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**THE EFFECT OF SEQUESTRATION AND
CONTINUING RESOLUTIONS ON ARMY
MODERNIZATION AND READINESS**

HEARING

BEFORE THE

SUBCOMMITTEE ON TACTICAL
AIR AND LAND FORCES

OF THE

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HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
SUBCOMMITTEE ON TACTICAL AIR AND LAND FORCES,
Washington, DC, Thursday, March 16, 2017.

The subcommittee met, pursuant to call, at 3:32 p.m., in room 2118, Rayburn House Office Building, Hon. Michael R. Turner (chairman of the subcommittee) presiding.

**OPENING STATEMENT OF HON. MICHAEL R. TURNER, A REP-
RESENTATIVE FROM OHIO, CHAIRMAN, SUBCOMMITTEE ON
TACTICAL AIR AND LAND FORCES**

Mr. TURNER. This hearing will now come to order. The subcommittee meets today to continue the ongoing process of informing our members and the public about the current readiness crisis that all of our military services find themselves in. This hearing will address how sequestration and continuing resolutions [CRs] have impacted the Army's ability to modernize the current and future force and to be ready and capable against current and emerging threats.

We held a similar hearing last week with the Marine Corps. I would like to welcome our witnesses: Lieutenant General John M. Murray, Army Deputy Chief of Staff, G-8; Lieutenant General Joseph Anderson, Army Deputy Chief of Staff, G-3. And we want to thank you guys for your dedicated service to our Nation.

We look forward to hearing about your professional assessment of the current status of Army modernization.

As you know, readiness includes many things, such as end strength, training, and modernization. In many hearings, the full committee and this subcommittee have heard testimony regarding the serious challenges faced by our military services with respect to overall military readiness. We have repeatedly heard how the military services, as a result of budgetary constraints, have had to defer modernization in order to maintain near-term readiness. We have heard about the many complex and evolving threats that this country now faces and how we continue to lose our technological advantage and combat overmatch against strategic adversaries.

Just last month, General Allyn, the Vice Chief of Staff of the Army, reiterated many of these concerns and noted that, as currently postured, the Army is outranged, outgunned, and outdated in some respects. Right now, the Army is near the bottom of a historically severe budget drawdown in terms of modernization. For example, Army modernization funding declined 74 percent from

2008 through 2015 as a result of the drawdown from two wars and the imposition of the Budget Control [Act] caps. And as a result, tradeoffs and significant funding reductions were made to critical modernization programs.

So the purpose of this hearing today is to conduct a more comprehensive review of the state of Army modernization and understand what the Army will require to rebuild itself and win decisively. We need to better understand how and why the Army is outranged, outgunned, and outdated in some circumstances so we can begin the process of fixing this problem. As such, the witnesses have been asked to address and identify, one, the near- and long-term impacts that continuing resolutions and sequestrations are having on the Army's ability to modernize and ready its forces; two, the processes the Army is utilizing to prioritize modernization requirements to address immediate and near-term capability gaps in a budget-constrained environment; three, whether the Army should be focusing its modernization and strategies across the Future Years Defense Programs to address the anticipated security environment; and, four, the potential resources that would be required to support these strategies.

To be clear about resources, as I said last week during a similar hearing with the Marine Corps, the top line is the issue, and we must repeal sequestration. I support the President's commitment to rebuilding our military. For example, just last year, the military services identified almost \$22 billion in unfunded requirements. The Army's FY [fiscal year] 2017 supplemental request appears to require an additional \$4.2 billion just for modernization requirements alone to begin restoring needed capacity and capability.

The administration has now submitted a budget request of \$603 billion for base defense in fiscal year 2018. This is only a 3 percent increase above President Obama's projected budget request for fiscal year 2018 from last year. I have concerns that a base budget request of only \$603 billion does not even start the process of rebuilding our military. While we cannot repair all the damage done from sequestration in a single year, we can and should do more than this level of funding would provide.

I look forward to working with the administration in order to increase the fiscal year 2018 budget. And we would like to get as close as possible to the \$640 billion number that was referenced in Chairman Thornberry's views and estimates letter to the Budget Committee, a number that is also supported by Chairman McCain.

Before we begin, I would like to turn to my friend and good colleague from Massachusetts, Niki Tsongas, for any comments that she might have.

[The prepared statement of Mr. Turner can be found in the Appendix on page 33.]

STATEMENT OF HON. NIKI TSONGAS, A REPRESENTATIVE FROM MASSACHUSETTS, RANKING MEMBER, SUBCOMMITTEE ON TACTICAL AIR AND LAND FORCES

Ms. TSONGAS. Thank you, Mr. Chairman.

And welcome, Lieutenant General Murray and Lieutenant General Anderson. It is good to have you before us here today. I look forward to hearing from you both about the Army's modernization

priorities, particularly in light of the release of the President's fiscal year 2018 budget outlined yesterday, and the fiscal year 2017 amended budget earlier today.

Like many of my colleagues, I have long been concerned by the Budget Control Act's [BCA's] spending caps on defense and the constraints it has placed on our ability to make thoughtful investments in areas needed to keep our country and our service members safe. But I also believe that domestic spending caps in the BCA are equally devastating to our economic health and our national competitiveness, which are critical components to a strong national defense and security.

The fiscal year 2017 budget amendment shows an overall increase for the DOD [Department of Defense] of \$30 billion, along with \$3 billion for the Department of Homeland Security. However, it also shows an unspecified \$18 billion reduction to nondefense accounts without providing any details, which I find quite concerning.

With regard to fiscal year 2018, though we have not yet seen all of the details, many of the nondefense top line agency numbers are deeply troubling, such as the proposed 30 percent cut to the State Department, a move over 120 retired generals and admirals spoke out against in a recent letter to Congress. Likewise, the proposed fiscal year 2018 budget would make devastating cuts to the EPA [Environmental Protection Agency] and the Departments of Labor, Education, and Commerce, among many others. Simply put, this budget would do great damage to our Nation and our national defense. And I look forward to working with my colleagues to strongly oppose its implementation.

But with that in mind, I look forward to hearing from you both on today's topic. Since the creation of the All-Volunteer Force in the 1970s, the Army and the Nation have wrestled with finding the right balance between prioritizing funding for military personnel, including training, pay, benefits, housing, and associated costs, and procuring the best and most capable equipment. And this tension is more pronounced during times of flat or declining budgets.

As the cost of recruiting, training, sustaining, and retaining the most capable troops in the world has gone up, in order to best prepare and protect them for the challenges they face, finding the appropriate balance has grown even more difficult. While all services would prefer to have both, lots of troops and lots of modernization funds for better equipment, there have been only a few times in the last 40 years where fully funding both accounts has been possible given the many pressing needs across the DOD budget. Various Army Chiefs of Staff have confronted this issue, but in most cases, the Army has chosen to maintain the size of the force while delaying or even canceling important modernization efforts. The Army is again facing this choice.

The full committee received testimony several weeks ago from the Army Vice Chief, where we heard that the Army has serious capability gaps in some areas, such as long-range fires, air defense, vehicle protection, electronic warfare, and mobility for light units. At the same time, this committee has been told the Army is too small in size to carry out its assigned missions without continuing to place a heavy burden on current service members and their families.

Over the years, this committee has tried to help on both fronts. In many years, Army equipment, research, and procurement accounts have been increased, including this subcommittee's efforts to fund M1 Abrams tank upgrades, upgrades needed to maintain our superiority on the battlefield. Just this past year, the committee stopped the Army's personnel drawdown at 476,000 in response to increasing demand for soldiers around the world by our combatant commanders. And the committee has also shown increasing—also shown consistent bipartisan support for increasing funding for force protection initiatives, from body armor to vehicle armor, to make sure we are providing the best lifesaving equipment for the men and women we send into harm's way.

For today's hearing, I would like hear from you, our distinguished witnesses, about how the Army is thinking about this balance between people and modernization. If the Army is asked to grow significantly in size in the forthcoming budget, how will it plan to address the equipment gaps we have been told about? What options are there for accelerating current equipment programs? What is the tipping point where the Army is simply too big to properly equip, given the higher cost of today's more complex ground combat equipment?

I look forward to addressing these and other issues in today's hearing. I look forward to your testimony.

And I yield back.

Mr. TURNER. General Murray.

STATEMENT OF LTG JOHN M. MURRAY, USA, DEPUTY CHIEF OF STAFF, ARMY G-8

General MURRAY. Chairman Turner, Ranking Member Tsongas, distinguished members of the Subcommittee on Tactical Air and Land Forces, on behalf of our Acting Secretary, the Honorable Robert Speer, and our Chief of Staff, General Mark Milley, we look forward to discussing with you the effects of sequestration and continuing resolutions on the Army's ability to both regain warfighting readiness and to modernize the force.

As you have heard before today, the Army has roughly half the funding for modernization and equipping the force it had just 8 years ago. Sequestration, and year after year continuing resolutions, has forced the Army to make some hard choices, choices which have led us to focus our resources on generating and maintaining the best trained and equipped forces that a fiscally constrained environment would allow.

We find ourselves in a situation where our most capable enemies are closing quickly. We are losing overmatch in every domain: land, air, maritime, space, and cyberspace. And as mentioned, in the words of General Allyn during his most recent testimony, we find ourselves outgunned, outranged, and outdated in some very critical warfighting capabilities.

Our current modernization strategy is to upgrade today's equipment, focusing our limited modernization budget on the equipment that will have the greatest impact against near-peer threats and can be in the hands of our soldiers in the near future.

For the last 10 years, we have focused on the immediate, providing the equipment necessary for our soldiers to fight in Iraq and

Afghanistan, along with incremental upgrades to our existing combat platforms. That strategy, driven primarily by constrained modernization resources, forced us to defer the development of new combat capabilities. I believe that we have reached a point in time where we can no longer afford to do just one or the other: improve existing systems or develop new ones. We must find a way to do both.

We face critical capability and capacity gaps in areas like air missile defense; long-range precision fires; critical munitions production; the mobility, protection, and lethality of our brigade combat teams [BCTs]; electronic warfare; assured position, navigation, and timing; ground and aviation active protection; and cyberspace, to name just a few. We must begin to fill these gaps if we are to credibly deter and, if necessary, defeat a near-peer adversary.

Near-term security challenges will be met with the equipment we have today. And it must be improved to ensure that we provide our current soldiers with the best we have to offer. Tomorrow's security challenges will be met with the equipment we develop and procure over the next several years. And we owe our future soldiers the equipment they will need to fight and win in a very complex battlefield.

We urge Congress to provide fiscal stability, funding that is sustained, long term, and predictable, so that we can maintain our current warfighting readiness while simultaneously building a more modern and capable force for the future.

I would like to thank you and the entire committee for your unwavering support of the men and women of the United States Army, our Army civilians, and our families. And I look forward to your questions. Thank you.

[The joint prepared statement of General Murray and General Anderson can be found in the Appendix on page 36.]

Mr. TURNER. General Anderson.

STATEMENT OF LTG JOSEPH ANDERSON, USA, DEPUTY CHIEF OF STAFF, ARMY G-3/5/7

General ANDERSON. Chairman Turner, Ranking Member Tsongas, distinguished members of this subcommittee, thank you for the opportunity to testify on the state of your U.S. Army.

I appreciate your support and demonstrated commitment to our Army and look forward to discussing the effects of sequestration and the continuing resolution on our Army with you today.

My experience has allowed me to witness significant, lasting detrimental effects to Army readiness and modernization caused by sequestration and continuing resolutions. The abrupt implementation of FY 2013 sequestration significantly impacted every aspect of the Army; from training to readiness to delayed modernization, sequestration compelled the Army to take drastic measures. Continuing resolutions compound resourcing solutions and greatly affect our ability to generate readiness and execute a modernization strategy.

Our competitors have studied our doctrine, made revisions to theirs, and they are rapidly modernizing their militaries. We now face the prospect of fighting in complex, anti-access/area-denied environments against threats equipped to overmatch several of our

current capabilities. This strategic environment requires a trained and ready Army that has both the capacity and capability to meet current and the future challenges in order to prevail across the full range of military activities.

Today, the Army remains globally engaged with over 182,000 trained and ready soldiers committed to meeting combatant command [COCOM] deterrence and counterterrorism [CT] requirements. The operational tempo required to meet current and emergent demand consumes readiness as fast as we can supply it. This places the Army's ability to meet wartime contingency requirements at high risk.

Resourcing NDAA [National Defense Authorization Act] 2017 end-strength authorizations is absolutely necessary to bridge gaps within our current formations and is the first step required to meet our readiness objectives. The Army will mitigate some manning shortfalls by optimizing its available resources to enhance total force readiness by filling the holes in our current formations and increasing our number of armored brigade combat teams. Additional end-strength increases will build greater quantities of critical unit types and develop crucial capabilities in long-range fires and air and missile defense formations that are required to adequately prepare for major contingencies.

Readiness remains the number one priority, as I am sure you heard from our chief this morning. We must stand ready at a moment's notice to defend the U.S. and its interests. With your assistance, the Army will continue to resource the best trained, best equipped, and best led fighting force in the world.

We thank you for your steadfast support of our outstanding men and women in uniform. I look forward to taking your questions. Thanks.

Mr. TURNER. Thank you, General.

General Murray, the U.S. Army has enjoyed overmatch against near-peers and strategic competitors for the last 70 years, but the world has changed. And our adversaries have closed this gap and, in some cases, as you mentioned in your comments and I mentioned in mine, have overmatch in conventional capability. In your statement, you said, in the past few years, you have executed a very constrained modernization strategy and that it is now the time for the Army to start a dual-path strategy: improve current systems and begin the development of next-generation combat systems. Can you describe this approach to the committee in more detail? And do you have the resources to execute that strategy? If not, what resources will it take?

And then could you also briefly discuss the impacts on modernization of the Budget Control Act, sequestration caps, and also the effects of continuing resolutions?

General Murray.

General MURRAY. Thank you, sir, for that question.

I do think that is a very astute question, and it is really the central theme of what the Army, I believe, needs to begin to address in a very serious manner.

As you mentioned, sir, so, for the past few years, we have—the modernization strategy has been very limited in new development, and it has been incrementally upgrade equipment as best we could.

And based upon resourcing, those incremental upgrades take extended periods of times. So procurement timelines are exceptionally long. So, for instance, we will finish upgrading the Bradley and the tank with the most recent upgrade in the mid-thirties, early to mid-thirties, with very little investment in next-generation capability.

Based upon resources and based upon the number of programs we have, any investment towards next-generation capability comes when we buy out an upgrade, and when our procurement timelines are extended, you never get to the next-generation capability because you are always upgrading the equipment. And it really becomes a time, risk, and resourcing equation you have to balance. So, if you are convinced that you have the potential of going into conflict in the near term, you have to continue to upgrade what you have because you can't afford to send soldiers in with less than the best capability we can provide.

So it is a balance, and you heard General Allyn say this last year and General Milley say this last year, is we really mortgaged our future to take care of the near term. And I say we need to start to do both, and we are starting to do both. There was just an article the other day in the paper about the next-generation combat vehicles. So we are starting some early prototyping of next-generation combat vehicle.

And to answer your last question kind of at the beginning here, the answer is, under the current resources, we have—and I am talking under CR and sequestration—the answer to your question would be no; we don't have the resources to do both. And if we had the resources—and we are going to have to find ways to carve out the resources to do both, and we would do that by not executing some lower priority programs. And I will talk to you a little bit later hopefully about the SPAR [Strategic Portfolio Analysis Review] process where we sat the chief down and prioritized what our most critical capabilities are and where we would take risk. And some of those areas where we would have to take risk are some of high operational value. Our commanders on the ground are saying they are of high operational value, that we can't afford to take risk there, but we will have to if we want to get after this strategy.

And then the trades you asked about in terms of the BCA, so if the BCA comes back in 2018, as you know, we are on a path to upgrade the Abrams and the Bradley, we would have to stop that upgrade program. And right now we are only doing one brigade every 3 years with current resources. We have proposals, and we are going to—with the 2017 money that you saw today, I believe it was, we will get a brigade a year in 2018 and 2019, but then we go back to one brigade every 3 years. And so it will be 2025 before we finish those upgrades and then have the money to invest in next-generation combat capability. Stryker without the upgrades would stop with the one SBCT [Stryker brigade combat team] we are doing now. We would have to stop the APS [active protection systems] development, the nondevelopmental APS that we are doing right now with the—probably with the characterization we may be able to field one brigade, but that would be the extent of the active protective systems. And we would have to significantly

slow down the active protective systems that we are providing for our aircraft, not only in theater, but across the aviation fleet.

Mr. TURNER. General Anderson, would you like to comment?

General ANDERSON. Yes, sir. Thank you for the question. In my world, it is all about balancing the readiness. So Mike said modernization has been the big bill payer; the other one has been installations, and how do we juggle readiness? But what the caps do to us is it decreases the level of training proficiency we can achieve at the collective level from brigade battalion, where it should be, down to platoons and smaller. It reduces potential combat training center [CTC] rotations. It decreases the mission command training program for our brigades and battalion staffs. It reduces school seats for individual soldier skills. And all those, of course, erode readiness, and we only focus resources on outfits that are getting ready to go on a named operation, be that Freedom's Sentinel, be that Inherent Resolve, be that Spartan Shield, or be it the Global Response Force. If you are not in one of those categories, you are not resourced at the same level as other outfits.

Mr. TURNER. General Anderson, obviously, you balance modernization with also force size, and given your role with operations and plans, could you please elaborate on why it is so critical to join the Army to reduce military risk? Provide us some details as what required funding we should look at.

General ANDERSON. The NDAA 2017 offer makes us get to that 476 [thousand] number in the Active Component with the priorities. The number one problem we have right now is our formations are manned at 95 percent, and typically any unit, you have anywhere averaging 10 percent across the Army who are nondeployable, and then typically any given month, you have got 3 to 5 percent of a unit that has got people leaving the Army: retirement, permanent change of station, going to school, taking leave, what have you. So the formations that are going out the door are hovering around 80 percent, and our most recent combat training center rotations are around the 77, 78 percent. So, when we say "filling the holes," that means getting units manned back to up around 100 percentile again, and units do have to work on closing that 10 percent non-available gap. But we owe—and when we say we are going to send a formation out the door, we owe formations going at the 90 percentile, 95 percentile, and not the 80 percentile.

And what this will allow us to do beyond filling the holes is to restore some of the combat power that we were about to lose. Many different things in Europe, like the 18th MP [Military Police] Brigade and things like the 4-25 up in Alaska, we are short BCTs to meet the 3-to-1 requirements. Again, the classic example is our armored brigade combat teams. We have nine in the Active Component; it takes three to sustain Korea, three to sustain Europe, three to sustain Kuwait. That is it. So one is there. One is going. And one just got home. And that is the cycle we are seeing in the Army. So if we can build more capability and provide some other things, like petroleum outfits, some bridging outfits, some other things for Europe, that will buy us back some enablers that will help folks like General Hodges in Europe doing all things Operation Atlantic Resolve. So that is where it will buy us to restore some capability and capacity.

Mr. TURNER. So it sounds like you are maxed out. What do we do?

General ANDERSON. We either grow, which is what—so we do have this incremental approach. And, again, what sequestration and things will do will prevent the growth to go. So 476 is 1.018 number is still a high significant risk for us to meet the defense planning guidance of a defeat-deny scenario while doing CT and defending the homeland. So we either got to get bigger or we have got to turn the rheostat down on demand. So which of those are COCOM-driven? You know, the Army does field the majority of all COCOM missions, and the emergent demand when you grow, put more things back in Iraq, keep a higher number in Afghanistan, do Syria, do Jordan, do Libya, do Europe, do Korea, the math doesn't work. So you either have got to turn something back or you have to grow the capability and the capacity to meet the requirements.

Mr. TURNER. Do you think the COCOMs are driving demand or the security environment?

General ANDERSON. The security environment.

Mr. TURNER. So we really don't have a choice. It is grow or not respond to the security environment.

General ANDERSON. In certain cases, we don't. You'd have to assess each COCOM's requirements based on what makes Africa different than what makes Europe, and how much of this is assuring allies versus how much of this is deterring adversaries. I think that is the—and, obviously, when you are talking about the CT fights, as you are very well aware of what we are doing in northern Iraq and Syria, that is a fight. And then the question becomes, what impacts and what effects are we having in Europe as we are running around armored brigade combat teams, combat aviation brigades, doing 85 exercises? What effect is that having to the east? Is it truly a deterrence, or is it assurance?

Mr. TURNER. Well, according to the RAND study, it is neither because it is insufficient for both deterring and protecting the Baltics so that certainly provides us with a dilemma.

General ANDERSON. It does. It does. And that is why when you prioritize with things like he or I are doing, if you are building equipment, but nobody is actually operating or using it, like the SHORAD [short range air defense], the Avengers, you know, stuff sitting parked in a motor pool—is what RAND saw—is not going to dissuade anybody. So the question is, what are the tanks doing? Again, what are the effects you are achieving through live fires and other maneuvers, but you have really got to—when you assess all of those exercises, which ones actually have an impact versus which ones don't? And that is what RAND was trying to get a good feel for; which of those had accomplished the objectives, and which ones did not?

Mr. TURNER. Excellent.

Ms. Tsongas.

Ms. TSONGAS. Thank you, Mr. Chairman.

As we are discussing the really important issue I think of the modernization investments that the Army needs to make, I would like to first address the modernization investments that we have made in the past decade. So, General Murray, during the height of the war in Iraq, from 2003 to 2011, the Army received about \$500

billion in total modernization funding, including the peak year in 2008, where it received \$91 billion in that year alone. How did the Army use that funding? How much of that equipment do we still have? Did it all simply get consumed in the war? And do you see a present and future use for it?

General MURRAY. Thank you, ma'am. So most of that—and both General Anderson and I were there during the years you mentioned. So most of that was consumed, in my estimate, by the counter-IED [improvised explosive device] fight. So it was protection for our soldiers. It was MRAPs [Mine-Resistant Ambush Protected vehicles]. It was up-armoring Humvees [High Mobility Multipurpose Wheeled Vehicles]. It was additional munitions procurement. It was better body armor, helmets. I mean, that is where most of that money went, plus the recapitalization of the equipment that was rotating in and out of theater. My guess would be that is where the lion's share of that money went.

Now are we using some of that equipment? We absolutely are. So the Humvees are still in the inventory. The MRAPs we have got in an APS set in Italy. A lesser number, but we are retaining MRAPs for future contingency use, and we are also using MRAPs within the current force. So, within FORSCOM [U.S. Army Forces Command], our EOD [explosive ordnance disposal] soldiers, route clearance soldiers, are still operating MRAPs, just like they did in Iraq in 2008, the year you mentioned.

Ms. TSONGAS. Well, the reason I wanted to bring this issue up is to better understand the areas in which the Army didn't modernize during the Iraq war and what areas were thought to be of lesser priority and became delayed. I think you have referenced some of them, but just again to sort of reiterate where you see the capability gaps as a result of those investments.

General MURRAY. Yes, ma'am. And I said this in the opening statement, we focused on the equipment we needed for Iraq and Afghanistan. And I look back on it, and I don't think I would have done anything differently if I was in the position to make those decisions. So the areas where we took risk were areas that were not important to us in that type of fight. So it was air defense systems. It was specifically maneuverable air defense systems that could keep up with armored brigade combat teams. And there are some assumptions about both of these.

The other one was probably long-range indirect fires. So most of the indirect fires that I used in Iraq and Afghanistan were cannon-delivered, and the range we had with cannon-delivered was fine. And then you always had the collateral damage concerns.

So the other thing that was an assumption is when the defense strategy was written back in 2012—and I am sure you heard the chief talk about this—there were some fundamental assumptions made. One is we weren't facing a resurgent Russia at that point in time, and we made the assumption—and it has proved to be a bad assumption—a long time ago that we didn't really need to worry about air defense and we didn't really need to worry about long-range precision fires because we had the best systems in the world; it was called the United States Air Force. And with the capabilities that we are seeing right now that the Russians have developed and the Chinese are developing, we have to reinvest some

effort. And we really haven't upgraded those systems in a long time. It wasn't just the war in Iraq and Afghanistan that caused us to assume some risk in those areas.

Ms. TSONGAS. I appreciate your forthcomingness, but I do know that there were areas where the Army did recapitalize quite substantially, and you mentioned, I think, some of them in the areas of aircraft, wheeled vehicles, which you have talked about, and communications gear. So I think it is really just to sort of reiterate the point that the Army is not saddled with old and outdated equipment across the board. There are some areas in decent shape, wouldn't you say?

General MURRAY. Yes, ma'am. And you pointed out a couple of other things that are absolutely still in use. So the communications systems we are still using. We continue to upgrade the tank and Bradley. It is really the equipment we used in theater and aircraft specifically; we made some significant upgrades with the aircraft. And we are in pretty good shape in some areas.

The problem we are seeing now is you can only do so much to old platforms. And you reach a point of, for instance, the M1 tank. I mean, with the most recent upgrade, it is approaching 80 tons. And we have just about upgraded that platform as much as we can possibly add to or upgrade it. And we are reaching the point of limited returns on the upgrades. And we will reach that, I think, at some point. We have got to make some more upgrades to the aviation because we added a lot of protection to our aviation platforms, which has reduced the reach and the range and the amount of equipment or personnel an aircraft can carry. So it is things like the ITEP [Improved Turbine Engine Program] engine are designed to regain what we have lost. But I don't think we have any piece of equipment that you can say is going to be good for the next 10, 15, 20 years. We are going to have to continue to upgrade, or we are going to have to go to a new development.

Ms. TSONGAS. Well, I would like to do one more question, sort of go in that direction, and that is the Army's 2017 R&D [research and development] funding request of about \$7.6 billion continued what I think is a very disturbing trend of a decline in what I think is a very important part of the Army's budget, in fact I think across the services.

As compared to the most recent peak of \$14.3 billion in 2008, it is down almost 50 percent. Furthermore, last year's projection for future years wasn't much better with R&D funding holding steady around \$7 billion in a year. In your testimony, you mentioned these important capability gaps in several areas, such as electronic warfare, long-range fires, and air defense systems. And in addition, the Army continues to invest in important research in areas such as body armor, materials, and other force protection technology. My concern is this: how the Army can possibly address those capability gaps in the future if R&D spending doesn't go up. You are really, I think, really making it very much more difficult, given the rapid change in technology. What areas will the Army have to fund itself, and how much more will be needed?

General MURRAY. Yes, ma'am. The "how much more" is a difficult question. And the good news, the R&D is a piece of it; the S&T [science and technology] piece is the other part of that. We

have protected S&T investments, and that is a little bit further out than the R&D piece, is 6.1, 6.2, 6.3 dollars, which you are familiar with. So I said about 50 percent over the last 8 years what it was 8 years ago. So, in today's dollars, 8 years ago is about \$44 [billion]; today, in 2017 budget, it is about \$22 billion in terms of what we would consider research or what we would consider, without controlling and equipping. R&D is a piece of that. So, historically, RDT&E [research, development, test, and evaluation] is about a third of that dollar figure, and procurement is about two-thirds of that dollar figure. So it is balancing that checkbook and getting the right balance between, how much do you do to continue to field equipment—and we are fielding a significant amount of equipment. It is not like we have all the equipment we need right now and we are just upgrading stuff. We are also fielding new equipment, and we have equipment in the pipeline, JLTV [Joint Light Tactical Vehicle], AMPV [Armored Multi-Purpose Vehicle], IFPC [Indirect Fire Protection Capability], et cetera, that is under development. And how much can you—the balance I talked about, it is, how much risk do you take in the near term in order to focus more resources on what comes a little bit further out, and truly where do you want to accept that risk?

Ms. TSONGAS. How much are you taking advantage of technological innovation in the private sector? I know Massachusetts is fortunate to have a Defense Innovation Unit Experimental, or DIUx. There are others across—there is one in California, I think in Texas—or to be in Texas. How are you taking advantage of that innovation so you are not reinventing the wheel?

General MURRAY. DIUx, one specific program that I am working pretty much personally, it is called SMET. It is the Squad Mission Equipment Transporter. So the concept is that you take, you know, equipment that is available in the commercial market, and you put it on what we would call a mule. It is just a basic vehicle that transports equipment. It takes a 1,000 pounds; it can transport it. It is almost like a leader/follower technology, follow soldiers, who are dismounted.

So you take all the ammunition off their back, you take the water off their back, you take their rucksacks off their back. And we are in very constant communication with DIUx on that one.

We are also working with the Strategic Capabilities Office on some other not necessarily commercially available, but stuff that is already in DOD's inventory that we can reuse in different ways to try to shave some costs.

Ms. TSONGAS. Thank you. I yield back.

Mr. TURNER. Mr. Cook.

Mr. COOK. Thank you, Mr. Chairman.

This is obviously a very difficult situation, we have been hearing more and more about—and this falls—the hearing we had I guess was last week about the RAND study.

One of the things I am concerned about is that I am not sure whether we are realistic when we have all these commitments all throughout the world and we have all these op [operational] plans, and I mentioned this before, and we have so many units that are C-3 and C-4 [lower readiness ratings]. We have got to face that. These are the units that are going to go to war, they have to meet

these contingencies. And it just seems as though we never cut back on them, they continue to grow, and grow, and grow. And it takes a strain on the troops, the training, how many—you know I have got Fort Irwin in my district, and a couple of years ago we canceled I think it was seven exercises. That is unpardonable. At least I am just an infantryman, I don't understand everything like that.

But if we don't have people, and equipment, and units that are ready to go to war, then how can we realistically have all these commitments with the op plans that are in the top secret vault? Now obviously, I am whining here and the problem is you are preaching to the choir here. That I think most of us want to end the sequester, most of us want to fund what you need, but I think we have to be realistic in that you can only do so many things.

And you have to tell Congress, hey, I am sorry, but you haven't given us the money and we are going to be a permanent C-3 or C-4 and we can't fight anybody. And I know that is a tough thing to say, but can you kind of comment on that radical statement I just made?

General ANDERSON. It wasn't very radical, Congressman, it was real. The issue is without the sustained predictable funding, we are not going to get to what you are describing.

So, if we can get off of CRs, get rid of sequestration, enact budgets, we—as we look towards—as you heard us talk before, with the expected resources we think we are going to get, we are talking best case FY 2021 to get two-thirds of the Army at a C-1 fully capable, C-1 means you can do all your missions when you deploy, C-2 means you can do most. It will take us until 2021, best case, 2023 worst case. And the issue right now is we are trying to shoot for on or about 2019 to see some impact based on the sustainable readiness that we are trying to implement which gives people a much more predictable model of how we employ them.

But your bottom line position right up front is, with the current throughput requirements we have right now and what the chairman talked about, the ones that we can't control, we are still required to meet those COCOM requirements and that is taking a unit to come right out of that place called the National Training Center and get on a plane and take off. That is exactly what the phenomenon is right now.

Mr. COOK. Do we need to do more in Congress, in other words, a sense of Congress—to the commanders and say you have got to be realistic in terms of the number of op plans on there or we are never going to be able to be a C-1 or C-2. It is just until we prioritize where we are going, you know, how they going to do it? It is almost impossible.

General Milley addressed this this morning. I won't go into it, it was classified, but most of us—he was spot on, it was great. My God you walk around and you say to yourself, boy I need some kind of antidepressant pills after this, but that is the world we live in. And so, I know, obviously I am frustrated, and I know you are frustrated, and we will do our best. But you have—too bad we don't have all 435 Congressmen and women packed into this and the 100 Senators and they heard what we had to hear.

So I yield back. Thank you.

Mr. TURNER. Mr. Kelly.

Mr. KELLY. Thank you, Mr. Chairman.

At last week's HASC [House Armed Services Committee] Readiness Subcommittee, I asked about the ITEP and if it was still the number one modernization aviation program and you said that it was. As you know, the high, hot challenges in both Iraq and Afghanistan often require rotary wing to limit payloads due to inadequate engine power for the mission or for environmental condition.

ITEP was funded at \$52 million in 2016, in FY 2016, and \$116 million in 2017 defense appropriation bill which has passed the House last week but still has to go through the Senate. That is a sizable funding difference year-to-year due largely to the recently awarded contracts for the preliminary design phase of the program.

Please tell the committee how the continuing resolution impacts the ITEP program and what are the downstream effects of ITEP modernization readiness for the Army's Black Hawk and Apache fleet?

General MURRAY. Congressman, we don't think the CR in and of itself will impact ITEP because it is not a new start as you mentioned, so I think we are okay in terms of the CR.

Now, BCA sequestration is a whole different story. So if we were to go back to sequestration or BCA in 2018, and I won't presuppose that ITEP would be one of the bill payers, but the Army would have to find significant bill payers just to do what the most critical things the Army has to do. And ITEP is a very important thing for all the reasons you mentioned. It does restore high hot, it restores some of the mission payload to commanders that we have lost over the last few years. And it potentially is a critical stepping stone to FEO [forcible entry operations]. So ITEP is one of our more important programs, but it would have to be looked at if we were to go back to BCA-level funding.

Mr. KELLY. And my next thing, and you, Generals, will understand this, we can't afford another Task Force Smith. We cannot afford to put our soldiers in a risk situation which they aren't equipped and trained to face any forces that we have. And we talk about M1 battle tanks and we talk about Bradleys, and infantry fighting vehicle, and we talk about the main end items.

But I am an engineer, I just got through with the engineer brigade command, and I can tell you our bridging assets today don't look like what they did in the 1980s as far as capabilities, and at the corps level and higher, I don't know that we have enough. I don't know that they are modernized enough. And you guys know the river crossing operation is the most complex we face, either that or breaching operations and also our short gap technology.

So what are we doing to make sure we are modernized whether you are talking about air defense, mobile air defense systems, or engineers, the newest best to make sure that we can fight an enemy, because we are not always going to be in the desert. There are some places that still have rivers and complex terrain.

General MURRAY. I thought you were going to say our engineering equipment looked exactly like it did in the 1980s and I was going to agree with you.

So for the engineering piece, start with that. So you are familiar with the JAB [Joint Assault Bridge] vehicles, so that is continued

and that is a program of record. We continue to develop and field the JAB here eventually. But just like everything else, it is going to be a very extended fielding time line—based upon, how many we can afford to build in any given year.

The AVLB [Armored Vehicle-Launched Bridge], as you know we still have M48 chassis carrying bridging assets. And so in an effort to get rid of the 48 chassis, we have only got 60 and 60s and M1 chassis carrying the scissor bridge. And we are also doing a re-characterization of the scissor bridge right now, trying to get it to at least an 80, if not 90-ton load so it can carry the tank that we have got. HETs [Heavy Equipment Transporters] are another issue. We are working on upgrades and potentially a new HET to carry the tank as well. So a lot of this is not keeping track.

Now on the air defense side really several efforts and so we are bringing Stingers back into the inventory, although not approved yet, we are looking at putting Stingers back into the maneuver formations to provide some short-range air defense. We have got to recap those Stingers. We are looking at a prox [proximity] fuze on the Stinger as well, a service life extension with a prox fuze.

We are pulling old Avengers out right now and recapping them to get them to Europe because that is the quickest thing we can do. We are also due to have an air defense maneuverable SHORAD rodeo, if you will, this year where industry will bring their best bids in and we will see if we can come up with a better solution for the longer term. Plus upgrades to Patriot, plus I think in the 2017 money you will see some buys for THAAD [Terminal High Altitude Area Defense] missile interceptors.

Mr. KELLY. And the final point I will make and I don't have time for an answer, but I just hope that we are really looking in Europe and making sure that we have adequate forces. In the 1980s we had adequate armored forces over there to take care of our business as a partner in NATO [North Atlantic Treaty Organization].

And I just hope that we are looking at having HBCTs [heavy brigade combat teams] over there, not light—and I see the infantry thing, I want to be sure we have HBCTs and the proper capabilities to go back to not necessarily to the Cold War, but we need to be prepared to defend our NATO allies.

And with that, I yield back, Mr. Chairman.

Mr. TURNER. Mr. Banks. Mr. Wittman.

Mr. WITTMAN. Thank you, Mr. Chairman. Lieutenant General Murray and Lieutenant General Anderson, thanks so much for joining us, thanks for your leadership.

Lieutenant General Anderson, I want to go to your comments where you talked about the funding deficits causing the Army to leave our combined training centers, our combat training centers. They are not used the way that they have normally been used, but you also spoke about the need for units to have opportunities at home training bases, to make sure they can develop those tactical skills, those small unit level skills.

In Virginia I am proud to have Fort A.P. Hill in the First Congressional District. As you know, it is a regional collective training center. And I have talked to the folks there recently we have had units like the 82nd Airborne come up from Fort Bragg, do a heavy drop, do an exercise there. Our units are able to learn, do the same

things that they could at the CTC, gather back up and go back home all in the same day. Great training opportunities where we can use resources, assets there, most efficiently.

Let me ask how you envision using our RCTCs [Regional Collective Training Capability] in relation to not being able to fully utilize our CTCs because of funding issues and bringing units in for longer term periods of time. If you can do this on a daily basis or at least a smaller scale where you don't have the expenses associated with that. Give me your perspective on how you use the RCTCs in this situation?

General ANDERSON. Sure, sir, thanks. They are enablers. So as you know, the CTCs are very focused on the decisive action, full spectrum, unified land ops. Places like A.P. Hill, Muscatatuck in Indiana, when we can get closed networks, closed environments, where we can deploy—obviously deployability is very important to us, that I can snap somebody out, and bring them back, and make sure they are out loading and putting pallets and as you mentioned doing heavy drops, and rail and convoys. But any time we can take somebody off of the backyard that they know and send them somewhere else to do a focused exercise, again preferably joint, preferably multi-compo [multiple components], and preferably with our allies.

And the more we can package those and the niche capabilities, and we use A.P. Hill a lot, that it is very popular with places like Bragg as you said. Muscatatuck is becoming the cyber because they have got an underground system, you can shut the power off, you can shut the water grid off, you can actually pick locks and manipulate cameras.

So places that have those kind of capabilities, we want to leverage, and again, tend to make them a little bit more functionally focused, but again collaborative with what we just talked about.

Mr. WITTMAN. It seems to me that they have a great opportunity there. I understand that it is tougher to do things at the brigade scale in a joint training exercise, but our JRTCs [Joint Readiness Training Centers] I think have that capability. It is, I think, good to practice mission planning for our teams to make sure they get there, they understand that they go to an unfamiliar place instead of doing the same thing time, after time, after time, in the same DZs [drop zones] that they have been in all the time. So that I think is great for our troops.

Let me ask too a little bit on the training side. You've looked to reduce the mandatory training burden to make sure we are actually doing things that are substantive. You know sometimes we have gotten in this instance of checking the box, you know doing those kinds of things and really looking at the utility of that. And there is a value to MOS [military occupational specialty] specific training opportunities.

Give me a perspective on how you have looked at maximizing the utility of the time of our soldiers, both in the Active, Reserve, and Guard Components to make sure that when they are there training that they get the most of out of that, it is not just a check the box thing. Many times it is kind of generic, people look at it and go this really isn't helping me in the time that I have to spend on my one weekend a month and my 2 weeks during the year. And we are

going to have to use that Guard and Reserve Component to the maximum utility and make sure they can do things.

Give me your perspective on how we make best use of the training time that we ask them to devote?

General ANDERSON. Sure, sir. Without the total Army we will not survive. So three divisions right now, Guard divisions, are deployed; one is homeland, two are abroad, Jordan, Kuwait, Afghanistan. And five BCTs are employed in support of COCOM.

So the keys here are how do you incorporate, inculcate the training requirements you want through what you describe like going to places like A.P. Hill? Things you do actually in a collective training environment versus sitting around like we are right now and flapping some slides up and saying back to you checking the block. Okay, I showed you five slides on sexual harassment assault, that means we are going to be good at sexual harassment assault. No, it is not.

It means leadership. It is training and you can take that across any function, any area you want to talk about, but how do you take those things off the plate, build resiliency for example in road marches and on ranges, rule of law of land warfare, conduct of law, that is on a range, that is not an objective, not in a classroom saying you don't do certain things to our adversaries.

So taking those off the plate in a classroom, putting them in a field environment, and then maximizing the synergy from those combined, joint, multi-compo exercises where you are doing that stuff all together, because the key to a successful combat training center rotation is great home station training on the front side, backside, and all the other events that you can do in between.

And when the Guard is doing something and the Active is there, and when the Active is doing the something the Guard is there and the Reserves are there, and you get the synergy from that. But not going through saying this many hours, this many slides, here is the program, and if you don't do that you are not qualified, certified. And by the way, all the requirements that the COCOMs put on us that are typically redundant, excessive about getting somebody on an airplane to go to someplace like Baghdad.

So how do you meter all those? But again, the Reserves, if they follow the old mandatory training model it would take every weekend, all year to meet all those requirements, and all you would do would be the mandatory check the block type training, not collective MOS training that you just described.

Mr. WITTMAN. Thank you. Mr. Chairman, I yield back.

Mr. COOK [presiding]. Mr. Brooks.

Mr. BROOKS. Thank you, Mr. Chairman.

I think most of here us get it when we are talking about the impact of continuing resolutions and sequestration on the military, so I am going to shift gears to a little bit of a different subject.

What can we do to increase the efficiency of the contracting process? We have got this Federal Acquisition Regulation, the DFARS [Defense Acquisition Regulations System], and all the different subparts there. And in particular, it seems that there is a tremendous amount of time that is being spent to get a weapon system from an idea to the warfighter. Many years, maybe as much as 5

or 10 years on occasion, which is unsatisfactory, particularly in an emergency situation.

Is there anything that we can do with our contracting officers or our program managers or project managers and their relationship to expedite the process or condense this time period that not only takes so long, but also tends to drive up the cost of any new weapon system that we try to implement?

General MURRAY. Neither one of us are acquisition or contracting officers, sir, but I am probably closest to it. So I will take a swing at that.

So in your estimate of 5 to 7 years was very generous, to be honest with you; if you are talking about a new developmental system, in most cases it takes longer than that. So we are—and when I say acquisition, it is really—it is just not the acquisition and contracting piece of it. It starts with a good idea some places you mentioned versus we have a unit equipped in the field with that piece of equipment, whatever it happens to be. So I do think that there are areas that we can find some efficiencies.

We are trying to do a much better job, as an Army, of locking down requirements more quickly in the process and then not changing requirements as we get into the development and the contracting for that capability because that adds time to the process.

We are trying to get prototypes into the hands of soldiers a lot faster in the process so we can really—before we write a requirements document, we understand truly what it is that the soldiers think about that piece of equipment. And soldiers that will be using that equipment help us determine what the requirement is for that specific piece of equipment.

We are engaging industry earlier in the process and more continuously in the process to make sure they understand our expectations and to make sure we understand what is going to be hard about what we are asking them to do and where we need to be thinking about making trades before we get into development and discover we have got a problem in terms of something we are asking for.

So all that can help, and none of that really touches contracting. I know within the [Army] Contracting Command, it is a very regulated process that we follow, because every time a mistake was made in the past, we added another regulation, we added another standard operating procedure or we added another whatever it is. And so the AMC [Army Materiel Command] commander who is in charge of that has gone through and tried to streamline the amount of requirements just down to what the bare minimums are so we can actually get contracts done in a more expedited manner.

Mr. BROOKS. Lieutenant General Anderson, do you have anything to add?

General ANDERSON. I do, sir. I would say from a couple of jobs I have had and what I manage now I would say number one we established that Rapid Equipping Force to provide a 10-liner capability for the warfighter; when they were able to put in a description of what the requirements were it went typically straight from the warfighter to that organization who would figure out how to outsource to make that happen in a very similar to what our rapid acquisition office is trying to do now in the Pentagon.

But also the operational needs statements, when you are deployed and you are trying to meet requirements on a short-term basis those are typically developed for cases where the materiel exists, the hardware exists, the technology exists, and it is more an off-the-shelf approach. But when you are over there—like the counter-UAS [unmanned aircraft systems] fight we are dealing with now in Iraq.

So how do you find current existing ways to deal with RF [radio frequency] spectrum, the DroneDefender, the AUDS [Anti-Unmanned Aerial Vehicle Defense System], the CORIAN [counter-UAS system]. These are all things that have been patched together in many cases using old Duke [counter-IED system] kits and transmitters, and how you link that stuff all together, and you use the ingenuity of soldiers to make a mobile capability to knock these drones down. That is the kind of stuff we don't have time; you don't have 10 years.

They are dropping bombs and dropping chemicals on FOBs [forward operating bases] now. So you can't wait 5, 7 years, 10 years for that. It has got to get there as quick as it can. And again, the more rapidly we allow people that are actually—like we used to do when we were over there, take the technology early and experiment with it over in theater, and if it works, great. And if it doesn't, you send it back. But at least you are not waiting for some long acquisition testing process to achieve effects.

Mr. BROOKS. Thank you for your service and for your responses. Mr. Chairman, I yield back.

Mr. COOK. Thank you.

Mr. Langevin.

Mr. LANGEVIN. Thank you, Mr. Chairman. I want to thank our witnesses for your testimony today and for your service to our Nation.

To each of you, if you could comment on this, I have been increasingly concerned about the atrophy of our electronic warfare [EW] capabilities, as they are absolutely critical to our operations abroad. We have probably touched on some of these during the course of the hearing, but can you discuss the most urgent modernization needs in this field? And how are you prioritizing this capability within the Army?

General MURRAY. Yes, sir. And thank you for that question.

In terms of EW, we have got several programs of records that are working so we have got electronic capability right now in terms of counter-IED. And that is really where we have focused our efforts for the last few years. So we are trying to recapitalize what we have done with Duke to use it in, as General Anderson mentioned, in different ways.

The current focus of effort is the counter-unmanned aerial system fight in Iraq right now. And as General Anderson mentioned that we have fielded numerous systems trying to figure out the sweet spot the right way, but right now it is primarily an electronic attack solution.

And then a little bit further in the future is really developing tactical level EW capabilities. And we used to have pretty significant electronic warfare capability, both from understanding the electromagnetic spectrum, to the electronic protect, to the electronic at-

tack. And that is one of the things when we got involved in counter-terrorism was not nearly as important that we hadn't put a lot of time into.

So things like the multifunctional electronic warfare suite of equipment that is a program of record. So the first one is to be mounted on a probably a Grey Eagle unmanned aerial system, so it gives you an air capability, both to understand the spectrum and to affect the spectrum.

Next would be a large ground system, and then finally would be a small ground system to replace our counter-IED stuff and do stuff at a smaller dismounted soldier, almost individual soldier level. It is really getting that capability back into our tactical formations.

General ANDERSON. And, sir, a subset of that is the electronic warfare planning and management tool, which gives commanders a common operating picture of what the environment is. So you take that MQ-1 [unmanned aerial vehicle] capability which will be fixed, will be rotary, it will be ground, and it gives them the ability to see it. And then further developing our electric fires, which is the lasers, the microwaves, the railguns.

So back to what Mike is talking about, how do you enable, how do you operationalize, how do you give capability to commanders on the ground to actually do something with this stuff besides just worrying about secure nets; it has got to be bigger than that. It is how you actually have the capability to attack something versus just defending yourself.

Mr. LANGEVIN. Thank you. Can you talk about how Russia and China in particular are employing EW against us? And what else do we need to respond?

General ANDERSON. Well, that is one of the categories that we have been outpaced here. So the question becomes again how do we—what do we learn from those technologies they are employing? And they are doing it very effectively. And the issue becomes we are playing catchup. And so it goes back to what Ms. Tsongas was talking about as you look at RDT&E, how do we figure out what they are employing? We get pretty good feedback from effects in places like the Ukraine, and a little bit easier to focus on what they are doing in Eastern Europe than China, per se.

But how do we learn from those technologies, capabilities they are employing and then how do we enable us, evaluate, assess, inform what we are doing forward, based on what we are seeing; but right now we are in the learning mode from what they are employing, in the catch-up mode.

Mr. LANGEVIN. Okay. Thank you. As I said, I have become increasingly concerned about how our capabilities have atrophied over the years, have not kept pace with our adversaries. I know that the Pentagon is responding and we have a program that we are dedicated to in playing catchup, but I know there is a lot of work to do.

The WIN-T [Warfighter Information Network-Tactical] Incremental 2 system on-the-move broadband communications backbone of the Army is currently being procured at a rate of two per year, although I understand it may be possible to reduce the overall cost of this program by as much as 40 percent by procuring these sys-

tems more quickly. In fact, the Army reported to Congress in June 2014 that the most economical projection rate would be as high as eight brigade sets per year, which would provide WIN-T to our service members well over a decade earlier than at the current rate, ensuring the superior technology they are using is up to date.

Well, accordingly the decision was made in July 2015 to move to full-rate production, but the Army has not yet done so. Do you intend to use that full-rate production decision to procure WIN-T units at a more rapid pace?

General MURRAY. Sir, WIN-T is identical to just about everything we do. So we are procuring aviation assets at minimum sustaining levels, we are upgrading tanks at minimum sustaining levels. We started off with six brigade sets was the goal for WIN-T, as you said, we are down to two. It is all driven by the resources and how thinly I have got to spread the resources to keep the programs going.

So I would love to buy everything at an economic price point and save money on every system. The fact of the matter is the best we can do right now in most every case under—I am talking today and the past, is that min [minimum] sustaining rates or close to that to keep production lines warm so we can expand when resources come.

But my fundamental question is, I would love to buy everything as cheaply as I possibly can, given what I have got to buy and how thinly I have to spread the resources. We just can't afford to go much above where we are right now in terms of the production rates.

Mr. LANGEVIN. I certainly hope we are going to be able to address that, and certainly doing away with sequestration would help quite a bit. But ultimately we want to get what the warfighter needs to them as quickly as possible, at the same time let's do what is right by the taxpayer as well. It seems like it would be a win-win to me.

So thank you. Thank you for your service and for your testimony today. I yield back.

Mr. COOK. Thank you.

General Bacon.

Mr. BACON. Thank you, Mr. Chairman. I want to also thank our colleague from Rhode Island for his questions on electronic warfare. Someone who has served almost three decades in the Air Force doing electronic warfare, I do know we are falling behind, and the Russians are investing, the Chinese are investing. We have a lot of catching up to do and I appreciate your all's focus on that. I want to thank you both for your leadership to the Army and the Army Staff. Grateful to you.

Your vice chief said recently that only 3 of 58 combat brigades could deploy. Is that still the case?

General ANDERSON. It is, but a caveat. That was the three in the top category. There is—and I am going to try and keep away from numbers here, we had a problem with this last week so you kind of forget where you are.

So we are in the ballpark of a little bit on the low side of 20, that can actually go out the door at the next level of ratings so he spoke

about the top three, there is a remainder that could go out the door.

Mr. BACON. And so it would be at the top tier for a very short response window and only 3 of 58, but there is a next tier that could do better? Is that right?

General ANDERSON. That is correct.

Mr. BACON. I got that right? I just think it is a disgrace. Our Congress and previous administration owed you better. When we talked about going back to the hollow force of the 1970s, it has got to be one of our top priorities to fix. And I think this Congress is set to do that. We are going to work hard to put us in a better spot to do deterrence and make sure that we keep the peace. And we do that by having the ability to deploy and that our enemies and potential adversaries know that we can do that.

In your testimony you talked about being outgunned, outranged, outdated. Would you say the Russians' latest tank can outgun and outrange our modernized M1?

General MURRAY. It depends probably, Congressman, on which tank you are talking about. And I am not a T-14 or Armata type of guy because I don't think they have gone into development or full production of that capability. I would say that in terms of what I would call their most recent fully fielded tank, the T-90, I would say that the M1 is still very equivalent. I don't think we are necessarily from that platform. Now there are systems that they can use, that do outrange the M1 tank, but I would stack the M1 up against the T-90.

Mr. BACON. So right now they are producing tanks about rough parity with ours. What about in the attack helicopter range, are they producing helicopters, attack helicopters that can outrange, outgun ours?

General MURRAY. I would say once again, probably close to parity.

Mr. BACON. Parity again. I don't like parity, by the way. I don't want to have a close fight. I think we should not want to have a close fight.

What about artillery, how does their artillery stack up with ours?

General MURRAY. That is a little bit cleaner. They have—and it is just not a capability, it is a capacity issue as well. So in terms of capacity, they have significantly more artillery, both rocket and cannon artillery than we do and they do in fact outrange our systems.

Mr. BACON. You know, the Russians have historically put a lot of emphasis on artillery.

I wanted to ask you about Europe. When I was the commander at Ramstein, I think the last combat brigade or last combat unit for the Army was taken out of Europe. Do we have plans to put combat units permanently back into Europe, especially with what Russia's been doing?

General ANDERSON. There is two forward station brigades there, the 173rd still headquartered in Vicenza and the 2nd Cavalry Regiment in Vilseck. So those are the two assigned forces to Europe. And we began here this January the first ever—you know, I think you are familiar, we had the European Activity Set where we were deploying—

Mr. BACON. It's a great initiative.

General ANDERSON. That's part of ERI [European Reassurance Initiative]. We put units on top of it, but they didn't stay. Pieces, parts of the unit came for different parts of the year. And for about a month or two, maybe up to three, the whole brigade was actually all there at the same time. Starting in January, we deployed the third brigade of the fourth ID [infantry division]. Now we call it a heel-to-toe, so the whole brigade is there.

They are based in Zagan, Poland, but they extend all the way up into the Baltics, and they go all the way back to Grafenwoehr by squadron, by battalion, for gunnery for a couple of months. They will all consolidate in Romania in July for Saber Guardian. But the bottom line is that brigade, with their kit, they bring it from home so the kit is better maintained, they employ it, go do gunnery, go do road marches, go do CALFEXs [combined arms live-fire exercises], go do whatever with our partners and then they go back home in 9 months. So that will be now a second brigade—

Mr. BACON. It is a rotating combat brigade.

General ANDERSON. It is a rotating. And before that brigade goes, just like when we were brigade commanders in Iraq, you didn't leave until the next brigade showed up. So now the next brigade shows up, they download, they do an actual relief in place, and then the brigade will go back to Colorado, and the brigade from Fort Riley will be—

Mr. BACON. If we had the resources and it plussed-up your resources, would it be wise to have a permanent combat brigade—

General ANDERSON. People argue that, obviously a policy issue, and of course a very resource-intensive one. So you are probably seeing some of the things in the press where Europe is doing some of the costing of what they could do Germany pure and then what it would take with some of the other host nations in places like Poland to go ahead and have concerns, things like that down the road.

Mr. BACON. Okay thank you. I have one other question about ISR [intelligence, surveillance, and reconnaissance] but I will put it down for the record. Thank you for your time. I yield back.

General ANDERSON. Thanks for your service.

Mr. COOK. Thank you.

Mr. Carbajal.

Mr. CARBAJAL. Thank you, Mr. Chair, and Ranking Member Tsongas. Thank you Lieutenant General Murray and Anderson for coming here today. I appreciate your service and your addressing us today.

I would appreciate it if you could answer the following for the record. Last week the Marine Corps testified before the subcommittee on the same topics and I asked them to comment on the female body armor programs and their plans for providing better fitting armor for female marines. Could you share details of the Army's program to do the same and how you are coordinating, or not, your efforts with the Marine Corps?

General MURRAY. Thank you, Congressman. And absolutely. And to answer your last question first, we meet with the United States Marine Corps, both their combat developers and their resourcers,

about once a quarter to discuss topics just like this. And as a matter of fact we have talked about this in the recent past.

So we have kind of learned over the last few years that body armor does not fit all makes, shapes, and sizes. And the one thing I would say is you will never make body armor that is completely comfortable. I have been wearing it for 35 years; I don't think I've ever put it on that I would say it was comfortable. So that is just a fact of life.

Protection has to be the number one priority; I mean, that is why we build the body armor. But we do in fact have modified the IOTV [Improved Outer Tactical Vest], the individual tactical vest, to better form fit our females. We have reduced the size of some of the plates, still providing protection, so that it is a better form fit.

The combat ballistic shirt, we do have specific form fits for our female soldiers. And we have gone through additional sizes for the shoulder protections and the torso protection which you hang on the sides to better form fit not only our female soldiers, but our smaller male soldiers.

So the answer to your question is yes to both; we do work with the Marines on that and yes, we have learned those lessons.

Mr. CARBAJAL. Thank you. I have worn that body armor and I know it is not comfortable. But certainly it could be a lot more comfortable depending on your body shape, so I appreciate you sharing.

According to the DOD's annual energy and management report, DOD's operational and installation and energy represents approximately 80 percent of total Federal energy consumption and the Army is the largest consumer of installation energy. In what ways is the Army working with the defense industries to invest in energy innovation?

General MURRAY. That is again probably outside of both our areas of expertise, but fortunately both of us have commanded several installations so just from personal knowledge, and I most recently came from Fort Stewart, Georgia, so I know for a fact that on Fort Stewart, Georgia, we had a wood chip burning plant if you will.

So obviously in Fort Stewart, Georgia, there is a lot of pine trees and a lot of forestry goes on. We would go out as an installation, police up tree tops, tree roots, tree trunks, et cetera, grind them and burn them to heat the water—very clean burning, but burn them to heat the water at Fort Stewart.

We also did a partnership with Georgia Power, put in one of the largest solar fields in the State of Georgia just outside of Fort Stewart that would serve that installation if power was ever cut, but otherwise it goes onto the grid for the greater use of the State of Georgia, and that is just one installation.

Our last ASA [Assistant Secretary of the Army] Miss Hammack, was very focused on this effort so I know at Fort Benning, Georgia, there is another solar grid and she was working throughout the United States on initiatives just like you are talking about.

General ANDERSON. And I commanded Fort Carson, Congressman, which was an energy efficient megacity out there. And we had solar panels because of the altitude and the sunshine there virtually every day. We had panels everywhere. But we were also the

test bed for electric vehicles so we had—trying to reduce energy consumption on it.

Now the question was going to be how well it was going to be applied in a tactical environment. It was being applied in a garrison environment, but it was not using fuel vehicles, it was using electrical vehicles that would plug into the actual division headquarters, a humongous charging power grid there that recharged the vehicle for a 24-hour burn. And we were using those things all over the place to deliver supplies, mostly logistic sustainment related stuff.

And the issue was going to be what was going to be the expandability in a field environment, and of course everything we are dealing with here in the building in Washington does deal with size, weight, and power. When we do procure things we are looking on what is in the rechargeable realm, what does use renewable energy, but how do you from weapon systems, to communication systems, to vehicles, how do we import those technologies so it is not a fuel heavy, petroleum heavy environment.

Mr. CARBAJAL. Thank you. Thank you very much. I yield back.

Mr. COOK. Thank you.

Mr. Veasey.

Mr. VEASEY. Thank you, Mr. Chairman. I wanted to ask both of you about the continent of Africa just because I have been interested in some of the ungoverned areas there which, as we know, can be an issue for new radicalism. And I wanted to ask you about the effect of sequestration and budget caps on the Army's missions in Africa. And how are units managing preparation and training for missions to this region along with the eight other operations the Army currently supports?

General ANDERSON. Well, one of the named operations, Congressman, is in Africa, in the Horn of Africa. So the problem we are having in Africa is, as you know, a huge continent between Lord's Resistance Army, Boko Haram, Al Qaeda, ISIS [Islamic State of Iraq and Syria], et cetera. The migration north as you go up towards places like Libya, when our brigade combat teams are going there, they are getting kind of broken apart to deal with the numerous requirements. There are some Gray Eagle [unmanned aircraft system] support, there is security force issues, and there is also some of these logistics bases as hubs that we are using in Africa.

So the problem is the expanse, the troop-to-task requirements. And so when a BCT goes there, unlike when a BCT goes to Europe, the BCT goes to Europe and stays pretty much tactically pure at least to the battalion task force level with fires, aviation, maneuver. That is not the case in the continent of Africa because of what the requirements are there and how we are breaking down into a much smaller company and in some cases even platoon level to deal with the different requirements.

So our challenge is how do we get a common operating picture of what that looks like requirement-wise and what is the best way to support the requirement based on what the task is. So what really should a BCT be doing over there versus other types of units or smaller scale requirements in support of AFRICOM [U.S. Africa Command] or United States Army Africa, and that is the constant

challenge we are having right now in how we are providing support there.

Mr. VEASEY. Do you think with the Chinese constantly expanding their footprint on the continent of Africa, as you know, we don't have—we have operations there, we don't have a U.S. base there like we do in Europe and other parts of the world. Do you think that that is a mistake in dealing with that particular mission?

General ANDERSON. I think that is part of the assessment we have to make. What are they trying to achieve? How much of that again is via influence or action? And what is the counter to that? But when you put that on the context of what I just talked about, you are just complicating the factor by what they are trying to do typically subvertly. And how do you counter that? And what does it take to do that? And that just adds to the complexity on the continent.

Mr. VEASEY. Thank you. Let me move over to Army aviation assets. I wanted to ask you which assets would you prioritize if we still have sequestration in FY 2018? And which stand to undergo the greatest cuts.

General MURRAY. So we haven't reached that point yet. Hopefully, we won't, Congressman, but I would prioritize active protective systems for our aircraft, because there are threats out there right now that we just—we need to develop some new technologies, and we are, to provide protection for our aviators. I would put that as number one.

And then personally it would be difficult for me to decide between the AH-64 versus UH-60 Mike model, the Echo model for the 64 or the Mike model, or the CH-47 Block II, because they are all required.

So my guess is we would prioritize the active protection and then we would continue to go at min sustaining rates across all of our aviation lines and upgrade as we can and we just drag out further than we were planning right now.

Mr. VEASEY. Which systems would you prefer to divest if given the opportunity?

General MURRAY. Well obviously, we still have some [OH] 58s out there that we still have to get rid of, the TH-67s we are getting rid of—all part of our ARI [Aviation Restructure Initiative]. We need to get rid of the Alpha model of the UH-60s and we are on track to do that first in the National Guard and then in the Active Component. And then as we go to Block II of 47, the older 47s.

Mr. VEASEY. Thank you. Mr. Chairman, I yield back.

Mr. COOK. Thank you.

Ms. Tsongas.

Ms. TSONGAS. I have one just sort of—it is more or less a follow-up question. But General Murray, I would like to get a sense of how the Army is integrating commercial off-the-shelf [COTS] items in areas as basic as boots to areas as sophisticated as software given the fiscal constraints. The real needs around manpower, the needs to modernize, and needs to equip.

What impediments are you facing to the further introduction of COTS materials? Are these impediments related to procurement regulations or issues related to licensing and intellectual property?

And what do you need from Congress—if these are impediments, what do you need from Congress to better address them?

General MURRAY. General Anderson mentioned how we do equipment through the Rapid Equipping Force, which is based upon ONSs [operational needs statements] and JUONSs [joint urgent operational needs statements]. So there are some statutes and legal things that can be done through that process that are currently prohibited, for instance the Berry Amendment.

So you mentioned boots; this is a recent scar tissue for me. So we just went through jungle boots for the 25th [Infantry Division]. And it was as simple as the Chief of Staff going down there and identifying a problem, coming back and saying, I want boots. And I basically spent probably a couple months figuring out how to work my way through the acquisition rules to get to a point where we could just go buy boots and put them in the hands of soldiers. And we just fielded them in March, so we were able to be do that in about 3 months.

So there are ways of doing this. I am not going to say that it is easy. The software piece—and I am not the software expert—our software is kind of procured through the PEOs [program executive offices] and PMs [program managers], but I know we procure software that way, not purely a commercial item. And really we are trying to do this smarter, so in the past we have—if I was going to buy boots or a very simple vehicle like the ground combat vehicle—I am sorry, not the ground combat vehicle, the small GMV [ground mobility vehicle] basically to get soldiers from point A to point B, we would figure out how to do it for the entire Army.

So for the boots, I am not buying for the entire Army. I am buying for the soldiers that need the jungle boot and we are putting some in contingency stocks if we have to go fight in a jungle environment. And that is where we are going to stop the jungle boot.

For the small Gator-like vehicle, we are going to buy off of an existing SOCOM [Special Operations Command] contract. We are going to buy five BCTs' worth, and we are going to see if we need more. If we need more, we will go into a full and open competition for the other 30 infantry brigade combat teams.

So we are trying to break the paradigm by doing things in smaller scales, because the other thing is with the resources we have, if I was going to buy for the entire Army, it would be years, and years, and years, and the technology would be updated by the time that I buy the last brigade's worth of equipment.

If we buy in smaller chunks and then you know in 2 years, 3 years we go after the most up-to-date stuff, commercially, if possible limited new development is we are having some pretty good success. It is the same way we are going after mobile-protected fire-power. It is very clear to industry we are not interested in new development because we want it quickly and we know the technologies that are out there to give us what we need.

Ms. TSONGAS. Well, if there is any way we can be helpful, we look forward to helping with that, because you are right on a number of fronts, it is a huge investment if you are thinking across the Army, technology changes so quickly it can become obsolete just as quickly, so quickly and so a whole host of challenges. We are happy to work with you.

And I yield back.

Mr. COOK. Thank you.

Gentlemen, I want to thank you very much. You spent a lot of time here. A lot of questions, the whole subcommittee. I didn't see any notes. So very, very impressed.

You know, for all your service, the troops you have, very, very proud of you. And once again, on behalf of the committee I want to thank you.

This meeting is adjourned.

[Whereupon, at 4:52 p.m., the subcommittee was adjourned.]

A P P E N D I X

MARCH 16, 2017

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

MARCH 16, 2017

Statement of the Honorable Michael Turner
Chairman, Subcommittee on Tactical Air and Land Forces
Hearing: The Effect of Sequestration and Continuing Resolutions on
Army Modernization and Readiness

March 16, 2017

The hearing will come to order.

The Subcommittee meets today to continue the ongoing process of informing our members and the public about the current readiness crisis that all of our military services find themselves in.

This hearing will address how sequestration and continuing resolutions have impacted the Army's ability to modernize the current and future force to be "ready and capable" against current and emerging threats.

We held a similar hearing last week with the Marine Corps.

I'd like to welcome our witnesses:

- Lieutenant General John M. Murray, Army Deputy Chief of Staff, G-8
- Lieutenant General Joseph Anderson, Army Deputy Chief of Staff, G-3/5/7

Thank you each for your dedicated service to our Nation.

We look forward to hearing your professional assessment on the current status of Army modernization.

As you know Readiness includes many things such as end-strength, training, and modernization.

In many hearings, the full committee and this subcommittee have heard testimony regarding the serious challenges faced by our military services with respect to overall military readiness.

We've repeatedly heard how the military services, as a result of budget constraints, have had to defer modernization in order to maintain near-term readiness.

We've heard about the many complex and evolving threats this country now faces, and how we continue to lose our technological advantage and combat overmatch against strategic adversaries.

Just last month General Allyn, the Vice Chief of Staff of the Army reiterated many of these concerns, and noted that as currently postured the Army is outranged, outgunned and outdated.

Right now the Army is near the bottom of a historically severe budget drawdown in terms of modernization.

For example, Army modernization funding declined 74 percent from 2008 thru 2015 as a result of the drawdown from two wars and the imposition of the Budget Control Act caps.

And as a result tradeoffs and significant funding reductions were made to critical Army modernization programs.

So the purpose of this hearing today is to conduct a more comprehensive review of the State of Army Modernization, and understand what the Army will require to rebuild itself and win decisively.

We need to better understand how and why the Army is outranged, outgunned and outdated, so we can begin the process of fixing this problem.

As such the witnesses have been asked to address and identify:

1. the near and long-term impacts that continuing resolutions and sequestration are having on the Army's ability to modernize and ready its forces;
2. the processes the Army is utilizing to prioritize modernization requirements to address immediate and near-term capability gaps in a budget constrained environment;
3. where the Army should be focusing its modernization strategies across the future years defense program to address the anticipated security environment; and,
4. the potential resources that would be required to support these strategies.

To be clear about resources—as I said last week during a similar hearing with the Marine Corps—the top line is the issue and we must repeal sequestration.

I support the President's commitment to rebuilding the military.

For example, just last year the military services identified almost \$22 billion in unfunded requirements.

The Army's draft FY17 Supplemental request appears to require an additional \$4.2 billion just for modernization requirements alone, to begin to restore needed capacity and capability.

So the early reports that the Administration plans to offer a budget of \$603 billion for defense in fiscal year 2018, only a 3 percent increase above President's Obama's projected budget request for fiscal year 2018 from last year, raises serious concerns that this request will be inadequate to address the pressing needs of our military services.

I agree with Chairman Thornberry that a 3 percent increase above President Obama's projected budget request from last year is clearly not enough to begin rebuilding our military.

While we cannot repair all of the damage done from sequestration in a single year, however we **can** and **should** do more than this level of funding would provide.

For too long we have had budget driven strategies instead of strategy driven budgets.

I look forward to working with the Administration in order to increase the fiscal year 2018 budget to get as close as possible to the \$640 billion number referenced in Chairman Thornberry's Views and Estimate letter to the Budget Committee.

General Murray, please begin, followed by General Anderson.

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RECORD VERSION

STATEMENT BY

LIEUTENANT GENERAL JOHN M. MURRAY
DEPUTY CHIEF OF STAFF OF THE ARMY, G-8

AND

LIEUTENANT GENERAL JOSEPH ANDERSON
DEPUTY CHIEF OF STAFF OF THE ARMY, G-3/5/7

BEFORE THE

SUBCOMMITTEE ON TACTICAL AIR AND LAND FORCES
COMMITTEE ON ARMED SERVICES
UNITED STATES HOUSE OF REPRESENTATIVES

FIRST SESSION, 115TH CONGRESS

ON

THE EFFECT OF SEQUESTRATION AND CONTINUING RESOLUTIONS ON
MODERNIZATION AND READINESS

MARCH 16, 2017

NOT FOR PUBLICATION UNTIL RELEASED BY THE
COMMITTEE ON ARMED SERVICES

Introduction

Chairman Turner, Ranking Member Tsongas, distinguished Members of the Subcommittee on Tactical Air and Land Forces, thank you for this opportunity to discuss the effect of sequestration and continuing resolutions on modernization and readiness. On behalf of our Acting Secretary, the Honorable Robert Speer, and our Chief of Staff, General Mark Milley, we look forward to discussing with you the effect of fiscal constraints on the Army's ability to ready its forces.

The global security environment, increasingly characterized by instability and a growing range of threats, demands an Army that must be organized and ready for an increasingly diverse and complex range of missions. While the threats and missions we face today will endure well into the future, they will be overshadowed by emerging regional peer competition. More than ever, this environment will require trained and ready Army formations possessing both the capacity and capability to meet current and future challenges.

Due to the Budget Control Act of 2011 (BCA) caps, and year after year continuing resolutions, the Army had to generate the best trained and equipped Army that existing resources would allow. As such, the Army accepted considerable risk by reducing end-strength and deferring modernization programs and infrastructure investments. These trade-offs reflect constrained resources, not strategic insight; and while we appreciate your support in helping stem the tide of force structure reductions, our restored strength must be coupled with sufficient and sustained funding to avoid creating a hollow force.

As stated above, the budget caps forced the Army to make resourcing tradeoffs between ready formations and critical modernization programs. As a result, most Army modernization programs have been significantly reduced or delayed. These programs, due to their development timelines and reliance on the industrial base, are especially sensitive to unpredictable or delayed funding. BCA caps and continuing resolutions increase risk in our modernization programs and cause delays in getting necessary equipment into Soldiers' hands. Sustained, long-term, predictable funding is essential

for the Army to build and sustain current readiness and progress toward a more modern and capable future force.

Readiness

Readiness remains the number one priority for the Army. BCA caps and the lack of predictable funding has proven to be the Army's number one readiness risk. The BCA budget caps support a decreasing demand for forces but the current and emerging environment resulted in the opposite – an increasing demand for forces. While demand for current forces increased, budget caps and continuing resolutions squeezed the resources needed to maintain balance within the force. Repealing or revising the BCA and ensuring sufficient funding to train, man, equip and modernize the Fiscal Year 2017 (FY17) National Defense Authorization Act (NDAA) authorized force will prove most beneficial to Army readiness.

Today, the Army remains globally engaged with over 182,000 trained and ready Soldiers committed to meeting Combatant Command deterrence and counter-terrorism requirements. The strategic challenge we face revolves around the fact that the operation tempo required to meet current and emergent demand consumes readiness as fast as we can supply it. As a consequence, the Army is in a position where we can support current Combatant Commander requirements, however, we are exposed to high risk in the Army's ability to meet potential war-time contingency requirements.

The end-strength authorizations associated with the FY17 NDAA will significantly help the Army mitigate the strategic contingency risk. These authorizations are absolutely necessary to man our current formations at higher levels and are the first step required to meet our readiness objectives. We are analyzing our brigade combat team force mix and the implications of converting an Active Army Infantry Brigade Combat Team into a 15th Armored Brigade Combat Team (ABCT). This increased armor capacity may provide the needed flexibility to meet extant threats around the globe. We are implementing the build of two Security Force Assistance Brigades (SFABs), one in the Regular Army and one in the Army National Guard and are evaluating the addition of another Regular Army SFAB to better support our partners and preserve BCT

readiness. These SFABs will also serve as the backbone of new brigades if the Army is ever called to rapidly expand. To address mounting challenges in the cyber domain, the Army is building 41 Cyber Mission Force teams. Currently, 30 of the Army's 41 teams are at full operating capability, and 11 more are planned to be at full operating capability by FY18.

These additional end strength increases will significantly help in rebuilding critical unit types and develop crucial anti-access and area denial defeat capabilities, such as Air and Missile Defense, Long Range Fires and ABCTs. As stated previously, it is vital that any manpower increase must be coupled with commensurate funding to ensure the long-term strength in preparing, equipping and modernizing the force.

As we refill unit end strength requirements and build new force structure, we are implementing training policies that will enable us to achieve and sustain higher readiness levels. We have stabilized Army readiness levels despite supporting eight named operations.

The current global security environment demands a shift in focus to support Joint operations against a broader range of threats, and we use the most demanding challenge – decisive action in support of Unified Land Operations – as our benchmark. Simulating the decisive action challenge – that is, recreating a peer competitor in a training environment for all echelons of command – requires sustained resources. With the last disruption of funding we were forced to leave our Combat Training Centers (CTCs) empty while the units scheduled to train had their readiness degrade. This significantly degraded the readiness of the affected units. We have prioritized getting units back through the CTCs, despite budgetary pressures. We completed 18 Decisive Action rotations in FY16, and project increasing that to 19 in FY17 and the plan is to grow to 20. To maximize the return on CTC rotations, units also need home station training support from their installations. Home station is where units develop their individual and small unit tasks, allowing them to put it all together as a combined arms team at a CTC.

The Army is one Total Force, and Army National Guard and Army Reserve units deploy regularly and are integral for our contingency plans. The Army has programmed increased manning, training days, and CTC rotations to enhance Army National Guard and Army Reserve readiness. These increases are not an across-the-board uptick. They are targeted by unit type to address prescribed readiness levels based on operational demand. Units that must be available immediately, such as Army National Guard ABCTs and Stryker BCTs, will have additional training days to enable their rotations through a CTC. In cases where plans allow units more time to deploy, fewer additional training days are programmed. As with the Regular Army, we have reduced the burden of mandatory training on Army National Guard and Army Reserve units by decreasing its frequency and giving more discretion to commanders. These administrative training requirements eat up time at home station that is vital to preparation for a CTC rotation.

The Army made significant progress implementing a new force generation methodology called Sustainable Readiness to maintain established readiness longer, regain combined arms lethality, and develop key capabilities. We will begin implementing Objective Training requirements in FY17 in support of Sustainable Readiness. Sustainable Readiness applies to the Total Force, allowing the integration of Reserve Component units into readiness decisions, which is not only advantageous but vital as we increasingly integrate Reserve Component forces into our global management of forces.

In addition to the Active Component changes, the Army has increased operational use of the Army National Guard and the Army Reserve to support Joint Force requirements around the globe. This trend will continue. We continue to emphasize increased readiness in our Reserve Component units by building multi-component and associated units to enhance Total Force integration. In addition, we are building 21 Cyber Protection Teams in the RC, with 11 teams in the Army National Guard and 10 teams in the Army Reserve. Today, three Army National Guard Division Headquarters, along with numerous other formations, are supporting geographic combatant commanders here at home and around the world. With the support of Congress, the Army can

maintain the appropriate force mix and Total Force readiness to sustain these vital operations worldwide.

Modernizing the Force

Challenges to Army modernization have been building over the course of nearly two decades. Adjusting for inflation, the Army has nearly half of the funding for modernization and equipment that it had just 8 years ago. Declining budgets drive difficult choices; we have faced this over many budget cycles.

The budget issue has been further complicated by 15 years of focus on counterinsurgency and counterterrorism as the Army addressed current needs in Afghanistan and Iraq. This was the right thing to do, but it required tradeoffs in modernization funds. The Army, fully aware of these tradeoffs, made the right choices to support our Soldiers for the missions and threats we faced at that time. This kind of approach led to the fielding of Mine Resistant Ambush Protected vehicles, increasing the number of UH-60s for Air Medical Evacuation, and rapid fielding of theater-specific equipment for our Soldiers.

In terms of procurement, we are essentially relying on the same platforms that we have had since the 1980s—the Big 5, consisting of the Abrams Main Battle Tank, Bradley Fighting Vehicle, Apache Attack Helicopter, Blackhawk Utility Helicopter, and Patriot Missile System. The Army developed these systems to provide a credible deterrent during the Cold War. Given the current level of funding, we will continue to rely on all five platforms into the 2030s and beyond.

Meanwhile, our enemies have not been idle. The overmatch the Army has enjoyed for the last 70 years is at risk. Our adversaries have observed the way we fight and have been developing capabilities to counter our strengths and exploit our vulnerabilities. Some of these new capabilities have already been tested in combat.

Fiscal constraints have forced the Army to accept risk in starting new programs in order to prioritize incremental upgrades of existing systems that can be in the hands of Soldiers quickly. Over the last 15 years, the Army has not modernized for full spectrum

warfare thereby risking the loss of overmatch in every domain: land, air, maritime, space, and cyberspace.

Our Soldiers must be able to prevail against a range of threats, including near-peers in highly lethal combined arms maneuver; hybrid warfare; and determined, unconventional insurgents. This has become increasingly uncertain, as our adversaries are modernizing at a rapid pace, while reduced funding, due in part to the BCA has reduced the Army's modernization to a pace that jeopardizes our overmatch. Stretching procurement timelines has allowed us to focus on current readiness and keep production lines and key programs active, at the cost of increased risk versus our most capable adversaries.

Prioritizing Capability Gaps

This year, the Army conducted the inaugural Strategic Portfolio Analysis Review (SPAR), which enables Army senior leaders to make informed resource decisions within a larger strategic framework. The SPAR prioritizes limited modernization resources, weighed against risks and critical capability gaps, in order to balance near-term readiness requirements against long-term force development. As part of the SPAR we modeled and tested our 780-plus programs against a scenario with a near-peer adversary. This analysis resulted in the prioritization of Army capabilities into four bins:

1. Critical Capability that provides a decisive advantage in which we should increase investment
2. Critical Capability that we should sustain at current levels of investment
3. Important Capability, but one from which we can divert resources
4. Still important, but we should divest in order to free up resources for the other categories.

SPAR has validated a number of critical capability gaps in key program areas. These gaps are Army modernization priorities that we must pursue in order to maintain and, eventually, regain overmatch to credibly deter and defeat near-peer adversaries.

- Air and Missile Defense (AMD). We lack the capability and capacity to meet the AMD demands of the combatant commanders to cover key fixed sites and provide effective AMD protection of the maneuvering forces.
- Long-range Fires. The Army lacks capability and capacity to provide immediately responsive, effective surface-to-surface fires at ranges beyond 40 kilometers (km) for Cannon Artillery, beyond 84 km for Rocket Artillery, and 300 km for missiles; this gap is partially due to the aging Army Tactical Missile System (ATACMS) inventory.
- Munitions. The Army anticipates significant increases to ammunition requirements based on emerging peer and near-peer threats while also increases in demand in Iraq and Afghanistan. We are evaluating the need to both grow capacity in some of our government owned and contractor operated ammunition plants and to broaden commercial capacity in order to meet the increased requirements for preferred munitions.
- Mobility, Lethality and Protection of Brigade Combat Teams. Our Armored, Infantry, and Stryker Brigade Combat Teams are deficient in the appropriate combination of mobility, lethality, and protection required to achieve overmatch during joint and combined arms operations.
- Active Protection Systems (APS) – Air and Ground. The proliferation of advanced man portable air defense systems significantly threaten Army Aviation in operational environments. On the ground, our combat vehicles lack the ability to effectively detect, track, divert, disrupt, neutralize, or destroy incoming direct and indirect fire munitions.
- Assured Position, Navigation, and Timing (PNT). The commercial and Military Global Positioning Systems (GPS) are susceptible to threat disruption (jamming) and spoofing (mimicking friendly forces).
- Electronic Warfare (EW). The Army is unable to conduct Electronic Attack and EW Support against near-peer adversaries.

- Cyber (Offensive and Defensive). We lack tools, platforms, and architectures to conduct Offensive Cyber Operations in the constantly changing, complex Cyber Domain. The Army also lacks sufficient Defensive Cyber infrastructure and tools to support Mission Command in all scenarios.
- Assured Communications. Current communications systems are vulnerable to near-peer threat detection, disruption/denial, and exploitation.
- Vertical Lift. The Army's increased requirements for aircraft survivability, safety, and Mission Command have reduced fleet payload and range capacity. This limits mobility and increases risk to ground forces.

Resourcing Modernization

With respect to the budget, the Army has three main categories within the topline that it can adjust: Manpower, Readiness, and Modernization. Of these three, Readiness is our top priority. We are also committed to maintaining our current projected force structure. Any adjustments to these three categories are zero sum; there must always be a "bill payer" for every increase. Inflation and scheduled increases to personnel costs put increasing pressure on the Modernization portion of the budget.

Given this set of priorities, the FY17 President's Budget request allocated about 60 percent of the Army's topline to Manpower. This is a must-pay bill. Readiness will consume approximately 24 percent of our budget; as the number one priority, the Army will not choose to reduce this allocation. This leaves roughly 16 percent for Modernization.

Ideally, we would always have the most modern equipment, but this would require painful tradeoffs with Manpower and Readiness. We would like to do all three, but large modernization investments at the wrong time could lead to a force that is too small or a force that we cannot afford to keep ready. Maintaining balance across Manpower, Readiness, and Modernization is key to preventing a hollow force. Without sustained, long term, and predictable funding, we cannot effectively plan and execute a balanced Army program.

Given the fiscal pressures, the Army has focused constrained resources on equipping for the near term at the expense of preparing for the future. The Army is accepting risk in starting new programs in order to prioritize incremental upgrades of existing systems that can be in the hands of Soldiers more quickly. Our current equipment modernization strategy has been structured to:

Protect Science and Technology to field capabilities to the force in the 2030s. We will prioritize Science and Technology efforts to develop new military capabilities to deter and defeat potential adversaries in the next fight.

Sustain Incremental Upgrades. We will prioritize capabilities that have the greatest impact against a near-peer threat and can be in Soldiers' hands in the next 10 years. We will sustain or upgrade important platforms such as M1 Abrams Tank, M2 Bradley Fighting Vehicle, Stryker Combat Vehicle, Soldier weapons, and Intelligence, Surveillance, and Reconnaissance platforms.

Take Risk in New Development. The Army will begin new developmental programs only if required to close an extremely high risk gap. We will attempt to accelerate Air and Missile Defense, Long Range Fires, Mobile Protected Fire Power, Active Protection Systems (Air and Ground), Assured Positioning, Navigation and Timing, Electronic Warfare, and Cyber offensive and defensive capabilities, and Assured Positioning, Navigation and Timing.

Go Slow, Keep Options Open. We will slow down procurement to keep production lines open and warm for when funding becomes available.

Divest. We will identify equipment and systems that are excess, obsolete, or no longer required to reduce and eliminate the associated sustainment costs.

Identifying Opportunities to 'Turn the Tide'

Given the complex range of threats, the Army has a very short window to restore capability and capacity of our Army. By design, the Army drawdown was deliberately designed to reverse course and expand if necessary. Additionally, Army modernization,

during the past several years of constrained funding and austerity maintained its resilience by:

- Protecting the defense industrial base by keeping production lines warm
- Protecting modernization options by investing in the next generation of incremental improvements, emphasizing low risk and cost efficient improvements

We have sustained many programs that could be accelerated if needed. The Army is prepared to accelerate delivery of fires capability, armor formation upgrades, aviation fleet modernization, enhanced air and missile defense, ammunition and missiles for emerging wartime requirements, lethality upgrades for Stryker vehicles, assured communications, Soldier lethality and protection and finally, electronic warfare. The Army is at a unique historical inflection point, where we are postured to pivot rapidly if directed to do so.

In Conclusion

Thank you for the opportunity to address such a critical issue for the Army – the effect of the BCA caps and continuing resolutions on Army readiness and modernization. We appreciate Congress's efforts to stem the continued decrease in force structure, and we are already making progress in regrowing the Army in accordance with NDAA prescribed end strength. As we grow, we will focus first on filling the holes in our existing units as our top priority. Our current plan, coupled with adequate levels of predictable funding and stable demand, will restore sufficient Army readiness in our current force by FY21-23. In addition to readiness, we must also ensure the force is equipped and modernized for full spectrum conflict. 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 and exploit vulnerabilities, resource reductions and insufficient force modernization will place the Army's ability to overmatch its opponents at risk.

We can assure you that the Army's senior leaders are working hard to address current challenges and the needs of the Army now and in the future. We are doing so

with a commitment to be good stewards of our Nation's resources while meeting the readiness, equipping and modernization needs of our Soldiers.

Mr. Chairman and distinguished Members of this Subcommittee, we sincerely appreciate your steadfast and strong support of the outstanding men and women in uniform, our Army Civilians, and their Families.

Lieutenant General John M. Murray
Deputy Chief of Staff, G-8

Lieutenant General Murray was commissioned as an Infantry officer in the U.S. Army upon graduation from the Ohio State University in 1982. Throughout his career, Lieutenant General Murray has served in leadership positions and commanded from Company through Division, with various staff assignments at the highest levels of the Army.

Lieutenant General Murray has held numerous command positions. His command assignments include: Commanding General Joint Task Force-3; Deputy Commanding General – Support for U.S. Forces Afghanistan; Commander Bagram Airfield; Commanding General 3rd Infantry Division at Fort Stewart, Georgia; Commander, 3rd Brigade, 1st Cavalry Division, at Fort Hood, Texas while serving in Operation IRAQI FREEDOM; Commander, 1st Battalion, 18th Infantry, 1st Infantry Division, United States Army Europe and Seventh Army, Germany; Commander, C Company, 1-12th Infantry Battalion, 4th Infantry Division (Mechanized), Fort Carson, Colorado.

Previously, he was the Director, Force Management, the Pentagon; Assistant Deputy Director for Joint Training, J-7, Joint Staff, Suffolk, Virginia; Director, Joint Center for Operational Analysis, United States Joint Forces Command, Suffolk, Virginia; Deputy Commanding General (Maneuver), 1st Cavalry Division, Fort Hood, Texas; Deputy Commanding General (Maneuver), Multi-National Division-Baghdad OPERATION IRAQI FREEDOM, Iraq; G-3 (Operations), III Corps, Fort Hood, Texas; Chief of Staff, III Corps and Fort Hood, Fort Hood, Texas; C-3, Multi-National Corps-Iraq, OPERATION IRAQI FREEDOM, Iraq; G-3 (Operations), 1st Infantry Division, United States Army Europe and Seventh Army, Germany; Chief, Space Control Protection Section, J-33, United States Space Command, Peterson Air Force Base, Colorado; S-3(Operations), later Executive Officer, 1st Battalion, 5th Cavalry, 1st Cavalry Division, Fort Hood, Texas; Chief, Plans, G-1, III Corps and Fort Hood, Fort Hood, Texas.

Lieutenant General Murray's awards and decorations include: the Distinguished Service Medal w/Oak Leaf Cluster, the Defense Superior Service Medal with Oak Leaf Cluster, the Legion of Merit with two Oak Leaf Clusters, the Bronze Star Medal with three Oak Leaf Clusters, the Defense Meritorious Service Medal, the Meritorious Service Medal with two Oak Leaf Clusters, the Army Commendation Medal with Oak Leaf Cluster, the Joint Service Achievement Medal, the Army Achievement Medal with Oak Leaf Cluster, the Ranger Tab, the Combat Infantryman Badge, the Expert Infantryman Badge, the Parachutist Badge, the Air Assault Badge, the Joint Chiefs of Staff Identification Badge and the Army Staff Identification Badge.

Lieutenant General Murray hails from Kenton, Ohio. He and his wife, Jane, have three lovely daughters and seven grandchildren.

Lieutenant General Joseph Anderson
Deputy Chief of Staff, G-3/5/7
United States Army

Lieutenant General Joseph Anderson assumed the duties as the Deputy Chief of Staff, G-3/5/7, Headquarters, Department of the Army, on 11 May 2015. His most recent assignment was as the Commanding General, XVIII Airborne Corps, Fort Bragg, North Carolina and Commander, International Security Assistance Force Joint Command (IJC) and Deputy Commanding General, US Forces – Afghanistan.

Lieutenant General Anderson received his commission in the Infantry Branch from the United States Military Academy at West Point in 1981. He holds Masters Degree in Administration from Central Michigan University and National Security and Strategic Studies from the Naval War College.

During more than 34 years of service, Lieutenant General Anderson has been afforded many unique professional experiences and opportunities. He has commanded units from platoon to corps. Command assignments include: C Company, 2nd Battalion (Airborne), 187th Infantry Regiment, 193d Infantry Brigade, Fort Kobbe, Republic of Panama; 2d Battalion, 75th Ranger Regiment, Fort Lewis, Washington; 2d Battalion, 505th Parachute Infantry Regiment, 82d Airborne Division at Fort Bragg, North Carolina; 2d Brigade and 502d Infantry Regiment, 101st Airborne Division (Air Assault) at Fort Campbell, Kentucky; and 4th Infantry Division and Fort Carson, Colorado.

Other significant assignments include Aide-de-Camp to the Commanding General, United States Army Pacific, Fort Shafter, Hawaii; Professor, Joint Military Operations Department, College of Naval Warfare, Newport, Rhode Island; Chief of Staff, 101st Airborne Division (Air Assault), Fort Campbell, Kentucky; Executive Officer, Secretary of the Army, Department of the Army, Washington, DC; Chief of Staff, III Corps, Fort Hood, Texas; Chief of Staff, Multinational Corps-Iraq; Deputy Commanding General, U.S. Army Recruiting Command, Fort Knox, Kentucky; Chief of Staff, Multinational Force/United States Forces-Iraq; and Director, Operations, Readiness and Mobilization, Department of the Army; Washington, DC.

Lieutenant General Anderson's operational deployments and combat tours include Operation Just Cause, Task Force Hawk-Albania, Task Force Falcon-Kosovo, Operation Joint Guardian, Operation Iraqi Freedom, and Operation Enduring Freedom.

His military education includes the Infantry Officer Basic and Advanced Courses, the Combined Arms Staff Service School, United States Army Command and Staff College, the Armed Forces Staff College, and the United States Naval War College.

Lieutenant General Anderson and his wife, Beth, have two sons: Marc and Michael.

QUESTIONS SUBMITTED BY MEMBERS POST HEARING

MARCH 16, 2017

QUESTIONS SUBMITTED BY MR. TURNER

Mr. TURNER. What are the immediate and near-term impacts to Army modernization if funded under a year-long continuing resolution (CR) for FY17, and would you experience any Nunn-McCurdy breaches in programs as a result of being funded under a year-long CR?

General MURRAY. A year-long continuing resolution (CR) would significantly impact the Army. Capabilities that will be most affected by these delays include lethality upgrades, electronic warfare and cyber programs, air and missile defense capabilities, protection and mobility systems, and intelligence, surveillance and reconnaissance and engineer modernization efforts. Further, the Army's modernization efforts would fall further behind to include procurement of Apache AH-64E new builds and Abrams upgrades. Although no Nunn-McCurdy breaches will occur with a year-long Fiscal Year 2017 (FY17) CR, 47 procurement and Research, Development, Test and Evaluation new start programs in FY17 have been placed on hold pending an appropriation. These programs support Army priorities and a full year CR will delay initiation of these new capabilities further into FY18.

Mr. TURNER. Please provide the justification and the authorities the Army is using to change the acquisition strategy for the Ground Mobility Vehicle (GMV) program from a full and open competition to a sole source award.

General MURRAY. In order to quickly provide the Global Response Force with this critical capability, the Army approved a Directed Requirement to procure a limited quantity of Ground Mobility Vehicles (GMV), leveraging the existing Special Operations Command (SOCOM) GMV 1.1 contract, testing, and logistics support. The Army will procure 295 GMV 1.1 for five Airborne Infantry Brigade Combat Teams (IBCTs) accelerating the First Unit Equipped by two years compared to a full and open competition strategy. The Army is also adopting the SOCOM Capability Production Document (CPD) and is no longer pursuing a standalone Army GMV CPD. We will develop an annex to the SOCOM CPD to address requirements for the remaining IBCTs. The Army will pursue a follow-on full and open competitive strategy to procure ~1,770 vehicles to fulfill the Army's total requirement.

Mr. TURNER. In your view, what trade-offs, if any, would most likely have to be taken should sequestration return in FY18?

General MURRAY. The Army has already been making difficult trade decisions for the last five years, and frankly, is at the point of losing its technological edge in certain capability areas, thus putting overmatch at risk. If sequestration returned in FY18, we would be required to further delay and stop development and delivery of critical capabilities, putting our formations at greater risk of successfully executing missions assigned.

Mr. TURNER. In your witness statement, you list air and missile defense (AMD) as a top capability gap to address the pressing needs of combatant commanders. Would you please describe how CRs have slowed the Army's ability to address this critical gap?

General MURRAY. The Army has identified an emerging capability gap for a new Maneuver Short Range Air Defense capability. Current legacy systems do not address the gap but the Army cannot begin a mitigation effort because of Continuing Resolution (CR) new start restrictions. Delaying this effort until the next fiscal year would likely delay mitigation efforts by 2–3 years. In a similar vein, the Army pursued an effort in 2016 to fill a capability gap against electronic attacks. Deemed a new start, the impediment slowed our ability to defeat the threat and reduce operational risk for deployed soldiers and defended assets. A delay to fund the effort until the next fiscal year deferred starting the mitigation effort and fielding a capability by 2–3 years. I would also like to mention the effects of sequestration. Over 2013–2015, Congress reduced funding for improvements to the Patriot software which would improve capability against the Tactical Ballistic Missile threats being faced in multiple theaters. This delayed development of mitigation capabilities by 3–4 years. Sequestration also drives the Army to fund procurement at levels below maximum production rates so that other critical programs can also be produced. This lowers the Army's ability to meet operational requirements, such as munitions, which increases risk to the warfighter. Limited funding requires the Army to strike

a balance between munitions, platforms and capabilities across all warfighting functions.

Mr. TURNER. What areas of Army Aviation modernization are in most dire need of increased funding due to sequestration? What does the Army need to reverse this situation?

General MURRAY. The three main areas most at risk in Army Aviation are: Protection, Reach, and Lethality. The proliferation of advance threats requires us to stay ahead of potential adversaries by pursuing better protection like Advanced Threat Detection System, Common Infrared Countermeasures, and other detect and defeat efforts in the radio frequency spectrum. Extending our reach in support of our ground maneuver forces requires us to immediately address current aircraft shortages, complete scheduled upgrades to the aircraft we have on-hand, and continue developing future programs. First, we need to fill the holes in our attack helicopter fleet; Apaches are our biggest capacity gap. Reach also includes speed, range, power and agility in the objective area, and those require us to continue to upgrade existing platforms while developing Improved Turbine Engine (ITEP), CH-47 Block II, and Future Vertical Lift (FVL). As potential adversaries increase their air defense capabilities, we must field more lethal air-to-ground munitions with greater ranges. We also have the ability to create the capacity for more stored kills in our unmanned aerial systems and attack fleets through small-precision guided munitions. If additional resources were available, the Army would be able to fill readiness holes in the fleet, complete scheduled upgrades to aging aircraft, and accelerate developmental programs of the future like ITEP, CH-47 Block II, and different FVL capabilities. Reliable and steady funding also allows the Army to achieve more favorable economic price points and continuity across our industrial base. We continue to mortgage the future to pay for current systems.

Mr. TURNER. Under the European Reassurance Initiative (ERI), the Army is assembling equipment and ammunition required to support an armored division-sized force. This equipment can be used for both training and contingency operations. What is the timeline for this effort and by when do you expect to have this effort completed? Will this pre-positioning initiative require the procurement of additional facilities/bases in Europe? Will the armored division pre-positioned stock receive new systems such as Joint Light Tactical Vehicles (JLTVs) and Armored Multi-Purpose Vehicles (AMPVs) before other units in recognition of its important role in the event of a European conflict? In a similar manner will pre-positioned stocks have priority in receiving new technologies such as Active Protection Systems when they become available as well as the latest versions of the M-1 Abrams and M-2 Bradley?

General MURRAY. By Fiscal Year 2021 (FY21), the Army will build and deploy one fully modernized Armored Brigade Combat Team (ABCT) to Europe in addition to our current pre-positioned ABCT and rotational ABCT. This fully modernized ABCT will contain the latest versions of the M1 Abrams (M1A2SEPV3), M2 Bradley (M2A4), M109A7 Paladin and the Armored Multi-Purpose Vehicle (AMPV). This will be the first ABCT to have all four of those systems. Low Rate Initial Production AMPVs will be used to begin equipping the two Army Prepositioned Stock (APS) sets beginning in approximately FY20. Additionally, the Army is programming funds to procure 120mm Mortars, Mortar Fire Control Systems, and Javelins to meet the increased requirement generated by the additional European Reassurance Initiative structure. Joint Light Tactical Vehicles will eventually be added to the European APS but initial fielding will go to our Regular Army and National Guard Infantry Brigade Combat Teams. The current Army Prepositioned Stock set is equipped with the Army's most modern tanks and Bradleys—the M1A2 SEP V2 and the M2A3. Active Protection Systems are not yet available for that set. The second Army Prepositioned Stock set which will be completed in FY20 and in place in FY21, will be equipped with the next versions of tanks and Bradleys—the M1A2SEPV3 and the M2A4. The current plan is to equip that set with Non-Developmental Item Active Protection Systems.

Mr. TURNER. In recognition of the growing threat from unmanned air systems, artillery, rockets, and cruise missiles, the Army is seeking to expand its Short-Range Air Defense (SHORAD) capabilities. In this regard, what are the Army's plans to develop a SHORAD capability to support maneuver forces? Are there potential non-development candidate systems which could provide this capability?

General MURRAY. We are looking at placing Stinger Teams into maneuver companies and funding a Service Life Extension Program and Proximity Fuse modernization effort to improve the lethality of Stinger Block 1 missiles. Ongoing Army efforts will provide an initial Maneuver-Short Range Air Defense (M-SHORAD) capability leveraging materiel solutions currently under testing or evaluation. Those include systems which can detect, track, Identify, and/or defend against Unmanned Aircraft

System targets. An M-SHORAD demonstration hosted by the Army Program Executive Office, Missiles and Space, is scheduled to conclude before the end of Fiscal Year 2017. This has the potential to identify non-developmental candidates as well as include a mix of guns, missiles, and non-kinetic solutions. In an effort to support the European Reassurance Initiative, the Army initiated an Avenger recapitalization effort with Letterkenny Army Depot to provide 72 systems (two battalions' worth of Avengers). One Avenger battalion will serve as an Army Prepositioned Stock and one Avenger battalion will become an Enduring European Equipment Set.

Mr. TURNER. You have identified munitions as another top capability gap. How are the restrictions contained within the Ottawa Agreement and the Oslo agreement affecting the Army's ability to fill that gap?

General ANDERSON. Antipersonnel landmines (APL) The United States is not a signatory to the Ottawa Convention. As such, it is not directly constrained by the treaty's restrictions on the use, production, acquisition, stockpile, or transfer of antipersonnel landmines (APL). The Army is limited by United States policies on APL. Current United States APL policy was originally announced in September 2014 and is codified in Presidential Policy Directive 37 (PPD 37). Under this policy, the United States is aligning its activities outside the Korean Peninsula with key requirements of the Ottawa Convention. This means the United States will not use APL outside the Korean Peninsula; will not assist, encourage, or induce anyone outside the Korean Peninsula to engage in activity prohibited by the Ottawa Convention; and will undertake to destroy APL stockpiles not required for the defense of the Korean Peninsula. One important, indirect impact of the Convention is the majority of our Allies (including Japan, Australia, and several NATO members) are signatories to the treaty and are bound by its restrictions. The Ottawa Convention, in addition to prohibiting the use of APL, also prohibits signatory states from taking any action that would "assist, encourage, or induce, in any way, anyone to engage in any activity prohibited to a State party under this Convention." This language would complicate and/or restrict cooperation with Allies should the United States decide to utilize APL in coalition operations with signatory states. This limits the Army's ability to shape the battle in any conflict, other than Korea, with current inventories of our Family of Scatterable Mines.

Cluster Munitions (CM) The United States is not a signatory to the Oslo Convention. Unlike the Ottawa Convention, the Oslo Convention allows for "military cooperation and operations with States not party to this Convention that might engage in activities prohibited to a State Party," subject to restrictions provided by national legislation. The 2008 Department of Defense CM Policy prohibits the use of any CM with a greater than 1 percent unexploded ordnance rate from 1 January 2019. The policy has significant impact on all Army indirect fire systems—the Army Tactical Missile System, Multiple Launch Rocket System and the guided variant, and 155mm artillery as there is currently no near-term (by 2019) replacement for this important capability.

Mr. TURNER. Among other military-related initiatives, the Administration has called for increasing the Army's Active Duty end strength by 36,000 soldiers to 490K by the end of FY 18. As part of this increase, I understand the Army is considering adding three new Armored Brigade Combat Teams (ABCTs)—one by conversion and two through growth—and an Infantry Brigade Combat Team (IBCT). Reportedly, the Army plans to build two new Security Force Assistance Brigades in the Active force—one in FY18 and one in FY19. These new brigades will require a myriad of equipment ranging from small arms to vehicles. What are some of the equipping and modernization challenges related to these new brigades, as well as "growing the Army"?

General ANDERSON. The Security Force Assistance Brigade (SFAB) will be tailored to the security force mission, approximately 1/10th the size of an Infantry Brigade Combat Team (IBCT), with most of the equipment a subset of a standard IBCT's equipment. I do not anticipate challenges equipping the SFABs if we are properly resourced. Ultimately SFABs will allow us to more efficiently perform security force missions while preserving the readiness of our IBCTs. In terms of converting an IBCT to an Armored Brigade Combat Team (ABCT), we are looking at options to utilize existing equipment to accomplish this conversion to make it affordable and to get it done quickly. Although this equipment is not our most modern, we will modernize this ABCT and replenish the equipment set capabilities in the future. The Army will be challenged to do so if we do not receive consistent, long-term, balanced, and predictable funding.

QUESTION SUBMITTED BY MS. TSONGAS

Ms. TSONGAS. How could operational forces in theater better leverage high speed communications equipment like Link 16 for command and control and situational awareness to allow them to reduce decision to execution timelines and substantially reduce the risk of fratricide?

General ANDERSON. Link 16 is the standard used by operational forces in the CENTCOM area of operations for situational awareness (SA), as well as command and control (C2) between military aircraft and ground forces. The US Air Forces Central Command, Combined Air Operations Center, accesses US and coalition ground information and disseminates relevant threat and friendly/neutral force information to aircraft using the Link 16 network. This approach is accepted as the model for conventional coalition operations, and is being adopted to support NATO operations through development of STANAG 5528. To improve our use of systems like Link 16, Army Soldiers and Joint forces should be thoroughly trained to fully understand and maximize the capabilities of these systems. Detailed mission planning, standardized procedures for supporting immediate air requests, realistic training/mission rehearsal, use of friendly tagging or tracking devices, effective staff coordination, and sound clearance of fires procedures can significantly improve C2 and reduce the likelihood of fratricide. In addition, USSOCOM has developed a new way to leverage Link 16 called the "Move Out Jump Off" (MOJO) kit. The kit enables their organic joint terminal attack controller (JTAC) to use Link 16 or the Situational Awareness Data Link (SADL) to share ground information with supporting close air support (CAS) aircraft and rapidly talk them onto target. This capability expedites the target acquisition process and provides SA information to CAS aircraft well before they establish voice communications with the terminal attack controller. The Army will continue to review and explore all options for better use and integration of high speed capabilities.

QUESTIONS SUBMITTED BY MR. LANGEVIN

Mr. LANGEVIN. Earlier this year, General Allyn told us that we are "outranged, outgunned, and outdated" in terms of our equipment. Can you discuss how the Stryker lethality upgrades will aid U.S. Army Europe in theater and remedy these shortcomings?

General MURRAY and General ANDERSON. The Stryker lethality upgrades were initiated in response to a theater request and will provide the 2nd Cavalry Regiment with 83 Stryker vehicles equipped with an unmanned 30 millimeter (mm) turret. Currently, Infantry battalions in the Stryker Brigade are only equipped with heavy machine guns and automatic grenade launchers. The 30mm turret substantially increases firepower, allowing the unit a greater capability to suppress/destroy light armored vehicles and prepared positions in support of infantry operations. Ammunition development will eventually bring an airburst capability to the 30mm cartridge, providing increased counter-defilade capability. The lethality effort will also equip 81 vehicles with the capability to fire the Javelin missile under armor by using a remote weapons station.

Mr. LANGEVIN. Can you please discuss how the \$3.4 billion for the European Reassurance Initiative (ERI) is being spent, how it has impacted our NATO partners, what specific challenges the Army has faced thus far, and what advances are yet to be made?

General MURRAY and General ANDERSON. ERI funding is used for increased military presence in Europe, exercises, training with Allies and partners, expansion of Army Prepositioned Stocks, and improved infrastructure to provide greater responsiveness. Currently, the Army is conducting heel-to-toe rotations of an Armored Brigade Combat Team (ABCT) and through increased exercise participation is building NATO interoperability and assuring Allies of the United States commitment to the Alliance. Elements of the 3rd ABCT, 4th ID, and a combat aviation brigade are conducting bilateral training and exercises in the Baltic States, Poland, Hungary, Bulgaria, and Romania to improve partner capability and assure Allies. ERI contributes to a persistent presence in the Black Sea region by investing in the training and mission command capabilities at Novo Selo Training Area in Bulgaria and the Mihail Kogalniceanu Air Base in Romania. ERI is funding the continued expansion of Army equipment sets for Prepositioned Stocks at sites in the Netherlands, Belgium, and Germany, which will contain a division headquarters, two ABCTs, a fires brigade, a sustainment brigade, and other capabilities. Encouraged by our efforts, NATO initiated its own deterrence effort with the Enhanced Forward Presence Battle Groups. Collectively, these initiatives improve the confidence of our partners by demonstrating United States military intent to compete against Russia's malign in-

fluence and indirect action in the region. Our experience has identified areas for improvement including rail operations in Europe. In addition, we have identified shortfalls in capability, such as United States heavy equipment transport systems not meeting EU axle weight standards, which are currently being met with support from the British Army. Finally, we have identified sustainment capability limitations due to the wide dispersion of the deployed ABCT from Estonia to Bulgaria. The key Army challenge in the near future is freedom of movement across borders, where numerous legacy barriers exist from the Cold War era. United States Army Europe is working a longer term NATO agreement similar to the European Union Shengen agreement, which allows freedom of movement within NATO countries to ease transit and speed of assembly for rapidly deploying allied military formations.

QUESTIONS SUBMITTED BY MR. BACON

Mr. BACON. In your statement, you observed that the Army's Strategic Portfolio Review (SPAR) identified electronic warfare as a critical capability gap and a modernization priority. What steps has the Army taken to date to ensure its forces can operate in a contested electromagnetic environment? What specific Army modernization programs and initiatives do you believe are vital to ensure electromagnetic protection and dominance for the Army's combined arms team?

General MURRAY. The Army must dramatically improve our current Electronic Warfare (EW) capabilities to counter the effect of disruptive technologies on our forces, challenging us across the electromagnetic spectrum. In addition to our efforts to provide a trusted navigational capability under our Assured Positioning, Navigation and Timing program, the Army is pursuing Communications Security modernization of legacy and new radio equipment to deny threat detection, disruption and exploitation. Science and Technology efforts are also underway to pursue new waveforms that will make it increasingly difficult for adversaries to detect and disrupt critical communications. The Army is fielding the EW Planning and Management Tool (EWPMT), which synchronizes electronic warfare planning and management of the electromagnetic spectrum. The EWPMT Capability Drop 3 system will also provide commanders the ability to operate in a disconnected, intermittent and limited environment to ensure they can continue to operate in a contested electromagnetic environment. Further, one of the Army's top priorities is the development of Multi-Function Electronic Warfare Systems that will provide organic Electronic Attack and Electronic Warfare Support capability with the specific intent to dominate the electromagnetic spectrum in a time and place of the commander's choosing. The capability will deliver scalable EW effects in support of Unified Land Operations.

Mr. BACON. What additional investments in Army EW range infrastructure, simulators etc are required to ensure the Army is prepared to operate in a contested electromagnetic environment?

General MURRAY. Currently, the Army invests in Electronic Warfare (EW) infrastructure test range capabilities such as Electronic Countermeasures Compatibility Test Infrastructure and Operations platform. Specific testing suites include the Army Cellular Communication Network which enables EW technique effectiveness and compatibility analysis. Beginning in Fiscal Year 2018, the Army plans to invest in home station closed looped training devices (i.e. jamming simulators) which will allow the Army to train and evaluate the performance of electromagnetic spectrum-dependent systems. Additional efforts are also underway to permanently equip National Training Center Opposition Force with open air jammers.

Mr. BACON. Over the last decade Army maneuver units have become increasingly reliant on airborne ISR capabilities—both manned and unmanned—that operate in permissive environments. What are the Army's modernization priorities to ensure effective ISR for Army maneuver forces in a contested operating environment?

General MURRAY. To counter the effect of disruptive technologies on our forces the Army plans to modernize the aerial manned and unmanned Intelligence, Surveillance and Reconnaissance (ISR) fleets to provide long-range sensors capable of collecting specific signatures at increased distances. For tactical commanders, the Army plans to modernize the ground-based Prophet system to enhance collection capability across advanced signal sets. The Army will continue to leverage the Tactical Exploitation of National Capabilities program to partner with national intelligence agencies, enabling the secure delivery of national collection and commercial imagery to tactical commanders. Further, the Army is developing the requirements to provide technologically advanced, expeditionary, and survivable ISR/Electronic Warfare/Cyber capabilities at the tactical level to enable lethality and provide commander's with overmatch against peer competitors.

Mr. BACON. Does the Army's combat training enterprise have the ability to simulate a contested electromagnetic environment and to train and evaluate unit, staff and weapon system readiness in electronic warfare?

General ANDERSON. Our ability to create a contested operating environment to train Army units is limited, but the Army continues moving towards normalizing unit level training in a contested electromagnetic operating environment. In August 2016, during National Training Center (NTC) Rotation 16-08, the Opposing Force was provided representative electronic warfare support (electromagnetic spectrum [EMS] sensing) and electronic attack equipment, in order to create a contested environment targeting rotational unit's wireless (Mission Command Networks) capabilities. This effort will be continued for future NTC rotations under "Cyberspace Electromagnetic Activities (CEMA) Optimization". We will continue to look for ways to increase use of live, virtual, and constructive training capabilities to better represent contested electromagnetic environments to prepare our Soldiers for anticipated threat area environments. Current efforts to increase this training are two-fold, one for home station training and the other for Combat Training Centers. Beginning in fiscal year 2018, the Army plans to invest in home station closed looped training devices which will allow the Army to evaluate the performance of EMS dependent systems/networks for future operating environments.

Mr. BACON. How is the Army currently addressing the non-materiel force development aspects of electronic warfare such as concepts, doctrine, training, exercises, wargames etc.?

General ANDERSON. This month the Army released Field Manual 3-12 (Cyberspace and Electronic Warfare Operations). It updates guidance and directions for conducting cyberspace and electronic warfare operations using Cyberspace Electromagnetic Activities (CEMA) for unified land operations. We are transforming our Electronic Warfare (EW) workforce (Military Occupation Specialty, FA29) by integrating personnel into the Army Cyber Corps (Cyber Electromagnetic Operations Officer, FA17), and we are working with the U.S. Navy to leverage their EW courses in order to bridge training requirements as we evolve the Army's EW training model. We are also developing new policies and strategies to address how the Army develops and enhances operations in a contested electromagnetic spectrum; it nests these documents with the 2017 Department of Defense EW Strategy. We expect the Department of the Army to publish the new EW Strategy for 2025 that will aid in synchronizing material and non-material solutions across the Army domains of doctrine, organization, training, materiel, leadership and education, personnel, and facilities. Our policy and strategy changes enable the paradigm shift to CEMA, including spectrum management as well as roles in multi-domain warfare. We continue working closely with the Joint Staff and other Services. For example, we meet semi-annually with our U.S. Marine Corps counterparts, exchanging future electronic warfare information and development (i.e., electronic attack), exercise, and wargaming support issues. Additionally, we are also a member of the Secretary of Defense's EW Executive Committee, which is chartered to develop new capabilities and modify existing non-materiel conditions to make the Department economically efficient and to improve overall combat effectiveness.

Mr. BACON. Have you engaged with the Air Force or the Joint Staff to develop new joint operating concepts to ensure effective ISR for unified land operations against a near-peer competitor? If yes, how have these concepts been exercised and evaluated and what is needed to bring them into the force?

General ANDERSON. The Army engaged with the Air Force and the Joint Staff to develop joint operating concepts to ensure effective ISR for unified land operations against a near-peer competitor. Past efforts include the Joint Concept for Electromagnetic Spectrum Operations (JCEMSO), Joint Operational Access Concept (JOAC), Joint Concept for Rapid Aggregation (JCRA) and Joint Concept for Entry Operations (JCEO). The Joint Concept for Electromagnetic Spectrum Operations (JCEMSO) states that, to endure in the future operational environment, the Joint Force must first focus on achieving electromagnetic spectrum (EMS) superiority, which includes ISR. EMS superiority is the critical enabler across many domains and will be essential against near-peer competitors. Similarly, the Joint Operational Access Concept (JOAC) addresses ISR within the context of how joint forces will operate in response to emerging anti-access and area-denial security challenges from near-peer competitors. The JOAC emphasizes the importance of ISR requirements as a means to understanding near-peer intentions, the need to apply information in an effective manner, and the need to locate and understand enemy A2/AD capabilities. The Joint Concept for Rapid Aggregation (JCRA) describes actions necessary for the Joint Force to improve its ability to aggregate forces rapidly at the outset of crisis. For example, a Joint Force that is located forward in the operational area may aggregate through the establishment of a command relationship with sup-

porting capabilities, such as ISR, space, and cyberspace, which are far from the controlling headquarters. The Joint Concept for Entry Operations (JCEO) describes in broad terms how joint forces will enter foreign territory and immediately employ capabilities to accomplish assigned missions. This includes conducting entry in the presence of armed opposition characterized by increasingly advanced area denial systems, as well as entry where the environment and infrastructure may be degraded or austere. This concept emphasizes the critical importance of synchronized ISR to set the conditions for forced entry operations. Two recently begun threat based Joint Concepts will discuss and assess effective ISR for unified land operations against near-peer competitors. The new Joint Concepts are the Joint Operating Concept—Russia (JOC-R) and the Joint Operating Concept—China (JOC-C). In addition, the Army Multi-Domain Battle (MDB) concept, which discusses the importance of ISR for unified land operations against a near-peer competitor, is currently being developed with substantial input and coordination with all of the other services and Joint Staff. This concept envisions a future in which peer rivals will attempt to disrupt our ISR capabilities in the opening days of a conflict. Finally, the Army and Air Force conduct Warfighter Talks every six months to discuss joint concepts, among other topics, and the Army, Air Force, Navy, and Marines routinely discuss the Joint Processing, Exploitation, and Dissemination (PED) of service ISR assets. As with any Joint Concept, the concept is approved by the Joint Staff, but the implementation of any of the recommended required capabilities is determined by each service chief. Each service must assess the required capability and decide on further evaluation, exercising, priority, and funding. Each service chief determines if and when a capability is brought into the force.

