Logistics and Product Support, Office of the Assistant Secretary of the Air Force for Acquisition. I said, Dan, how is it going? Because remember, that organization was picked up down the hallway and moved into mine. He goes, we are so busy. We are overwhelmed. I said, was it more than it used to be? Yes.

Why? What is going on? All the acquisition people are bringing us in to all their meetings at the beginning of the acquisition process. It is like it has changed the culture. So I think it is really, really exciting.

Senator LEE. Exactly what you wanted to hear.

Dr. LAPLANTE. Yes, yes. All the signs are really good. I have to give a shout out to General Bruce Litchfield at the Air Force Sustainment Center. You see it at Ogden. We see it at Tinker. We see it at Warner-Robbins, just remarkable stuff. So, hey, the fact that we can cozy up and bring some of that magic together with acquisition, I mean, I think it is really awesome. So far so good.

Senator LEE. I am pleased to hear it. Everyone was nervous when it happened, but it seems to be good so far.

Mr. Chairman, if I can ask one more short question if I promise to make it short.

There was an article published on military.com last week indicating that the F-35 will not be able to fire the SDB 2, the close air support weapon, until 2022. Can you tell us about what other close air support capabilities the F-35 will be capable of prior to that 2022 time horizon?

General HOLMES. Yes, sir. So when we talk about having an initial CAS capability, it means that the airplane when it starts that initial operating capability (IOC)—it will have the ability to use the GBU-12 or a laser-guided weapon. It will have the ability to use Joint Direct Attack Munition (JDAM), the drop on coordinates, and it will have the radios and the messaging required to be able to operate with a JTAC to take both digital CAS messages that come through without words, that pass coordinates and instructions or it will have the right radios to talk to the guys on the ground to do that. Later on in the models that we get to by full operational capability (FOC), we will integrate a small diameter bomb (SDB) as you said.

I saw the article. The article I saw said it will not fit in the marine bay. I am not sure if that carries over to us or not. We will have to get back to you.

But it will start out with that initial capability, and then it will add larger JDAM, the 2,000 pound JDAM, the ability to carry GBU-12s outside of the wing, and the ability to carry SDB inside and maintain its stealthiness while it does it.

Senator LEE. Great. Thank you.

General WOLTERS. Just one addition, sir. In between IOC and FOC, the F-35 will gain the capacity to shoot the 25-millimeter gun, which will also enhance its capability in the CAS environment.

Senator LEE. Great, great. Thank you very much.

Thank you, Mr. Chairman.

Senator COTTON. Senator Manchin?

Senator MANCHIN. Very quickly, one question. This, I think, is for General Holmes. In the Air Force report on the recommendation of the National Commission on the Structure of the Air Force, the Air Force indicates that the Air Force is 7 percent short of meeting demands for fighters with the current force structure. The report asserts that shifting more effort to the National Guard and Air

Force Reserve, as recommended by the commission, would result in a shortage of 10 percent in fighter forces available.

Several years ago, the Air Force, as a part of the new defense strategy, reduced combat air force, the CAF fighter force structure under the so-called CAF Redux.

So I guess I would ask, General, why did the Air Force fail to inform us that by approving the CAF Redux, that we would be approving a force that was 7 percent short of meeting its requirements? I do not think we were notified at that time. I guess now with the A-10, would that add to the 7 percent shortfall?

General HOLMES. Thank you, Senator Manchin.

So there are several different kind of requirements that we look at. The first one we talk about is the surge capacity, its ability. We are all in. We are taking Active, Guard, Reserve, everybody goes. Everybody gets mobilized, and it is kind of the worst case scenario in the defense guidance. It would be to defeat in one area, to deny in another area, to provide homeland defense and nuclear deterrent all at the same time. Within that area, at the force structure we are now, we are on the ragged edge of being able to meet that worst case scenario, and as we make this drawdown, that risk gets worse.

What the report is talking about is the rotational ability to support what we do with COCOMs every day. So because when we rotate forces forward, if you rotate active forces on what we would call a 1 to 3 deployed to dwell, that means for every unit you have down range, you have to however three back home that are in the dwell period training, resting, getting ready to go back.

The active force we would like to deploy on a 1 to 4 deployed to dwell so that they can have enough training time to regain the full spectrum readiness that General Wolters talked about. But in reality, we are closer to a 1 to 2 deployed to dwell or a 1 to 3 deployed to dwell.

For the Reserve component, to mobilize them, we looked at a mobilization to dwell of 1.5 or 1 to 5. So for every one period they are deployed or mobilized, there are five units that are not deployed.

So if you move things from active over into the Reserve component, now you have cut down on your ability to support that rotational requirement within the dwell rate. That is what our response talked about. If you move more force from active into the Guard, then because of the longer time we have to give them because of the different place they are in their life and as citizen soldiers, they cannot deploy as much, then you have a decrease in your ability to meet that rotational requirement or what we do every day to support COCOMs around the world.

Senator MANCHIN. Thank you, sir.

Senator COTTON. Senator Sullivan?

Senator SULLIVAN. Thank you, Mr. Chairman.

General Wolters—first I want to thank all of you for your service and the men and women you lead.

I would like to focus a little bit on the ISIS mission. I have heard talk about, hey, we do not have combat troops over there. I know that is obviously a mistaken assumption. The men and women flying those close air supports are definitely combat troops risking

their lives on a daily basis. Who is calling in those strikes right now?

General WOLTERS. Senator, the majority of those strikes are being called in by ground component commanders of different sectarian nature that are joined by our forward forces, some of our U.S. special forces on the ground. That data is subsequently passed back to a headquarters either as far back as Qatar or down to Kuwait where in a command and control center we examine the target—

Senator SULLIVAN. Do we have JTACs on the ground there calling in air strikes?

General WOLTERS. We have JTACs assisting individuals, but they are not calling in the air strikes.

Senator SULLIVAN. So are they out there on the ground?

General WOLTERS. There are some in forward headquarters in Baghdad and in Kuwait.

Senator SULLIVAN. Do you think we have a robust capability in terms of marines or Air Force or special forces on the ground in the event we need to go kick in a door or two to go get a downed pilot?

General WOLTERS. Sir, we do. In the event that we have a downed pilot, we possess the capability to bring in the appropriate size force to accomplish a successful personal recovery mission.

Senator SULLIVAN. Good.

I want to switch. You were talking about resources to the combatant commander. You probably saw in the news today the Russian exercise in the Arctic this past week, 38,000 soldiers, 50 surface ships, 110 aircraft. This is in addition to the four new combat brigades they are putting in the Arctic, a new Arctic command, 13 new airfields. If you look at a map of what the Russians are doing in the Arctic, it is pretty significant. A huge icebreaker fleet that they are dramatically increasing.

You have served in Alaska. You have served in Elmendorf. I know Senator Lee was talking about Utah's open airspace, but I think the Joint Pacific Alaska Range Complex (JPARC) is probably the most open airspace in terms of training maybe in the world.

Yet, with regard to resources in the Arctic, there is no Arctic Operational Plan (OPLAN). In terms of your ability to resource combatant commanders, do you think we need an Arctic OPLAN, particularly given the threat that the Russians are posing and the buildup in the Arctic and, to be honest, the fact that some of your sister Services are talking about reducing forces in the Arctic?

General WOLTERS. Senator, I would like to carry more of this conversation in a different environment so we could speak at a different level. But as you well know, sir, we do possess the capability to allocate current assigned forces between combatant commands to put them in a position to where we have the access to help support some of the challenging areas that you are alluding to.

The good news about one of your references, certainly the UTTR is a fantastic range. The JPARC is a fantastic range. In and around that vicinity, it gets us good access to be in a position to help thwart the threat that you are alluding to.

Senator SULLIVAN. But if we do not know as kind of the services that are sourced and the requirements, what the requirements are

according to the combatant commanders, it makes it a little tougher to plan. Does it not?

General WOLTERS. It does.

Senator SULLIVAN. Do you have any thoughts on that, General Holmes?

General HOLMES. Nothing to add, sir.

Senator SULLIVAN. General Welsh has talked very positively about barring any major issues that the first F-35As would be scheduled to arrive at Eielson late 2019. Do you have any idea when the production line will begin building F-30s for Alaska?

General WOLTERS. Sir, typically we pay for airplanes 2 years before they are delivered. So the airplanes that will be delivered in fiscal year 2019 would be paid for in 2017, and they would start the construction then after that, and they would roll off the line, if everything works right, in about 2 years after the time that we appropriate the money and obligate the money.

Senator SULLIVAN. So that is about 2017.

General WOLTERS. Yes, sir.

Dr. LAPLANTE. Yes, and at the right time you can go to Fort Worth and pick the first tail number that is going to go there. We did that in January. The first tail number that is going to Hill, General Herbert J. "Hawk" Carlisle, Commander of Air Combat Command, wants to fly it into Hill because Hill, of course, is where we are going to have the IOC. So, yes, you can go by tail number and find your airplane and sign your name—

Senator SULLIVAN. If you keep us posted on that, we will be in Fort Worth, the earlier, the better.

I also want to talk about, in terms of training. I know we have talked a lot about sequester and the effect that will have. I know you gentlemen believe that the most important thing we can do to take care of our troops is to train them hard, rigorously so they come home after they have real-world contingencies or go to combat.

One of the things that I did not see in the testimony was the development of any new generation of aggressor platforms for particularly our fourth and fifth generation fighter fleets. So specifically, do you think the F-16 is too expensive to fly as an aggressor platform, and is the Air Force looking at developing a more capable, less costly aggressor platform that can serve in places like Alaska where we have a fourth and fifth generation fleet?

General WOLTERS. Senator, I will start with this. We certainly think that the F-16 is a capable platform of appropriately representing the threat. As we speak, we will be working in the next several years to improve our operational training infrastructure, and part of that improvement will include some additional avionics packages that can be placed on board the F-16 to better replicate fourth and fifth generation threats. We will also leverage the capability on great ranges like JPARC where we can invoke live, virtual, and constructive into the environment so that we can better replicate some of the existing capabilities that exist in our potential adversaries.

Senator SULLIVAN. So the cost of the F-16, in terms of an aggressor platform, is not something that is concerning?

General HOLMES. In the short term, it is what we have, Senator. In the long term—thanks for the question. We have looked at several options. It is really too early for any decision. But as we look at our T-X airplane that we are building as a replacement for the T-38 and is an advanced trainer, we are setting those requirements and being careful to limit them to the requirements we need for the trainers so we do not make a system that is too expensive to be able to fit into our 20-year plan, as Chairman Cotton talked about.

But we are also going to write a requirement in for that airplane that it has excess growth capacity inside it. It will have extra room. It will have extra electrical power and extra cooling air so that if in some point in the future we want to take that much-cheaper-to-fly airplane and modify it to do some other roles like companion trainer for the bomber pilots or potentially maybe an adversary airplane—we have not made any decisions about that, but we are thinking about ways to do that mission cheaper in the future. But for right now, the F-16 is the most cost-effective adversary platform that we have.

Dr. LAPLANTE. I just wanted to close the loop on something we said earlier. The strategic agility and build adaptability in the platform, what General Holmes just went through with the T-X, knowing that we may want to use this thing in other places we are not going to lift requirements. Let us build some margin in to take on what you are saying in the future. Let us not limit our future options.

Senator SULLIVAN. Thank you. Thank you, gentlemen.

Senator COTTON. Dr. LaPlante, one final question. Last month on February 4th, the Dowty propeller factory in Gloucester, England was destroyed by fire. The Air Force subsequently informed Congress that Dowty was the single manufacturer of the C-130J propeller. Can you tell us about the impact of the loss of this factory on the C-130J production and readiness?

Dr. LAPLANTE. Yes, indeed, and it was serious. It was a real fire that destroyed equipment production equipment.

We have enough propellers to keep the production line going through about November, and then after November, we are going to have to come up with a mitigation plan. They are working that right now to try to understand how to do it. I cannot promise you that there is not going to be an impact on production. I do not know that there is not going to be. I am concerned. But we have enough to continue the production through November, and then I think what we need to do is when we have a fuller understanding of the mitigation plan, we need to come back to you and show you what we think the impact is. But it was a pretty serious event for us.

Senator COTTON. Do you have any projections on when you might have that mitigation plan or what the course—

Dr. LAPLANTE. Yes. I think within a month I think we should know. I would be happy to get back with you all and get our staff to show you how we are planning to get around it because we need to keep the production line going for the 130Js, obviously.

Senator COTTON. Moving beyond this specific incident, is it best practice to have a single manufacturer of such a critical component?

Dr. LAPLANTE. Obviously, it should not be. But, I would say this.

Senator COTTON. Not just a single manufacturer, a single-site manufacturer.

Dr. LAPLANTE. Right. Yes. I mean, there is no way to answer your question other than saying it should not be a best practice to do it. It is not a best practice.

On the other hand, I would say that there are a lot of critical suppliers. Typically they are subcontractors that we worry a lot about exactly this kind of thing happening. The same kind of thing—it sounds less dramatic than a propeller, but it is just as impactful—some of the suppliers that make our very precision inertial navigation measurement systems. I can give you a list of suppliers that do one-of-a-kind thing that we always are trying to keep up a backup. But that is what we worry about all the time with our industrial base. Absolutely.

Senator COTTON. I want to ask, mindful that this is a public hearing—so I will be cautious in asking and ask you to be cautious in answering—if there are other such single-site capabilities of which Congress should be aware. If you are not comfortable discussing them here, you can submit your answer in a classified setting to this committee or the Intelligence Committee, on which I also sit.

Dr. LAPLANTE. Yes. I would very much like to do that. We need to follow up and let you guys know where we think it is really an industrial base question. It is one of the critical components, where they are being made, and are there single points of failure. You need to see where these are. We have some of this already.

The other thing is—and the 130J is kind of like this I suppose—sometimes these are things that multiple services rely on. We find out that the Navy and us rely on the same subcontractor on an inertial navigation system. It is kind of a mom and pop shop. We were looking for these all the time. We will get back to you. Thank you.

Senator COTTON. Yes, please do submit that list through the appropriate channels.

Dr. LAPLANTE. Will do.

Senator COTTON. The hearing is adjourned. Thank you, gentlemen.

[Whereupon, at 4:10 p.m., the subcommittee adjourned.]

[Questions for the record with answers supplied follow:]

#### QUESTIONS SUBMITTED BY SENATOR TOM COTTON

##### MUNITIONS

1. Senator COTTON. Secretary LaPlante and General Wolters, over the past several years, munitions development and procurement programs have been used as billpayers for other priorities, and therefore negatively impacting munitions inventories needed for wartime operations. Does the Air Force have sufficient inventory and procurement plans for air-to-air and air-to-ground munitions necessary to meet combatant commander objectives?

Dr. LAPLANTE and General WOLTERS. No, after 3 years of Budget Control Act constraints and over a decade of sustained contingency operations, the Air Force is

thousands of weapons short of Defense Strategic Guidance requirements. The Air Force simply has not been resourced to achieve required munitions inventory levels.

2. Senator COTTON. Secretary LaPlante and General Wolters, if there are not sufficient air-to-air and air-to-ground munitions in your inventory needed for wartime operations, what actions are you taking to address shortfalls?

Dr. LAPLANTE and General WOLTERS. To address these shortfalls, the fiscal year 2016 President's budget achieves maximum annual production capability for Joint Air-to-Surface Standoff Missile-Extended Range and improves Hellfire, Joint Direct Attack Munition (JDAM), SDB, AIM-9, and AIM-120 procurement rates. However, higher expenditure rates, coupled with limited industrial base capacity and diminishing manufacturing sources, means it will take years, or even a decade, to achieve required levels. Overseas Contingency Operations (OCO) funding procedures limit our capacity to reduce shortfalls. One-for-one replacement of expended munitions results in a time lag between budget authorization and munition delivery, driving a nearly 4-year gap between munition expenditure and replacement. At Budget Control Act levels, all weapons procurement quantities are reduced. Munitions (rockets, general purpose bombs, flares and fuzes) are similarly reduced. More importantly, OCO cannot be used to fund forecasted weapons requirements.

3. Senator COTTON. Secretary LaPlante, are any of your mature munitions programs likely candidates for multi-year procurement contracts to help reduce unit costs?

Dr. LAPLANTE. There are currently no Air Force weapons programs on multi-year procurement contracts, but a number of cost-reducing initiatives are in place (pricing bands, bundling and competition) that are paying dividends. Multi-year contracts have traditionally not been viewed as a realistic option as weapons procurements have historically faced a number of challenges to include test issues/delays during development, buy-in on joint procurement profiles, and commitment from FMS partners. However, MALD-J is one program that could easily benefit from a multi-year contract as the Air Force is currently the only customer. We could certainly look at other candidates such as Advanced Medium-Range Air-to-Air Missile, Hellfire, JDAM, and Joint Air-to-Surface Standoff Missile as long as we have support from Congress, our joint partners and the rest of the Department for multi-year contracts.

#### RATED AIRCREW CAPACITY

4. Senator COTTON. General Wolters, the Air Force has experienced a chronic shortage of fighter pilots, currently forecasted as increasing to nearly 500 pilots by fiscal year 2020, as well as experiencing difficulty providing sufficient manning for MQ-1 and MQ-9 Remotely Piloted Aircraft (RPA) units, yet your rated manning forecasts show over 1,400 excess mobility pilots in fiscal year 2016, and carries more than 1,000 excess mobility pilots throughout the Future Years Defense Program (FYDP). Additionally, your forecasts show over 500 excess Command & Control/Intelligence, Surveillance, and Reconnaissance (C<sup>2</sup>ISR) and electronic warfare pilots through the FYDP. While it is understood it takes time to train pilots in complex weapons systems, how do you reconcile shortages in some areas with significant excesses in other systems that are carried throughout your 5 year planning period?

General WOLTERS. In weapon systems with a pilot shortfall (fighters and RPA), we cut back on staff positions, test community, outside career field career-broadening opportunities, and finally the schoolhouse manning in order to ensure our combat lines are manned to 100 percent. In weapon systems that we have overages (such as mobility and C<sup>2</sup>ISR, we cover the shortages of the other weapon systems in staff, test, schoolhouse (undergraduate pilot training (UPT) bases for example), and other outside primary weapon systems rated bills (like teaching at the Air Force Academy). The major airline pilot hiring situation is going to affect the entire Department of Defense pilot pool. We are taking measures at this time to ensure we can meet future requirements such as preparing to ramp up UPT production, and to seek authority to increase the pilot bonus from \$25,000 a year to \$35,000 in the event airline hiring outpaces our ability to grow new pilots. Additionally, most airframes are much easier to produce and absorb (gain experience) than fighters. The single seat nature requires a higher number of aircraft to grow the pilot force. Cuts in maintenance and flying hours have impacted the fighter enterprise more than other categories. Add to this an unsustainable deploy to dwell ratio and inability to train to full spectrum readiness, and the result is a fighter force too small to accomplish assigned missions and adequately train the next generation. With these

challenges, the Air Force is intentionally overproducing in other aircraft to offset the fighter pilot shortage. To be clear, there are no excess pilots in any projections.

Our current operations overseas also mean that the professional development of our airmen as leaders and as tactical experts is lost as opportunity cost. We are developing a cadre of leaders who have not had the time to be seasoned, and aircrews that have not had the time to train to full spectrum readiness.

5. Senator COTTON. General Wolters, are there funding or legislative language issues at play that Congress can assist you with in correcting your imbalances in the rated force?

General WOLTERS. Yes, you can support the Air Force's submitted legislative proposal (#2) to allow the Air Reserve component (ARC) full-time support to train the Active component as a primary duty. Particularly in the fighter enterprise, we need the ARC experience. We are exploring more ARC involvement due to a shortage of Active component fighter pilot experience. In general, increased ARC use drives ops tempo up beyond traditional rates, which is detrimental to ARC retention. There are already pressures to increase ARC use in the fighter enterprise just to fulfill combat capacity. Increasing operations tempo for training purposes would add another layer of stress. More use of full-time ARC fighter pilots allows the total force to leverage the experience available in the ARC without undue stress to the Traditional Reservist and Drill Status Guardsmen ranks.

In addition, you can support the Air Force's legislative proposal (#11) to modify title 37, subsection 334, of the U.S. Code to improve the Department of Defense's ability to incentivize aviators to remain in the Service. This proposal is supported by all four services and will allow the Department the latitude to modestly increase current incentives to posture against an improving economy and the increasing demand for pilots by the major airlines.

#### KC-46A TANKER BED DOWN

6. Senator COTTON. General Holmes, the Air Force is planning to soon ramp up the delivery of a total of 176 KC-46A tanker aircraft as replacements for your aging KC-135 fleet, and will require a replacement plan for your current tanker fleet. Are you planning on a one-for-one swap with KC-135 aircraft within current units, or will you transition by taking down and standing up entire squadrons?

General HOLMES. The planned purchase of 179 KC-46A aircraft will allow the replacement of roughly one third of the Air Force air refueling fleet. The retirement of legacy tanker aircraft is planned to take place on a one for one basis while working towards and maintaining a total tanker inventory of 479 aircraft. Operational transition will be accomplished by converting entire squadrons from their legacy platform to the KC-46A, with a planned aircraft delivery schedule of 15 aircraft per year.

7. Senator COTTON. General Holmes, will the Air Force experience the same maintenance manning shortfall challenges as you are experiencing with the F-35 bed down?

General HOLMES. The Air Force does not expect to experience the same maintenance manning shortfalls on the KC-46A as we are with the F-35. As currently planned, KC-135 units will convert to KC-46A units with no additive requirements and their maintenance personnel will be retrained to perform maintenance actions on the KC-46A. However, if the legacy KC-135 aircraft are not permitted to retire as planned, we may see manning challenges similar to those we are experiencing with the F-35.

8. Senator COTTON. General Holmes, when will Congress see your detailed plan for retirement of KC-135 aircraft as you start transitioning to the KC-46A?

General HOLMES. The timeline for retirement of KC-135 aircraft will depend on a variety of factors. These include combatant commander requirements and current and future fiscal conditions, especially if sequestration compels the Air Force to divest the KC-10 fleet. As the Air Force prepares to transition the KC-135 out of the fleet, a comprehensive divestiture plan and timeline will be submitted to Congress via the President's budget.

## QUESTIONS SUBMITTED BY SENATOR MIKE ROUNDS

## LONG RANGE STRIKE-BOMBER

9. Senator ROUNDS. Secretary LaPlante, you stated that the Long Range Strike-Bomber (LRS-B) program is on track and on schedule with no major problems, and you also mentioned that because of the cost overrun and schedule delay issues with the F-35 program, the Department of the Air Force began to use then-year dollar cost estimates for clarity when discussing that program. However, you did not directly respond to my question of whether sticking by the \$550 million unit cost for the LRS-B without always qualifying it with the 2010 base year dollars is somewhat misleading to the American public. Can you provide a direct response to the question?

Dr. LAPLANTE. The LRS-B's average procurement unit cost (APUC) target of \$550 million in base year 2010 dollars for 100 aircraft was established in 2010 when the Department of Defense decided to go forward with the program. This target allowed us to make meaningful trades during the system's design to ensure we can build LRS-B in sufficient numbers.

Our use of 2010 dollars allows consistency in the affordability requirement and allows meaningful comparisons to other programs by adjusting programs to a common base year. We fully recognize the impact of inflation and have carefully budgeted and planned to ensure we can afford LRS-B in then-year dollars when it comes to procure the aircraft. The Air Force has never intended to mislead the American public. Rather it is attempting to acquire LRS-B in a very responsible manner.

10. Senator ROUNDS. Secretary LaPlante, what is the estimated APUC for the first LRS-B production aircraft in then-year dollars in the year of procurement?

Dr. LAPLANTE. During our classified sessions with Committee staff and the Chairman of the Airland Subcommittee, we shared our development and production cost estimates presented at the Development RFP Release Defense Acquisition Board. We have also shared that these estimates will continue to mature until the program sets its Acquisition Program Baseline (APB) at Milestone B. The APB will be influenced by the outcome of the ongoing source selection. Following the source selection and Milestone B decisions the program intends to provide a classified briefing to the appropriate defense committee staff with further details regarding the APB.

11. Senator ROUNDS. Secretary LaPlante, what is the estimated program acquisition unit cost for your planned buy of 100 aircraft?

Dr. LAPLANTE. During our classified sessions with committee staff and the chairman of the Airland Subcommittee, we shared our development and production cost estimates presented at the Development RFP Release Defense Acquisition Board. We have also shared that these estimates will continue to mature until the program sets its Acquisition Program Baseline (APB) at Milestone B. The APB will be influenced by the outcome of the ongoing source selection. Following the source selection and Milestone B decisions the program intends to provide a classified briefing to the appropriate defense committee staff with further details regarding the APB.

## QUESTIONS SUBMITTED BY SENATOR JOE MANCHIN III

## RETIREMENT WITHOUT REPLACEMENT

12. Senator MANCHIN. Secretary LaPlante and General Holmes, as I mentioned in my opening statement, the Air Force is planning to retire some aircraft, including seven Airborne Warning and Control System (AWACS) aircraft and seven Compass Call EC-130H aircraft, without replacement. My understanding is that these aircraft have been in heavy demand by the combatant commanders and that retiring them without replacing that capability would mean either failing to meet combatant commander demands, or placing additional strain on the aircraft and crews by keeping them deployed for longer periods of time. Why would the Air Force plan to retire aircraft in high demand without planning to replace them?

Dr. LAPLANTE and General HOLMES. Budget realities have forced the Air Force to make difficult decisions while attempting to cut costs and maintain capabilities. The decision to reduce the EC-130H Compass Call fleet by nearly half after fiscal year 2015 was one of those difficult decisions. This decision was not without risk, as the Air Force cannot support combatant commander requirements beyond current operational obligations.

The Budget Control Act and resultant sequestration-level funding constraints also compelled the Air Force to assume additional risk by reducing the E-3 AWACS fleet

in order to fund critical modernization of the aging Command and Control (C2) Theater Air Control System. These modernization initiatives include the E-3 AWACS Block 40/45 upgrade, the new 3-Dimensional Expeditionary Long Range Radar, the Air Force's Control and Reporting Center Operations Module Modernization, the Air and Space Operations Center 10.2 upgrade, and the Deployable Radar Approach Control program. This decision is key to critical C2 modernization for highly-contested environments.

13. Senator MANCHIN. Secretary LaPlante, has the Air Force produced any requirement for replacing these unique, high-demand Air Force systems?

Dr. LAPLANTE. The Air Force has a comprehensive plan to replace both the EC-130H and E-3 AWACS capabilities that are to be divested. In the near-term, seven EC-130H aircraft will be divested in fiscal year 2016, leaving eight EC-130Hs in the Air Force until the capability is replaced. The reduced number of EC-130H aircraft will still meet the requirements of the current fight and U.S. Special Operations Command. For the mid-term, 2020 to 2030 or as needed, we are evaluating options including re-hosting jamming systems on a more effective and efficient platform to bridge the gap to the far-term. For the long-term (2031-plus timeframe), we envision a system of systems approach, to be determined based on results of an Analysis of Alternatives, due to report out in 2017. To address future AWACS capability requirements, the Air Force has begun activities towards an Airborne Battle Management and Surveillance Analysis of Alternatives, to be completed by 2018. These development planning activities will identify next-generation AWACS options to bridge both capability and capacity gaps at lower costs by 2030.

#### PREDATOR/REAPER COMBAT AIR PATROL REDUCTIONS

14. Senator MANCHIN. General Wolters and General Holmes, the Air Force had wanted to reduce the number of Predator and Reaper remotely piloted aircraft (RPA) Combat Air Patrols (CAPs) it will support but has been unable to do so due to demand from the combatant commanders. These continued operations of Predator and Reaper CAPs have placed great strain on the ground crews that support these operations, so much so that the Commander of the Air Combat Command (General Carlisle) recently sounded an alarm that we are near the point of breaking the force. Unfortunately, we have been facing the prospect of breaking the RPA force for at least the past 6 years, while demand has continued to exceed supply. I know that the Air Force leadership announced previous efforts to fix this problem, but, during those 6 years, it appears that we have made little or no progress. How does the Air Force intend to fix this problem once and for all? What changes in legislation, policy, and personnel management are you proposing in this budget to solve this problem?

General WOLTERS and General HOLMES. The long-term solution to fixing the RPA manning problem is to man the RPA crew schoolhouses to 100 percent and protect schoolhouse instructors from future surges. The Air Force is working very close with the Secretary of Defense to implement a new "RPA Get-Well" plan by the end of fiscal year 2016. The Secretary of Defense already approved a four CAP reduction that is in effect with an additional single CAP reduction in October 2015 to support Air Force efforts to fix our schoolhouse and to fix our line crew manning by the end of fiscal year 2016. The plan takes advantage of the Air National Guard and Air Force Reserve to fly more CAPs, the previously mentioned 5 CAP reduction (to 60 CAPs), increased use of contractors (to conduct takeoffs and landings and to instruct at our schoolhouses), and to initiate retention pay incentives for our newest RPA pilots. Please support funding the Air Force at President's budget request levels, and the Air Force effort to modify title 37, subsection 334, of the U.S. Code to improve the Department of Defense's ability to incentivize aviators to remain in the Service. This proposal is supported by all four Services and will allow the Department the latitude to modestly increase current incentives to posture against an improving economy and the increasing demand for pilots by the major airlines.

#### QUESTIONS SUBMITTED BY SENATOR MARTIN HEINRICH

##### TOTAL FORCE

15. Senator HEINRICH. General Holmes, the 58th Special Operations Wing has a highly successful classic association with the New Mexico National Guard's 150th Special Operations Wing. It is my understanding, however, that there is not "legal sufficiency" for the Guard to provide training to Active Duty personnel by flying CV-22s. In fact, there are only four or five folks with the 150th that are given waiv-

ers by name to provide training on the CV-22, despite the fact that the CV-22 is understaffed, Air Force-wide. Can you describe this situation further?

General HOLMES. Under current law, AGRs and technicians must organize, administer, recruit, instruct, or train the Reserve component as their primary duties. Technicians may also maintain aircraft of the Armed Forces—regardless of component—as a primary duty. The Air Force seeks to expand these primary duties to make flight training more like maintenance; so that AGRs and technicians can instruct and train students of all components as a primary duty. This would not make the Reserve component the source of all training, but rather, would allow the active component and Reserve component to more efficiently partner together to train all airmen of all components.

The Air Force is working to eliminate barriers to more comprehensive integration of our three components. We currently have proposed legislation (OLC-002—V4 (Expansion Of Authorized Primary Duties Of Air Force Reserve component full-time support personnel) that seeks to expand the primary duties of full-time Reserve component support personnel—namely Active Guard Reserve (AGR) members and technicians—including instructor pilots. Our proposal to eliminate these “legal sufficiency” barriers was deferred last year and is under review by the Office of Management and Budget for the fiscal year 2016 Omnibus.

16. Senator HEINRICH. General Holmes, how can this committee help Air Force move toward a more efficient, unified, and integrated Total Force training model?

General HOLMES. The Air Force is studying 28 human capital related initiatives that may require legislation in order to fully implement, supporting full integration and returning the greatest efficiencies. As an example, we currently have an Air Force only training proposal submitted to the Office of Management and Budget that we hope will be included in the legislative omnibus. This proposal will allow the Air Force to use Reserve Component instructor pilots more efficiently. Congressional approval of this initiative is vital to enabling further integration at flying training units. Another example of important legislative change includes an amendment allowing the services to provide the same benefits for Reserve components (RC) members on inactive duty training who die in the line of duty, as RC members on active duty who die in the line of duty.

#### HELICOPTER FLEET

17. Senator HEINRICH. General Wolters and General Holmes, Kirtland Air Force Base in New Mexico is home to the 58th Special Operations Wing which trains 22,000 students a year who conduct critical search and rescue missions, saving countless lives of men and women every year. These brave airmen conduct their training flying 12 HH-60G Pave Hawks and 10 Vietnam era Bell UH-1 Iroquois. Can you describe for the committee the nature of our aging helicopter fleet and the Air Force’s current effort to recapitalize and modernize that fleet?

General WOLTERS and General HOLMES. The Air Force is committed to maintaining our HH-60G and UH-1fleets, which have an average age of 24.4 and 47 years, respectively. The HH-60Gfleet is being recapitalized under a program called Operational Loss Replacement (OLR), which adds 21 Combat Search and Rescue configured aircraft to the fleet by fiscal year 2019. Additionally, the Combat Rescue Helicopter program will replace the legacy HH-60G fleet with the HH-60W. This program is in development and scheduled to achieve full operational capability in fiscal year 2029.

The Air Force will also replace the UH-1N fleet to resolve existing capability gaps. The fiscal year 2016 President’s budget request funds to establish a UH-1N Replacement program office and develop an acquisition strategy.

18. Senator HEINRICH. General Wolters and General Holmes, has the Air Force conducted a cost-benefit analysis on recapitalization versus replacement?

General WOLTERS and General HOLMES. The Air Force has and will conduct a cost-benefit analysis on recapitalization versus replacement for the HH-60G and UH-1 fleets, respectively. The Air Force conducted a thorough analysis of the cost-benefit trades for various courses of action prior to the June 2014 Combat Rescue Helicopter contract award. Currently, the Air Force is conducting UH-1 replacement analyses to inform cost-benefit decisions and capability trades within the broader recap versus replacement discussion.

19. Senator HEINRICH. General Wolters and General Holmes, our military finds itself engaged in areas involving vast distances in Asia, Africa, and the Middle East. Can you please share what is being done to ensure the optimal configuration of our combat search and rescue fleet between helicopters and CV-22s?

General WOLTERS and General HOLMES. The Air Force is reviewing a combat search and rescue force mix study by the RAND Corporation as well as force mix options and concepts of operations developed by Air Force Air Combat Command for possible future consideration.

20. Senator HEINRICH. General Wolters and General Holmes, the ongoing demands of our special operations forces have severely strained the low-density but very high-demand CV-22 fleet. It is my understanding that Air Force Special Operations Command (AFSOC) has identified a preference for four additional CV-22s to serve as attrition Reserve for an already-limited and over-stressed fleet. What is being done to provide AFSOC with those highly-necessary attrition Reserve airframes?

General WOLTERS and General HOLMES. While AFSOC has discussed the need for attrition reserve in the CV-22 fleet with the Commander, U.S. Special Operations Command, there has been no formal request for the additional aircraft. If/when this request is made, it will go through the normal Air Force vetting process for consideration and fulfillment.

21. Senator HEINRICH. General Holmes, in the event of sequester relief, what value would additional CV-22s provide to Air Force Special Operations Command?

General HOLMES. Given that the approved program of record of 50 aircraft satisfies current combat capability requirement, the Air Force has no plans to procure additional CV-22s after delivery of the final aircraft in December 2016.



**DEPARTMENT OF DEFENSE AUTHORIZATION  
FOR APPROPRIATIONS FOR FISCAL YEAR  
2016 AND THE FUTURE YEARS DEFENSE  
PROGRAM**

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**TUESDAY, APRIL 14, 2015**

U.S. SENATE,  
SUBCOMMITTEE ON AIRLAND,  
COMMITTEE ON ARMED SERVICES,  
*Washington, DC.*

**ARMY MODERNIZATION**

The subcommittee met, pursuant to notice, at 2:33 p.m. in room SR-232A, Russell Senate Office Building, Senator Tom Cotton (chairman of the subcommittee) presiding.

Committee members present: Senators Cotton, Inhofe, Rounds, Ernst, Sullivan, Manchin, Donnelly, and Hirono.

**OPENING STATEMENT OF SENATOR TOM COTTON**

Senator COTTON. The hearing will come to order.

The Airland Subcommittee convenes today to hear testimony regarding Army modernization in review of the National Defense Authorization Request for Fiscal Year 2016 and the Future Years Defense Program.

On behalf of Senator Manchin and myself, I welcome all the witnesses from the U.S. Army and thank each of you for your years of dedicated service oftentimes overseas in hostile environments.

The full committee in numerous hearings to date has heard from many witnesses testifying to the many challenges and threats our country and armed services face today. The United States is facing the most diverse, complex, and dangerous threats to our national security in recent memory.

However, instead of strengthening our forces and ensuring our men and women in uniform have the training, equipment, and logistical support they need, sustained defense budget cuts, in combination with senseless sequestration, are damaging our military's force structure, modernization, and readiness.

In testimony before the full committee, Secretary of the Army John M. McHugh described that despite volatility and instability around the world, America's Army is faced with an enemy here at home: the return of modernization. Your Army faces a dark and dangerous future unless Congress acts now.

General Raymond T. Odierno, Chief of Staff of the Army, emphasized sequestration would force another 70,000 soldiers over the

next 5 years from the Active component and another 10 to 12 additional combat brigades by 2020.

Does it really make sense to cut the Army that is presently operating in 144 countries around the world with over 140,000 soldiers deployed to meet all mission requirements? Our soldiers, after fighting for over a decade in two separate theaters of war, are still very busy, indeed.

Regardless of our Army's operational tempo and the load our soldiers bear, the force must also modernize. It must do so to keep the world's preeminent ground force relevant and ready to meet the challenges of the 21st century. The Army's Operating Concept (AOC), win in a complex world, envisions an Army that is expeditionary, tailorable, scalable, and prepared to meet the challenges of the global environment. For our soldiers to be successful in their missions to shape, deter, and win, they need the best equipment and weapons our country and its citizens can provide.

One of my highest responsibilities as a Senator is to ensure our military has the resources it needs to protect and defend this country. To fulfill that responsibility, Congress has the authority to oversee military spending, to ensure the Department of Defense (DOD) invests in programs that meet the needs of the warfighter, and all at a cost that is affordable to the American taxpayer.

In order to exercise effective oversight on military spending, Congress and the military must be able to exchange information about which programs are most important to the success of our men and women in uniform and which programs are not living up to their promises.

That is why the prospect of continued sequester of the Pentagon budget is so damaging to our national security. The blunt mechanism of sequestration does not afford lawmakers and the Pentagon the ability to drive a budget from a sound strategy, but rather imposes strategic decisions across the board, many of which damage our military's readiness and long-term investments.

But I want to be clear that my opposition to sequester does not mean that there is no room for reform or efficiency in the military's budget. Ultimately I believe one of the best ways to remove the threat of sequester is to identify areas where there is obvious room for reform in the system and to encourage senior military leaders to justify continued spending in those areas.

Today's hearing will only begin to touch on Army modernization. There are several areas that I hope we can begin a substantive dialogue with our Army acquisition leaders. Today I hope to cover in particular three important Army programs: the Joint Light Tactical Vehicle (JLTV), the Distributed Common Ground System (DCGS), and the Aviation Restructuring Initiative (ARI).

The JLTV recently completed limited user testing and is now with the source selection committee to determine an award of one to three vendors: Oshkosh, Lockheed Martin, and AM General. This is an important procurement program for the mobility of our infantry in modern operational environments. I have concerns that the Army's tactical wheeled vehicle strategy lacks operational detail about the fielding of JLTV for Active and Reserve components.

In addition, I want to emphasize good acquisition practices as the Army moves ahead with this program, because this is a large pro-

gram that will directly impact operations across the force, it is important the Army gets the program right. As the subcommittee examines programs like JLTV, I am prepared to hold future hearings that look at the details of each of the Army's acquisition programs to evaluate the risks to success and ensure the Army spends taxpayer money wisely.

Another area this hearing hopes to examine more fully is the battlefield intelligence system, known as the DCGS-Army, or DCGS-A. The U.S. Army has spent 10 years and more than \$3 billion developing DCGS-A. The purpose of DCGS-A is to collect and process information from a variety of military and intelligence sources and share that information seamlessly to sites around the world. Despite these investments, the failures of DCGS-A are well documented. They include a series of testing failures, program delays, cost overruns, and negative reports from deployed commanders and soldiers. The Army has promised that the next version of the software would fix the problems with the system, but units continue to report that it does not meet their needs in theater or their home stations. Instead of leveraging existing technologies, the Army continues with an approach to delivering a major software platform. They continue to try to build core functions of a DCGS-A system according to customer requirements rather than adopting commercial components that work today.

In addition, today we will examine the Army's other important priorities for providing the best and most modern force: the Apache AH-64, UH-60 modernization, production and fielding of the Armored Multi-Purpose Vehicle (AMPV), JLTV, and Abrams, Bradley, and Paladin upgrades. In regard to developing science and technology initiatives, Army leadership has emphasized the importance of key investments, including the joint multi-role helicopter, combat vehicle prototyping, assured position navigation and timing, and enhanced cyber operations and network protection. Integrated into these efforts is the Army's aviation restructure initiative. The ARI is intended to both retain our best and most capable aircraft and to divest our least capable. Its aim is to field a total force of 10 fully equipped and modernized Active component combat aviation brigades and 12 National Guard Reserve brigades by 2019. It will divest a total of 798 aircraft, 687 from the regular Army and 111 from the Reserve component. It is targeting \$12 billion in cost savings but will require a total Army effort to be successful.

Ever-increasing demands of a smaller Army translates into increased risk for our operational plans and unforeseen contingencies. Army operations in an increasingly unstable world are vital to shaping the strategic landscape in favor of U.S. interests.

General Odierno has emphasized the uncertainty of strategic security, characterized by an increasing velocity of global instability. This means risk to our soldiers, those deployed and those on the bench prepared to deploy on short notice. To mitigate these risks, our troopers need to be armed and equipped with the best equipment that we can provide. This will require sustained funding, effective management of acquisition programs, fully resourced unit set fielding, and strategic vision. Army leaders must ensure unity of effort to ensure our modernization programs meet cost, schedule, and performance objectives. They must demand these programs

produce equipment that give our soldiers a decisive edge on tomorrow's battlefield, and we must provide our soldiers with improved situational awareness, assured communications, sustained mobility, better protection, and overmatching fire power. Getting these things right will save lives and ensure mission success.

Again, I want to thank all the witnesses for appearing today. Thanks for your flexibility in coming back after we had to postpone 2 weeks ago because of the budget votes. I look forward to hearing your testimony and having our conversation.

Senator Manchin?

### **STATEMENT OF SENATOR JOE MANCHIN III**

Senator MANCHIN. Thank you, Mr. Chairman, and I also want to thank you all for your service and welcome you here today.

Over the last 14 years, the Army has done everything we have asked of them and more. They have performed with selfless devotion and courage. The Nation could not be more proud or more grateful, and I can assure you the people in West Virginia feel the same.

We owe them much, but most importantly, the Army deserves the resources necessary for what they are doing today and for what they will be asked to do again tomorrow. Regrettably, if caps under the Budget Control Act (BCA) or sequestration are allowed to stand, we may struggle to meet these obligations.

The arbitrary drop in defense funding over the last 3 years has already hurt Army readiness and modernization, indeed, has undermined the welfare of soldiers and their families and eroded their trust that we will keep our promises that they will be well trained, well equipped, and well served.

The fiscal year 2016 request proposes further reductions to the end strength of the Army. If approved, at the end of fiscal year 2016, active Army end strength will be down to 475,000 soldiers and combat brigades to 30. Our National Guard will drop to 342,000, and Army Reserve to 198,000. We are interested to learn how the Army's request this year would manage reductions and still continue to build the strategic depth necessary to respond to unforeseen contingencies.

I read with interest the speech last week by Deputy Secretary of Defense Robert O. Work at the Army War College in Pennsylvania. He spoke in concrete terms about operating environment and technologies needed to retain our land force's edge into the future. We would be interested to hear our witnesses' views on Secretary Work's vision relative to the Army's recently released Army Operating Concept: Winning in a Complex World. What are the Army's most important capabilities, capacities, and readiness issues and how does this request address them to meet the missions of today and tomorrow? How will BCA caps impact the Army's management of these changes and the associated strategic risk in readiness to meet urgent contingencies?

Over the last several years, DOD and the Army have made tough choices in its major modernization programs due to the high cost and performance shortfalls in new technologies and the realities of declining resources. For the most part, the process of making these choices has resulted in an arguably more reliable, technically

achievable, and affordable modernization program. However, this is not apparent for the tactical network. Chronic performance of reliability problems have plagued every aspect of the network's development. The Army has over time lowered network performance requirements, lowering the bar, if you will, for program of record technologies. Evidence from operational testing and feedback from field units raises legitimate questions that a truly mobile, ad hoc technical network is technologically achievable. The requirement for an air-ground tactical communications network is indisputable but can the current state-of-the-art achieve it?

The fiscal year 2016 request includes a modest increase over last year for research, development, and acquisition emphasizing aviation and science and technology programs while deferring for several years any large investment for a next generation combat vehicle or replacement for the OH-58D Kiowa Warrior armed scout helicopter. Under the circumstances, this appears to be a prudent approach, but we need to know what risks we may face tomorrow if we are not investing today in the next generation technologies that our next generation soldiers will need and deserve.

Mr. Chairman, it is apparent that a smaller Army only partially ready and with a dwindling technology edge cannot meet the current defense strategy of this country. We need an Army that is large enough, well trained enough, well led, ready, rapidly deployable, and technologically dominant to respond to the crises we will likely face in the foreseeable future.

So I look forward to this hearing and how the Army will handle strategic risk in this fiscal environment and what the impact of threatened BCA caps could be on the Army's readiness and modernization and perhaps even more importantly on the welfare of our soldiers, civilians, and their families.

I also am very much concerned about how do we handle this as far as new procurement of equipment that is going to be needed in the field, how we can get a fast track on that, if you will, how our efficiencies will work for all of our benefit. These are things I have been very interested in.

But I want to thank you all again, and I look forward to your testimony.

Mr. Chairman?

Senator COTTON. Generals, we have your written testimony. General Williamson, do you care to add anything?

**STATEMENT OF LTG MICHAEL E. WILLIAMSON, USA, MILITARY DEPUTY AND DIRECTOR, ARMY ACQUISITION CORPS, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY, ACQUISITION, LOGISTICS, AND TECHNOLOGY**

General WILLIAMSON. So, sir, I think you have covered the challenges that we have.

I think the only thing that I would offer is that we have taken a very balanced approach to our modernization strategy. We have looked at that in terms of really five categories.

So the first is the preservation of the science and technology investment. So we view that as the seed corn, and without that investment, we are not going to be able to take advantage of the new technologies when resources become available.

The second would be procuring new items where needed, and so as we have identified existing gaps in capabilities, we are going to use our limited modernization funds to address filling those gaps.

The third part of that would be tied to improving our existing systems where we find, because of obsolescence, because of gaps in the capability, that if we make an improvement to an existing system, it extends the life or provides more capability than what we have today.

There are two other aspects that people do not normally think about as we talk about modernization. The first is the reset of the existing equipment. So as equipment is coming back from theater, we have to bring that back up to standard in order to support near-term contingency missions.

Then finally, it is the notion of divestiture. So in order to free up space in our modernization strategy and in order to address the continuing costs, we have to divest ourselves of legacy systems that are no longer in use by our force. It reduces our operational and sustainment costs.

Sir, as was mentioned, there are a number of challenges that are there. What we are trying to do as an Army, in light of the AOC, as you have mentioned in your statement, is how do we now adjust our procurement in order to support the goals of the Army.

Sir, I stand by, prepared to answer any of your questions.

[The joint prepared statement of General Williamson, General McMaster, General Ierardi, and General Cheek follows:]

JOINT PREPARED STATEMENT BY LTG MICHAEL E. WILLIAMSON, USA; LTG HERBERT R. MCMASTER, JR., USA; LTG ANTHONY R. IERARDI, USA; AND MG GARY H. CHEEK, USA

#### INTRODUCTION

Chairman Cotton, Senator Manchin, distinguished members of the Subcommittee on Airland, thank you for the opportunity to discuss the Army's fiscal year 2016 budget request as it pertains to Army strategy, readiness, and equipment modernization.

The Army must remain prepared to protect the Homeland, foster security globally, project power, and win wars now and in the future. To protect the homeland, the Army deters and defeats attacks and mitigates the effects of attacks and natural disasters. To foster security, the Army engages regionally and prepares to respond globally to compel enemies and adversaries. To project power and win decisively, the Army, as the Nation's principal land force, organizes, trains, and equips forces for prompt and sustained combat on land. American military power is joint power. The Army both depends on and supports air and naval forces across the land, air, maritime, space, and cyberspace domains. The Army depends on the other Services for strategic and operational mobility, fires, close air support, and other capabilities. The Army supports other Services, combatant commands, multinational forces, and interorganizational partners with foundational capabilities such as communications, intelligence, rotary wing aviation, missile defense, logistics, and engineering.

Army forces are uniquely suited to shape security environments through forward presence, regionally aligned forces, and sustained engagement with allied and partner land forces. Army forces defeat enemy land forces and seize, hold, and defend land areas. Army forces are prepared to do more than fight and defeat enemies; they must also possess the capability to translate military objectives into enduring political outcomes. Army forces, operating as part of joint, interorganizational, and multinational teams, provide the President, Secretary of Defense, and combatant commanders with multiple options to prevent conflict, shape security environments, and win wars. Army forces must have the capability (ability to achieve a desired effect under specified standards and conditions) and capacity (capability with sufficient scale and endurance) to accomplish assigned missions while confronting increasingly dangerous threats in complex operational environments.

The combination of expanding threats to national and international security, reductions in the size of the Army, decreasing investment in Army modernization, and fiscal uncertainty have increased risk to missions and committed forces. We recognize that, in our democracy, we get the Army that the American people are willing to pay for. It is our job to do the best we can with the resources provided. We will give you our best assessment of the risks and opportunities associated with the resources Congress provides that allow Army leaders to man, train, and equip our Army.

On behalf of our Secretary, the Honorable John McHugh, and our Chief of Staff, General Ray Odierno, we look forward to discussing with you the Army's fiscal year 2016 budget request as it pertains to Army strategy, readiness, and equipment modernization.

Threats, enemies, and adversaries are becoming increasingly capable and elusive. State and nonstate actors employ traditional, unconventional, and hybrid strategies that threaten U.S. security and vital interests. The emergence of the Islamic State of Iraq and the Levant (ISIL) is an example of how nonstate actors seize upon opportunities created by communal conflict and weak governance. ISIL's military organization; ideological base; willingness to use murder and other forms of brutality against innocents; and ability to mobilize people, money, and weapons have enabled it to seize territory and establish control of populations and resources. The wider problem is ISIL's success, combined with weaknesses of Middle Eastern governments, has caused violent extremism and terrorism to metastasize across much of the Middle East and North Africa.

The Democratic People's Republic of Korea (DPRK) is expanding its nuclear arsenal and improving its ballistic missile force to complement an aging but still large and capable conventional force. The DPRK's military possesses cyber and chemical-biological warfare capabilities. Key government facilities, military installations, and weapons are located in underground shelters. Because economic, social, and political pressures on the DPRK leadership could lead to war or a collapse of the regime, the United States prepares for the deployment of substantial ground, air, and maritime forces to operate as part of a coalition alongside Republic of Korea (South Korea) forces and in defense of South Korea.

Iran, as it reacts to expanding sectarian conflicts in the greater Middle East, poses a continued threat to U.S. interests and allies in the region. As it diversifies its activity in the region and seeks to enhance its influence while supplanting U.S. power, Iran uses combinations of economic and diplomatic overtures with irregular forces. Iran avoids direct military confrontations while developing advanced capabilities and pursuing comprehensive military modernization. Iran's modernization efforts include the use of automated systems on land, sea, and air; ballistic missiles; and the development of nuclear enrichment capability.

Russian annexation of the Crimean Peninsula and use of conventional and unconventional land forces in Ukraine indicate that Russia is willing to use force to achieve its goals. Russia deployed and integrated a range of diplomatic, information, military, and economic means to conduct what some analysts have described as "non-linear" or hybrid operations. In addition, Russia used cyberspace capabilities and social media to influence perceptions at home and abroad. Due to the nature of the conflicts Russia has chosen, it has demonstrated the centrality of land forces in its effort to assert power and advance its interests in former Soviet states. Without a viable land force capable of opposing the Russian army and its irregular proxies, such adventurism is more challenging to deter. Russia's actions highlight the value of land forces to deter conflict as well as special operations and conventional force capability to project national power and exert influence in political contests.

Chinese doctrinal writings and professional military education teaching materials suggest that the PRC may be considering training and equipping the People's Liberation Army (PLA) for a range of military operations. The PLA has opened six combat training centers where it emphasizes combined arms operations and joint training. Chinese actions and force modernization efforts highlight the need for Army forces to be positioned forward in the region to strengthen alliance and partner relationships, deter adversaries, and ultimately prevent conflict. Emerging Chinese military capabilities also highlight the need for Army forces to be able to project power from land into the air, maritime, space, and cyberspace domains.

Our Army must balance manpower, readiness, and modernization not only to cope with increased capabilities of enemies and adversaries, but also to prevail in increasingly complex operational environments. That complexity is due, in part, to increased momentum of human interaction, threats that emanate from dense and weakly governed urban areas, the availability of lethal weapon systems, and the proliferation of Chemical, Biological, Radiological, Nuclear and High-Yield Explosive threats. Determined and capable enemies in complex environments will challenge

U.S. competitive advantages not only on land, but also in the air, maritime, space, and cyberspace domains. Advanced technologies transfer readily to state and nonstate actors. Enemies possess the capability to threaten the U.S. homeland and project power from land into all other domains. Because these threats may originate in urban areas or remote safe havens, long-range strikes will prove insufficient to defeat them. The complexity of future armed conflict, therefore, will require Army forces capable of conducting missions in the homeland or in foreign lands including defense support to civil authorities, international disaster relief and humanitarian assistance, security cooperation activities, crisis response, or large-scale operations. Trends in threats, the operating environment, and technology highlight the enduring need for ready Army forces operating as part of joint, interorganizational, and multinational teams to prevent conflict, shape security environments, and win in a complex world.

The size of the Active and Reserve component of our Army matters. At the time of the mass murder attacks on our Nation on September 11, 2001, our active Army strength was 480,801, the National Guard was 351,829, and the Army Reserve was 205,628 for a total Army strength of 1,038,258. Due to the strain on the force associated with sustained operations in Afghanistan and Iraq as well as other worldwide commitments, Congress authorized expansion of the Army by 95,073 by 2010 to 566,045 Active Duty soldiers, 362,015 National Guardsmen, and 205,281 Army reservists for a total of 1,133,341. Despite that increase, our Army was stressed to sustain a per month commitment of 117,000 active duty soldiers and 170,000 total Army commitment to these missions between 2003 and 2011. That is because the Army must also sustain other commitments overseas, remain prepared for unforeseen contingencies, and sustain an institutional Army capable of manning, training, and equipping the force. Currently, in an active force of 498,400 soldiers, the Army has 40,860 soldiers committed to various missions in U.S. Central Command, U.S. European Command, U.S. Africa Command, U.S. Southern Command, and U.S. Pacific Command, and an additional 83,610 soldiers forward stationed and committed in areas vital to deterring conflict. Based on increased risks to national security and the significant decrease in size of our Army to the smallest Active Force since the post World War I period, we do all we can in the areas of readiness and modernization to ensure that our smaller Army maintains our differential advantage over current and future enemies. In short, a smaller Army must be a more capable Army.

The U.S. Army Operating Concept (AOC): Win in a Complex World, describes how future Army forces operate to accomplish campaign objectives and protect U.S. national interests. It describes the Army's contribution to globally integrated operations in support of the Capstone Concept for Joint Operations. The AOC recognizes the need for Army forces to provide foundational capabilities required by the Joint Force and to project power onto land, and from land, across the air, maritime, space, and cyberspace domains. The AOC is grounded in a vision of future armed conflict that considers national defense strategy; missions; emerging operational environments; advances in technology; and anticipated enemy, threat, and adversary capabilities. Ultimately, the AOC guides future force development through the identification of first order capabilities that the Army must possess to accomplish missions in support of policy goals and objectives.

A key tenet of future joint combined arms operations is innovation, which is the result of critical and creative thinking and the conversion of new ideas into valued outcomes. Innovation drives the development of new tools or methods that permit Army forces to anticipate future demands, stay ahead of determined enemies, and accomplish the mission. Innovation is particularly important in organizations that develop capabilities as well as those that train, equip, and sustain forces.

We are committed to keeping Combat Training Centers (CTC) a priority. The CTC program is addressing life cycle technology refreshment of the Maneuver CTCs' (National Training Center, Joint Readiness Training Center, and the Joint Multi-National Readiness Center) Instrumentation and Training Aids, Devices, Simulators, and Simulations (ITADSS) in support of Unified Land Operations executed through Decisive Action (Wide Area Security/Combined Arms Maneuver against a hybrid threat). The ITADSS enables production of doctrinally-based feedback, facilitating leader development and unit collective training in support of building Brigade Combat Team (BCT) readiness through trained and ready combat units, leaders, and soldiers prepared for Decisive Action Operations. The CTC program is addressing technology obsolescence at its Maneuver CTCs by refreshing its instrumentation data and Observer/Controller Communications System infrastructure that has not been updated since the early 2000s. The network infrastructure in place predominately supports Forward Operating Base operations and Mission Rehearsal Exercises conducted from 2001 to the recent transition to Decisive Action Operations training. The instrumentation upgrades will not only prevent network outages currently

being experienced, but also allow for the transition back to combined arms maneuver and wide area security. Sequestration will force the Army to make difficult choices with regard to modernization and we should expect this to impact our CTC modernization as well. While the Army plans to preserve all CTC rotations, sequestration will result in units arriving at lower levels of readiness and CTC instrumentation obsolescence will degrade capturing unit performance during key events. Both will contribute to lower unit readiness levels at the completion of rotations.

With the Army's budget at a historic low, we risk becoming a smaller, less-capable force. Decreases to the Army's overall budget over the last several years have had a significant impact on modernization and threaten our ability to retain overmatch (overmatch is the application of capabilities or use of tactics in such a way that renders an adversary unable to respond effectively) through the next decade. From fiscal year 2012 to fiscal year 2016, Research, Development, and Acquisition (RDA) investments declined roughly 28 percent. In fiscal year 2012, the Army's RDA budget was \$32 billion. In fiscal year 2016, the RDA budget request is \$23 billion. The proposed increase of \$2.6 billion for procurement, over the fiscal year 2015 budget request, is vitally important to ensure that our soldiers retain overmatch over current and future enemies and our Nation retains critical parts of our industrial base.

Because of reductions both in manpower and modernization, our soldiers are likely to engage in fights in which they lack significant, qualitative advantages against numerically superior enemies. Should the uncertainty of the Budget Control Act lead to another round of defense sequestration, the Army would suffer a blow to combat effectiveness from which it would be difficult to recover. Soldiers and units would be disadvantaged in the near-term through delays in equipping and weapons modernization. Long-term effects would include lost investments in cancelled programs, higher unit costs, and increased sustainment costs for obsolete equipment.

To reduce that risk, our Army must prioritize those capabilities that permit us to maintain overmatch. The Army will: (1) protect S&T investments in key technologies that will enable next-generation capabilities when resources become available; (2) selectively invest in new capabilities for priority areas; (3) incrementally upgrade existing platforms; (4) reset equipment returning from current contingency operations; and (5) divest select platforms to reduce operations and sustainment costs. This prioritization will permit the Army to enable mission command, conduct joint combined arms maneuver, and, most importantly, optimize soldier and team performance.

The Army emphasizes the integration of advanced technologies with skilled soldiers and well-trained teams. We will have to invest in non-developmental and developmental capabilities. Non-developmental capabilities will integrate commercial technologies that do not require significant Army Science and Technology (S&T) or Research and Development (R&D), such as information technology, in order to save time and money. Our Army will prioritize developmental capabilities in areas where we must maintain a differential advantage such as combat vehicle technology; lethality; rotary aviation; watercraft; and Intelligence, Surveillance, and Reconnaissance (ISR). To sustain overmatch in these areas, we must reward our industrial base for reducing costs and increasing quantity during national emergencies while retaining the ability to affordably produce smaller quantities between major conflicts. The Army must take advantage of existing technologies, while investing in research to sustain technological advantages and the overmatch that comes from combinations of skilled soldiers and well-trained teams with that technology.

The Army must also prioritize modernization efforts. Force 2025 and Beyond is the Army's comprehensive effort for changing the Army and improving land power capabilities for the Joint Force. Force 2025 and Beyond efforts produce recommendations that help Army leaders direct modernization and force development. Force 2025 Maneuvers are the physical (experimentation, evaluations, exercises, modeling, simulations, and wargames) and intellectual (studies, analysis, concept, and capabilities development) activities that help leaders integrate future capabilities and develop interim solutions. The Army Warfighting Assessment (AWA) is the cornerstone event of Force 2025 Maneuvers. During an AWA, at Fort Bliss, TX, the Army evaluates doctrine, organization, training, material, leadership and education, personnel and facilities (DOTMPF) solutions. Driven by operational scenarios, the AWA provides a joint and multi-national venue to adapt, evolve, and innovate.

#### EQUIPMENT OBJECTIVES

##### *Enhance the Soldier for Broad Joint Mission Support.*

The centerpiece of Army modernization continues to be the soldier and the squad. The Army's objective is to facilitate incremental improvements by rapidly integrating technologies and applications that empower, protect, and unburden the sol-

dier and our formations. This provides the soldier and our formations with the mobility, protection, situational awareness, and lethality to accomplish assigned missions. The fiscal year 2016 budget supports this priority by investing in technologies that provide the soldier and squad with advanced warfighting capabilities. We are pursuing enhanced weapons effects, next generation optics, night vision devices, advanced body armor and individual protection equipment, unmanned aerial systems, ground based robots, and soldier power systems.

*Enable Mission Command.*

Joint combined arms operations will be enabled by a network that meets the commander's requirements to understand, visualize, describe, direct, lead, and assess from homestation, enroute, and from agile and expeditionary command posts in deployed locations. The network achieves uninterrupted mission command through intuitive, secure, and standards-based capabilities adapted to the commander's requirements and integrated into a common operating environment. Network capabilities are assured, interoperable, tailorable, collaborative, identity-based and accessible at the point of need in operations that include unified action partners. This will enable globally responsive joint combined arms teams to conduct expeditionary maneuver across domains and locations. The fiscal year 2016 budget request supports this priority by resourcing essential mission command, software applications for the Common Operating Environment, operations/intelligence network convergence efforts, and platform integration of network components in support of Operational Capability Sets in expeditionary tactical command posts.

*Remain Prepared for Joint Combined Arms Maneuver.*

The Army's objective is to facilitate fleet capabilities to increase lethality and mobility while optimizing survivability by managing the full suite of capabilities to enable the most stressing joint warfights. The fiscal year 2016 budget request continues to support the Armored Multi-Purpose Vehicle, Paladin Integrated Management program, Joint Light Tactical Vehicle, and critical Aviation programs.

BUDGET PRIORITIES

The Army has identified critical programs that provide overmatch capabilities at the tactical and operational levels of combat operations. These critical programs are discussed below:

- Family of Networked Tactical Radios is the Army's future deployable mobile communications family of radio systems. It provides advanced joint tactical end-to-end networking data and voice communications to dismounted troops, ground, and aircraft platforms. Fiscal year 2016 funding supports the operational test assets for 240 Manpack radios, and the continued ramp up of production for 300 Rifleman Radio Secret and below. Fiscal year 2016 funding also supports the remaining portion of Project Management Administration costs, supports the purchase of generic ancillary components for continued platform integration efforts, and sustainment as the program readies for fielding Capability Sets 17 and 18.
- Joint Battle Command-Platform (JBC-P) is the next generation of Force XXI Battle Command Brigade and Below/Blue Force Tracking and is the foundation for achieving affordable information interoperability and superiority on current and future battlefields. JBC-P is the principal command and control/situational awareness system for the Army and Marine Corps at the brigade level and below. Fiscal year 2016 funding supports the procurement of 2,988 vehicle platform computer systems, 300 command post systems, satellite receivers, encryption devices, ancillary equipment, program management support, training, fielding, publications, support equipment, and post deployment software support.
- Warfighter Information Network-Tactical (WIN-T) provides broadband communications for the tactical Army. It extends an Internet Protocol based satellite and line-of-sight communications network throughout the tactical force supporting voice, data, and video. Fiscal year 2016 funding supports upgrade of 31 WIN-T Increment 1 units to enhance interoperability with units fielded with WIN-T Increment 2, procurement of 248 communications nodes for WIN-T Increment 2, and continues fielding and support for previously procured WIN-T Increment 2 Low Rate Initial Production (LRIP) equipment.
- Distributed Common Ground System-Army (DCGS-A) provides integrated ISR Processing, Exploitation and Dissemination of airborne and ground sensor platforms providing commanders, at all levels, access to the Defense Intelligence Information Enterprise and leverages the entire na-

tional, joint, tactical, and coalition ISR community. Fiscal year 2016 funding will correct issues identified during the May 2015 Limited User Test and support the Increment 2 Request for Proposal and milestone decisions. This includes efforts to begin Increment 2 development, modernize and procure commercial off-the-shelf software and hardware components for DCGS-A (fixed, mobile, and data centers), integrate hardware and software, and equip and train next deployers and high priority units.

- Nett Warrior is a dismounted soldier worn mission command system that provides unprecedented command, control, and situational awareness capabilities supporting the dismounted combat leader. The design incorporates operational unit mission needs and leverages operational lessons learned, while maintaining power requirements in austere environments. Fiscal year 2016 funding supports fielding an additional 3,016 units.

- Armored Multi-Purpose Vehicle (AMPV) replaces the obsolete M113 family of vehicles within the Armored Brigade Combat Teams and provides required protection, mobility, and networking capability for the Army's critical enablers including mortars, medical evacuation, medical treatment, general purpose, and mission command vehicles. Fiscal year 2016 funding supports entry into the Engineering and Manufacturing Development (EMD) phase to integrate the Mission Equipment Package and technologies in development in Army programs and produce prototypes for use in testing.

- Patriot is a high-demand/low-density program, currently deployed in multiple theaters supporting operational and strategic requirements. Patriot provides the capability to defeat Air and Missile threats while protecting Combatant Commands' critical assets, including soldiers, sailors, airmen, and marines. Fiscal year 2016 funding supports procurement of 80 Missile Segment Enhancement missiles to increase Patriot's capability against the current threat, as well as evolving threats.

- M109A7 Paladin Integrated Management (PIM) replaces the current M109A6 Paladin and M992A2 Field Artillery Ammunition Supply Vehicle with a more robust platform incorporating Bradley common drive train and suspension components in a newly designed hull. Fiscal year 2016 funding supports the final EMD testing and LRIP of 30 PIM vehicle sets.

- Joint Light Tactical Vehicles (JLTV), a Joint program with the U.S. Marine Corps, is the centerpiece of the Army's Tactical Wheeled Vehicle modernization strategy replacing 49,099 of the light wheeled vehicle fleet by 2041. This multi-mission vehicle will provide protected, sustained, and networked mobility for personnel and payloads across the full range of military operations. Fiscal year 2016 funding will support a LRIP decision in July 2015. A single vendor will be selected to produce vehicles that provide the most capabilities at a \$250,000 or less average unit manufacturing cost.

- Maneuver Support Vessel-Light (MSV-L) represents a modernization of current Army watercraft capabilities provided by the aging Vietnam war era landing craft. The MSV-L adds new capabilities intended to meet the Army's future tactical and operational movement and maneuver requirements. The MSV-L is intended to access austere entry points, degraded ports, and bare beaches without dependency on support ashore, in support of land maneuver support and/or maneuver sustainment operations. Fiscal year 2016 funding supports extending the service life of the Landing Craft Utility (LCU-2000), as well as to begin early plans to extend the service life of the Modular Warring Tug and Causeway Ferry until new procurement.

- AH-64 Apache is the Army's world-class heavy attack helicopter for the current and future force, assigned to Attack Helicopter Battalions and Armed Reconnaissance Squadrons. The AH-64E provides the capability to conduct simultaneously close combat, mobile strike, armed reconnaissance, security, and vertical maneuver missions across the full spectrum of warfare, can operate in day, night, obscured battlefield, or adverse weather conditions. Fiscal year 2016 funding supports procurement of 64 remanufactured AH-64E aircraft and associated modifications to the AH-64D fleet.

- UH-60 Black Hawk is the world's premier utility aircraft and the Army's largest helicopter fleet. The Black Hawk is vital in supporting lift and medical evacuation missions in the current and future force operational plans. It is critical to the homeland defense mission and a key component of the Army National Guard's forest fire, tornado, hurricane, and earthquake relief missions. Fiscal year 2016 funding supports procurement of 70 UH-60M and 24 HH-60M, purchases mission equipment packages, and up-

grades the UH-60V, which will help to reduce life cycle costs while digitizing the last analog aircraft in the operational fleet.

#### OTHER AVIATION PRIORITIES

The Army will continue to incrementally modernize the existing fleet while investing in the next generation of rotary wing capabilities. These aviation programs and efforts are discussed below:

- CH-47 Chinook will provide the Army's heavy lift capability through 2060, making it the Army's first 100 year aircraft. Fiscal year 2016 funding supports procurement of a base quantity of 27 remanufactured aircraft and 12 new build aircraft, along with associated modifications to the CH-47 fleet. The CH-47 Block II is the first increment of a potential multi-block strategy designed to insert incremental technology upgrades into the Chinook fleet and to maintain the platform's relevance and affordability over time while meeting warfighter requirements. The CH-47 Block II upgrade seeks to buy-back performance that eroded over time due to the addition of mission equipment packages since system fielding in 2007.
- Improved Turbine Engine Program (ITEP) will be a new 3,000 Shaft Horse Power (SHP) turbo shaft engine that will replace the T700 family of engines for the UH-60 Black Hawk and AH-64 Apache fleets, which comprise 75 percent of the total Army helicopter fleet. As increasing demands continue to add weight to the aircraft, the T700, originated in the 1970s as a 1600 SHP engine, no longer retains the significant power growth potential necessary to meet the required capabilities. ITEP provides significantly increased operational capability, fuel efficiency, range, and payload to meet Army mission requirements.
- Joint Multi-Role (JMR) Technical Demonstrator (TD) is intended to investigate and demonstrate selected vertical lift aircraft design and performance technologies. JMR is an Army S&T program to develop, expand, and demonstrate new capabilities in vertical lift technology and aircraft capabilities.
- Future Vertical Lift (FVL) is an Army lead joint procurement effort to set joint requirements, develop, and procure the next generation of vertical lift aircraft that will replace the current Department of Defense vertical lift fleet. The focus of FVL is based on three major tenets: (1) improve the performance; (2) improve the survivability; and (3) significantly reduce the operating cost. The FVL Family of Systems capability desires 90 percent common components/parts to reduce overhead and logistical footprint, as well as enable mission flexibility.
- Future Utility Aircraft (FUA) will enable the Army to replace worn out or retired Operational Support Airlift (OSA) aircraft with a more technologically advanced aircraft better suited to support the needs of commanders in current and future operations. FUA will reduce the amount of resources required to train pilots and sustain the aircraft. The Fixed Wing Utility Aircraft will be a commercial off-the-shelf solution that will be Instrument Flight Rules capable and equipped with Civil and Military Communications, Navigation, Surveillance, and Survivability Systems that enable the aircraft to operate in civil and military environments throughout the world.

#### AVIATION RESTRUCTURE INITIATIVE

The Army introduced the Aviation Restructure Initiative (ARI) last year because we simply cannot afford to maintain our aviation structure and sustain modernization while providing trained and ready aviation units across all three components. The Army will simplify sustainment for fewer systems, reduce pilot training course loads over time, and facilitate retirement of old aircraft the Army cannot afford to replace. ARI requires cross-leveling and divestiture of aircraft among all components—Active, Guard, and Reserve. Fully implemented, the Active and Reserve aviation force mix will generate better and more capable formations which are able to respond to contingencies at home and abroad. The Army estimates ARI will save about \$12 billion in procurement and \$1 billion per year in operations and sustainment costs. The initiative is not an ideal situation, but with reduced resources, the Army must make difficult decisions to ensure meet combatant commander requirements.

The ARI divests the OH-58D Kiowa Warrior (KW) fleet and cancels the OH-58D upgrade and fleet replenishment programs, enabling re-purposing of funding to support other Army priorities. The Army terminated the OH-58D KW upgrade program

and the OH-58D KW Wartime Replacement Aircraft (WRA) efforts in March 2014. In early April 2014, the Army issued an execution order (EXORD) directing PEO Aviation to begin planning for the divestment of the OH-58D KW fleet over fiscal years 2014–2017. In accordance with the EXORD, the Army divested 81 KWs from units in 2014 including aircraft from the 6th Squadron, 17th Cavalry Regiment in Fort Wainwright, AK, the U.S. Army Aviation Center of Excellence, Fort Rucker, AL, prototype aircraft from Redstone Arsenal, AL, and aircraft returning from combat deployment. The majority of aircraft have entered 309th Aerospace Maintenance and Regeneration Group (AMARG), Davis-Monthan AFB, in Tucson, AZ (AMARG) for storage. A small group of aircraft deemed uneconomically repairable were inducted for parts-harvest into either the Regional Aviation Sustainment Maintenance West, Fort Hood, TX or the Corpus Christi Army Depot, TX. The entire divestment mission will be conducted over a 4-year period. The majority of remaining KW divestment is planned for fiscal year 2015–2016, with the final unit scheduled to stand down in fiscal year 2017. The Army has divested 27 KWs from one unit, 2nd Squadron, 6th Cavalry Regiment, Wheeler Army Airfield, HI, so far in 2015. The Army will also divest aircraft from six additional units this calendar year. Sixty aircraft will require divestment from units in calendar years 2016–2017. In total, the Army will divest 340 OH-58D aircraft.

#### OTHER MAJOR PROGRAMS IN FISCAL YEAR 2016

The Army has carefully prioritized our efforts to ensure we maximize every dollar toward putting the best equipment in the hands of our soldiers. The Army will continue S&T investment in combat vehicle technologies, ITEP, and JMR-TD to inform FVL efforts. We will also focus our modernization efforts on procurement of AMPV and incremental upgrades to the Abrams, Bradley, and Stryker families of vehicles.

Last year, the Army was forced to make a difficult choice between continuing the development of the Ground Combat Vehicle (GCV) program or addressing near-term readiness with modest improvements to the current Bradley Infantry Fighting Vehicle (IFV). Faced with fiscal constraints and competing budget priorities, the Army concluded the GCV program in June 2014, at the completion of the Technology Development phase. Developing a new IFV remains a requirement, however, and until resources become available, the Army is focused on refining concepts, requirements, and key technologies in support of a future IFV modernization program. The Army is investing in S&T to refine concepts and mature technologies to inform future combat vehicle requirements and reduce technology integration risk. The effort will support future IFV while maximizing opportunities to transition these technologies to current and future combat vehicles. This effort will focus on maturing and demonstrating key, leap-ahead technologies related to vehicle survivability, enhanced mobility, and lethality. Specifically, the Army's Future Fighting Vehicle effort is currently conducting vehicle studies based on trades to GCV operational requirements to explore platform reductions to size, weight, and power versus performance. This effort ensures that potential new IFV designs take advantage of maturing technologies, and keeps industry design and research teams aligned with ongoing Army combat vehicle efforts.

The Army also maintains a valid requirement for the development of an Armed Aerial Scout (AAS), but currently lacks the fiscal resources to pursue a new procurement program. Apaches teamed with Unmanned Aerial Systems (UAS) will provide the AAS capability under current Army plans.

The Army is continuing the development of The Joint Air to Ground Missile (JAGM) which increases the lethality of the Army's attack aircraft by increasing the performance of our aircraft-launched precision munitions in degraded environments and against advanced threats. Investments in the Army's current air to ground missile, Hellfire, continue during JAGM development to ensure sufficient stockpiles are maintained and customers from outside the Army (other Services and allied nations) can continue to have access to the best and newest missiles currently available.

The Army continues to invest in the MQ-1C Gray Eagle UAS with JAGM integration, increased survivability efforts, and achieving acceptance into the national airspace. In fiscal year 2016, the Army added another company to U.S. Army Intelligence and Security Command (INSCOM) formations thereby increasing globally allocable ISR capabilities. The program continues to field to Army Divisions, U.S. Special Operations Command, and INSCOM with completion scheduled for fiscal year 2018.

Network dominance and defense is an integral part of our national security. The Army is focused on proactively providing increased capabilities to the Joint Force. The evolving Cyber environment is forcing the Army to adapt to cyber threats by transforming processes, organizations, and operating practices to mitigate

vulnerabilities. In terms of new and emerging initiatives, the U.S. Army Cyber Command at Fort Gordon, GA, and the Army acquisition community are pursuing ways to bring “big data” analytic capabilities to Army operations in order to improve our cyber defense capability. These efforts, as well as cyber S&T initiatives focused on the enabling technologies for future capabilities, will generate resourcing requirements which will compete against other modernization priorities.

The Army’s Network Integration Evaluations continue to provide valuable soldier-driven performance evaluations and suitability assessments of network technologies which the Army continues to leverage as a means of focusing Tactical Network modernization efforts. The Army is committed to developing and fielding the Army Tactical Network as part of a modernized Army network that improves effectiveness, security, and efficiency while providing the same basic capabilities from home station to the deployed tactical unit.

With respect to small arms procurement, the Army’s paramount objective for our soldiers is to maintain lethal overmatch against any adversary. Efforts include requirements development, and Science and Technology (S&T) investments in new enabling technologies to support future capabilities. Development efforts include the XM25, which provides the individual soldier with the capability to engage defilade targets with a high degree of accuracy, while imposing minimal burden in terms of size and weight. The Small Arms Ammunition Configuration Study is evaluating commercially available small arms ammunition, emerging ammunition capabilities, and developmental ammunition technologies to address conventional and non conventional calibers used in carbines, rifles, and light or medium machine guns. The Modular Handgun System Full and Open competition will replace the more than 30-year-old M9 with a system that is more lethal, accurate, ergonomic, reliable, durable, and maintainable.

Production efforts include: M320A1 Grenade Launcher Module that is replacing the M203 series grenade launchers currently mounted on M4A1 Carbine, M4 Product Improvement Program (PIP), M2A1 Quick Change Barrel Kits, M205 tripods, and sniper upgrades and accessories. The Army is phasing its service rifle inventory from a mix of M16A2/A4 Rifles and M4 Carbines to an inventory of fully automatic 5.56mm M4A1 Carbines. The M2A1 is a modification to the M2 machine gun with a Quick Change Barrel Kit, and fixed headspace and timing configuration. In addition, the M205 Lightweight Tripod is for use on the M2/M2A1 and MK-19 Grenade Launcher.

#### DEFENSE INDUSTRIAL BASE

As lower funding levels for the Army continue, we are concerned about the availability of needed skills and capabilities in the defense manufacturing and supplier base. Teaming and collaboration with our industrial base, early in the process, will help reduce risk. In crafting our equipment modernization strategy, we carefully assessed risks across all portfolios to ensure balanced development of new capabilities, incremental upgrades to existing systems, and protection of ongoing production and manufacturing to sustain the industrial base.

The Army has initiated studies to independently assess the health and risk to key industrial base sectors. Based on the results to date, the Army is making investments in specific portfolios to mitigate risk. In the aviation portfolio, multi-year contracts for Black Hawk and Chinook helicopters provide stability and predictability to the industrial base while achieving significant cost savings for the Army. In the combat vehicle portfolio, new production of PIM and AMPV, as well as incremental upgrades to Abrams, Bradley, and Stryker help to ensure that a sufficient workload will sustain critical workforce skills and suppliers. The Army also continues to advocate for Foreign Military Sales (FMS), extend production in certain programs, and invest in key suppliers on a case-by-case basis.

The Army is equally concerned about the health of the organic industrial base, including our depots, arsenals, and ammunition plants. We are evaluating how to preserve needed skills and capabilities by modernizing facilities with new technology and plant equipment, promoting arsenal manufacturing capabilities across the Department of Defense, and conducting personnel training. The Army will maintain critical skills sets in our depots by identifying workload to preserve capabilities, exploring FMS opportunities, and encouraging depots and arsenals to partner with commercial firms and other Army and DOD organizations such as the Defense Logistics Agency to meet future requirements.

#### CLOSING COMMENTS

The Army’s capabilities and capacity provide combatant commanders with multiple options, including the ability to conduct prompt and sustained combat oper-

ations on land. As the Army continues to adapt and innovate, we will continue to provide the foundational capabilities that enable the Joint Force to prevent conflicts, shape the security environment and, when necessary, win in a complex world.

We appreciate the generous support from Members of Congress for strengthening the Defense acquisition workforce, which is the critical component for the success of a well-equipped force. With more than 38,000 Army military and civilian acquisition professionals worldwide, this dedicated component of the Defense acquisition workforce is comprised of engineers, scientists, logisticians, contract specialists, testers, program managers, cost estimators, and many other acquisition career field specialties who effectively manage the Army RDA enterprise in a challenging budget environment.

Army equipment modernization enables the U.S. Army to remain the world's decisive land force. Soldiers and units operate as part of joint, interorganizational, and multi-national teams that are tailorable and scalable to the mission. As we continue to examine how to achieve effective balance among manpower, readiness, and modernization, we must have stable, predictable, long-term funding to modernize our force to meet evolving threats and fully execute our mission.

The security challenges of tomorrow will be met with the equipment we develop, modernize, and procure today. Because adversaries will continue to invest in technology to counter or evade U.S. strengths, resource reductions and insufficient force modernization place at risk the U.S. ability to overmatch its opponents. Smaller and less capable adversaries could restrict U.S. military options and impose serious risks to mission and committed forces. Under sequestration the Army may be reduced to a level that puts U.S. war plans and crisis response abilities at significant risk. Efforts to compensate for less forces with stand-off capabilities, special operations forces, and use of allied or partner armies may prove insufficient. To mitigate risks, the Army must maintain high levels of readiness while also investing in future force modernization. The Army must retain sufficient institutional Army capabilities to expand the force. Improved interoperability with joint, interorganizational, and multinational partners provides additional methods to mitigate this risk by improving synergy across all domains and fully realizing the potential of joint combined arms maneuver.

With the possible return of sequestration in fiscal year 2016, Army equipment modernization faces significant risks. Those risks include fewer mitigation options, aging fleets, eroding overmatch, higher sustainment costs, longer timelines to regenerate battle lost equipment, and higher costs, which will leave our soldiers less prepared for future conflicts.

Mr. Chairman, members of the subcommittee, we thank you again for your steadfast and strong support of the outstanding men and women of the U.S. Army, Army civilians, and their families. We look forward to your questions.

Senator COTTON. Thank you, General Williamson.

Does anybody else have any opening statement they would like to add to your joint written statement? General McMaster?

**STATEMENT OF LTG HERBERT R. McMASTER, JR., USA, DIRECTOR, ARMY CAPABILITIES INTEGRATION CENTER/DEPUTY COMMANDING GENERAL, FUTURES, U.S. ARMY TRAINING AND DOCTRINE COMMAND**

General McMASTER. Sir, thank you. I just want to say thanks to you and Ranking Member Manchin and distinguished members of the subcommittee, really in both of your opening statements—most of the content I have exed out in my opening statements because I think you covered it much more fully than I can.

But I just want to tell you that I appreciate the opportunity to talk with you about the Army Operating Concept, its relationship to Army modernization, and the enduring importance of ready land forces in sufficient capacity to accomplish the mission.

To prevent conflict, shape security environments, and win in a complex world, Army forces must have both the capability and the capacity to accomplish assigned missions while confronting, as you both pointed out, increasingly dangerous threats in complex operational environments. The Army Operating Concept will guide our

modernization efforts and help us do the best we can with the resources that we are provided and with the strength of our Army. It prioritizes the integration of advanced technologies with skilled soldiers and well trained teams and adaptive leaders. That is what we believe is our differential advantage over enemies today and in the future.

The AOC also establishes first principles for the integration of new technologies and for the design of the future force. Most importantly, I think it integrates our learning activities, how we learn and adapt through Force 2025 maneuvers, which are both physical exercises and assessments, as well as intellectual exercises associated with Army war-gaming and seminars, to develop solutions to problems associated with armed conflict. Force 2025 maneuvers are oriented on 20 fundamental or first-order questions, the answers to which will improve current and future force combat effectiveness.

Our Army develops interim solutions to these warfighting challenges and identifies requirements to improve the combat effectiveness of the current and future force. This is how we intend to do our best to prioritize efforts in force modernization and make sure that we maintain overmatch over future enemies. "Overmatch" we define as the application of capabilities or the use of tactics in a way that renders an adversary unable to respond effectively.

As both of you have mentioned, budgetary pressures associated with the BCA in particular could make it tempting to overlook or undervalue the capacity of ready land forces to accomplish current and future missions. But strong, sufficient, and capable land forces are vital to national security. Army forces are critical to deterring conflict because they are capable of compelling outcomes without the cooperation of the enemy. Importantly, ready land forces are essential to compel sustainable outcomes in war. The consolidation of gains is an integral part of armed conflict and is essential to retaining the initiative over determined enemies and adversaries. To consolidate gains, Army forces often play a supporting role by reinforcing and integrating the efforts of multiple partners.

Replacing capacity with a strategy centered on technology alone or on the rapid regeneration of forces is risky. History provides evidence of the challenges inherent in rapidly regenerating effective land forces. As I mentioned earlier, our Army's differential advantage comes from combinations of skilled soldiers, adaptive leaders, and well trained teams with technology. Growing the Army while maintaining overmatch is a complex endeavor requiring policy decisions, dollars, soldiers, infrastructure, advanced weapons systems, and most importantly time.

Efforts to compensate for reduced capacity alone or with technology alone are also likely to prove insufficient. Recent and ongoing conflicts reinforce the need to balance the technological focus of modernization with a recognition of the limits of technology. As we know, there are no technological silver bullets in war, and although advances in technology will continue to influence the character of warfare, the effective technologies on land are often not as great as in other domains due to geography, the interaction with adaptive enemies, the presence of noncombatants, and other complexities and uncertainties of war. Our challenge, as you have already mentioned, is to mitigate these risks. Our Army must main-

tain high levels of readiness and sufficient capacity while also investing in future force modernization.

The Army Operating Concept is a starting point for developing the future force. But as historian Sir Michael Howard observed, no matter how hard we think, how clearly we think, it is impossible to anticipate precisely the character of future conflict. The key is to not be so far off the mark that it becomes impossible to adjust once that character is revealed. If we base our future force development efforts on flawed assumptions or wishful thinking, we will increase the risk of being far off the mark and are likely to pay a high price in blood and treasure.

Thank you for the opportunity to be with you today, and I look forward to your questions.

Senator COTTON. General? '

**STATEMENT OF LTG ANTHONY R. IERARDI, USA, DEPUTY  
CHIEF OF STAFF OF THE ARMY, G-8**

General IERARDI. Chairman Cotton, Ranking Member Manchin, ladies and gentlemen, thank you for the opportunity to testify today. I have a very brief statement to open with.

Our soldiers remain significantly engaged, leading and contributing to the joint force in missions in complex environments in multiple theaters of operation. As always, they are performing magnificently.

The Army's top priorities are to care for these soldiers and their families and to provide them and their units with the training and equipment they need to accomplish their tasks.

With significantly reduced budgets and the drawdown in the size of the Army, the Army is carefully balancing the allocation of resources among end strength, readiness, and modernization. The Army will preserve current force readiness to ensure units and our soldiers are prepared for the demands they will encounter as they execute their missions.

Conversely, we are being forced to invest less in the modernization of the force to meet the strategic and operational demands of the future. In this context, we must carefully evaluate all programs to ensure our overall modernization effort properly meets the needs of the Army into the future to increase the lethality, protection, mobility, and situational awareness of our soldiers and units.

We ask for your continued support for the required, sustained, and predictable funding to ensure we are able to deliver our soldiers the capability they need and deserve.

I want to thank you and the committee for your steadfast and generous support to our Army and our soldiers, and I look forward to taking your questions today.

Senator COTTON. General Cheek?

**STATEMENT OF MG GARY H. CHEEK, USA, ASSISTANT DEPUTY  
CHIEF OF STAFF OF THE ARMY, G-3/5/7**

General CHEEK. Thank you, Senator. Major General Gary Cheek, Deputy G-3, and I do operations, plans, and policy for the Army.

Just to add a couple of things to some of your great opening comments, yes, we are an Army coming out of 14 years of war. There is a lot of goodness in that for our Army. We have a wealth of com-

bat-experienced leaders throughout our force. Surprisingly, the Army is really where it needs to be at appropriate skills and grades across the Army in our noncommissioned officers and officers. We are also very well equipped with many of the resources provided by Congress to give us some great equipment and, really, within the Reserve component, maybe never as strong as their equipping status is now.

The thing that we lack, of course, are resources to continue to train that force and then to continue to modernize that force because that is where we have to take risk given the constraints of sequestration.

The thing that I would offer to you is that if you were to go back a year and see some of the world events that have occurred, for example, in Russia, the U.S. Army responded, and we have 2,500 soldiers in Eastern Europe under the leadership of the 4th Infantry Division and 3rd Infantry Division training with our Eastern European partners in about 13 different countries.

When the crisis of Ebola struck West Africa, the 101st Infantry Division deployed in support of the U.S. Agency for International Development (USAID) to assist in that effort there.

Then, the Islamic State of Iraq and Syria (ISIS) emerged in this past year. We have the 1st Infantry Division and 3rd U.S. Army leading that effort in support of the Iraqis there.

I bring that up because I think those events could easily leave Members of Congress and the American public with the impression that the Army is still ready to go, and we do very well at meeting our current obligations that are given to us by combatant commanders. But what you do not see is our contingency force and the readiness of that force, which is what General Odierno often refers to, where we have about 50 percent of the readiness that we believe we need to respond to a major contingency. This is where we get very concerned about the effects of sequestration because it leaves us with a lack of training of those teams and soldiers and leaders to be able to respond to those really unforeseen major crises that may be out there.

At any rate, we understand the commitment of Congress for fiscal responsibility within our Government, but we also have a strong commitment to our soldiers. We appreciate your leadership and efforts to assist the Army through this challenging period for the Nation. Like my fellow general officers, I look forward to your questions.

Senator COTTON. Thank you, gentlemen, for your statements, again for your service.

Ten years ago, I was in officer candidate school. As a young officer candidate, I had a training, advising, and counseling officer (TAC) who used to always tell us we can do things the smart Ranger way or the hard Ranger way. I do not think I need to elaborate on those two choices for anyone. I have to say that I probably chose the hard Ranger way more often than I would like to confess. But I want to make sure that the Army, to the greatest extent we can, does things the smart Ranger way since the Army can accomplish any mission given to it, but let us accomplish the mission in the most efficient and effective way.

I want to start talking about our wheeled vehicle programs. This is obviously something that is very important to all of us. We all lived through the challenges we faced 9, 10, 11 years ago getting vehicles to our troops down-range in Iraq that could sustain major roadside bomb blasts. By the time I was in Iraq in 2006, our Humvees could stop pretty much anything except the largest buried bombs and Iranian-supplied improvised explosive devices (IED). That is part of why we have the JLTV to replace the Humvee program.

I do have some concerns, though, about the strategy and the operational detail it provides. General Williamson, I will direct these questions to you first.

So the strategy says that the first units will receive JLTVs sometime in fiscal year 2018. Full fielding will occur sometime in fiscal year 2035. Also I understand it says the JLTVs will not replace all Humvees in the Army. So it is unclear to me what the basis of issue plan is for units. When will specific units at, say, the division level begin to receive JLTVs? What is the plan for the complete fielding, and how will we integrate JLTVs with legacy Humvee systems?

General WILLIAMSON. So, sir, thank you for the question.

I hate to be evasive. So I can talk to the programmatic, and I think the timeline that you described and the capabilities of the JLTV are absolutely on target.

I would also offer that this is one of those programs that I think, as you look at the three vendors who are providing solutions, we probably have one of the best vehicle programs that I have witnessed during my acquisition career.

In terms of how those vehicles will flow, though, I am going to defer to the operational side and the programmatic in terms of the units that they go to first and the timing to field those vehicles.

General CHEEK. So I think the best way to capture it is the priority for these vehicles will be those most susceptible to those threats that you mentioned. So we will probably focus initially on our combat arms formations, and then for our echelons above brigade that are less likely to be in those threat areas, there will still some, but that is probably where you will see a residual Humvee fleet.

Senator COTTON. Could you elaborate on what you mean specifically by combat arms formations below the brigade level?

General CHEEK. Well, it would be our brigade units but also some of the supporting units that accompany them. I will use like a fires brigade, for example, and others. But we can get you more specific information on that if you would like to follow up.

Senator COTTON. At what level or what echelon do you see units having a mix of both JLTVs and Humvees, and what level do you see them having pure JLTVs?

General CHEEK. Well, I do not have the exact answer. My belief is that our tactical battalions—infantry, armor, artillery—you are going to see JLTVs there. I think above the brigade, you are going to see some mix of those dependent on that.

But again, I probably owe you to check that specifically and come back to you with that.

[The information referred to follows:]

General CHEEK. The priority fielding of the Joint Light Tactical Vehicle (JLTV) is to the Maneuver Brigade Combat Teams (BCTs) (Infantry, Armored, and Stryker) and the multi-functional brigades that directly support the BCTs: Combat Aviation Brigades, Fires Brigades, Military Intelligence Brigades, Maneuver Enhancement Brigades, and Sustainment Brigades. JLTV requirements in these eight brigade types were determined based on LTV mission roles, operational mode mission summary / mission profile, and threat. In the BCTs, the JLTV will be a one-for-one replacement of the High Mobility Multipurpose Wheeled Vehicle (HMMWV) Up-Armored HMMWV (UAH) with the exception of the ground ambulance. In the five multi-functional brigades, the JLTV will replace more than 93% of all HMMWV/UAH requirements. In addition, over 1,000 JTLVs are slated for United States Army Special Operations Command (USASOC); another 1,400 are slated for the training base, and two Infantry Brigade Combat Team sets are designated for Army Preposition Stocks.

The Army continues to analyze JLTV and HMMWV requirements in the Army's functional support formations such as: Air Defense, Chemical, Engineer, Medical, Military Police, and Signal formations. This analysis will be complete later this year. We anticipate a mixed fleet of JLTV and HMMWV in these functional support formations. We also anticipate a mixed fleet or a pure fleet of HMMWVs at the Division, Corps, and higher echelons in the near and mid-term.

The plan is to prioritize JLTV to those Soldiers and units exposed to the greatest threat, and to provide them with the best protection, performance, and payload capabilities within the tactical wheeled vehicle fleet.

Senator COTTON. Okay.

General Ierardi?

General IERARDI. Sir, I would just add that I believe it will be a total force issue plan from the outset based on the operational requirements that the Army has. The idea that we would replace Humvees as we go and as JLTVs are manufactured and then integrated into the force I think is right. We will have fewer Humvees as time goes on, and we field these JLTVs to increase the performance, the payload, and the protection for our units according to the operational demands that we have. But I also believe we will intend it to be a total force fielding across the total Army.

Senator COTTON. General Williamson, if can come back. An acquisition question. I know the request for proposal (RFP) has laid out several criteria: survivability, mobility, and so forth. Three vendors are competing along that. Sometimes the Army, like all Services, also prioritizes protection of the industrial base. Is that a criteria in this program?

General WILLIAMSON. So, sir, not in terms of the actual selection of the vehicle, but as you look at how we identified the requirements, the timing in terms of the production of those, the goal is to make sure that we support the industrial base in our capacity to build tactical light vehicles.

So, again, I would like to point out that as I look at the three vendors who have done this, each has brought an innovative approach to protection, an innovative approach to energy, the transmissions. So from an industrial base standpoint, I think you are seeing the best of what we can do with current capabilities, and our ability to sustain that over the production lifecycle I think will be a real boon for our industrial base and a boon to our soldiers.

Senator COTTON. So I hear that as not protecting an industrial base per se, but taking into account past performance of the vendors as one component of risk?

General WILLIAMSON. Yes, sir. We are in that source selection right now. That is going to happen. So the criteria for how we are

going to pick the vehicle. So past performance is normally one of those criteria that we use in any source selection.

Senator COTTON. Okay. Gentlemen, thank you. My time has nearly expired.

Senator Manchin?

Senator MANCHIN. Thank you, Mr. Chairman.

First of all, just out of the chute, I would like to talk about when the sequestering first took place, I was here just kind of fresh out of the State. When that came under the BCA, we talked about flexibility. At that time, everybody was pushing back. I mean, to me that would have been something you would have embraced—the flexibility that you would have had with the money that we already had in the system. Not being able to move the money siloed, it would have made it much more difficult for you all to manage.

I do not know if you all feel any different about the flexibility of the budgets you have to work with or the way the money is siloed. If we could work with you there and give you some freedom, would that help? Because money I think is going to be a concern we are all going to have. You can see it every day here basically. We have a lot of needs, and I think everyone is going to have to look at how we work more efficiently. So I do not know how flexibility—if any one of you—General Ierardi?

General IERARDI. Sir, if I could. I would open by saying that the stable, predictable nature of funding is important for our modernization programs. The sequester law, as I understood it, would make across-the-board cuts if it was implemented, and that is something that would take away the discretion that we need as a Service to make the decisions that are appropriate to provide our soldiers and our units what ultimately they require.

Senator MANCHIN. Are your hands still tied right now? I mean, basically how you all are able to use your budget funds.

General IERARDI. Right at this moment, I do not feel that that is the case, sir, no.

Senator MANCHIN. Any of you?

General McMASTER. Sir, I will just say I do not do the math job that General Ierardi does, but I think that more flexibility seems like it would be better.

Senator MANCHIN. It makes all the sense in the world. But I am just saying politically you understand you did not get the flexibility because everybody wanted to make sure that the sequester would hurt so bad that we would get rid of it. Well, we did not. So by not getting rid of sequestering and not having flexibility, it was a double whammy on you.

General IERARDI. Right. So, sir, if I could. The BCA cap—the funding levels—we really essentially have been there with the legislative relief we received over the past couple years. That has certainly impacted us adversely. The flexibility in how we administer the funding, at least to this point, has been sufficient for us to have some decisions base in what we needed to do.

Senator MANCHIN. This will be, I think, General McMaster. What does it mean when you talk about sustaining employing our Reserve components as an operational reserve? What are your views of the resource implications or your definition of operational reserve?

General McMASTER. Sir, operational reserve obviously entails a higher degree of readiness, the ability to respond more quickly than a strategic reserve in the context of mobilization. The critical factor is just time. It is time and your ability to maintain a high degree of readiness at the collective level. Of course, our Army fights as teams, and we conduct combined arms operations and integrate joint capabilities. So these are all competencies that take time and resources to sustain. So we are limited in terms of the amount of the force that can retain the level of readiness necessary to be a viable operational reserve.

I think, sir, as small as our Active Force is getting, we have to do everything we can to maintain the National Guard at the highest possible level of readiness.

Senator MANCHIN. How do you all factor in the Guard and the Reserves? The only thing I could ever put between the two—why do we have both—is that when I was Governor, I had control of the Guard and the President had control of the Reserves. Other than that, it is kind of the same. I do not know why we could not have worked out something more amicable. Governor Rounds would understand that also I think.

General McMASTER. Well, sir, there are different authorities, as you already mentioned, in terms of the ability to mobilize the Reserves. These are policy issues that deal with responsiveness as well. Our Reserves provide some critical capabilities that are essential very early in a conflict, and many of the competencies that they provide are competencies that are oftentimes compatible with their civilian skill sets and so forth. These are units that are specialized for port opening and—

Senator MANCHIN. Well, here is the other problem I have. It is contractors. I cannot get an accurate answer on contractors. The cost of contracting is unbelievable, and I cannot get anybody to speak towards the cost effectiveness or efficiencies of doing more what we can do with our Service and our Service's personnel and our Guard and our reservists than what we are doing with outside contractors. Anybody want to touch that? General Cheek?

General CHEEK. So one challenge we have is there are force management levels that we have for the different theaters we operate in. So a lot of times, a contractor allows us to stay under that. Or contractors are very good if we only need the requirement for a short amount of time rather than grow that within the structure of the Guard or the Reserve. So there are places where I think there are great advantages of contracting, but over the long term, it is very expensive. It is very difficult for us to predict the number of personnel that are associated with a contract because we purchase a service, not necessarily the numbers of people. So that is another part that complicates it.

General IERARDI. Sir, we have worked and will continue to work to reduce contracted support in the force. At Fort Hood and command of 1st Cavalry, we by and large had moved to soldiers maintaining our ground equipment and our helicopters, not in every case, but as we move forward, it is the Army's intent to bring soldiers back into the business of maintaining and sustaining our equipment and our forces to the greatest extent possible.

Senator MANCHIN. My time is up. There may be a time for another round and we will go through that. Thank you very much.

Senator COTTON. Senator Rounds?

Senator ROUNDS. Thank you, Mr. Chairman.

I would like to take a little about cyber liability and about the exposures that are out there and what the Army is doing. It seems to me an important consideration of your modernization efforts would be its cyber capabilities. I understand that the Army is undertaking a number of significant initiatives in this regard. This includes the creation of 11 cyber protection brigades in the National Guard, a cyber center of excellence at Fort Gordon, GA, and a separate cyber branch for officers, the same level as the Army's other branches.

What is the current status of that initiative or that series of initiatives or the current state of play, if you would?

General MCMASTER. Sir, just a few things. I mean, first of all, this is a huge priority for us. As we have become more reliant on network capabilities and communications, that has become a vulnerability, and we can see harbingers of really future threats in what just has happened with Sony Pictures and so forth. But as Lieutenant General Edward C. Cardon, Commander, U.S. Army Cyber Command, who is testifying right now separately in a separate forum, can tell you, this is a contested battle space every single day.

So what we are doing is making this really a key consideration for the design of obviously our communications systems but really every weapons system to ensure that we have weapons systems that can operate degraded, that can degrade gracefully under some sort of a cyber or electromagnetic attack, and that these are the environments that we consider, these degraded environments, under this kind of duress as we design our force.

In the 1990s, we had based a lot of Army modernization on the belief that advances in communications technology and information technologies, automated decisionmaking tools had shifted war fundamentally from the realm of uncertainty to the realm of certainty. I remember some of the language of dominant battle space, knowledge, full spectrum dominance, and so forth.

We have essentially turned that assumption on its head, and we are now assuming that actually the advances in technology are going to move more into greater uncertainty. So we have to design a force that can fight for information, that can develop situations and understanding in close contact with the enemy and civilian populations, that can operate widely dispersed while maintaining mutual support. A lot of this has to do with communications and our systems that can degrade, that can operate degraded.

In terms of the cyber support teams that Army is generating, I will ask General Cheek to give you the statistics on those.

But I think if you look at innovation, military innovation, I think a case study of this will be our Army cyber and what they have done. I think under General Cardon and his predecessor, they have done a tremendous job of providing a new capability to the force, designing it, training and developing that expertise. So what we have now is the ability to support forces tactically in these contested environments, to understand better what the threats are to

the organization and defend against those threats, but then also to develop the knowledge and the intelligence of that space, as well as, if necessary to do so, conduct offensive operations.

Senator ROUNDS. I will let General Cheek respond to this as well, but what I am asking is, where are we? Are we on target with it? Are we behind? Do you have the resources to do it?

General CHEEK. I would say, Senator, we are on track with where we would expect to be. We are fielding cyber protection teams, for example. In many cases we are getting these to an initial capability, as many of these as we can, and through all three of our components. So it is a full effort. We are also standing up the school. We are developing the training mechanisms which are very unique for cyber. We have rifle ranges for all of our soldiers. We have cyber ranges that we are developing as part of the joint force, and then we are also working at the highest level for U.S. Cyber Command and its future, which I am sure is going to grow and expand as well.

So we are not complete by any stretch. I wish General Cardon were here because he could give you much more eloquent specifics on this. But we are well on our way, and I would say we probably have about 2 to 3 more years of continuing to build this force to flesh out these teams and maybe a little longer with the Reserve component.

General MCMASTER. Sir, just quickly on the stats. From fiscal year 2013 when the Army had zero cyber teams, we now have 24 Army cyber mission teams that have reached, as Gary said, the initial operational capacity. By the end of fiscal year 2016, the Army will have 41 cyber mission teams at initial or full operational capacity. As you mentioned, we continue to evolve and mature that over time. When we get to 41, it will be approximately 1,900 personnel, sir. The quality, education of those personnel is probably more important than the exact numbers.

Senator ROUNDS. Thank you.

I yield back my time, Mr. Chairman.

Senator COTTON. Senator Hirono?

Senator HIRONO. Thank you, Mr. Chairman, and thank you all for your service.

As we are talking about cybersecurity, it cuts across so many different—it comes up in the Judiciary Committee. It comes up in the Energy and Natural Resources Committee. It comes up in all of our committees. So as you develop these teams, of which you will end up with 41 by the end of 2016, how important is the coordination within the DOD to make sure that we are doing what we need to do and what we are learning from each other and we are basically working together across all of our Services?

General CHEEK. It is absolutely critical. We communicate with each other continuously at multiple levels. So for General Cardon who leads the Army Cyber Command, he has counterparts in the other Services that he works with directly, and they are also all underneath Admiral Michael S. Rogers, Commander, U.S. Cyber Command and Director, National Security Agency/Chief, Central Security Service

Also at the highest levels on the Joint Staff within the Joint Chiefs of Staff and the operational deputies, of which I am a part

of, we also review the policies, the future, the way ahead routinely, and we have just done that here recently.

So there is a lot of dialogue, especially given the threats that emerge continuously. So it is something we take very seriously, and we also want to make sure that we empower those organizations to be able to operate effectively and not over-control it or over-supervise it in a way that would inhibit their effectiveness.

Senator HIRONO. Does your coordination also include the National Guard?

General CHEEK. It does. In fact, the National Guard's first three States are standing up their teams, and over the next several years, many others, to include Hawaii, will stand up their cyber protection teams as well. Then we have to just work through the authorities of how they work when they are in a State status versus a Federal status. So there is a little more work to do with that, but we are pushing forward on all of these things. A lot of new thinking has to go into how this works with the existing policies and statutes to be effective.

Senator HIRONO. Would you all agree that cybersecurity is an ever-changing environment? It is like the new arms race. Every time we do something, somebody else is thinking of how to penetrate our systems and wreak havoc.

General IERARDI. Ma'am, exactly right. The environment changes very rapidly. Our task is to exceed that change in some way, to become as flexible as we possibly can to adapt the allocation of our resources and our activities to be able to effectively exploit opportunities and to counter the challenges that are present. Your question, the premise of it, that there are multiple capabilities involved in this is exactly right. There are human capabilities, human capacity capabilities, that are very important, mostly important, but there is also software and how we operate. In a modernization hearing in the G-8 where I am, we talk about modernization in terms of hardware. This is a different concept for how we operate, and I think it is important for us to keep that in mind.

Senator HIRONO. Are you going to be facing some shortages in people with the appropriate backgrounds to work in this area of cybersecurity?

General IERARDI. We are certainly oriented on attracting the right people for this mission set and to leverage the folks that are currently in these units and in these activities to the greatest extent possible. But it is an important task for us to recruit and retain individuals with the skills and attributes that we need for this mission.

Senator HIRONO. In this regard, you will be competing with the private sector because they also need people who are able to deal in this arena.

General IERARDI. Yes.

Senator HIRONO. We had an Armed Services Committee hearing this morning talking about how important the Asia-Pacific area is to national security and the stability of that part of the world, as other parts of the world continue to be unstable.

General McMaster, I know that soldiers from the 25th Infantry Division and other units participate in Pacific Pathways and other important military-to-military training opportunities with our allies

in the Asia-Pacific region. This morning's hearing reiterated how important those kinds of opportunities are.

So can you talk briefly about the importance of having a modernized Army in the Asia-Pacific region projecting forward from Hawaii, Alaska, Korea, and Japan?

General MCMASTER. Yes, ma'am. Thank you for that question.

Our Army Operating Concept is different, I think, from previous concepts in that it really looks at the range of operations and the range of missions for our Army, which is to prevent conflict, shape security environments, and then also to win an armed conflict if deterrence fails. The positioning forward and rotational presence of Army forces provides a very credible commitment to our allies. You can accomplish quite a bit from standoff range in terms of deterring conflict and responding to conflict, but really, you cannot do the positive things often from standoff range, which is to reassure allies and partners.

In the Pacific region, five of the largest armies in the world are there. So our engagement with those armies is immensely important in that connection in terms of theater security, architecture, and ability to deter conflict.

We are also emphasizing really two key concepts in our Army Operating Concept. One is expeditionary maneuver, which is the ability to deploy forces rapidly, but not just any forces, forces that possess the appropriate combination of mobility, protection, and lethality to accomplish the mission and to also be able to deploy forces of sufficient scale to get that mission done. That is really what deterrence, I think, comes from is really our ability to compel an outcome consistent with our vital interests.

To do that, we are emphasizing some key modernization initiatives that I think would be very helpful to forces in the Pacific, and that is combat vehicle modernization. It is also what we want to do with Army aviation and then also, in particular, because of the contested domains of the maritime, airspace, and cyberspace domains, we are saying that Army forces have to deploy rapidly and transition into operations with the right capabilities and in the right capacity to defeat enemy organizations, deter conflict obviously, but if that fails, defeat enemy organizations, to establish control of territory and protect populations, to consolidate gains, but now we think—and this is very relevant to the Pacific—project our outward from land into the maritime, airspace, and cyberspace domains to ensure our freedom of movement in these increasingly contested domains, but then also to restrict an enemy's freedom of movement in those domains. I think our ability to do that could have a very significant deterrent effect.

So we are working, for example, on the development of new capabilities with a unit that can deploy rapidly, a fires unit, but a fires unit that can do a lot of different things. It can work surface to air. It can work shore to ship, and it can help restrict, again, enemy movement and then ensure our freedom of movement.

Senator HIRONO. So there is a much more diverse capability on our part, but at the same time, as you say, in projecting our strength in that area, we need to do, I think, exercises with our allies, the Japanese, the Philippines. Those are important sort of

manifestations of our presence in that part of the world. Would you agree?

General MCMASTER. Yes, ma'am. But I will ask Gary maybe to comment on this as well. In the U.S. Pacific Command and U.S. Army Pacific, that is our largest contingent of Army forces of any of the combatant commands.

Senator HIRONO. I would like to keep it that way, coming from Hawaii as I do. [Laughter.]

General MCMASTER. Pacific Pathways has been immensely important to the development of our future force capabilities. One of these 21st order questions that we ask and warfighting challenges is how to improve our interoperability with other nations. U.S. Army Pacific is going to cosponsor our Army warfighting assessment, which will be at Fort Bliss, TX, beginning in 2016 but in fiscal year 2017. Partner nations that are involved already this October at Fort Bliss include the Australians. So we are hoping to expand that—we are confident we will—further to other Pacific partners for 2017.

Senator HIRONO. Thank you, Mr. Chairman, for the additional time. Thank you.

Senator COTTON. Senator Sullivan who, I caution the witnesses, remains a marine to this day. [Laughter.]

Senator SULLIVAN. Thank you, Mr. Chairman, for that reminder.

General McMaster, good to see you again, sir.

General MCMASTER. Good to see you, sir.

Senator SULLIVAN. I think you might remember I bumped into you in Tal Afar, and then I worked for you when you were the Joint Strategic Assessment Team commander. So I understand my chain of command here, Mr. Chairman.

So for all you gentlemen, I wanted to talk a little bit about kind of the troops in Alaska and how they play into both what Senator Hirono was talking about in terms of the rebalance, but also what I think is becoming an increasingly important area for the United States and that is the Arctic. We have some great Army units up there, the 1st Stryker Brigade, the 425. I was at the National Training Center with the 1st Stryker Brigade recently and saw their fantastic training. I was with the 425 soldiers just last week as they were getting ready to go do a jump.

But I know that you have been focused on what the Russians have been doing in the Arctic, and it is a pretty aggressive, pretty significant development of force capacity. General Martin E. Dempsey, Chairman of the Joint Chiefs of Staff, testified recently that four of the new six combat brigades in the Russian military are going to be Arctic-based. They have a new Arctic command. They have dramatically increased their icebreaker fleet. They undertook an exercise that I know a lot of us took a look at. I think it caught a lot of people by surprise in some ways. 45,000 troops, 41 ships, 110 aircraft, all in the northern fleet, their Arctic capacity.

In your testimony, you talk about viable land forces capable of opposing the Russian army and its irregular proxies. Such adventurism is more challenging to deter.

So I am wondering. One of the things the Army is looking at doing, in terms of future force structuring, is possibly removing one

and maybe even two combat brigades from Alaska. My sense on this is it would be lunacy from the perspective of America's national security to be decreasing even one combat soldier, particularly the soldiers we have in Alaska in terms of their capability for Arctic training.

I asked General Odierno about Spartan Pegasus recently, if any other airborne unit in the U.S. military could have undertaken that Arctic airborne exercise. He said no.

Could you just tell us how you are thinking through the Arctic? Right now there is no operational plan (OPLAN) at all. The U.S. Northern Command (NORTHCOM) commander does not have an OPLAN. I think we need an OPLAN, particularly as you help us help you think through requirements. Can you give me a sense of how you are thinking about the Arctic and our laydown in terms of Army forces there?

General MCMASTER. Well, sir, based on your summary of the threat, I would sum it up by saying probably not enough. I mean, we are not thinking enough about it. So I know that we have some venues that we can bring this right into, Unified Quest, which is our annual war game. I mean, I think it would be easy for us to develop a scenario that would have us operating in the Arctic and other cold weather environments and to understand better what the threats are there.

We have been thinking in general terms about the deterrent quality of land forces. As I mentioned, in particular what we see with Russia is we see a country that is using limited war for limited objectives to make, in effect, a land grab as we have seen in Ukraine, and to do that at low or no cost almost, and then to portray any responses escalatory. I mean, I think it is plausible to think of an analogous scenario in the Arctic, for example.

We know that a way to deal with a force that is using this sort of limited war for limited objectives is forward deterrence of land forces. This is where I think we get into the capacity issue. It was the forward positioning of 500,000 U.S. military personnel in Europe from the 1950s to the 1980s and 1990s that deterred a great power conflict over 70 years, sir, and then, of course, the 28,500 soldiers in Korea.

Now, if you look at an Active Force that is planned to go to 450,000 total in the Army and just do then Army math, in terms of a 90,000 generating force with 60,000 soldiers in training all the time, providing that ability to expand that within the institutional Army, if you look at global response forces that just have to be prepared for any contingencies—and those which were mentioned today—nobody planned on the deployment to West Africa or the ones that Gary was summarizing. So if you just do that basic math, you recognize that we are out of capacity to do what the Nation may need us to do.

Senator SULLIVAN. Do you think it makes sense to remove any combat brigades from Alaska, given what the Russians are doing? Also in terms of our rebalancing to the Pacific, that is another area where the President—and I agree with him—has committed to look at optimizing our force structure, obviously, Alaska forces, our Asia-Pacific forces, as well as Arctic forces. Do you believe it makes sense to be removing any combat units, even one soldier, from

Alaska given our Arctic challenges and given the rebalance to the Pacific, which Senator Hirono talked about?

General MCMASTER. Well, sir, it is a question of risk and how you can best manage that risk with severely diminishing resources. So just again for just some context—and again, I mean, this would be a fully open effort to look at how we manage that risk in consultation with your committee and others.

But if you think about just in recent years, in recent years we had to sustain a commitment overseas to Afghanistan and Iraq of about 170,000 in those peak years. Of those 170,000 that we deployed, 117,000 were active duty and the remainder, about 53,000, were Reserve component. That placed an Army, which at the time was at 482,000 that is in severe strain, and then thanks to you and to the Senate and our Congress, we expanded that Army to 560,000.

We are now in a global conflict. I mean, if you look around the globe, several conflicts around the globe seeing harbingers of potential future conflict. We are now down to about 492,000 today I think, Gary, and going to 450,000. So I mean, just the basic math I think you can see that we are taking risk today already somewhere.

To answer your question, I do not think—certainly it is not a good idea to pulling soldiers out of Alaska, but it will be a question of how to manage risk with severe reductions in Army capacity.

General CHEEK. If I could just add. So we do not want to take anything out of Alaska. We do not want to take any more of our brigades. So the unfortunate part that we face is, under sequestration, we are looking at having to remove two brigades from our structure. We have a process, as all of you are aware, both listening to communities and in weighing through that. So there are some very, very difficult choices there.

The one thing I will add, though, in recognition that we do see how important this area is. So we are bringing in Apache aircraft as part of the aviation restructure initiative. So that is one positive thing that we can add there.

The other one is our Gray Eagle unmanned aerial system which is unique in its ability to operate in that environment.

So I think there are a couple things that we are doing that we recognize both the need and opportunity for us to operate up there. If you left it up to all of us, we would say we do not need to cut any more anywhere. So that is where we would be on this.

Senator SULLIVAN. Thank you, Mr. Chairman.

Senator COTTON. Senator Donnelly?

Senator DONNELLY. Thank you, Mr. Chairman.

General Williamson, I know you in particular have been briefed on my concerns regarding what I see as hesitation by the Army to allow competition for tracked vehicle transmissions particularly among the Bradley family of vehicles. Last year's ATK study emphasized the transmission production is one of the most fragile elements of the tracked vehicle industrial base. I appreciate what the Army has done to mitigate risks to the transmission industrial base in recent years with funding provided by Congress.

But there is a long-term issue here. There have been performance issues with Bradley transmissions. We know the Army wants

to move toward moving a common transmission across the Bradley family of vehicles. That drive toward commonality is motivated by the desire to drive down costs and improve value.

If affordability is such a critical factor, my difficulty is understanding why you would hesitate to allow competition for a component as critical as vehicle transmissions. Competition is good for improved performance. It is good for driving down costs, and it is good for ensuring we retain the strongest possible industrial base.

So having said that, can I have your commitment that the Army will take every appropriate action to ensure that testing and other necessary analyses are completed on the alternate Bradley transmission in a timely manner?

General WILLIAMSON. Sir, thank you for your question and your concern about the industrial base.

As you stated, this Congress has been a huge supporter of the industrial base and the transmission portion of that industrial base. So this notion of competition is one that we fully support, and as we have engaged with the primes, we have asked them to look at where are there opportunities to bring competition in to drive down the cost and the efficiency associated with the procurement of those powertrains and with transmissions.

Sir, I think the challenge that we have, though, is that as we look at this particular portion of the industrial base—and it was mentioned in the very beginning of this hearing—we also have to look at efficiencies. So as we look at the manufacturers and we look at the kit as it is going to be put into these different vehicles, where are the opportunities for us to, one, support the industrial base but, two, ensure that they are driving in efficiencies so that we get transmissions at the best cost so that we can reduce the overall cost of the platform. So, sir, we are committed to driving towards that level of competition and that level of efficiency.

Senator DONNELLY. Well, if other transmissions demonstrate a better value to the Army, will we move forward with the value engineering change proposal on the Bradley?

General WILLIAMSON. Yes, sir. Sir, absolutely. I think the only thing that I would be disingenuous if I did not say to you is that as you look at a value engineering change proposal, it is the timing associated when you put that into the production. So in many cases, sir, it is not a buy an engine and just drop it in. In some cases, you have to see how you integrate that if that transmission has changed, if the connections have changed, if the seating of that transmission. So as we look and work with the prime, we have to ensure what is the best opportunity to insert this into their production runs.

Senator DONNELLY. So it is value plus the logistics of using the particular transmission.

General WILLIAMSON. Yes, sir. I would assure you it is not just in transmissions. It is in all aspects of a platform. We look for opportunities where competition would allow us to drive down the price.

Senator DONNELLY. Could you provide me with a monthly update on testing and analysis in the transmission area as we move forward?

General WILLIAMSON. Sir, we can do that. As that testing starts, we will be able to do that. Sir, I would also add that in many cases the original equipment manufacturer, as they are doing their testing and that data becomes available, we can ensure that that is provided to you.

Senator DONNELLY. Because my concern is, obviously—and it is what I say about a lot of things in the industrial area, which is, look, if we do not have the best at the most reasonable cost that provides the greatest safety, that seems to be the combination that we would be looking for more than anything.

General WILLIAMSON. Sir, your instincts are absolutely—

Senator DONNELLY. Then whoever wins wins.

General WILLIAMSON. Yes, sir, and that is what I was going to say. Your instincts are absolutely on target. I think as we look at probably the three main providers of transmissions, their ability to go to the platform owners and say, look, here is a better mousetrap is something that we encourage both to the prime and also to the providers of those transmissions.

Senator DONNELLY. Thank you very much, and thank you to all of you for your hard work, for your hard work in maximizing value and, maybe more importantly, for your hard work in protecting our men and women and protecting our Nation. Thank you.

Senator MANCHIN. Thank you, Senator.

What we will do is start a second round now, if you all are okay with that. I will start it off.

I say the Army is trying to create a mobile ad hoc tactical network for over 10 years. Results from operational tests, however, are still mixed for all technologies both hardware and software.

So, General McMaster, late last year you expressed your views on the Army's progress on developing and delivering a truly mobile ad hoc technical network. What is your assessment of the tactical network's operating concept and tactical performance to date? To both General McMaster and General Cheek, what are the leaders and soldiers in the field saying about the tactical network? So, General McMaster?

General MCMASTER. Sir, as you mentioned, the way the network developed, it developed in a way that kludge together battle command systems and systems from across our—which we say somewhat derisively—cylinders of excellence across our Army. So the network was fielded in a way that it has never been completed. It was incomplete. As you mentioned, we are trying to kluge it together over time.

We have made some significant progress in doing that in recent years and see a way ahead through what is called the common operating environment, which will allow us to integrate what we have and address really the three fundamental problems with the network, which is its incompleteness is the first. The second is its complexity, and the third that is related to that and it is also related to Senator Rounds' question about the network also—its vulnerability based on operational security concerns and cyber attack and electronic warfare (EW) capabilities.

So what we have done is we have developed a network vision and way ahead and a strategy that will aim to address these three fundamental issues. The first is to complete it. So we are in a situation

now where we are halfway down the path, and until we can begin to field this network, we cannot fix a lot of the issues that we have identified and now see solutions. For example, the common operating environment part of this which will simplify the network and integrate the multiple systems.

In terms of the complexity of the network, we are working very hard on user interface capabilities and the reduction of what is needed to maintain these systems, to simplify them as part of these programs.

On the vulnerability side of this as well, we are looking at tactics that we can use to use it differently, and then placing it in contested environments so that we can develop solutions to the vulnerability for the network. That is, obviously, the network integration environment. We will be able to get even more at some of these outside of testing certain equipment during the Army warfighting assessment.

But the bottom line is, I mean, your characterization of the network is correct. I mean, it is incomplete. It is too complicated, and it is vulnerable. We believe that General Williamson's team has worked extremely well in developing solutions to these problems. From a requirements perspective, what we have done for the first time is we have looked across all of the network and said, okay, what are the common requirements across all the network and how do we build to those. So that is near- or mid-term.

Long-term, we need to go to a system that will address all three of these fundamental issues, and that is really going from thick client to thin client-based networks to be able to simplify the network by divesting a lot of the hardware associated with the current systems. I mean, that is sort of the longer-term approach.

I will ask General Williamson to comment on this as well.

General WILLIAMSON. Sir, the only thing I would add—and I think General McMaster's characterization is on target. Because we took fairly complex systems, new technologies, and introduced these new software defined radios with very sophisticated software and we introduced it piecemeal without also addressing the tactics, the techniques, and the training associated with those new systems, I think there was a media perception, some of it very real, that these radios did not provide the same level of capability that they had in older systems.

I think the work that has been done over the last 2 years where we have brought these systems together, conducted the testing and the training so that we understand the performance parameters, and then went back to address those shortfalls—and you will see that in a series of engagements over these next 2 years where we have pushed radios down to the dismounted soldier all the way back up to the brigade command post, so you have a very resilient network that provides connectivity with these new capabilities.

But I do not want to tell you that it is perfect. It will continue to take improvements as you look at, again, the sophisticated waveforms and the changes in hardware. So what I would offer to you, sir, is that what you have are very high speed computers running software now for communications systems. So getting those two to work very well together, the hardware and the software, has been part of the challenge, and then add the new complexity associated

with those two things. So as we move forward, we have now put these systems into our network integration exercises so that we see the pluses and minuses with our engineers, with the warfighters there so that we can now take and leverage the learning that occurs to update those systems.

Senator MANCHIN. Thank you both.

Mr. Chairman?

Senator COTTON. Thank you, Senator Manchin, for filling in for me while I was absent.

I want to talk now about DCGS. Over the past 5 years, the current version of DCGS has struggled to provide its promised capabilities. It has failed its own tests, the head assessor of the Army's Test and Evaluation Command calling it not operational, not suitable, and not survivable in 2012. Maybe most important, though, it seems to have continued to fail wartime commanders who have continued to file operational needs statements to this day for a commercial alternative that is successfully in use today by the Marine Corps and Special Operations Forces. Even with more than 20 units calling for the alternative, because of flaws in the current program of record, taxpayers are continuing to spend hundreds of millions of dollars on the DCGS program, and it does not seem to be getting much better.

General Williamson, is there a point at which the Army is going to cut its losses and look at alternatives?

General WILLIAMSON. Sir, I do not know if this forum will give me the opportunity to give you a really detailed response to the performance of DCGS, but I would like to address some of your immediate concerns.

So what I would offer initially is that we have fielded over 11,000 DCGS systems into the Army, and the Army has been fighting with DCGS in very tough environments and providing commanders with geospatial information and intel which has allowed them to conduct their operations.

I will absolutely acknowledge that for some formations the DCGS system, as large as it is and the requirements for very well trained personnel to use, has not been optimal. So those requests that you see for a lighter weight, very specific capability that we have provided to those units is being addressed in the subsequent increments of the DCGS program.

One of those things, sir, I would tell you to start, is an ease of use. We have acknowledged that the complexity associated with the buttonology bringing that information together has been difficult. So we have tried to invest a lot of time, and we have also engaged with over 150 vendors through a series of industry days to find out how we can improve the existing system.

But there are some pieces here that I think we often disregard. So the completeness of the DCGS program is what makes it so valuable. It is the range of capabilities that it provides, not a very specific piece in terms of situational awareness, that makes the DCGS tool so powerful.

I think as we go into the May timeframe where we go through our next set of evaluations, I think you will see a completely different perception of how that tool is provided.

Senator COTTON. But it is being used by the Marine Corps and Special Operations Forces. What capabilities does this commercially available alternative lack that the Marine Corps does not need that the Army needs?

General WILLIAMSON. So, sir, what I have seen is that they use a very specific piece for situational awareness enhanced by contractors who do the detailed work behind, not soldiers or marines, in terms of taking information. I might add that comes from the DCGS system. They take that information and present it in a faster, less complex way for them to make decisions.

Senator COTTON. I mean, the information just comes from any intelligence sensor. Whether it is a Joe out on the beach or whether it is a satellite in the sky, I mean, it is ultimately a database and then you have ways to manipulate and understand and present the database.

General WILLIAMSON. If you have access to that information, sir. So in some cases as you look at national assets that come in, these systems do not have access to that level of information.

Senator COTTON. Okay. Well, I mean, the National Assessment Group says that Palantir, the commercial system we are talking about, meets all requirements for advanced analytics. It also says that our own Testing and Evaluation Command found that 96 percent of soldiers said Palantir was effective in supporting their mission. The Government Accountability Office reported that it meets all the needs of the Marine Corps and the Special Operations Forces.

I would just say that in the Cold War, when we were fighting a heavy mechanized war against the Soviet Union, we produced unique capabilities that were not available in the commercial space like tanks. In the post-Cold War era, as the information technology revolution has taken over, we have to rethink the wisdom of trying to create these systems in the Federal Government rather than using commercially available, off-the-shelf systems.

General McMaster, when you were in Afghanistan most recently on the Anti-Fraud Task Force, did you submit an operational needs statement?

General MCMMASTER. Yes, sir, I did.

Senator COTTON. Could you explain why you did that?

General MCMMASTER. Well, sir, we were looking for a system that could provide the capabilities you just described, and we did not have DCGS at the time either. So we had neither the other alternative to DCGS or DCGS available to us. Essentially what we needed was a tool to access multiple databases and then to be able to help us understand using big data analytical tools, really connections between, for example, nodes through networks and the ability to see flows, for example, of people, money, weapons, narcotics through those networks that were influencing our mission. So, as General Williamson mentioned, this was a test of a certain capability, and what we were limited by was the ability to access all the various databases. I mean, that is really, I think, the key issue here.

I am not familiar with DCGS personally because again, as I mentioned, it was just getting fielded as I was departing our task force in Afghanistan.

There will be a limited user test in May, next month, that we will conduct, and I think the conditions are set for that. There is funding as well too, if we do identify any deficiencies in terms of ease of use, which has been I think the principal criticism of the system up to this point, that we have the funds available to address those deficiencies.

Senator COTTON. I apologize. I do not know if this is better directed towards General Williamson or the G-3s. Can we get an update on where these operational needs statements responses stand? It is my understanding there are about 20 of them, maybe a little more. For the record. I do not expect you to do it right now.

General CHEEK. Well, I am not tracking that many, but I can tell you for any unit that requests a Palantir or whatever the operational need is, we look at all those very thoroughly. For Palantir we are pretty much at about 100 percent approval for those.

There are some that between the unit and the headquarters Department of the Army, their intermediate headquarters may determine that they do not require that. I will just give an example. A unit could request one that is not deploying, and for some other reason they believe they need it. That intermediate headquarters may say no.

What we do with them, though, we will be aware of that request, and we will work it in parallel so we do not wait sequentially for this thing to come to us. But for any commander in war that needs something that submits an operational needs statement, we pretty much do everything we can to get that to them. So it is not something that we say no to unless there is probably a recommendation that comes with that that this is not needed.

Senator COTTON. Thank you. Just for the record, if we can get an update on that for my staff and the committee staff.

General CHEEK. Yes, sir.

Senator COTTON. I appreciate it.

[The information referred to follows:]

As of April 2015, 19 deploying units have submitted 28 requests for commercial, advanced analytic capabilities, to include Palantir. Requesting units used the Operational Needs Statement (ONS) process ten times and the Rapid Equipping Force (REF) 10-Liner process on eighteen occasions. Of the ten ONS requests, seven were endorsed by intermediary Commanders and passed to the Department of the Army for decision. In those cases, the requirements were validated and the requests approved. The remaining three ONS are still being reviewed by subordinate, intermediary headquarters. Of the eighteen requests submitted through the 10-Liner process, six were approved. Of those approved, REF equipped four units with the Palantir capability, supported one unit with Field Support Representatives and reachback capability, and one unit declined the Palantir equipment once it was available for delivery. REF did not support six 10-Liner requests and redirected four others into the ONS process. The final two 10-Liners were passed to PM DCGS-A for action.

Senator COTTON. Senator Sullivan?

Senator SULLIVAN. Thank you, Mr. Chairman.

Gentlemen, I just wanted to follow up quickly again on the issue of the Arctic OPLAN. I did not get a direct answer. Do you think there is a need for that?

Let me give you just one kind of specific resource example. The U.S. Army in Alaska has just over 50 small unit support vehicles (SUSVs). As a matter of fact, in the Spartan Pegasus operation, they actually jumped some of these SUSVs. I am sure you have

traveled in them. They are outstanding vehicles. But to my understanding, right now that program—these are 30/40-year-old vehicles. The program is no longer under development in any way. Again, I worry about this being a bit of a symptom of us not being Arctic-minded.

General McMaster, back to you. Knowing the ability to actually resource what the Army needs can be generated by OPLANs. That is what we do around the world. Do you think there is a need for an Arctic OPLAN to help you think through some of these issues like SUSV replacement?

General McMASTER. Well, sir, what we will do is work with the Army staff and the G-3 in particular and engage NORTHCOM and ask them what their assessment is, and working together with them, we can offer our campaign of learning under Force 2025 maneuvers, the experimentation that we do, the wargaming we do as a venue to start thinking about future threats along with NORTHCOM. Then in terms of the requirements, falling out of the OPLAN and the integrated priority lists of the combatant commanders, we can make an assessment of how well prepared Army forces are for Arctic and related contingencies and then work with the Army staff on prioritization and resourcing strategies for those.

Senator SULLIVAN. Thank you.

General McMASTER. But I will definitely take this on as part of our campaign of learning and work with the Army staff and NORTHCOM.

Senator SULLIVAN. I appreciate it.

General Cheek, your comments about limited resources, tough choices, strategic choices—we appreciate that. We know that all of you are working hard, all the Armed Forces, we are on the committee. I think part of what we also need to be doing in terms of oversight in terms of the different Services is looking at the possibility not only of strategic choices but redundancies.

I was just in Asia as part of our oversight responsibilities in terms of the rebalance, redeployment of forces throughout the Asia-Pacific mostly relating to the Marine Corps, Air Force in Guam and Okinawa, Australia, Hawaii.

General McMaster, you talked about issues such as expeditionary forces from the sea on ships. I know there has been some discussion on Pacific Pathways. Do you think that that, in terms of redundancies, starts to bump up against the mission of the U.S. Marine Corps in the Pacific? How does the Pacific Pathways initiative differ from the Marine Corps' mission in the Pacific? Is that redundancy that we need to look at, particularly given that we are looking at possibly cutting forces elsewhere, or is there room for both? You mentioned how important the Pacific is. I agree with that. But can you speak to that issue? I know that that is something that we heard a little bit when I was out in the Pacific.

General CHEEK. Yes, sir. We have been working with Marine Corps leaders every step of the way in the development of our concept work and especially working on Pacific scenarios and so forth. We recently had a visit by the Commandant of the Marine Corps, General Joseph F. Dunford, Jr., and Lieutenant General Kenneth J. Glueck, Jr., Commander, Marine Corps Combat Development Command. He and I work together on all these issues.

We believe that based on the lack of capacity in ready land forces, the diminishing capacity in ready land forces, both Marine Corps and Army, that there is no redundancy at all. In fact, there is a lot more work to do across prevent, shape, and win than there are forces maybe to do it.

So the question is how do we work together to ensure that we are complementary, and we think we can do that in a number of ways. First of all, to complement the Marine Corps expeditionary capabilities, we have to make sure that we know how to use Navy sea-basing capabilities and Marine Corps sea-basing capabilities in the context of expeditionary maneuver with Army watercraft and joint logistics over the shore. That is work that we are doing with Marine Corps Combat Development Command right now. We should have some tentative answers on a new concept, implications for doctrine, organization, training that will be done by the end of the summer.

The other key thing, sir, that we are looking at is a new evolution of Army expeditionary maneuver which, because of anti-access/area denial capabilities, that we need to go into an offset objective. If we go into an offset objective to bypass the enemy area denial capabilities, how do we ensure that force has the mobility, protection, and lethality then to transition into an offensive operation? We think that the Army's ability to operate deep in land with that kind of early entry force is complementary because the forces could then be critical in defeating enemy anti-access/area denial (A2/AD) capabilities or disrupting them such that an amphibious assault could occur more effectively. So we are, I think, complementary.

Then if you look at really the need to engage with the land forces of Asian armies and marine corps, I mean, certainly there is much more demand there than there is capacity.

So I know that sometimes the Marine Corps—when you say the word “expeditionary,” they are like, hey, you are in my territory. But it is us and the Marine Corps working together to ensure this kind of capability, the ability to deploy rapidly in crises, transition quickly to operations, and to operate in sufficient scale and for ample duration to accomplish the mission.

Senator SULLIVAN. Okay. Thank you. I just want to make sure we are not creating redundancies when, General Cheek, as you mentioned, we are also looking at tough choices about removing forces from critically strategic locations like Alaska. Thank you.

Thank you, Mr. Chairman.

Senator COTTON. Thank you, Senator Sullivan.

I have a question about history, and I have a Ph.D. in history in front of me, General McMaster. Can you talk to us a little bit about the so-called Abrams Doctrine that developed in the late stages right after Vietnam, that the civilian leadership of this country should not be able to go to war without mobilizing the Reserves? (A) have I accurately stated it? (B) what do you think of the doctrine as a matter of history and policy?

General MCMASTER. Sir, as my advisor told me when I graduated, he said, congratulations. You now know more history than you will ever know.

But, sir, I think that this is important because it was an important legacy of the Vietnam war in that the belief was that our

armed forces must be connected with the people in whose name we fight, and the best way to do that would be to ensure mobilization when U.S. forces are committed. The way that General Abrams approached this was to put critical capabilities that were needed early in a crisis into the Reserve component.

Sir, I think what we have to look at today is how do we ensure that the capabilities within each of the components are complementary to each other and that together, that we provide the kind of responsiveness we need and the operational strategic depth that we need.

So this is a constant effort to assess our forces under total Army analysis and to understand better how we can build or grow or reduce capabilities in each of those components relative to one another to be as responsive as possible. So this is an ongoing effort. We do it in the context of our experimentation and our war games to inform policy decisions.

Again, the key element I think for us is to continue to reassess it and we do, to some extent, still see the legacy of that approach, but of course, there have been a lot of years between that and organization, structure. Each of the components has changed significantly since that time.

Senator COTTON. Thank you, General McMaster.

I ask because the Abrams Doctrine is something about which I and I assure you all of my colleagues on this committee hear about from their TACs in the context of the ARI, which would, as I understand it, move all Apaches into the active duty, replace them with utility helicopters, and save about \$12 billion, which even in Washington and even in the Army is still a lot of money. The TACs that we hear from express reservations that this would violate the Abrams Doctrine. They think it is not sound for our national defense.

General Ierardi, would you like to comment on the ARI kind of in general and also address that specific term, what is its goals, objectives, how are we going to see the impact played out on the total Army—Active Duty and Reserve?

General IERARDI. Sir, the aviation restructure initiative really is borne from a high demand for a critical capability that our Army provides and that is Army aviation. In the context of reduced budgets and the reduced size of the Army and pressure on modernizing the aviation force—

Senator COTTON. When you say “Army aviation,” are you talking about all—

General IERARDI. I am talking total Army aviation.

So this plan is really intended to enhance the readiness in the future and the ability of the Army to respond to needs of the combatant commanders in the future. It focuses on ensuring that we are able to meet these needs by having the capabilities required. One of these is the armed reconnaissance mission that is important for us to have. There are emerging abilities of the Army to accomplish this through the use of manned/unmanned teaming, which is a tactic, a capability that would be employed in lieu of a Kiowa Warrior aircraft in order for us to be able to manned/unmanned team Apache aircrafts with Gray Eagles, for example.

The move of Apache aircraft from the National Guard to the Active Army was decided as we are proceeding, intend to gain the movement of those Apache aircraft in order to have the Apaches necessary while we bring down the number of Active component combat aviation brigades to effect that mission set in the Active component.

Conversely as part of this plan, the Army intends to move a number of aircraft to the National Guard, and this would include UH-60 aircraft which would enhance the warfighting capabilities, if you will, the combat capabilities, of the National Guard to perform a number of tasks in support of our Army in difficult places. My own personal experience with the National Guard while deployed in Afghanistan was nothing but favorable. There is no question that the missions that they are assigned and will be assigned will be done to the highest standard.

So taking those two considerations, the need for the Army to conduct armed reconnaissance using manned/unmanned teaming, creating an opportunity for us to do that with Apaches, also created a concurrent opportunity for us to have in the National Guard enhancement in the capabilities there using UH-60s.

So this also allowed us to divest of three aviation platforms, the Kiowa Warrior, the OH-58 Alpha Charlie, and the TH-67 training aircraft that we use to train our initial entry aviators. As part of this plan, Lakota aircraft, which are aircraft that are dual-engine aircraft, replicate the kind of aircraft that future aviators will operate with, moved into the training base and remain in large part in the National Guard to conduct the kinds of missions that are required there.

So on balance, the aviation restructure initiative intends, will enhance readiness. It will allow us to modernize and create opportunities from not having Kiowa Warriors, a legacy aircraft that was reaching its shelf life, for us to then take those dollars which are harvested from the divestment of the Kiowa Warrior and invest in other important aviation programs such as the improved Turbine Engine Program, continued improvements in our Apache fleet, and other aviation enhancements, future vertical lift, and joint technology work that would allow us to see a future aviation. It created opportunities for the Army.

To your first question that you asked General McMaster and you asked me to comment on, I understand the idea that there is an idea for interchangeability in capabilities between our components. I will tell you that we really need to seek to be interdependent and that we bring all of the components of the total force—bring a professionalism and a character to a number of different mission sets that match the needs of the Nation. So interdependence is a very important part of this, not interchangeability.

Senator COTTON. Thank you, General.

One more question for you, General McMaster. Your immediately preceding assignment was at the Maneuver School down at Fort Benning. This is obviously focused on the land aspect of the Airland Subcommittee's jurisdiction, but an ongoing topic with our friends in the air is the A-10. I have serious reservations, as does Senator McCain and many other Senators, about the plans to stop using the A-10 especially before the F-35 has been demonstrated

as an adequate close air support platform for our troops on the ground in contact.

Do you care to give your perspective on the A-10?

General MCMASTER. Well, sir, even independent of what kind of platform, we do believe that close air support is going to be more important in the future than ever. The reason is that our enemies are really doing four fundamental things as they interact with our forces.

The first is they are evading our standoff capabilities. I mean, they are using traditional countermeasures of dispersion, concealment, intermingling with civilian populations, and deception.

The second thing that we see them doing in terms of our advanced capabilities is they are disrupting them. We see the threat of cyber attacks and electromagnetic pulse, maybe even attacks on—other EW sort of attacks on our network capabilities.

The third is increasingly we see them emulating our capabilities where we may have contested domains that were not contested in the past and then they are expanding onto other battlegrounds.

So to cope with this, we are going to have to develop the situation we think in close contact with the enemy and civilian populations, and that will put a premium on our ability to fight in three dimensions and to conduct close air support in particular. We think that in the future, Army forces are going to have to operate as joint and combined arms teams in smaller levels. We may operate while they disperse, but we need the mobility to be able to rapidly concentrate, and for us to have mutual support between these dispersed formations, we are going to have to see and fight across wider areas.

So we know that close air support will be more important than ever in the future, and what we are doing is working with the Air Force in what will be a sustained effort over the next several years. General Herbert J. "Hawk" Carlisle, Commander, Air Combat Command, is leading the effort on the Air Force side to ensure that we maintain this critical differential advantage for our armed forces, which is the ability to conduct close air support, to pose that enemy with multiple dilemmas, force the enemy to respond to multiple forms of contact simultaneously, and to win in this game of rock, paper, scissors, where if the enemy's countermeasure to our standoff capability is dispersion, the answer is concentrated operations on the ground. Then the enemy, to protect something of value to them, as we encounter them with land forces, is going to have to concentrate, which then makes them vulnerable to those standoff capabilities.

So we know that we have to integrate our efforts more closely than ever, and this close air support assessment and sustained work with the Air Force is going to be immensely important in that connection.

Senator COTTON. Does the A-10 provide that kind of advantage and capability at present in your opinion?

General MCMASTER. The A-10 provides some very important capabilities, the ability to sustain presence over our forces and the ability to use multiple weapons systems. I mean, turning radius has something to do with it, and obviously mindset of pilots, the training. I mean, there are so many aspects to this, and this is

what we want to—what we are working with with our Air Force teammates who are committed to maintaining that close air support capability.

Senator COTTON. Do any of the other three witnesses have any comments about the A-10, not just in your current positions but in previous lives in the Army?

General MCMASTER. So just to echo, we are working pretty closely with the Air Force. The Chief of Staff of the Air Force General Mark A. Welsh III invited the Army in and other Services to talk close air support.

I will add one thing. The A-10 also, by operating at lower altitudes, I think can discriminate friend/foe much easier than another platform. It is a good platform. I think the Air Force has concerns about its survivability depending on the environment that it is in.

So we will continue to work with the Air Force. We are not going to let them off the hook, not to provide us close air support, and we will work closely with them. So I think the concerns are well placed, but we are confident the Air Force will come up with the right platform and capabilities to support us.

Senator COTTON. Okay. Gentlemen, thank you again for your time. Most importantly, thank you for your service to your country and everything you do to serve those soldiers underneath your command. Thank you for your families for the sacrifices they have made.

As you have heard today, I would say all of the members of this subcommittee, as the full committee, are intent on increasing our defense budgets. That is the most immediate thing that we can do to help. Even if we can accomplish that, some of the important reforms, initiatives that we have discussed today still need to move forward in an efficient manner because we all want to be good stewards of taxpayer dollars.

So thank you all very much. I appreciate your time and your service.

The hearing is adjourned.

[Whereupon, at 4:11 p.m., the subcommittee adjourned.]

[Questions for the record with answers supplied follow:]

#### QUESTIONS SUBMITTED BY SENATOR JAMES M. INHOFE

##### GROUND VEHICLES

1. Senator INHOFE. General Cheek, what is the Army doing to keep the Joint Light Tactical Vehicle (JLTV) and Armored Multi-Purpose Vehicle (AMPV) programs on schedule and within costs?

General CHEEK. The Army engaged industry frequently before the release of JLTV and AMPV Request for Proposals and has carefully considered the performance requirements for both programs. In cases where industry identified cost driving requirements or requirements that presented additional technical risk, the Army reduced the requirements to keep the programs within schedule and cost baselines. The Army will continue to review these programs through Configuration Steering Boards and adjust programs as necessary to keep them within their Acquisition Program Baselines. In addition, AMPV and JLTV are managed within affordability limits established by the Army and enforced by the Defense Acquisition Executive.

2. Senator INHOFE. General Cheek, what initiatives has the Army taken to reduce acquisition costs and have they been effective?

General CHEEK. The Army has carefully considered its requirements to keep technical risks low and will continue to closely monitor contractor costs, review programs through Configuration Steering Boards, and adjust programs as necessary to

keep them within their Acquisition Program Baselines. AMPV and JLTV have thus far demonstrated effective control of costs while meeting the most important requirements of their respective programs.

3. Senator INHOFE. General Cheek, do you need anything from the Senate Armed Services Committee to assist you with further cost reductions and acquisition efficiencies?

General CHEEK. While it is understood and expected that there will be constraints imposed on the Services to execute their acquisition objectives, I believe Congress could provide more flexibility by accepting recent legislative proposals aimed at reducing bureaucracy. These proposals will (1) reduce redundant documentation; (2) place greater emphasis on sound acquisition planning early in the process; (3) clarify roles and responsibilities; (4) broaden the processes congress established for risk reductions in programs.

These efforts will ultimately streamline processes and reduce or eradicate the red tape associated with the acquisition process. Increasing opportunities for acquisition professionals, consolidating documentation related to acquisition strategies, simplifying decision making, and reducing the regulatory burden, are just a few of the things that will undoubtedly enable Program Managers to meet the demands of the Warfighter. It is my hope that through these efforts, we will foster more transparency and reduce the burdens placed on our acquisition workforce.

4. Senator INHOFE. General Cheek, how is the Army balancing the need to modernize its weapons systems with need to sustain and upgrade its legacy systems?

General CHEEK. The Army is balancing the need to modernize its weapons systems with the need to sustain and upgrade its legacy systems. This will be accomplished by protecting Science and Technology investments in key technologies that will enable next-generation capabilities when resources become available, selectively investing in new capabilities for priority areas, incrementally upgrading existing platforms, resetting equipment returning from current contingency operations, and divesting select platforms to reduce operations and sustainment costs. These principles allow the Army to Enable Mission Command, Remain Prepared for Joint Combined Arms Maneuver and most importantly, Enhance the Soldier for Broad Mission Support. The Army is addressing current and emerging threats to ensure every Soldier deployed is equipped to achieve decisive overmatch regardless of the situation.

#### IMPACT OF SEQUESTRATION

5. Senator INHOFE. General Cheek, how would a fiscal year 2016 budget capped at Budget Control Act of 2011 (BCA) levels impact programs such as Paladin Integrated Management (PIM), upgrades to wheeled troop carriers, purchase of drones, Patriot Guided Missile improvements, and the Army's aviation modernization portfolio?

General CHEEK. The President's Budget request for 2016 (PB16) is the absolute minimum needed to meet the defense strategy at significant risk. We cannot sustain any reduction in funding less than what was requested without severely degrading our end strength, readiness, or modernization programs.

The Paladin Integrated Management (PIM) and Patriot Guided Missile improvements are two of the Army's critical programs, but reductions to the PB16 request will prevent the Army from executing these programs efficiently and prevent us from meeting the requirements of the National Defense Strategy.

The Army currently has no programs to upgrade wheeled troop transports; we only have modernization programs. These are the Joint Light Tactical Vehicle to replace the aging High Mobility Multipurpose Wheeled Vehicle s and armor capable Medium Tactical Vehicles to replace trucks that cannot take armor. In terms of production, both programs would be impacted; and fielding of modernized vehicles will be delayed. Procurement quantities and delivery timelines would have to be reassessed following any changes to PB16.

Finally, the modernization of Army Aviation is imbedded in the Aviation Restructure Initiative (ARI). The PB16 request is aligned to ensure our ability to meet operational requirements, restructure of forces, and critical modernization efforts for the UH-60 Blackhawk, CH-47 Chinook, and AH-64 Apache helicopter fleets. Delaying or stopping ARI reduces readiness, slows aviation modernization in all components, and requires funding cuts elsewhere.

6. Senator INHOFE. General Cheek, how has the industrial base been impacted by 6 years of budget cuts and what would be the impact of a fiscal year 2016 budget capped at BCA levels?

General CHEEK. As a result of an overall decrease of Defense spending, Army's Total Obligation Authority has been declining in recent years, as well as our Research, Development and Acquisition (RDA) budget. The sharp decrease in our RDA budget has created significant challenges for small companies that must diversify quickly. Today's industrial base includes a large population of highly skilled technical and knowledge workers mostly employed by specialized third- and fourth-tier subcontractors. Keeping these skilled employees within the industrial base has the added benefit of enhancing support for the Army's small business partners.

The impact of six years of budget cuts and of a fiscal year 2016 budget capped at BCA levels directly relate to the ability of the industrial base to support the engineering, manufacturing, development, and production of weapon systems. The impacts of sequestration and reduced investment will be significant as:

- Companies may view non-defense sectors as more attractive and direct their own modernization, research, and production capacity away from the defense sector.
- Longer term reductions in funding will threaten the Army's future modernization efforts and place major acquisition programs at risk.
- Perceived uncertainty in future modernization will discourage potential vendors. Early actions needed to compete for major programs may be seen as too costly to offset long-term benefits.
- Companies may be less likely to invest in business initiatives in the defense sector.
- Companies may experience challenges in retaining skilled engineers experienced in designing complex weapon systems.

7. Senator INHOFE. General Cheek, how does a shrinking industrial base impact the Army's ability to acquire new weapon systems?

General CHEEK. Significant reductions in the defense budget and the corresponding decrease in Research and Development (R&D) investment and procurement affect the industrial base across all portfolios. Major defense firms are responding by reducing excess capacity, streamlining processes, and revamping supplier relationships, while some smaller suppliers are exiting or dramatically reducing their investment in the defense industry. The Army carefully assessed risks across all portfolios and developed a modernization strategy that balances development of new capabilities, incremental upgrades to existing platforms, and protection of ongoing production and manufacturing to sustain the industrial base.

The Army remains concerned about the availability of needed skills and capabilities in the defense manufacturing and supplier base. Mitigation of adverse impacts is being addressed through extended production in certain programs, investment in key suppliers on a case-by-case basis, and advocacy for Foreign Military Sales (FMS).

Should budgetary reductions continue, fragile lower-tier supplier companies could be at great risk and may be unable to remain in the defense industry resulting in severe impacts to the Army's acquisition efforts.

To better understand the risk, the Army has initiated studies to take an independent look at specific portfolios within the industrial base to assess their health, identify critical capabilities, assess potential supplier risk, and recommend strategies to mitigate the risks to acquire new weapon systems.

8. Senator INHOFE. General Cheek, the Assistant Secretary of the Army for Acquisition, Logistics, and Technology, Heidi Shyu, said the Army's research and development budget has declined twice the rate as the overall cuts to the Army budget. How does this impact the Army's ability to modernize and procure new capabilities needed to address future combat requirements?

General CHEEK. Decreases to the Army's overall budget over the last several years have had a significant impact on modernization and threaten our ability to retain overmatch through the next decade. Since 2011, the Army has ended 20 programs, delayed 125, and restructured 124. The velocity of instability around the world has forced the Army to take risk in modernization to ensure the readiness and capacity of our current force. From fiscal year 2012 to fiscal year 2016, Research, Development and Acquisition investments declined roughly 28 percent.

The Budget Control Act continues to cause significant instability to our programs across all portfolios. Major impacts include delays in equipping to support expeditionary forces, delays in combat vehicle and aviation modernization, increases in sustainment costs to fix older equipment, and increases in capability gaps. This

would mean that Soldiers are at risk to engage in fights in which they lack significant, qualitative advantages.

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QUESTIONS SUBMITTED BY SENATOR DAN SULLIVAN

ARCTIC PLAN

9. Senator SULLIVAN. General Williamson, General McMaster, General Ierardi, and General Cheek, what is the Army's plan for the Arctic, and if we do not have one, what should the Army's plan be?

General WILLIAMSON, General MCMASTER, General IERARDI, and General CHEEK. Within its Title 10 responsibilities, the Army works to sustain capabilities and readiness to support Combatant Commanders, to include the Commander of United States NORTHCOM Command. Currently the Army has two Brigade Combat Teams (BCT) stationed in Alaska and a Global Response force (GRF) prepared to deploy in support of the NORTHCOM Commander if required.

ARCTIC RESOURCING

10. Senator SULLIVAN. General Williamson, General McMaster, General Ierardi, and General Cheek, given the military activity from a resurgent Russia, what strategic guidance do you use that informs your decision to reduce Arctic forces in Alaska and what strategic guidance do you use to inform your resourcing decisions for arctic capabilities and equipment?

General WILLIAMSON, General MCMASTER, General IERARDI, and General CHEEK. The Army considers a broad array of criteria when assessing which forces and which installations will be impacted by in-activations. Criteria are based on strategic considerations, operational effectiveness, geographic distribution, cost and the ability to meet statutory requirements.

- Strategic Considerations: Aligns Army Force Structure to the Defense Strategy and Defense Planning Guidance.
- Operational Considerations: Seeks to maximize training facilities, deployment infrastructure and facilities to support the well-being of Soldiers and their Families. Aligns appropriate oversight/leadership by senior Army headquarters for better command and control.
- Geographic Distribution: Seeks to distribute units in the United States to preserve a broad base of support and linkage to the American people.
- Cost: Considers the impacts of military personnel, equipment, military construction, and transportation costs.
- Statutory Requirements: Complies with the provisions of the National Environmental Policy Act (NEPA) as appropriate, including an environmental and socio-economic analysis.

The Army recently completed Listening Sessions at the Army posts that may be affected by the drawdown. The Army is evaluating comments and will use them to make a decision on where to reduce in the future. An announcement is not expected before the end of June 2015.

Regarding resourcing decisions for Arctic capabilities and equipment, the Army continuously reviews its force structure and design as conditions change. To meet fiscal constraints today, the Army has had to sacrifice end-strength and modernization, which has placed limitations on our ability to address existing and potential demands in the Arctic to the extent that we would prefer. Our goal remains to ensure that the Army is optimized for a broader range of missions in support of the Joint Force.

SMALL UNIT SUPPORT VEHICLE

11. Senator SULLIVAN. General Williamson, General McMaster, General Ierardi, and General Cheek, how does the Army plan to enable Arctic mobility in the future, and does that plan include a replacement for the Small Unit Support Vehicle (SUSV)?

General WILLIAMSON, General MCMASTER, General IERARDI, and General CHEEK. The Infantry Brigade Combat Team (IBCT) is the Army's most numerous, and rapidly deployable, combat formation. IBCTs can conduct entry operations or deploy by ground, air-land, airborne, and air assault. The Army recognizes the mobility limitation of our BCTs once deployed, to all environments, including the Arctic. We are looking at possible solutions to increase the ability for these units to seize key ter-

rain or facilities swiftly to establish a lodgment for follow-on forces, however, at this time, there is no plan to replace the Small Unit Support Vehicle.

12. Senator SULLIVAN. General Williamson, General McMaster, General Ierardi, and General Cheek, does not having an Arctic Operation Plan (OPLAN) make it difficult—or impossible—to resource important arctic capabilities like the SUSV?

General WILLIAMSON, General MCMASTER, General IERARDI, and General CHEEK. No, not having an Arctic Operation Plan does not make it difficult or impossible to resource arctic capabilities like the Small Unit Support Vehicle (SUSV). All Army requirements compete for funding among other validated requirements, however at this time there is no plan to replace the SUSV.

#### ARCTIC CAMOUFLAGE

13. Senator SULLIVAN. General Williamson, General McMaster, General Ierardi, and General Cheek, what is the status of our Arctic camouflage, and has it kept pace with advancements in thermal imaging and radar detection? does not having an Arctic OPLAN make it difficult—or impossible—to resource important arctic capabilities like camouflage?

General WILLIAMSON, General MCMASTER, General IERARDI, and General CHEEK. The existing Arctic camouflage system has not been upgraded since its inception in the mid-1970s. The Army's current camouflage system, the Ultra-Lightweight Camouflage Net System (ULCANS) was developed in the late 1990s and only included Woodland and Desert patterns. Due to improvements in technology, these variants are now ineffective against current and emerging advanced sensor threats and are in need of updates.

The next-generation ULCANS capabilities add three new variants (Arctic, Urban, and Aviation) and upgrade the existing systems (Woodland and Desert). The next-generation ULCANS will provide concealment from visual, near infrared, short-wave infrared through long-wave infrared, ultraviolet, radar, and multi-spectral/hyper-spectral detection. Ultimately, these systems will provide U.S. forces detection avoidance and sensor defeat capabilities as a low-cost force multiplier.

The next-generation ULCANS Capability Development Document is awaiting approval from the Joint Staff to begin the acquisition process. This requirement will compete for funding in Program Objective Memorandum for fiscal years 2017–2021.

14. Senator SULLIVAN. General Williamson, General McMaster, General Ierardi, and General Cheek, does not having an Arctic OPLAN make it difficult—or impossible—to resource important arctic capabilities like camouflage?

General WILLIAMSON, General MCMASTER, General IERARDI, and General CHEEK. No, the lack of an Arctic Operational Plan (OPLAN) does not prevent arctic capabilities like camouflage from consideration for resourcing. The Army is currently validating a modernized camouflage system requirements document, the Ultra-Lightweight Camouflage Net System, which includes Arctic camouflage. If approved, this requirement will compete for funding among other validated requirements.

#### EXERCISE SPARTAN PEGASUS AND THE 4TH BRIGADE COMBAT TEAM (AIRBORNE), 25TH INFANTRY DIVISION

15. Senator SULLIVAN. General Williamson, General McMaster, General Ierardi, and General Cheek, where would this Army's Arctic training, equipment, and force projection come from, if not from the two brigade combat teams (BCT) in Alaska? could Spartan Pegasus have been done with any other Army Airborne unit in the Pacific or in the contiguous United States?

General WILLIAMSON, General MCMASTER, General IERARDI, and General CHEEK. Under the Army's force generation model, at any given time, there are between one to three airborne-capable IBCT units ready and available for retasking. Given sufficient funding and time to prepare any Army unit can be ready, trained, and equipped to perform Arctic missions such as Exercise Spartan Pegasus.

16. Senator SULLIVAN. General Williamson, General McMaster, General Ierardi, and General Cheek, could Exercise Spartan Pegasus have been done with any other Army airborne unit in the Pacific or in the contiguous United States?

General WILLIAMSON, General MCMASTER, General IERARDI, and General CHEEK. Given sufficient funding and time to prepare, any Army unit could conduct operations in the Arctic or Pacific regions.

17. Senator SULLIVAN. General Williamson, General McMaster, General Ierardi, and General Cheek, Chief of Staff of the Army General Raymond T. Odierno in January 2012 said in a trip to Joint Base Elmendorf Richardson, "It is critical to sustain Army capabilities in Alaska. If anything ever happens in the world that demands operations in this type of environment, this is where we will come for the expertise." Just over a month ago, U.S. Army Alaska's 4th Brigade Combat Team (Airborne), 25th Infantry Division, the only airborne brigade in the Pacific, conducted the largest airborne mission north of the Arctic Circle in more than a decade. This Joint and Total Force exercise called Spartan Pegasus, involved U.S. Army Alaska, the U.S. Air Force in Alaska, and Alaskan National Guardsmen. What do you think President of Russia Vladimir Putin or Supreme Leader of North Korea Kim Jong-Un would think if we got rid of one of Alaska's unique Arctic-combat brigades, like the one that did this mission?

General WILLIAMSON, General MCMMASTER, General IERARDI, and General CHEEK. In order to answer the above question the Army would have to speculate on the thoughts of President Putin and Kim Jong-Un. Currently the Army uses strategic guidance such as the National Security Strategy and the Chairman's Risk Assessment to guide force shaping decisions.

Our analysis, currently ongoing, aims to produce the best, most capable Army we can within the constraints of the budget and authorized end strength. In the face of considerable end strength reductions and budget limitations, the Army must determine which capabilities are most important for meeting the Nation's defense requirements and for providing a credible deterrence. This means the Army will accept risks in some areas in order to preserve other, more critical capabilities.

We expect to announce the next round of force structure reductions later this summer.

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#### QUESTIONS SUBMITTED BY SENATOR JOE MANCHIN III

##### ARMORED MULTI-PURPOSE VEHICLE

18. Senator MANCHIN. General McMaster, the Army budget request provides funds to continue development of the AMPV to replace the M113 family of armored personnel carriers and support vehicles in the armored brigades. What is the importance of the AMPV to armored brigade modernization?

General MCMMASTER, The M113 Family of Vehicles (FOV) is obsolete. The M113 has been in service for over forty years and all variants lack the mobility, speed, force protection, and survivability to operate on the modern battlefield. The M113 also lacks the Space, Weight, Power, and Cooling (SWaP-C) capabilities necessary to accept the Army's mission command network.

The Armored Multi-Purpose Vehicle (AMPV) will replace the M113 Family of Vehicles, which accounts for 30 percent (137 vehicles) of the ABCT's armored vehicle fleet. The AMPV will perform the five mission roles currently performed by the M113 in the ABCT: Mortar Carrier, Medical Evacuation, Mission Command, and General Purpose, and Medical Treatment variants.

The ABCT requires the AMPV to successfully perform its combat mission. Not fielding AMPV as part of ABCT modernization would cause the ABCT to either use significantly less capable vehicles or place Soldiers at extremely high risk or divert combat vehicles to perform AMPV mission roles and place mission accomplishment at risk.

19. Senator MANCHIN. General McMaster, what is the importance of the mobility requirements of the M113 replacement vehicle in the armored brigade?

General MCMMASTER, The Maneuver Center of Excellence developed the Armored Multi-Purpose Vehicle (AMPV) requirements after a holistic review of the Armored Brigade Combat Teams (ABCT) combat requirements in order to fill critical mobility, protection, and Space, Weight, Power, and Cooling (SWaP-C) capability gaps.

The AMPV must directly support, and maneuver across the same terrain as, the M1 Abrams tank, and M2/M3 Bradley fighting vehicles in the ABCT. The AMPV will perform the missions of resupplying the formation, evacuating casualties from the main battle area, providing indirect fires, and providing mission command functions on the move.

These capabilities require the AMPV to maintain position within the formation as the ABCT executes mounted operations. Therefore, The AMPV requires the same mobility capabilities as the combat vehicles formation it supports.

20. Senator MANCHIN. General McMaster, what are your views on using wheeled armored ambulances in armored brigades?

General McMASTER. Wheeled medical vehicles are unsuitable for Armored Brigade Combat Teams (ABCTs) due to the inability to maneuver with highly mobile combat vehicles and provide protection against the challenging threats that the ABCTs are designed to fight. The M113 Congressional Inquiry final report (Jan 15) showed that wheeled ambulances could not maintain nor provide the mobility needed to maintain the pace in an ABCT.

The assessment found the Stryker Double V Hull (DVH) although better than the current M113A3, fails to meet 50 percent of the Key Performance Parameters (KPP) of the Armored Multi-Purpose Vehicle (AMPV) Capabilities Development Document (CDD) and fails to deliver sufficient mobility to maneuver within the ABCT combat vehicles formation or provide the force protection/survivability against the range of ABCT threats. No existing medical vehicles are suitable candidates as a medical evacuation or medical treatment vehicle within the ABCT formation based on performance results compared against the threshold AMPV capability requirements.

21. Senator MANCHIN. General Williamson, how are you using the latest acquisition management policies to ensure that AMPV is a stable, achievable, and affordable program?

General WILLIAMSON. The Army has been closely monitoring the AMPV program since its contract award in December of 2014. Over the coming months the Army will conduct a series of Knowledge Point Reviews to assess the Preliminary Design Review outcomes in preparation of a Configuration Steering Board (CSB) in early Fall. During this CSB the Army will consider adjusting requirements as necessary to keep the AMPV affordable and on track to deliver this important capability to our Soldiers.

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#### QUESTIONS SUBMITTED BY SENATOR JOE DONNELLY

##### BRADLEY SECOND PHASE ENGINEERING PROPOSAL

22. Senator DONNELLY. General Williamson, General Ierardi, General Cheek, looking at the Bradley program, what is the justification behind the second phase engineering proposal (ECP2)?

General WILLIAMSON, General IERARDI, General CHEEK. As the Bradley has been armored to increase protection, it has lost mobility and agility. The ECP2 will upgrade key components of the power train to reclaim these lost capabilities and accommodate the growth in electrical requirements from upgrading its network to improve situational awareness and command and control.

23. Senator DONNELLY. General Williamson, General Ierardi, General Cheek, why do we need upgrades to the Bradley power train?

General WILLIAMSON, General IERARDI, General CHEEK. The Bradley's power train requires upgrades for two reasons. First, as we have added protection to Bradley, it has become slower and less maneuverable. Secondly, we have increased the power demands on the vehicle by adding networked capabilities and other equipment that draws electricity and has increased power generation requirements. Upgrading the power train will increase the Bradley's ability to power the new equipment and reclaim some of the maneuverability lost from the added weight of greater protection.

24. Senator DONNELLY. General Williamson, when did ECP2 begin and when will it end?

General WILLIAMSON. The Bradley ECP2 developmental contract was awarded in September 2012. The critical design review was completed in August 2014, and a production decision is planned for second quarter fiscal year 2017 (2QFY17) with a production contract award in the same quarter. Installation of the Bradley ECP2 modifications is due to begin 2QFY17 and complete in 4QFY33 at a production rate of 180 vehicles per year until all 2,574 A3 Bradley's have been modified and fielded.

25. Senator DONNELLY. General Williamson, how much will ECP2 cost from start to finish?

General WILLIAMSON. The Acquisition Program Baseline (APB) development cost for the Engineering Change Proposal 2 is \$542 million in base year 2012 dollars (BY2012\$). The procurement cost to update all 2,574 A3 Bradley vehicles to ECP2

configuration is \$5,251 million in BY2012\$. Using base year dollars creates a commonality that accurately compares costs across the entire time period.

#### BRADLEY SECOND PHASE ENGINEERING PROPOSAL TRANSMISSION

26. Senator DONNELLY. General Williamson, looking at the fiscal year 2016 budget request, upgrading the Bradley power train will entail the development of a new transmission. What is the status of that development effort?

General WILLIAMSON. The ECP2 power train upgrade includes the upgrade of the legacy transmission rather than the development of a new transmission. This approach has been used successfully with the X1100 series of transmissions in the Abrams program in the past and is similar to the effort ongoing for the current Abrams ECP1 upgrade. The transmission component design qualification test is complete (2QFY14), with qualification of improved brakes in process to be complete 4QFY15. Also, the ECP2 program will begin system level qualification testing in 2QFY16.

27. Senator DONNELLY. General Williamson, when was it begun and what are your key milestones going forward?

General WILLIAMSON. Hydromechanical Power Train (HMPT) 800 system integration for Bradley began in fiscal year 2011 as an upgrade to the legacy Bradley transmission (HMPT 500-3ECB). HMPT 800 was already fielded in foreign vehicles and began production for Bradley and M109A7 FOV applications in fiscal year 2014. Key milestones going forward are completion of component qualification for the brake improvements (4QFY15); production decision for brake improvement (3QFY17) in conjunction with Bradley ECP2 production decision.

28. Senator DONNELLY. General Williamson, how much do you expect the development of a new Bradley transmission to cost and what costs does that estimate include?

General WILLIAMSON. The upgrade development of the legacy transmission, not the development of a new transmission, is expected to cost \$40.8 million. This estimate includes the direct cost to the supplier for development engineering, component qualification, quantity of 12 transmissions for contractor testing, and 15 transmissions to support system level government testing for ECP2.

#### BRADLEY TRANSMISSION PERFORMANCE

29. Senator DONNELLY. General Williamson, have there been performance issues with the Bradley transmission in the past?

General WILLIAMSON. In the case of the Hydromechanical Power Train (HMPT), there were demonstrated reliability issues during Operation Iraqi Freedom in fiscal year 2004. The issues were attributed to component quality and inconsistent manufacturing process between organic and contractor manufacturing sites. By fiscal year 2008, these issues were resolved and reliability exceeded requirements resulting in pure fleet release of the HMPT 500-3ECB.

30. Senator DONNELLY. General Williamson, under the current plans for ECP2, are you working with the supplier of the legacy transmission?

General WILLIAMSON. Yes, in March 2012, the Army conducted a sources sought notice for an 800 hp cross-drive transmission for ECP2 that could be dropped into the Bradley hull without major modifications to the baseline platform. The supplier of the legacy transmission (L-3 Combat Propulsion Systems) was the only company that responded to the government's inquiry.

31. Senator DONNELLY. General Williamson, when was the last time there was an Army or independent assessment of the performance of the legacy transmission?

General WILLIAMSON. The Extended Follow-on Production Test (EFPT), which is a full reliability, availability, and maintainability (RAM) assessment was done June 2009 - July 2010. Additionally, HMPT 500-3ECB qualification tests were also completed in 2010.

#### UPDATE OF LEGACY BRADLEY TRANSMISSION

32. Senator DONNELLY. General Williamson, has the new transmission planned for ECP2 been fielded in any other vehicles in the United States or abroad?

General WILLIAMSON. HMPT 800 is fielded in foreign vehicles and began production for Bradley and M109A7/M992A3 Paladin Family of Vehicles applications in fiscal year 2014.

33. Senator DONNELLY. General McMaster, how different is the new transmission developed for ECP2 from the legacy?

General McMASTER. The legacy transmission is the HMPT 500-3ECB (ECB). The HMPT 800 is an upgrade of the legacy transmission and is 77 percent common with it. The net power input has been increased to 800 horsepower from 600 horsepower with an associated increase in output and steering torque. Heat rejection and brake capacity are also increased resulting in a slight increase in overall weight. However, the overall transmission volume has been retained allowing the improved transmission to drop directly into the platform without additional modifications as was required in the original solicitation.

34. Senator DONNELLY. General Williamson, where are you with testing the planned ECP2 transmission, and what are your schedule and significant milestones?

General WILLIAMSON. The transmission component design qualification test is complete (2QFY14), with qualification of improved brakes in process to be complete 4QFY15. Also, the ECP2 program will begin system level qualification testing in 2QFY16.

#### ALTERNATIVE BRADLEY TRANSMISSION

35. Senator DONNELLY. General Williamson, I understand an alternative was offered to the transmission currently planned for ECP2. When did the supplier of this alternative transmission first approach the Army seeking the opportunity to compete for the future of the Bradley program?

General WILLIAMSON. The Bradley office conducted an Industry Day in February 2012 where alternative transmission suppliers presented what they had currently available. Then in March 2012, the Army queried industry sources for an 800 hp cross-drive transmission. L-3 Communications Combat Propulsion System was the only company that responded. Allison Transmission Incorporated (ATI) signed a Cooperative Research and Development Agreement (CRADA) with the Tank Automotive Research, Development and Engineering Center (TARDEC) in April 2012, then this CRADA was updated to modify Bradley vehicles to integrate the ATI transmission in October 2013 following a presentation by ATI in August at HQDA.

36. Senator DONNELLY. General Williamson, how did the Army consider this alternative transmission in planning ECP2?

General WILLIAMSON. The Product Manager Bradley conducted an Industry Day in February 2012 where alternative transmission suppliers presented what they currently had available. Only the legacy transmission upgrade was determined to meet performance (form, fit, and function), cost, and schedule requirements for ECP2. In March 2012, the Army conducted a sources sought notice for an 800 hp cross-drive transmission. The legacy supplier, L-3 Communications Combat Propulsion System, was the only company that responded. Follow-on Market Research was conducted in January 2013, for a similarly configured cross drive transmission. The research evaluated transmissions previously submitted by Allison Transmissions Incorporated and other manufacturers; however, none were found to be capable of meeting the Bradley Fighting Vehicles' maneuver and power requirements.

37. Senator DONNELLY. General Williamson, was there a competitive bidding process, and did the Army conduct some type of business case analysis?

General WILLIAMSON. In Fiscal Year 2005, Product Manager Bradley conducted a Business Case Analysis to determine an economical solution to the reliability issues discussed previously. The result of this study determined that improvements to the legacy transmission were more economical than total replacement of the legacy transmission. In March 2012, the Army conducted a sources sought notice for an 800 hp cross-drive transmission. The legacy supplier, L-3 Communications Combat Propulsion System, was the only company that responded. Follow-on Market Research was conducted in January 2013, for a similarly configured cross drive transmission. The research evaluated transmissions previously submitted by Allison Transmission Incorporation and other manufacturers; however, but none were found to be capable of meeting the Bradley Fighting Vehicle's maneuver and power requirements.

## DEVELOPMENT AND TESTING OF ALTERNATIVE BRADLEY TRANSMISSION

38. Senator DONNELLY. General Williamson, it is my understanding that the supplier of the alternative transmission has tailored their system to the Bradley at their own expense. Is that accurate?

General WILLIAMSON. The supplier is modifying an existing transmission (X300) that is in production by Caterpillar Defense in the UK and manufactured under license from Allison Transmission Incorporated. The transmission is used in the British Army's Warrior Infantry Fighting Vehicle (IFV), the Kuwait Army's Desert Warrior IFV, and in the Swedish V90 IFV. Both the UK based transmission and the Bradley power train compartment must be modified to incorporate the transmission into the vehicle. The supplier did perform all vehicle modifications and optimizations at their own expense using two Bradley vehicles on loan from the Army. Government personnel have attended various meetings and design reviews. Some of the major modifications done to the Army supplied Bradley A3 vehicles by the supplier include: development of a new Power Take-Off (PTO) unit for the cooling fan and alternator, recalibration of unit of the engine to match their transmission speeds, development of a new final drives, removal of an existing transmission mount to fit the transmission into the vehicle, modification of the braking and steering, and replacement of the shift selector. The Allison Transmissions Incorporation vehicle prototype modifications are likely to introduce new proprietary data restrictions and consequences for aspects of the vehicle Technical Data Package (TDP) that are currently wholly owned by the government.

39. Senator DONNELLY. General Williamson, it is also my understanding that the supplier has completed that integration into two prototype vehicles and will begin contractor testing in the coming weeks at their own expense, with the Army monitoring. Is that correct?

General WILLIAMSON. The supplier has completed the integration into one prototype vehicle to date. All vehicle road course testing is funded by the supplier. Calibration and optimization testing is currently underway at the Northern Indiana Proving Ground, New Carlisle, Indiana test facility. In July 2015, performance and efficiency testing will begin at the Army's Aberdeen Proving Grounds, Aberdeen, Maryland. The Army will be present to view the testing and all data is expected to be delivered to the Tank Automotive Research, Development, and Engineering Center (TARDEC). Based on the test results, the supplier will then integrate a second prototype vehicle which will then be delivered to TARDEC in January 2016 for vehicle testing in a test laboratory. The Army will fund the testing of the vehicle in TARDEC's Power and Energy Vehicle Environmental Laboratory (PEVEL).

40. Senator DONNELLY. General Williamson, the Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015 required the Army to report to Congress on your Armored Vehicle Transmission Industrial Base strategy. That report states that the Army is supporting the effort to install and test an alternative transmission in Bradley test vehicles. How is the Army involved in supporting that installation and contractor testing process?

General WILLIAMSON. A Cooperative Research and Development Agreement (CRADA) was developed between the Tank Automotive Research, Development, and Engineering Center (TARDEC) and Allison Transmissions Incorporation (ATI) for transmission and vehicle integration. PM Bradley loaned two vehicles to ATI for transmission integration and vehicle level testing, and TARDEC has completed transmission testing in their test facility.

41. Senator DONNELLY. General Williamson, the Army's February 2015 report notes that if the results of contractor testing are positive, the Army will conduct follow up testing. What are you looking for in the contractor testing, and what is a positive result?

General WILLIAMSON. The Army expects that the contractor testing will provide sufficient data to validate that there is no degradation of automotive performance with the substitute transmission and that critical sustainment data such as reliability and fuel economy support an assessment of expected Operations and Support (O&S) costs. The O&S cost assessment in conjunction with the contractors' estimated acquisition costs are required to judge the validity of the contractor's previously submitted cost savings claims to the Army. A positive result of contractor testing would be indicated if a business case analysis of these acquisition and sustainment costs corroborates that a Value Engineering Change Proposal is justified. The Army will conduct follow-on testing to verify the business case for the change.

42. Senator DONNELLY. General Williamson, what is involved in the Army's follow-up testing, and how long should that take?

General WILLIAMSON. The Army will be performing vehicle testing in the Tank and Automotive Research, Development, and Engineering Center's Power & Energy Vehicle Environmental Laboratory. The supplier is scheduled to deliver the vehicle in January fiscal year 2016. Testing will take about three months.

43. Senator DONNELLY. General Williamson, if the Army testing goes well, what other analysis must the Army perform in order to determine whether you will use this alternative transmission going forward?

General WILLIAMSON. With the data obtained from the testing, as well as manufacturing cost estimates, the Value Engineering Change Proposal analysis will assess if the functionality (performance, reliability, quality, safety, etc.) of the vehicle is maintained or enhanced and that there are sufficient life-cycle savings available to justify making such a change.

44. Senator DONNELLY. General Williamson, are there elements of the cost and schedule analyses that the Army could be doing now, while contractor testing is underway?

General WILLIAMSON. The Army is conducting an informal cost benefit analysis on the value of competing the Bradley transmission.

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#### QUESTIONS SUBMITTED BY SENATOR MAZIE K. HIRONO

##### JUNGLE OPERATIONS TRAINING CENTER

45. Senator HIRONO. General McMaster, Jungle Warfare training is an important capability which the United States has not had since the closure of the Jungle Training School in Panama. The U.S. Army Pacific (USARPAC) runs a Jungle Operations Training Center at Schofield Barracks, training soldiers and marines in skills important within the jungle environments of the Indo-Asia-Pacific region. Are there plans to formally budget and program for this school and to bring it into the Army's training structure with the U.S. Army Training and Doctrine Command (TRADOC)?

General MCMASTER. There are no plans to formally budget or program the USARPAC Jungle Operations Training Center at Schofield Barracks and to bring it into the Army's training structure with the U.S. Army Training and Doctrine Command (TRADOC). TRADOC has provided USARPAC assistance with the development of training products to support USARPAC with the establishment of their Jungle Operations Training Center. TRADOC, through the US Army Infantry School as the course proponent for Jungle Operations, will continue to support the Jungle Operations Training Center at Schofield Barracks with training products. TRADOC will work with USARPAC to determine the feasibility of a multinational training center in the region. The 25th ID is not requesting JOTC become an approved and accredited TRADOC course.

##### AVIATION RESTRUCTURE INITIATIVE

46. Senator HIRONO. General Cheek, as the Army moves forward with its Aviation Restructure Initiative (ARI), is it considering bringing Apaches to Hawaii?

General CHEEK. If the fiscal year 2015 NDAA is executed and the transfer of AH-64 Apaches from the Army National Guard (ARNG) to the Active Component (AC) is not delayed or hindered in any way, AH-64 Apaches will arrive in Hawaii in May 2016.

If the current law is changed and transfers are delayed, Fort Riley, Kansas, Schofield Barracks, Hawaii, and Fort Drum, New York will lose 24 AH-64 Apaches and approximately 1500 Soldiers and family members for an indefinite period of time.

A delay in fiscal year 2016 will cause the 1st Infantry Division at Fort Riley, KS, the 25th Infantry Division at Schofield Barracks, HI, and the 10th Mountain Division at Fort Drum, NY, to be short 50 percent of their AH-64 Apache helicopters (the loss of one of two Attack Helicopter Battalions). Failure to transfer AH-64s from the National Guard to Hawaii will result in zero AH-64 Apaches being available to train with the 25th Infantry Division's Brigade Combat Teams in Hawaii. Delays will cause readiness issues in 3 of 10 Regular Army Divisions and leave the assigned Attack Reconnaissance Squadrons unready for operational employment in fiscal year 2017.

Prohibiting future transfers beyond the initial 48 aircraft will require \$5.52 billion in additional procurement and \$350M annually in operations & sustainment funding; disrupt or delay nearly all aviation modernization programs to include UH-60A Blackhawk upgrades in the Guard; create up to a five-year readiness hole and insufficient ready forces to meet demands; and/or cause additional Regular Army aviation reductions.

#### RENEWABLE BIOFUELS POWER PLANT

47. Senator HIRONO. General Williamson, energy is vital to our national security and an expensive commodity particularly for an island state. I applaud the Army's intent to partner with Hawaiian Electric on Oahu for the development of a 50-megawatt power plant using renewable biofuels that would provide energy security to Army installations and stability for the wider electrical grid. Can you provide an update on where the Army stands in the process of completing the necessary environmental and historic studies to move forward with this project?

General WILLIAMSON. The Army is continuing to move forward with the necessary environmental and cultural resource studies as required under Federal regulations. On 24 April 2015, the Army published the Notice of Availability of the Draft Environmental Impact Statement (DEIS) for the proposed lease of land and granting of easements on Schofield Barracks and Wheeler Army Airfield to Hawaiian Electric Company (Hawaiian Electric) for a 50-megawatt (MW) capacity, biofuel-capable power generation plant. The publication in the Federal Register marks the beginning of a 45-day public and agency comment period. In addition to taking written comments from the public during this period, the Army and Hawaiian Electric will host public meeting forums on Oahu on 20 and 21 May 2015 in order to solicit remarks on the Draft EIS. The public comment period will end 8 June 2015. Following the public comment period, the DEIS will be revised to address any remarks received. The Army expects to reach a Record of Decision for the EIS in December 2015.

In addition to the DEIS, the Army is conducting the Section 106 consultations required by the National Historic Preservation Act and has sought consultation with the Hawaii State Historic Preservation Officer (SHPO), numerous Native Hawaiian Organizations and the Advisory Council on Historic Preservation, among others as part of that process. Army has reached a tentative agreement with SHPO, Hawaiian Electric, and Historic Hawaii Foundation for a determination of 'no adverse affect, with conditions'. The project proponent has agreed to use vegetation screening of the power poles to avoid the adverse visual impact to historic districts located on the installation and Army anticipates written concurrence from SHPO within two weeks.

