

Stenographic Transcript
Before the

Subcommittee on Airland

COMMITTEE ON
ARMED SERVICES

UNITED STATES SENATE

HEARING TO RECEIVE TESTIMONY ON
ARMY MODERNIZATION IN REVIEW OF THE
DEFENSE AUTHORIZATION REQUEST FOR FISCAL YEAR 2020
AND THE FUTURE YEARS DEFENSE PROGRAM

Tuesday, April 2, 2019

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7
8 U.S. Senate
9 Subcommittee on Airland
10 Committee on Armed Services
11 Washington, D.C.
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13 The subcommittee met, pursuant to notice, at 3:01 p.m.
14 in Room SR-232A, Russell Senate Office Building, Hon. Tom
15 Cotton, chairman of the subcommittee, presiding.

16 Members Present: Senators Cotton [presiding],
17 Sullivan, Scott, King, Blumenthal, Peters, Duckworth, and
18 Jones.
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1 OPENING STATEMENT OF HON. TOM COTTON, U.S. SENATOR
2 FROM ARKANSAS

3 Senator Cotton: The Airland Subcommittee will come to
4 order.

5 Today, we meet to receive testimony on the U.S. Army's
6 modernization efforts and its fiscal year 2020 budget
7 request.

8 We welcome Lieutenant General Paul Ostrowski, Principal
9 Military Deputy to the Assistant Secretary of the Army for
10 Acquisition, Logistics, and Technology, and Director of the
11 Army Acquisition Corps; Lieutenant General James
12 Pasqualette, Deputy Chief of Staff, G-8; and Lieutenant
13 General James Richardson, Deputy Commander, Army's Future
14 Command. Thank you all very much for your distinguished
15 service to our Nation and your appearance here today.

16 The National Defense Strategy directs our Nation's
17 military to prepare for the return of great-power
18 competition. This means the Army must be prepared to deter
19 and, if necessary, decisively defeat potential near-peer
20 adversaries, like China and Russia. In order to be prepared
21 for future battlefields, the Army must rapidly modernize
22 after the last 18 years of counterinsurgency warfare. For
23 that reason, the Army created Army Futures Command. This
24 new command will help shape modernization requirements to
25 meet these future threats.

1 The senior Army leadership has undertaken a detailed
2 and exhaustive look at every single program to ensure that
3 each one supports our National Defense Strategy. The Army
4 has already made hard decisions on programs that didn't meet
5 the NDS in order to reallocate funding for some of these
6 modernization efforts that will help the Army regain both
7 its qualitative and quantitative advantage against near-peer
8 competitors.

9 These choices will require open and transparent debate
10 with Congress along the way. We look forward to working
11 with you to make the Army's modernization vision a reality
12 as the Army reinvents itself to become the 21st-century
13 fighting force that we need to prepare -- need to be
14 prepared to defeat a more lethal and dynamic battlefield of
15 the future.

16 Senator King.

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1 STATEMENT OF HON. ANGUS S. KING, JR., U.S. SENATOR
2 FROM MAINE

3 Senator King: Thank you, Mr. Chairman. And thank you
4 for today's hearing.

5 And welcome, to our witnesses. Look forward to your
6 testimony.

7 The National Defense Strategy, as the Chairman stated,
8 reorients the Department of Defense toward great-power
9 competition, with an emphasis on China and Russia. The
10 National Defense Strategy has serious implications for the
11 Army, as our soldiers must be prepared for a high-end fight
12 that requires modernized military platforms and upgraded
13 equipment to ensure success on the battlefield, a
14 fundamentally different military challenge than that which
15 the Army has been facing in counterterrorism activities over
16 the last 15 or 20 years.

17 To meet the challenge, the Army has been focused on
18 modernizing the force, transforming the process by which
19 warfighting capability is delivered to our soldiers. As
20 Secretary Esper and General Milley testified last week
21 before the full committee, this reorganization has been
22 necessary to, quote -- to ensure the, quote, "entire
23 modernization enterprise" can respond with, quote, "greater
24 speed and efficiency."

25 As we consider the Army's budget request for FY20, we

1 should evaluate it in context of how the Army is
2 transforming the modernization enterprise. Specifically,
3 the Army is pursuing a new modernization strategy focused on
4 six major modernization priorities: long-range precision
5 fire, next-generation combat vehicles, future vertical lift,
6 Army network, air and missile defense capabilities, and
7 improved soldier lethality. To support this effort, the
8 Army has established eight cross-functional teams designed
9 to break down acquisition stovepipes and expeditiously field
10 new weapon systems that align with the Army's modernization
11 priorities. And I'm sure we're going to be talking about
12 that this afternoon.

13 In conjunction with the creation of the CFTs, the Army
14 established Army Futures Command last summer to oversee all
15 of these modernization efforts. The creation of Army
16 Futures Command is a significant organizational change for
17 the Army, as Secretary Esper testified last week. Army's
18 Future Command is, quote, "developing the systems needed to
19 maintain battlefield overmatch in future conflicts,"
20 unquote. This committee will closely monitor Futures
21 Command to see what impact it will have on acquisition
22 culture within the Army and to ensure that civilian
23 oversight of the acquisition process remains strong, given
24 the new authorities provided to the AFC. I would -- I'm
25 going to be looking today for an update from our witnesses

1 on the status of the standup of the Futures Command and when
2 we can reasonably expect that it will show results improving
3 the Army's modernization record.

4 In addition to these organizational changes, the Army's
5 prioritized funding in the FY20 budget for critical programs
6 and technologies necessary to prevail against our most
7 capable adversaries. The Army's budget includes \$12.2
8 billion for research, development, test, and evaluation
9 accounts, with a focus on funding those efforts aligned
10 under the Army's six modernization priorities. This
11 includes funding for the development of a new attack
12 reconnaissance aircraft and prototype contracts for the
13 optionally-manned fighting vehicle, the OMFV, to replace the
14 legacy Bradley vehicles.

15 With regard to procurement, the budget requests a total
16 of 25.2 billion in funding for critical programs, including
17 upgrades to the M1 Abrams tank, procurement of AH-64E Apache
18 helicopters, and the UH-60M Black Hawk -- Patriot MSE
19 missiles, in addition. I'd like our witnesses today to
20 discuss how the Army is balancing investments in
21 capabilities for the future fight while at the same time
22 upgrading legacy platforms for current threats.

23 Finally, resources are not unlimited, and the Army must
24 prioritize investments and make tough budget choices. The
25 Army has emphasized that, during the budget review process,

1 existing programs were closely scrutinized, with a focus on
2 prioritizing funding for those programs that have supported
3 the Army's modernization priorities. I'm going to ask our
4 witnesses today to provide additional details on that
5 process, as well as any efforts the Army is taking to
6 ameliorate negative impacts to our industrial-base partners.

7 Thank you again, Mr. Chairman, for holding this
8 hearing. I look forward to the testimony of our witnesses.

9 Senator Cotton: General Ostrowski.

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1 STATEMENT OF LIEUTENANT GENERAL PAUL A. OSTROWSKI,
2 USA, PRINCIPAL MILITARY DEPUTY TO THE ASSISTANT SECRETARY OF
3 THE ARMY FOR ACQUISITION, LOGISTICS, AND TECHNOLOGY, AND
4 DIRECTOR OF THE ARMY ACQUISITION CORPS

5 General Ostrowski: Chairman Cotton, Ranking Member
6 King, and distinguished members of the Senate Armed Services
7 Subcommittee on Airland, good afternoon. Thank you for the
8 opportunity to appear before you today to discuss the Army's
9 modernization priorities and the strategy, resources, and
10 key programs needed to support them.

11 I'm joined today by Lieutenant General Jim Pasqualette,
12 the Army G-8, who will follow my remarks by laying out the
13 path that the Army has taken to construct the FY20 budget
14 request, including many tough decisions that our senior
15 leaders have made to prioritize funding our Army's top six
16 modernization priorities. Next, Lieutenant Jim Richardson,
17 Deputy Commanding General of the United States Army Futures
18 Command, will update you on ongoing efforts by the Army's
19 eight cross-functional teams and the 31 signature efforts
20 that are aligned with our priorities.

21 But, first, I'd like to begin by discussing the
22 national security context. Our operating environment is
23 changing rapidly, marked by an uncertainty and an increasing
24 pace of events. While we spent more than 15 years focused
25 on operations in Iraq and Afghanistan, other potential peer

1 and near-peer competitors, such as Russia and China, have
2 studied us closely. They have used those lessons learned to
3 develop new approaches to conflict designed to exploit the
4 gaps and seams within our military capabilities.

5 For nearly two decades, the Army has deferred
6 modernization in order to support continuous combat
7 operations while still globally looking at the security
8 environment and seeing that it has grown more competitive
9 and volatile. Army leadership has recognized the need for
10 fundamental change and reorganized our entire modernization
11 enterprise for greater speed and efficiency.

12 Last year, the Army made its most significant
13 organizational restructure in over 40 years by establishing
14 the Army Futures Command. For the first time, one command
15 is driving constant development, requirements determination,
16 organizational design, science and technology research, and
17 solution development. Army Futures Command is a critical
18 player in the Army's Future Force Modernization Enterprise,
19 or FFME, which describes the Army's expertise,
20 organizations, and infrastructure for rapidly developing and
21 delivering the future force. The FFME includes three
22 primary organizations responsible for modernization: the
23 Army Futures Command, Assistant Secretary of the Army for
24 Logistics, Acquisition, and Technology, and the Deputy Chief
25 of Staff, G-8. The key to the FFME is synchronization

1 through inclusivity. I would be remiss if I did not thank
2 you for all of your efforts to implement the acquisition
3 system and changes associated with it.

4 From a reform perspective, the Army continues to
5 implement the past acquisition initiatives that Congress has
6 authorized, such as Section 804 middle-tier acquisition,
7 from the fiscal year 2016 National Defense Authorization
8 Act, other transaction authority, and the experimentation
9 and prototyping of weapon-system components. With the
10 requisite level of acquisition authority, the Army is using
11 these precious tools to accelerate selected efforts linked
12 to the Army's modernization programs.

13 Before I turn over to Lieutenant General Pasquarette,
14 thank you again for this opportunity to discuss Army
15 modernization and for your strong support of soldiers, Army
16 civilians, and their families. We look forward to your
17 questions.

18 [The prepared statement of General Ostrowski follows:]

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1 Senator Cotton: General Pasquarette.

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1 STATEMENT OF LIEUTENANT GENERAL JAMES F. PASQUARETTE,
2 USA, DEPUTY CHIEF OF STAFF, G-8, UNITED STATES ARMY

3 General Pasquarette: Chairman Cotton, Ranking Member
4 King, distinguished members of this subcommittee, thank you
5 for the opportunity to speak about the fiscal year 2020 Army
6 modernization budget request.

7 This year's budget request includes \$34 billion of
8 investments in Army equipment, 8.9 billion of which supports
9 development of our next-generation modernization priorities
10 overseen by Army Futures Command. You will find no daylight
11 between the National Defense Strategy in the areas we are
12 investing in to ensure the U.S. Army remains the dominant
13 land force in the world for decades to come.

14 In building the 2020 budget, the Secretary of the Army
15 and the Chief of Staff recognized that future defense
16 budgets would likely stay flat or potentially decline. So,
17 rather than seek for an increase in Army top line, they
18 chose to reprioritize from within the Army's projected
19 resources to pay for near-term readiness and future
20 modernization requirements. As I believe you know, the
21 leadership personally reviewed over 500 programs as a part
22 of the budget formulation process. Those programs that did
23 not directly contribute to lethality of the force or were
24 assessed as ineffective in the future operational
25 environment against near-peer threats became a funding

1 source. In the end, this process resulted in the
2 elimination or reduction of over 180 programs and the
3 reprioritization of over \$30 billion across the 2024 FYDP in
4 favor of the Army modernization priorities. These
5 investments in the budget request will provide the next-
6 generation capability the Nation's soldiers need to win in a
7 potential future conflict against Russia or China.

8 I'd like to stress that we are not walking away from
9 our critical legacy systems. We cannot walk away from them,
10 as we will be operating on them for many years to come. For
11 example, the Army will continue significant investments in
12 the Abrams, Black Hawk, and Stryker programs within this
13 current request and throughout the FYDP.

14 Let me close by saying that realization of our
15 modernization objectives is highly dependent on what is in
16 the Army's FY20 budget request. The investments in this
17 request complement and reinforce what was jumpstarted in the
18 FY18 and FY19 budgets on which we thank Congress for their
19 great support.

20 Finally, with continued predictable, adequate, timely,
21 and sustained funding, the United States Army will continue
22 to be the best-equipped land force the world has ever known.
23 I sincerely appreciate your time today, and I look forward
24 to your questions.

25 Thank you.

1 [The prepared statement of General Pasquarette

2 follows:]

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1 Senator Cotton: General Richardson.

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1 STATEMENT OF LIEUTENANT GENERAL JAMES M. RICHARDSON,
2 USA, DEPUTY COMMANDER, ARMY FUTURES COMMAND, UNITED STATES
3 ARMY

4 General Richardson: Chairman Cotton, Ranking Member
5 King, distinguished members of the Airland Subcommittee,
6 thank you for the opportunity to have this conversation
7 today. Thank you for your steadfast support and
8 demonstrated commitment to our soldiers, civilians, and
9 their family members.

10 The United States Army is at a strategic inflection
11 point. The Army must modernize now, because the United
12 States has near-peer competitors for the first time since
13 the Cold War. Army Futures Command was established to
14 address this challenge through a unified and integrated
15 approach to developing and delivering concepts,
16 requirements, and future-force designs. The Command is
17 posturing the Army for the future by setting the strategic
18 direction, integrating the Future Force Modernization
19 Enterprise, aligning resources to the modernization
20 priorities, and maintaining accountability for the
21 modernization solutions.

22 The underpinning of these modernization capabilities
23 and organizational structures is Multi-Domain Operations
24 2028, known by the acronym as MDO. This concept articulates
25 how Army forces as part of the Joint Force will compete with

1 and, if needed, defeat a near-peer adversary, as tasked in
2 the National Security Strategy and the National Defense
3 Strategy. In order to synchronize the capabilities,
4 development, and organizational concepts that the Army will
5 need to conduct MDO, the Army is developing a modernization
6 strategy. The Army modernization strategy will design how
7 the U.S. Army will modernize to become a multi-domain-
8 capable force in 2028. However, we will need to streamline
9 processes in order to succeed.

10 We are also focusing on organizational and physical
11 resources on a select group of programs linked directly to
12 the Army's modernization priorities. AFC's eight cross-
13 functional teams support the Army modernization priorities
14 by integrating capability and requirements, acquisition,
15 science and technology, test and evaluation, resourcing, and
16 logistics on a single team led by a general officer or an
17 SES. We already seeing progress from their efforts, to
18 date. As early as this fall, new capabilities, like the
19 soldier lethality CFT enhanced night-vision goggle --
20 binocular -- will be entering our Army formations. I am
21 confident that Army forces will have the concepts,
22 capabilities, and organizational structures they need to
23 fulfill our mission on the Nation's behalf.

24 Thank you again for this opportunity, and I am looking
25 forward to your questions.

1 [The prepared statement of General Richardson follows:]

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1 Senator Cotton: Thank you, gentlemen.

2 General Richardson, let's stick with you. You know,
3 sometimes we can get a little abstract and use too much
4 jargon on this committee or in the Department of Defense.
5 Let's just be concrete here about the threat we face. Over
6 the last 18 years, we've been fighting counterinsurgency,
7 lower-intensity kinds of wars in places like Iraq and
8 Afghanistan, primarily, and also in nearby countries with
9 related threats, like Syria or Somalia or what have you.
10 While that's been happening, Russia and China have stolen
11 the march on us, is that correct? In systems like
12 artillery, armor, air defense, artillery, electronic
13 warfare, and so forth?

14 General Richardson: That is correct, sir.

15 Senator Cotton: And to what extent do those specific
16 threats, not abstractions like near-great-power -- or near-
17 peer competition or great-power competition, but those
18 specific threats, Russia and China, factor into the Army's
19 thinking and priorities in its modernization strategy?

20 General Richardson: Sir, as we look at our potential
21 adversaries and look at what their intentions are, to --
22 one, to deny us access of geographical -- their geographical
23 theater of operations and develop sophisticated anti-
24 access/denial systems, such as radars, long-range precision
25 fires, they have generated layers of defense and layers of

1 standoff. Our modernization priorities, and specifically
2 our modernization efforts, are geared and prioritized to
3 defeat that standoff.

4 You mentioned long-range precision fires. We have
5 prioritized our long-range precision fires and strategic,
6 operational, and tactical fires to suppress that formation.
7 As well, we have focused our efforts in our non- -- next-
8 generation combat vehicle to penetrate, as well. So, all of
9 our efforts are threat-based, MDO, in line with our
10 modernization priorities and our modernization efforts.

11 Senator Cotton: Thank you.

12 Two other kinds of threats that we might face,
13 specifically Army threats, would be North Korea and Iran.
14 Is there any modernization effort that the Army would want
15 to undertake to counteract that kind of threat that is not
16 already part of its modernization strategy to counteract the
17 threat of Russia and China?

18 General Richardson: Sir, I think we're -- we are
19 focused -- with our modernization priorities and our
20 modernization efforts, it will counter those threats. What
21 comes to mind is air and missile defense, our number-four
22 priority within the Army that's fully funded. Our air and
23 missile defense is focused at the strategic and operational
24 level to defeat those incoming threats, as well as at the
25 tactical level to protect our formations.

1 Senator Cotton: Thank you.

2 General Ostrowski, long-range precision fires is your
3 top modernization effort priority. Is that correct?

4 General Ostrowski: Yes, Mr. Chairman, it is.

5 Senator Cotton: I was looking through some of the
6 briefing material that y'all sent ahead. Could you tell me
7 what you plan to extend the range of the precision strike
8 missile 2 at this date?

9 General Ostrowski: Sir, as you know, currently we are
10 under the INF Treaty and are limited to 499 kilometers. We
11 --

12 Senator Cotton: Okay. So, can I --

13 General Ostrowski: -- have the --

14 Senator Cotton: -- can I stop right there?

15 General Ostrowski: Yes, sir.

16 Senator Cotton: 499 kilometers drives me up a wall.
17 The INF Treaty is dead. It is not coming back. I hope that
18 we have a plan to modernize our long-range precision-strike
19 capabilities based on the threat that we face from countries
20 like Iran, North Korea, Russia, and China, without regard to
21 a dead treaty. Do we?

22 General Ostrowski: Mr. Chairman, I assure you that we
23 do. We have worked with industry, and we have that
24 capability today.

25 Senator Cotton: Thank you very much.

1 General Pasquarette, obviously, to pay for a lot of
2 these modernization efforts, there's been a lot of
3 eliminations, reductions, or delays of various programs. I
4 think the exact number is 186 different programs. I suspect
5 we'll probably get into some of those specific items either
6 in this subcommittee or in the full committee. I know that
7 there'll be a lot of Senators and Congressmen with, perhaps,
8 some home State or home district interest in them. But,
9 rather than getting into those specific items at this
10 moment, could you talk, as a general matter, about the
11 underlying analysis that went into those conclusions, and
12 how the Army reached the conclusions, how they communicated
13 them to the various stakeholders, whether the companies that
14 make those systems, the districts and the States where those
15 systems are made, that sort of thing?

16 General Ostrowski: Yes, Mr. Chairman. The --

17 Senator Cotton: Turn your microphone on, please.

18 General Ostrowski: Thank you. Rookie mistake, there.

19 Yes, thanks for the question. There was analysis that
20 was applied as we reviewed the programs by -- with the
21 Army's senior leadership. And, as I mentioned in my opening
22 statement, we looked at lethality, which is highlighted in
23 the NDS. And if a program did not meet the lethality mark,
24 it was considered a billpayer. We also looked at its
25 ability to operate in 2028, when we want to be ready for

1 potential conflict with Russia and China. And, if it didn't
2 meet the mark there, again, it became a source. And
3 finally, we looked at large programs, where there was a lot
4 of dollars parked, that we feel -- felt we could stretch out
5 and delay within this program, within acceptable risk, and
6 then move those dollars against the modernization
7 priorities. So, that was the analysis that was applied in
8 this program by our senior leadership, and it was the
9 ruthless application -- or, the application of ruthless
10 prioritization, is the quote from our Secretary.

11 Senator Cotton: Okay. Well, thank you all for that.
12 I want to commend you, just like I commended the Secretary
13 and the Chief last week, on all the work that went into
14 that. No one has to agree with all 186 items to understand
15 the rigorous thought that went into them, and to appreciate
16 the Army responding to Congress's directive over the years
17 to begin to focus on badly needed modernization efforts.

18 Senator King.

19 Senator King: Thank you.

20 I want to follow up and also compliment you for
21 starting with a rigorous analysis of existing programs
22 rather than just a request for new money. And I -- one
23 specific question. What was the total amount of the savings
24 that you found in order to apply to the modernization
25 effort?

1 General Pasqualette: Well, I can talk -- across the
2 program, Senator, it was -- we reallocated over \$30 billion
3 in the 2024 FYDP. We -- in -- 8.9 of that, in 2020, that we
4 moved around. So, we had \$5 billion in the modernization
5 priorities in FY19, and it's increased to 8.9 billion here
6 in FY20, for a comparison.

7 Senator King: Well, again, I want to compliment you on
8 the process. I know that wasn't easy, and you'll be --
9 there'll be a lot of discussion about it here. But, that's
10 significant money, and I think that's an impressive effort.

11 Lessons learned in that analysis? Did it lead you to
12 thinking about other programs and to looking wider? This
13 was a -- this was an important exercise.

14 General Pasqualette: You know, when we went through
15 it, the Secretary has charged me -- he says, "I know we went
16 through this, and we've taken some risk." And as we were
17 going through the current program, the -- or the budget that
18 we're building now, or the program in '21 to '25, he has
19 asked us to come back, reassess it. Maybe the -- there was
20 -- we maybe reached too far -- and readdress that, or tee up
21 options with further analysis.

22 So, we believe, in most every case, it was acceptable
23 risk. There's one or two issues, as we're going through
24 with the Secretary and the Chief this time around, where
25 we're looking at addressing or maybe we bit off a little

1 more than we might have, to get it back to acceptable level
2 of risk.

3 Senator King: Thank you.

4 Where are we on the Army Futures Command standup? How
5 many slots have been filled, out of how many do you
6 anticipate? Do you have space? Where is that process?

7 General Richardson: Sir, we're constantly building
8 capacity, every single day. Army Futures Command has
9 occupied a building at the University of Texas system in
10 Austin, Texas. We have a cap of 500, both civilians and
11 military. We're sitting at approximately 40-percent
12 strength of our headquarters staff right now. Our FOC, our
13 fully-operational capability, will be in the end of July.
14 We have made a number of moves with our subordinate
15 organizations. After standing up in September, where we cut
16 the ribbon, we immediately brought the eight cross-
17 functional teams underneath the organization.

18 Senator King: And are these people being moved from
19 other parts of the enterprise across the country?

20 General Richardson: No one is being moved, sir. The
21 eight cross-functional teams are located in their location.
22 We brought our Army research and development --

23 Senator King: So, the cross-functional teams are not
24 in Austin.

25 General Richardson: No, sir.

1 Senator King: Is that what you're saying?

2 General Richardson: The cross-functional teams are
3 located all over the United States. We have -- in the NGCV,
4 in Detroit, Michigan. Our air and missile defense, as well
5 as our long-range precision fires, is located at Fort Sill,
6 Oklahoma. Our position, navigation, and timing, and future
7 vertical lift cross-functional team is in Huntsville,
8 Alabama. The network CFT is in Aberdeen Proving Grounds.
9 As well, our STE CFT is now in Orlando, Florida. Everybody
10 -- no one moved. The only people that moved and are coming
11 to the headquarters are the 500 people who are coming to
12 Austin to occupy those positions up in the headquarters.

13 Senator King: And are they principally coming from
14 Washington, from --

15 General Richardson: No, sir. We're hiring from all
16 over the United States. We're hiring --

17 Senator King: So, these are new hires.

18 General Richardson: These are all new hires, sir.

19 Senator King: Civilian and bringing in military --

20 General Richardson: Yes, sir. Approximately 400
21 civilians will occupy the headquarters, and 100 military.
22 We want a very lean organization that's agile and adapted to
23 better support the future-force modernization effort.

24 Senator King: I'm running out of time, and I'm --
25 we'll have time to return to this question. But, turning to

1 development of new systems, new weapons, new platforms, I
2 mean, that's really what we're talking about here. One of
3 my concerns is small businesses. We've had testimony before
4 the full committee, for example, that Silicon Valley doesn't
5 want to do business with the Pentagon. It's too
6 complicated, too burdensome, too lengthy. Are you aware of
7 this issue and problem? And what are we doing to address
8 it?

9 General Richardson: We absolutely are, Senator. We
10 have actually stood up an organization called our Army
11 Applications Lab -- Laboratory in Austin that specifically
12 focuses on the small business area, focused on those small
13 companies that can bring technologies to bear. And so,
14 that's one of our organizations. As well, we track our
15 Research and Development Command that's reaching out to
16 small business in our S&T environment, as well. So, a big
17 emphasis -- and being in Austin has placed an emphasis on
18 small business, and specifically those young entrepreneurs
19 that bring technology to the Army that we would otherwise
20 not have seen.

21 Senator King: Thank you. My time is expired. We'll
22 come back to some of those questions.

23 Thank you, Mr. Chairman.

24 Senator Cotton: Senator Scott.

25 Senator Scott: First off, thanks for your service.

1 What -- how important are allies, going forward? And
2 how do you think about the relationship with allies, and how
3 do you work with them, and are they investing dollars, and
4 things like that?

5 General Richardson: Senator, our allies are extremely
6 important. I have met with a majority -- I would probably
7 say 20 countries, their general officers, with a big focus
8 on the -- on our Five Eyes partners. Those countries are
9 going to be colocated in Army Futures Command. We're going
10 to have L&O representatives within the Command. We already
11 have, and have started putting some of their officers and
12 noncommissioned officers in our cross-functional teams.

13 Interoperability is huge for our Army. We fight as a
14 coalition, and we fight as joint partners. And it's been
15 one of General Murray's top priorities, to ensure that we're
16 interoperable, not only across the Joint Force, but our
17 coalition forces.

18 General Pasquarette: If I could just follow up on
19 that. It's one of the three tenets of both the National
20 Defense Strategy and our Army strategy, Senator, is the
21 importance of allies and partners. And so, we have a robust
22 exercise program in both Europe and INDOPACOM, our two focus
23 theaters, where -- that help us deepen those bonds. And we
24 believe it's making a big difference, and we believe, in the
25 future, it's our way of countering the two threats we've

1 been talking about here today, Russia and China.

2 Senator Scott: Do we have -- who are our allies in
3 South America?

4 General Pasqualette: We have partners in South
5 America. I'm not sure if we actually have an alliance with
6 anybody in South America. I'm familiar with the Pacific
7 more specifically, and NATO, but I don't know if we actually
8 have an alliance by using the technical term. We surely
9 have partners down there through our U.S. Southern Command
10 and our Army service component.

11 Senator Scott: Are they -- aren't the -- are any of
12 the countries in South America investing in their armed
13 services?

14 General Pasqualette: I really -- little bit out of my
15 lane. I'm not -- I'd love to come back and get you that
16 information, Senator.

17 [The information referred to follows:]

18 [SUBCOMMITTEE INSERT]

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1 Senator Scott: All right. And what threats do you
2 foresee in South America, in that area? Do you see many
3 threats? We have Cuba, we have Venezuela.

4 General Pasquarette: You know, I think, again, U.S.
5 Southern Command is best suited to answer that.

6 Senator Scott: Okay.

7 General Pasquarette: We -- there's always the drug
8 issue that has been -- the military's been a part of that in
9 the past. But, I really am a little light on to be able to
10 talk about the threat in that part of the world.

11 Senator Scott: All right. Thanks.

12 Thank you.

13 Senator Cotton: Senator Jones.

14 Senator Jones: Thank you, Mr. Chairman.

15 And thank you all for being here today.

16 I want to -- one of the things that I've been
17 particularly interested in is the air and missile defense
18 modernization priority. And the budget requests 228 million
19 for land-based hypersonic missile prototyping, which will go
20 through the Army Space and Missile Defense Command, Redstone
21 Arsenal, in Huntsville. But, also, the Air Force and the
22 Navy are doing some work in the field hypersonics, as well.
23 So, this I'll ask just generally of the panels. What steps
24 are the services taking to ensure that they're creating
25 compatible and interoperable technologies and avoiding

1 duplication of effort?

2 General Pasqualette: Well, I'll start, Senator, and
3 perhaps Paul or -- may have some thoughts.

4 This was worked last fall during program review with
5 OSD, and these decisions about which service would pursue
6 which programs in hypersonics. The Army and the Navy are
7 working together with a booster, a 34-and-a-half-inch
8 booster with a similar glide body, ones -- they're shot out
9 of a submarine. Ours will be a land-based -- a mobile
10 launcher. And so, there is jointness in this, and
11 efficiencies, just through that means, based on OSD
12 guidance.

13 We do believe there's a requirement for multiple
14 different types of systems to put our adversaries at a
15 dilemma, that they can't expect it from just one domain.
16 And internal to the Army, we're looking at the most
17 efficient way to do this within the various missiles that
18 we've been tasked by OSD and that we're developing within
19 our own means.

20 So, there is -- it's a new technology, and I think OSD
21 is looking to reinforce this across joint lines, and manage
22 it closely so we don't have that -- inefficiencies that you
23 talked about.

24 Senator Jones: Great.

25 General Pasqualette: Paul, do you have any --

1 General Ostrowski: Senator, I would just add that
2 there's a tri-service memorandum agreement with respect to
3 all the services on this, and our service secretaries serve
4 on the board to ensure that each service is represented.
5 And, in accordance with what Jim said, the bottom line is,
6 we are in charge -- the Army's in charge of the common glide
7 body for all three of the services, and we are in the
8 process of developing that. And, from the land-based
9 perspective, we are in the process of being able to now --
10 between now and '23, we'll be testing our -- not only the
11 50-inch, which is the current booster that's been shot
12 before, but also the 34-and-a-half-inch. So, between now
13 and 2023, we'll be -- have six shots working with this
14 particular system.

15 Senator Jones: All right. Great. Thank you.

16 General Pasqualette, the Army's unfunded requirements
17 list includes \$75 million for the future vertical lift,
18 which, of course, is one of the six, you know, modernization
19 priorities. Is that funding for capability set 3 or for
20 something else? Do you know?

21 General Ostrowski: So, I could take that --

22 Senator Jones: Okay.

23 General Ostrowski: -- if I could. The bottom line,
24 sir, it is for capability set 3. What we realized was the
25 fact that we could accelerate the future long-range assault

1 aircraft, based on the process -- what we went through with
2 the joint multi role, where we had two competitors that the
3 Army funded, as well as the companies themselves funded,
4 whether it would be Bell-Textron or whether it be Boeing,
5 Lockheed Martin, and Sikorsky. And, as you know, sir, both
6 of those aircraft are now flying. So, we knew that we had
7 the ability to move faster than what we had originally
8 planned, so we've been able to condense that a little bit.

9 Now, while the acquisition decision is still in Ms.
10 Lord's hand -- Honorable Lord's hands -- the bottom line for
11 the Army is, we're going to represent a strategy to her --
12 an acquisition strategy to her to go after a
13 nondevelopmental-item approach, which will speed up that
14 acquisition so that we can get to a down-select by '22 in
15 order to bring about a capability by FY30.

16 Senator Jones: Great.

17 Can -- I would like to just expand on that a little bit
18 and talk about -- and this is mainly just for the record,
19 here -- the significance of this project to the Army's
20 mission, as set forth in the NDS. Anybody can answer that,
21 but I'd like to just get that out for the record.

22 General Richardson: Yes, Senator, the significant --
23 of future vertical lift is absolutely huge for the United
24 States Army. We're coming at going after two aircraft.
25 Producing two aircraft, both the attack reconnaissance

1 version as well as the replacement for the Black Hawk
2 assault version, at once is an undertaking, but it's
3 something that we have done before. We did it with the
4 Black Hawk and the Apache. What this capability will do
5 will give us the range, the speed, and the survivability we
6 have never had before. When you look at the speed of these
7 helicopters, a UH-60 travels at 120 knots. We're looking --
8 the replacement for that aircraft, at a minimum, to travel
9 250 knots, with ranges to air assault our forces out to 200
10 nautical miles. This will not only increase our capability,
11 but it will increase our survivability, as well, at those --
12 at that speed. And we've been doing a lot of modeling and
13 simulation with what we're doing, and it's -- we're having
14 very, very positive results. So, we're looking forward to
15 the future vertical lift aircraft, both from an attack
16 reconnaissance perspective as well as an assault
17 perspective.

18 Senator Jones. Great. Well, thank you.

19 Thank you, Mr. Chairman.

20 Senator Cotton: Senator Peters.

21 Senator Peters: Thank you, Mr. Chairman.

22 My first question is for you, General Richardson. You
23 know, in Michigan we're very proud to host the cross-
24 functional team for the next-generation combat vehicle,
25 which I know is the Army's number-two modernization

1 priority. And certainly, the Army benefits from its
2 location in Warren, Michigan, which is at the very heart of
3 the auto industry and some exciting technologies that are
4 coming out of our area, in terms of automation, self-driving
5 vehicles, which will transform not only the civilian auto
6 market, but will also be transformative for military
7 applications, as well.

8 But, my question is -- I'd like to get a better
9 understanding of how the cross-functional team is going to
10 interact with the headquarters, with AFC headquarters, and
11 what it means for our stakeholders in the industrial base in
12 Michigan, which is extensive. So, if my -- and the reason I
13 bring that up is that I understand that a robotic combat
14 vehicle tech demo was scheduled for next month. It was
15 originally going to be held in Camp Grayling, which is the
16 National Guard base in Michigan, just north of -- by a
17 couple -- 3 hours north of Warren, an extensive maneuver
18 area. But, it was moved to Byron, Texas, instead, which is
19 not particularly close to Michigan compared to the National
20 Guard base. And it's concerning to some of the folks in the
21 industrial base, because, here, you're moving a test away
22 from where all of that activity is actually located.

23 And so, my question is, How should we expect the
24 headquarters to interact with the cross-functional team?
25 And who's ultimately making the decisions as it relates to

1 modernization priorities like the next-generation combat
2 vehicle?

3 General Richardson: Thank you for the question,
4 Senator.

5 The answer to your question -- I will tell you that the
6 cross-functional team and Detroit all working together with
7 our PEO brothers, acquisition officers, our science and
8 technology community, contracting, the CFT -- all are
9 working together in Austin -- I mean, in Detroit -- has made
10 a huge difference. We just recently released the RFP for
11 the next operationally-manned fighting vehicle. Working
12 with the industry, that team has had over 20 engagements
13 with industry to ensure that our requirements are right and
14 adjusted. As -- and you spoke of the remote-control
15 vehicle. Something that we learned with FCS or the other
16 combat vehicles is that we wrote requirements, really, in a
17 stovepipe. We wrote requirements, long ago, that did not
18 consider the technology that exists today, or where we were
19 going -- what was technologically achievable for the future.
20 This team, working together, are conducting experiments, one
21 in '20, one in '22 and '23. They're designing and building
22 these remote-control vehicles to learn, to inform the
23 requirements of where we're going for tomorrow.

24 As you talked about testing, sir, I'll have to get back
25 to you why it moved, but I can tell you that what we're

1 focused on in testing, and what we've learned, is, you have
2 to have soldiers in the loop during the design, during the
3 build phase, and during the test phase. The next-generation
4 combat vehicle, CFT and all the members associated with it
5 have a close relationship with 3rd United States Corps at
6 Fort Hood, Texas. FORCECOM has dedicated a unit to that CFT
7 to support its production of this equipment. And that may
8 be one of the reasons, but I need to get back with you on
9 the specific reason why it moved. I don't have that answer,
10 but I will get back with you.

11 [The information referred to follows:]

12 [SUBCOMMITTEE INSERT]

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1 Senator Peters: Well, I'd appreciate it. And it's
2 informative just so we have a better sense of how that
3 decisionmaking process is. And, obviously, we want to make
4 sure that the reason why that facility was located there is
5 because it's close to all of the resources that you
6 mentioned are necessary in order to modernize and achieve
7 the priority that you have set for the next-generation
8 combat vehicle. So, I'd appreciate that, General.

9 Now, in the -- I have not a lot of time left, but I
10 understand that the Army is also testing multiple systems to
11 add additive -- or, I should say, active protection system
12 for the Stryker, General. And I was told that we were going
13 to hear, by the end of this quarter, as to where the testing
14 was, and a finalist. I'm not aware that a vendor has been
15 selected or occurred. So, if you could give us some sense
16 of what we're looking at when it comes to active protection
17 system, where -- is there a new timeline now for us to
18 understand what will happen next?

19 General Ostrowski: Yes, sir. As you already know,
20 we've made a nondevelopmental-item approach to combat
21 systems such as this, in terms of the active protection
22 piece, with the Trophy on the Abrams tank and then, in terms
23 of the Bradley, the Iron Fist system. Right now, we didn't
24 do as well with respect to artists and their version of what
25 we call Iron Curtain with the Stryker. So, we went back out

1 to industry and asked industry to come back to us with their
2 ideas as to how we could protect the Stryker vehicle, in
3 terms of a nondevelopmental-item approach to armor
4 protection systems. And we have two companies that are
5 joined to -- that are in the process of competing for that.
6 One is a venture between the company I'll call EDS, as well
7 as Rafeal. So, DRS -- I'm sorry -- DRS and Rafeal -- and
8 the other one is Rheinmetall and UBT, have partnered, as
9 well. So, we're in the process of evaluating their systems
10 as they build those and we get them the vehicles. So, we
11 will be in the process of going through that. It's going to
12 take about a year, quite frankly, in order to put those
13 systems on the vehicles, characterize them, and make a
14 determination as to whether or not to move forward with
15 either one of the two vendors, sir.

16 Senator Peters: So, are you saying the new deadline is
17 a year from now?

18 General Ostrowski: What I'm saying, sir, is, we are in
19 the process now of working with those two partnered
20 companies, and the -- they are in the process of -- in terms
21 of -- what they offered us before was blueprints and a
22 build. So, they're in the process of doing that build.
23 Once the build is put on the vehicle, then it's a matter of
24 testing that in order to ensure that it works. And so, that
25 whole process, from when we started, this several months

1 ago, until the final product of a determination, it will
2 take about a year. That's been the average with respect to
3 the Trophy, and it was the average with respect to the Iron
4 Fist, on Bradley.

5 Senator Peters: Great. Thank you.

6 Senator Cotton: All right, gentlemen, round two.

7 Let's stick with the NGCV; specifically, the
8 optionally-manned fighting vehicle.

9 Before I go into that, I think I'm going to make a
10 point that I made last week with Secretary Esper and the
11 Chief. So, you have something called the NGCV OMFV. I hope
12 the Army has plans to give all of these new systems cool
13 names that soldiers want to use and ride in. General
14 Ostrowski?

15 General Ostrowski: Sir, I would -- I believe that the
16 Chief of Staff of the Army answered back with a couple of
17 Senators' names, as a matter of fact, on that particular
18 question.

19 [Laughter.]

20 General Ostrowski: And I think he even used yours, as
21 well, Mr. Chairman. But, the --

22 Senator Cotton: Flattery is not needed.

23 [Laughter.]

24 General Ostrowski: Yes, sir.

25 Senator Cotton: Although it's always appreciated.

1 [Laughter.]

2 General Ostrowski: Always, sir.

3 I would tell you, sir, that that would be, obviously,
4 what the Army does.

5 Senator Cotton: No, you're good. No one wants to ride
6 around in an NGCV. They want to ride around in a Bradley or
7 maybe an Eisenhower, Sheridan.

8 But, on a more serious note, obviously the optionally-
9 manned fighting vehicle is basic -- it's designed to replace
10 our Bradley, right? Armored personnel carrier? Is its main
11 purpose still to get an infantry into the fight?

12 General Richardson, I see you nodding --

13 General Richardson: Absolutely, sir.

14 Senator Cotton: Okay. How many original equipment
15 manufacturers are you anticipating will bid on that
16 contract?

17 General Richardson: Sir, we believe there'll be
18 between three and five OEMs competing on that. They've had
19 12 industry days, up to this point. And we believe the
20 outcome will be very positive. We believe we'll get a fair
21 price for a great vehicle.

22 Senator Cotton: Well, it's good to hear that you're
23 going to have serious competition on it.

24 Let's move on to those infantrymen in the back of the
25 OMFV, or the Ike, or whatever it's going to be called in the

1 long term. The soldier lethality cross-functional team is
2 working on both a new rifle and a new SAW, squad automatic
3 weapon. Can you tell us how that is going?

4 General Ostrowski: Sir, I can. We put out the
5 solicitation. And, at this point in time, we expect
6 competitors to bring in their prototypes for both weapon
7 systems in the month of May. We'll begin the evaluation
8 process and select down -- down-select down to three in the
9 month of July of this year. Following that, we'll run those
10 three weapon systems -- again, both a rifle and an automatic
11 rifle -- through their paces, for a down-select the first
12 quarter of '21. And we'll be fully -- we'll be fielding in
13 the fourth quarter of '21. So, the biggest points are first
14 quarter '21, down-select to one; and then, by the fourth
15 quarter of '22, we'll be in the process of fielding.

16 Senator Cotton: What are the key features that you
17 anticipate both of those weapons having, relative to the
18 current M-4 and M-249?

19 General Ostrowski: The bottom line, sir, is the
20 ability to address a threat of a peer or near-peer
21 competitor. The current weapon systems that we have are
22 okay in the fight, with respect to the war that we're
23 currently in, in both Iraq and Afghanistan. The issue runs
24 deeper, though, with respect to a peer or near-peer threat
25 and their ability for individual protection that they have.

1 What these weapon systems are designed to do is be able to
2 reach out to greater ranges and have the penetrating power
3 necessary in order to defeat threats at those ranges.

4 Senator Cotton: That means they're going to have a
5 bigger round, right?

6 General Ostrowski: Yes, sir. The intent is a 6.8,
7 which we will provide the actual projectile, they will
8 provide the common cartridge. So, in other words, whether
9 it's a -- one that you see today, in terms of a brass
10 cartridge, or whether it be a different type of cartridge,
11 we are the ones that are going to provide them with the
12 bullet, and they build their cartridge around that.

13 Senator Cotton: What does that mean for the weight of
14 those weapon systems compared to the current M-4 and M-249?

15 General Ostrowski: Yes, sir. The intent of the rounds
16 that we have is to push them towards keeping it the same
17 weight constraints as the 5.56. So, polymer casings, for
18 instance. Case telescopes, for instance. These are new and
19 innovative ways that industry has been working in order to
20 try to make sure that the rounds are not much heavier, if
21 heavier at all, than the current 5.56 rounds that we carry
22 today.

23 Senator Cotton: And to, again, just put it in layman's
24 terms, this is all designed to shoot through the enemy's
25 body armor?

1 General Ostrowski: That's correct, sir. At range.

2 Senator Cotton: Okay. Any -- what are the challenges
3 you anticipate for the logistics system, making that change
4 from the current 5.56 caliber?

5 General Ostrowski: I expect very little, Senator. And
6 the reason is because of the fact that we are not going to
7 issue this across the entire Army. These go to the top 100
8 that are -- 100,000, actually, that are in the close fight
9 with the threat. And so, we have the ability today. We use
10 7.62, we use 5.56. Entering the 6.8 into this will not be
11 an issue whatsoever, in terms of the logistics piece. Will
12 it take a little bit of time to get it in? Yes, it will.
13 But, it should not be an issue, just based on the fact that
14 we're not issuing this to the whole 1-million-man Army.

15 Senator Peters: Okay.

16 Thank you, gentlemen.

17 Senator Blumenthal?

18 Senator Blumenthal: Thanks, Mr. Chairman.

19 I am interested in the -- and I appreciate your service
20 and your being here today -- the UH-60 modernization
21 recapitalization program. The Army National Guard Black
22 Hawk helicopter fleet, as you well know, continues to age,
23 many units operating aircraft that are more than 25 years
24 old. The Army's Black Hawk recapitalization efforts are
25 extremely important to the Active, Guard, and Reserve

1 components, as we know in Connecticut, because they provide
2 a very significant increase in capability, reduce crew
3 workload, and lower sustainment costs, which increase our
4 unit readiness.

5 The 1109th theater aviation sustainment maintenance
6 group in Groton maintains Black Hawks, and the 169th general
7 support aviation battalion in Windsor Locks flies Black
8 Hawks. So, Connecticut is very familiar with the importance
9 of these aircraft and the maintenance strain that results
10 from continuing to fly these aging aircraft. The UH-60A
11 have served the Army well, but the question is whether now
12 is the time to recapitalize. There's a lot of evidence that
13 there is, that it is time.

14 And, General Ostrowski, do you agree that
15 recapitalizing the Army National Guard Black Hawk fleet is a
16 necessary investment? How would you -- how would
17 recapitalizing that fleet aid in the Army's capability and
18 readiness?

19 General Ostrowski: Sir, I'll tell you, that is on the
20 top list of the Secretary of the Army. He's made it very
21 clear that what we're going to do is, by FY22, that all of
22 the alpha models will be outside the National Guard, so
23 they'll be either Limas, Victors, or Mike model aircraft in
24 the National Guard. By 2024, they'll -- all the alpha
25 models will be out of the Active Duty forces, as well. So,

1 we've made the commitment to get rid of all the alpha-model
2 aircraft by 2024 within our Army. Going forward, the intent
3 is also to convert all of the Lima aircraft of Victor
4 models, as well, the glass cockpit, as you know. And again,
5 between Mikes and Victors, by -- in the 2030s, we will have
6 transitioned both the Active Duty as well as the National
7 Guard to either Limas or Mike models within our Army.

8 Senator Blumenthal: And --

9 General Ostrowski: Let me correct that, sir. Victors
10 or Mike models within our Army.

11 Senator Blumenthal: The CH-53K -- and I apologize if
12 I'm retreading on ground you've already covered, but how
13 would you characterize the current state of that program?

14 General Ostrowski: Sir, I would just say that it is
15 not an Army program. Obviously, I have heard rumors of cost
16 increases and so forth on the program. But, I would have to
17 defer you to the correct service on that. I don't have
18 enough information to be able to tell you. I can certainly
19 ensure that we provide it to you.

20 [The information referred to follows:]

21 [SUBCOMMITTEE INSERT]

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1 Senator Blumenthal: Thank you.

2 Thanks, Mr. Chairman.

3 Senator Cotton: Senator King.

4 Senator King: Thank you, Mr. Chairman.

5 You guys are the experts, but we -- one thing we can
6 bring to this discussion is seeing other elements of some of
7 the same problems that you're dealing with. Just an hour
8 ago, I was in an Intelligence Committee meeting, and the
9 number-one threat to our Nation that they articulated was
10 cyber. And this is sort of the reciprocal of my question
11 about small businesses. A threat that's been identified in
12 a lot of the hearings that I've been in, in the last several
13 months, is cyber intrusion through small businesses, through
14 subs. And they would love to get a hold of the plans for
15 the new vehicle or the new rocket or whatever you're doing.
16 I hope that this is a -- how do we protect ourselves from
17 this kind of intrusion at the same time not burdening small
18 businesses? You may have a business with 10 people, and
19 they can't really afford to have a full-blown cyber. We
20 have to figure this out, because, otherwise, this is going
21 to be -- this is the path that our adversaries are using to
22 get into the utilities, for example. So, I commend this
23 problem to you, and want to have your thoughts.

24 General Richardson: Senator, you're absolutely right.
25 Supply-chain management is -- it's at the -- extremely

1 important for Army Futures Command, because, you're
2 absolutely right, our cyberattacks will hit these small
3 businesses. What we're looking at specifically in Army
4 Futures Command is a -- from a requirements perspective.
5 What are the requirements that we're putting on industry for
6 the protection of our systems and the network? Every single
7 program that comes across General Murray's desk, it is a
8 topic of discussion with this, and requirements are placed
9 on that to ensure our security.

10 Senator King: I would urge you to not accept
11 assurances from the major contractors that they've --
12 everything is good. I've never had anybody appear before a
13 committee that hasn't told me everything is good. I commend
14 to you the Red Team approach --

15 General Richardson: Absolutely.

16 Senator King: -- where, you know, a skull and
17 crossbones appears on the CEO's computer, and it says, "Your
18 -- congratulations, you have been hacked, and your prize is
19 the termination of your contract." You've got to be
20 aggressive and active about this. You can't simply accept
21 assurances. I hope that's the case.

22 General Richardson: Absolutely, sir. And we take it
23 from a requirements perspective at Army Futures Command, and
24 then we'll do a battle handover to General Ostrowski from an
25 acquisition perspective and what the -- they demand of their

1 customer, or the A can take it.

2 General Ostrowski: Well, I would just tell you, sir,
3 that these are the meetings that we're having at the highest
4 levels, not only within the Army, but also OSD. I sat in
5 one, just last week, with the Acting Deputy Secretary of
6 Defense on this very topic. That's how important it is
7 across the entire spectrum. We realize that the reason that
8 we are at parity today across all the services in many areas
9 is based on the cyber espionage that has occurred over time.

10 Senator King: That's right.

11 General Ostrowski: And we --

12 Senator King: They haven't taken the time to design
13 and prototype. They've just stolen.

14 General Ostrowski: That is absolutely correct. And
15 so, we have got to stop that. And that's a tough order.
16 Now, we can write it into contracts that we are demanding
17 that they have the right cybertools in order to defeat the
18 threat. But, let's be honest, the threat is extremely good
19 at what they do, and it doesn't take more than a novice or a
20 little bit better than that to tap into 90 percent of our
21 small businesses today. And so, we can hold them to a
22 standard, we can tell them that they have to meet it, but,
23 unless you're policing it, you're not going to get anywhere.
24 And then, on top of that, you might lose some of these
25 innovative incubated companies that just strictly don't have

1 the resources in order to do the kind of work that we're
2 asking them to do on the systems that we're asking. So, we
3 have to be able to help them with that process. And we are
4 starting to face these challenges, going forward. But, we
5 know that if we don't, that we will continue to have parity
6 and never gain the overmatch.

7 Senator King: Well, lots of possibilities, but I'm
8 glad to hear you're -- it's the policing, it's the
9 aggressive policing that I think is important. And also, we
10 may have to air gap these subs from the majors. We may have
11 to insert some barrier so that an adversary can't get into
12 the prime's systems through a small sub.

13 Question about acquisition. I'm a little unclear. Do
14 -- does Army Futures Command have acquisition authority and
15 structure that's outside of the Department of Defense
16 system? Is Ms. Lord involved in your process, or is this a
17 separate process?

18 General Ostrowski: Yes, sir. I would tell you that
19 the Futures Command uses the ASA (ALT), the Army Acquisition
20 Executive, in order to drive the authorities for all of
21 acquisition. So, my boss, Dr. Jette, controls all of
22 acquisition within the Army, and we support -- we directly
23 support the initiatives by the Futures Command. So, that is
24 how this is laid out.

25 With respect to OSD and The Honorable Lord, Honorable

1 Lord still has the milestone decision authority on a couple
2 of Army programs. A lot of that, she has delegated based on
3 her desire to allow the services the opportunity to run
4 their programs. And we applaud her efforts in that. So, we
5 own 99 percent of all of the Army programs today. She owns
6 just a very small number, in terms of her milestone decision
7 authority. So, she's been a great partner in all of this.

8 Senator King: Thank you. I have a great deal of
9 respect for her expertise, and I hope that's being brought
10 to bear in these situations.

11 Thank you.

12 Thank you, Mr. Chairman.

13 Senator Cotton: Senator Jones.

14 Senator Jones: Thank you, Mr. Chairman.

15 Just one question. One of the things we're going to be
16 looking at over the next couple of years is contracting
17 reform. So, General Ostrowski, I'd like to ask you just
18 your general thoughts on contracting reform and what are
19 some of the areas that we ought to be looking at.

20 General Ostrowski: Sir, I will tell you that, number
21 one, the amount of effort that the Congress has put in to
22 help us fix our acquisition system, writ large, has been
23 phenomenal. The fact that we have a Futures Command that's
24 able to reach out to incubating companies, to accelerator
25 companies, to small businesses the way that they've been

1 able to do is a function, largely, of the tools that you
2 have given us, you provided us, and our ability to use those
3 tools. I mentioned mid-tier acquisition, I mentioned the
4 OTAs just a little bit earlier, other transaction
5 authorities. So, all of these have been great tools.

6 With respect to contracting, I will tell you that there
7 are still several areas that we think need to be reformed.
8 The first one is the area of protests. Right now, a
9 competitor can protest an award to another in three
10 different areas. They can protest at the agency level,
11 which is the contracting officer level. They can protest
12 again at the GAO level. And then they can also take it to
13 the Court of Federal Claims. So, they get three bites at
14 the apple. There is no disincentive for someone to protest
15 an award, especially if they are the current incumbent and
16 they are still able to milk out that contract for a longer
17 period of time before turning it over to someone else.

18 So, there needs to be some type of reform associated
19 with that, allowing a particular contractor, one that wants
20 to protest, one bite at the apple. One bite at the apple.
21 For instance, last year, 515 protests were issued against
22 the Army contracting. Five of those -- only five of those
23 did we lose. But, that's a lot of lost time. The GAO takes
24 a minimum of 100 days in order to make a ruling. And so,
25 what -- that puts us in a position, both the contractor that

1 is -- that won the contract as well as the program office
2 are sitting idle, burning time, burning money during that
3 process.

4 So, stays are the other piece of this. GAO, if they
5 could give us a stay, a decision on a stay within 10 days of
6 getting the case. Without a stay, we could go ahead and
7 continue work, but if they put a stay on it, we won't. But,
8 if we could get an answer within 10 days, that would also be
9 relatively important to us, such as what happens in a Court
10 of Federal Claims, for instance. So, that's one -- another
11 initiative that I think needs to be considered with respect
12 to contracting reform.

13 Senator Jones: Thank you, General.

14 I'll yield the rest of my time, Mr. Chairman. Thank
15 you.

16 Senator Cotton: Senator Blumenthal.

17 Senator Blumenthal: Thanks, Mr. Chairman.

18 I have a couple of questions that I'd like to pursue
19 that are not sort of high-tech questions in the area of
20 cyber, but, as you know, the 2018 annual report issued by
21 Defense Advisory Committee on Women in the Services
22 recommended that the Secretary of Defense require all
23 military services to provide women servicemembers with
24 gender-appropriate, properly-fitting personal protective
25 equipment and gear for training and operational use. I'm

1 sure that you are familiar with this issue. There have been
2 significant efforts on the part of the Army and other
3 services in this regard. Despite these efforts, that
4 Advisory Committee determined that there are still
5 challenges for women; in fact, a problematic lack of access
6 to new gear during training and deployment, including for
7 Guard and Reserve members, in addition to women
8 servicemembers. That issue will become increasingly
9 relevant, due to the increased numbers, thankfully, of women
10 who are coming into the ranks. And I wonder if you could
11 update us as to the status of efforts to achieve those
12 goals.

13 General Ostrowski: Senator, I will tell you that the
14 Army is leaning forward, and has been for quite some time,
15 with respect to personalized protective equipment for
16 females. We've lowered the size of plates in order to
17 address the anatomy. We've changed the design of the plate
18 carriers in order to adjust that to the different levels of
19 anatomy. We've changed the yoke on the collar of a lot of
20 our body armor that still has that, in order to make up for
21 the hair bun and other things. So, the Army's been leaning
22 very far ahead with respect to cutting down the weight and
23 tailoring those particular devices for our females.

24 Now that we have women that are allowed to be into the
25 combat arms, and we have our soldier protection system,

1 which is our next-generation body armor and force-protection
2 capability that's entering the service now, eight sets --
3 eight different sizes are what we're fielding to the 121,000
4 front-line combat armed soldiers within our ranks, to
5 include our females. So, it's very important for us to get
6 the sizing right, because we realize that they are an
7 extremely important part of our force and now are in every
8 single branch within our Army.

9 So, we have been taking those methods for a long period
10 of time, and we work very closely with NADIC in order to
11 ensure that the anatomy piece is addressed as we develop
12 these systems so that we don't have to go back and second-
13 guess and retrofit on a continual basis.

14 Senator Blumenthal: And I have one last question,
15 which you may not be prepared to answer here, but, I
16 recently, in the course of my contacts with veterans at
17 various events over this past weekend, ran into one of our
18 Connecticut veterans who had a military working dog as his
19 companion. And it reminded me that we work very hard, going
20 back a number of years ago, on this committee to make sure
21 that military working dogs are brought back from the combat
22 theaters, and also that they are properly appreciated and
23 cared for once they come back. And I know that this may be
24 outside your purview, but I wonder to what extent military
25 working dogs are now used. I recognize that our force

1 structure has been greatly reduced, and they were used
2 primarily to detect IEDs and to protect our forces when we
3 had greater numbers there. But, again, if you need to
4 respond in writing, that's fine, too, but just to update us
5 on the military working dogs. Not exactly high-tech, but
6 still very important in many areas.

7 General Pasqualette: Senator, yes. We'll get back you
8 -- with you with the details. They still are incredibly
9 important, not just in combat, but in peacetime
10 applications.

11 Senator Blumenthal: Right.

12 General Pasqualette: So, we'll get you the details I
13 think you're looking for here in the near term.

14 [The information referred to follows:]

15 [SUBCOMMITTEE INSERT]

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1 Senator Blumenthal: I appreciate that. Thank you.

2 Thanks, Mr. Chairman.

3 Senator Cotton: Senator Duckworth.

4 Senator Duckworth: Thank you, Mr. Chairman.

5 Gentlemen, thank you so much for being here.

6 One of my priorities is making sure we learn sometimes
7 -- that sometimes hard lessons from past acquisition
8 challenges, like the significant cost overruns, repeated
9 delays, and ongoing technical problems we've seen with the
10 F-35. What are some specific challenges or mistakes you all
11 have identified in the past -- not necessarily Army
12 problems, but in past acquisition efforts, especially of our
13 major weapons platforms? And what are you doing to make
14 sure those same challenges do not negatively impact future
15 vertical lift as we move forward?

16 General Richardson: Senator, I'll start off with the
17 answer. I'm sure General Ostrowski will jump in.

18 We've studied all of our failed programs over the last
19 2 to 3 years as we looked at acquisition reform of the
20 United States -- in the United States Army. What we found
21 were -- it starts off with the requirement, where we're
22 writing requirements that are not technologically
23 achievable. We also found that we're changing our
24 requirements over time. And we've put in place, with the
25 cross-functional teams -- if you look at -- whether it's FVL

1 or the Joint -- with JMR, with the joint demonstrator -- we
2 are starting to experiment with all of our major programs.
3 We design, build, and test to learn about the technology.
4 That informs us when we write that requirement. That is one
5 of the biggest lessons learned -- that we've learned. We
6 have also learned, as it relates to the requirement, to get
7 it right, is, you have to write it as a team. You have to
8 bring in the acquisition professionals, the science and
9 technology professionals, to ensure that it's
10 technologically achievable. You have to bring in our
11 acquisition logisticians to make sure it's -- this piece of
12 equipment is reliable. Because we don't want to field
13 equipment on the backs of soldiers that is not reliable.
14 So, what we have found in our process is, it starts off with
15 the requirement, to make sure it's technologically
16 achievable, that it's going to be reliable when we field
17 this piece of equipment.

18 And the second area that we focused on as we go through
19 our lifecycle program and our acquisition process, if we
20 hand it over to the acquisition community, there's a
21 supported and supporting relationship. They're supporting
22 us in writing the requirement. We're supporting them as we
23 move along this lifecycle and providing feedback. Because
24 there are always going to be trades. But, the warfighter
25 has to be involved in that. And I think that's the power of

1 the cross-functional teams, that's what AFC brings to the
2 table. It's the integration and synchronization across the
3 Future Force Modernization Enterprise.

4 General Pasquarette: I would just offer one quick
5 thing, and then Paul may add, I think.

6 I was General Casey's XO, back in -- almost exactly 10
7 years ago, when SECDEF canceled FCS. And really, I think,
8 the challenge there, and the lesson learned -- there's a
9 great RAND study I just read on our lessons learned from
10 FCS. It was incredibly complex, and we couldn't explain it
11 to Congress, and we couldn't explain it to OSD. And I think
12 the other issue there, it wasn't tied to a threat. It was a
13 capability that we were developing -- complex, as I
14 described, but we could -- we weren't targeting against a
15 certain threat, like we are today in our development against
16 Russia and China.

17 Senator Duckworth: I want to follow up on a question
18 that was -- you all answered a little bit earlier while I
19 wasn't here, but, basically, keeping on the future vertical
20 lift theme. Your written testimony breaks out the budget
21 request into funding both a future attack recon aircraft and
22 a future long-range assault aircraft. And the question, I
23 think, earlier asked is, How are you going to be able to --
24 do you have experience developing two different aircraft
25 systems? And the answer was, "Well, yes, we did both

1 Apaches and Black Hawks at the same time." And that was
2 well over 30 years ago. And, General, I am not sure what
3 you flew, but you and I know darn well that the difference
4 between an Apache and a Black Hawk -- same engine, same
5 power system, same transmission system -- it's not the same
6 as what you're doing right now with FVL. With FVL, you have
7 -- very different aircraft, different ranges, different, you
8 know, systems. So, how are you going to be able to do this,
9 moving forward? And I just want you to elaborate on how
10 working on both of these lines simultaneously is driving or
11 changing the requirements and improving the overall odds
12 that each of these programs would be a success. And I'm
13 concerned that the Army is now developing a system that may
14 be really meeting the requirements of the Marine Corps, a
15 far smaller branch that has a very different requirement
16 than what Army needs.

17 General Richardson: Well, I'll have Jim talk about it
18 from a budgetary perspective, but these are absolutely,
19 you're right, two separate programs, Senator. The priority
20 the Secretary of the Army has set is our -- is for our
21 future attack reconnaissance aircraft, followed by the
22 replacement for the Black Hawk, which is a future vertical
23 lift assault aircraft. Today, as opposed to years ago, when
24 we wrote a requirement -- we just wrote a requirement and
25 said, "Go buy it." Today, we're learning. And, as you well

1 know with the joint demonstrator that we've been working on
2 for the last 4 years, we are learning daily with the
3 technologies that that demonstration is producing. And
4 taking that technology and going to put it into the aircraft
5 as we go forward; therefore, reducing the risk of failure as
6 we go forward. They are going to be different aircraft with
7 similar capabilities -- speed, range, survivability -- but,
8 yes, they will be different --

9 Senator Duckworth: Completely different systems.

10 General Richardson: They are different aircraft,
11 different engines.

12 Senator Duckworth: Yeah. So, it's not the same as the
13 Hawk and the Apache.

14 General Richardson: It's not. It's going to be -- you
15 know, the future attack reconnaissance aircraft will utilize
16 the ITEP engine that we've designed for the Black Hawk and
17 the Apache. But, the -- as you well know, the cap-set-3,
18 the replacement for the Black Hawk, is a bigger aircraft and
19 will require different engines.

20 So, you're right, there are different systems. We're
21 trying to make things as common as we can. For an example,
22 the cockpit. But, they are different aircrafts, they're --
23 difference in size, difference in weight, difference in
24 power. But, based on the approach that we're taking with
25 our experimentation, we're learning as we go, and they both

1 may not come out at the same time. Obviously, money has a
2 lot to do with it. And the Secretary of the Army has set
3 priorities. So, as we go forward, we will see.

4 Senator Duckworth: I am very concerned with this
5 process, and that -- I hope that we have a tight rein on it.

6 And thank you, Mr. Chairman. I hope that we can follow
7 this train of thought maybe in another hearing at some
8 point.

9 Senator Cotton: Someone earlier was talking about
10 active protection system. Who was that? General Ostrowski?
11 You want to say a little bit more about active protective
12 systems, where we are today with the Bradley, where we want
13 to be with the next-generation combat vehicle?

14 General Ostrowski: Yes, sir. On -- with respect to
15 Bradley, the intent -- again, we picked the -- a
16 nondevelopmental item. This is the IMI Iron Fist effort.
17 And in '19, we bought approximately 88 of those systems, and
18 we're buying another 36 this year in the budget for '20.
19 So, we want to get one brigade worth of Bradley equipped
20 with active protection system, to start off with.

21 At the same time, with respect to the Abrams tank, we
22 are buying four brigades of the Trophy system and we'll be
23 fielded by '21 with respect to that particularly capability.

24 From there, sir, we have a decision point. What we're
25 looking forward is -- the Army is developing its own, with

1 the Research and Development Center at Warren, Michigan --
2 what we call MAPS, so Mobile Active Protection System, which
3 is going to turn into -- vehicle protection system is a
4 program of record. What we're looking for is the backbone,
5 the digital backbone, an integrated backbone from which
6 different companies can then come forward with an open-
7 system architecture and provide us with radars and other
8 sensors, optical sensors, and effectors, the ability to
9 defeat, in particular, projectiles that are coming to us,
10 whether it be a rocket-propelled grenade, whether it be a
11 tank round. So, as a program of record, we want to move
12 forward with our modular open systems architecture, as
13 opposed to being tied to a proprietary solution, which is
14 what we're going to get with Trophy and with Iron Fist.
15 But, it's important to get a capability out there first.
16 And that's exactly what we've done with this
17 nondevelopmental approach with those two particular
18 vehicles. So, now it's just a matter of moving beyond that,
19 but with the MAPS program, into vehicle protection system.

20 Senator Cotton: Let's talk in layman's term, again.
21 So, active protective system is something that goes out and
22 tries to intercept the enemy's round. So, what you have
23 today, to put it in bureaucratic jargon, is passive
24 protection system. You know, you shoot a round at an Abrams
25 or a Bradley's armor, and you hope that that armor is strong

1 enough to stop that round. The bad guys are getting bigger
2 rounds. I mean, probably the -- the best example of this
3 that probably pops out in people's mind would be the grates
4 that we used to put around Strykers in Iraq, designed to
5 keep an RPG round off of the light-skinned armor of the
6 Stryker. So, active protective systems are designed to
7 intercept those rounds before they get to the armor in the
8 first place. So, you're saying that, right now, you're
9 buying off-the-shelf solutions to meet that need, but, in
10 the long term, it's better to have an integrated system in a
11 new kind of vehicle.

12 General Ostrowski: That is correct, sir. That's why
13 we were asking -- the optionally-manned fighting vehicle
14 will have an integrated APS system within it, as well. So,
15 as vendors come forward, part of the requirement is that
16 they will have an integrated active protection system that
17 they can choose. So, it's very important for that. And
18 it's not only the hard kill, sir, it's also the soft kill.
19 So, it's also the ability to affect a particular warhead
20 coming at you through soft-kill means. So, not only just
21 the kinetic hard kill, but also a soft kill. And you think
22 of the counter infrared -- counter -- or common infrared
23 countermeasure, for instance, and what we use on our Apaches
24 and Black Hawks and Chinooks, here in the future, the
25 ability to dazzle that particular round, the warhead, the

1 seeker.

2 Senator Cotton: All right. Thanks.

3 Let's go into something else that I -- that one of you
4 mentioned earlier: night optical devices. Was that you,
5 General Richardson?

6 General Richardson: I did, Senator.

7 Senator Cotton: So, I know this is part of the soldier
8 lethality cross-functional team. Talk to us about where we
9 are on night vision, and where we hope to go.

10 General Richardson: Absolutely, Senator.

11 Sixteen months ago, we stood up the soldier lethality
12 cross-functional team. And, in 6 months, we'll be putting
13 in the hands of soldiers a night-vision goggle that is 5X.
14 It's a dual-tube goggle. It's not only RF passive white
15 phosphorus, but it's thermal. We have been testing and
16 designing, working with soldiers, for the last 9 months on
17 developing this night-vision goggle. It's been so
18 successful with our Rangers and our infantry as they've been
19 using this night-vision goggle in the daytime on the ranges,
20 and they're going from marksman to expert. It was more than
21 we thought it was going to be, from a day -- from a night
22 perspective. They're using it in the daytime. It --

23 Senator Cotton: I know some captains who could have
24 used that.

25 General Richardson: It -- absolutely, sir. And it --

1 what it does is, it -- it's survivable. As you know, when
2 you wore goggles, it -- the green tint comes out of the
3 goggle and gives your position away. That is gone with the
4 white phosphorus. It's a better goggle. You can see
5 further. And you can see at night, if there's smoke,
6 someone behind a tree. And it's hooked -- there's a reticle
7 that is hooked to your weapon system, where you can shoot it
8 at whatever position you would like. It's supposed to be --
9 and we're on track to field it in October, sir, to the first
10 100,000. And it is definitely a winner. I have used the
11 goggle. I have shot with the goggle. It's better than
12 anything I've experienced in my Army career.

13 General Pasquarette: If I could --

14 Senator Cotton: General Pasquarette.

15 General Pasquarette: -- add quickly that the first
16 unit equipped actually is going to be an armored brigade
17 combat team that's going to rotate right afterwards to
18 Korea, given the requirements that the commander over there
19 has for that capability.

20 Senator Cotton: So, General Richardson, I think maybe
21 one of the biggest misperceptions about the way our infantry
22 fights is night-vision capabilities. Obviously, we have the
23 best in the world. That's why so many Army units say they
24 own the night and they prefer to fight in the middle of the
25 night, on a new moon. I think most civilians would think

1 that their night-vision goggles are the size and probably
2 the weight of a, you know, quarter, maybe a silver dollar.
3 That's not the case. Would you explain to us the
4 difference, in terms of weight and shape of this next
5 generation of night-vision goggles versus what our troops
6 have been using?

7 General Richardson: Sir, the next-generation night-
8 vision goggles, as far as weight, with the NVGB that will be
9 fielded this fall, is lighter than the goggle that we have
10 today, even though it's dual-tube versus monocular. Where
11 we're going to the -- into the future is IVAS that many
12 people have heard of, where we can train -- rehearse, train,
13 and fight with the same night-vision goggle. We have a
14 four-phased operation. In fact, I was down at Fort Pickett
15 this past week, where we had just finished phase 1 of the
16 operation, where you would have a -- like a pair of Oakleys
17 on your head, where, not only do you get able to have the
18 night vision, dual, you know, fuse both thermal and night
19 system, but you're able to train and rehearse that mission
20 with a set of glasses that are not in -- that the tubes have
21 gone away, it's embedded in the glasses, which will
22 significantly reduce the weight of where we're going. We're
23 on track. General Ostrowski's team has done a wonderful job
24 with this. We have three phases left to go, and we believe,
25 in the next 2 years, that we'll put the IVAS system on

1 soldiers, beginning third quarter of -- fourth quarter of
2 '22.

3 Senator Cotton: Okay.

4 General Ostrowski, let's return to the Intermediate-
5 Range Nuclear Forces Treaty, which is dead, if I didn't make
6 my point earlier. Will this be the last time we have a
7 hearing with senior Army officers and talking about long-
8 range fires that are slightly under 500 kilometers and
9 slightly over 5500 kilometers?

10 General Ostrowski: That is the intent, Senator.

11 Senator Cotton: So, in the future, all of our long-
12 range fires, whether they're operational, whether they're
13 strategic, will be designed to meet the enemy threat and
14 neutralize that threat, not to adhere to a dead treaty.

15 General Ostrowski: That is correct, Senator.

16 Senator Cotton: One final question that is more
17 fundamental about the way the Army fights. We've heard a
18 lot today about next-generation weapons. We've heard a lot
19 -- or some about robotics and artificial intelligence and so
20 forth. Ever since mankind picked up a spear or a sling or a
21 longbow, soldiers and their leaders have been trying to find
22 weapons that give greater standoff and protect the fighting
23 soldier, yet here we've been, in the last 18 years, in Iraq
24 and Afghanistan, with our soldiers on the front line, in
25 close-quarters combat, using rifles and sometimes knives and

1 sometimes their bare hands. Is there anything that the Army
2 is doing now that's going to forever eliminate that
3 fundamental truth that war, when you get down to the end of
4 the line, is fought by young men and women on the front
5 lines against enemies just like themselves?

6 General Pasquarette: Well, I'll start.

7 I think that's a -- we're -- we can't walk away from
8 that, my estimation. I think we're looking hard at how we
9 are going to fight in the future, and that's really under
10 General Murray now, in AFC, on multidomain operations. But,
11 at its core, we still think it's a human activity and it's
12 going to require having soldiers. That is the finishing
13 force at the point that's decisive. And so, that's why
14 we're investing a lot of money and a lot of brainpower on
15 soldier lethality, and why that is one of our six
16 modernization priorities, to ensure that we have the
17 overmatch where it matters most and where we're challenged
18 right now. But, what Jim just talked about, I think, we'll
19 have that, we'll be -- we're on the right track to
20 reestablish the overmatch that we want to maintain well into
21 the future.

22 Senator Cotton: General Richardson, General Ostrowski,
23 anything to add?

24 General Richardson: Sir, I agree with General
25 Pasquarette. I will tell you that the soldier is the

1 centerpiece of our formation, and everything that we do is
2 designed to support that soldier. And that's where we're
3 focused with our eight cross-functional teams. No matter
4 whether it's the night -- next-generation combat vehicle or
5 a future vertical lift, it's all integrated and networked to
6 support that soldier.

7 General Ostrowski: Sir, I would just say and just add
8 that wars are fought and won on land by soldiers that are
9 committed to the fight. And I don't see that changing. It
10 hasn't changed in history, and I don't see it changing
11 anytime soon.

12 Senator Cotton: I agree. Obviously, we want more
13 standoff for our troops. And some of their sister services,
14 like the Navy and the Air Force, do great things to help
15 provide them those standoff capabilities, some of the weapon
16 systems we've discussed here, as well. But, at root, wars
17 ultimately have to be fought between men and women, in the
18 dirt, in the sand, in the mountains, in close quarters. And
19 --

20 Senator King: Spoken by a true Army veteran.

21 Senator Cotton: Well, as Senator Blumenthal said,
22 that's why we invest so much money in personal protective
23 equipment, that's why we invest so much money in squad
24 automatic weapons and rifles and night-vision goggles,
25 because we can have all the automation we want, we can have

1 all the artificial intelligence, all the standoff weapons --
2 in the end, they're designed to serve that fighting man and
3 woman out on the front lines.

4 Gentlemen, thank you very much for your service to our
5 Nation. Thank you for your testimony today. We look
6 forward to working with you, going forward, on the fiscal
7 year 2020 budget request.

8 This hearing is adjourned.

9 [Whereupon, at 4:23 p.m., the hearing was adjourned.]

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