

**DEPARTMENT OF DEFENSE AUTHORIZATION FOR
APPROPRIATIONS FOR FISCAL YEAR 2009**

HEARINGS

BEFORE THE

COMMITTEE ON ARMED SERVICES

UNITED STATES SENATE

ONE HUNDRED TENTH CONGRESS

SECOND SESSION

ON

S. 3001

TO AUTHORIZE APPROPRIATIONS FOR FISCAL YEAR 2009 FOR MILITARY
ACTIVITIES OF THE DEPARTMENT OF DEFENSE, FOR MILITARY CON-
STRUCTION, AND FOR DEFENSE ACTIVITIES OF THE DEPARTMENT OF
ENERGY, TO PRESCRIBE PERSONNEL STRENGTHS FOR SUCH FISCAL
YEAR, AND FOR OTHER PURPOSES

**PART 4
AIRLAND**

APRIL 1, 3, AND 9, 2008



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CONTENTS

CHRONOLOGICAL LIST OF WITNESSES

THE ARMY'S NEW DOCTRINE (FIELD MANUAL 3-0, OPERATIONS)

APRIL 1, 2008

	Page
Caldwell, LTG William B., IV, USA, Commanding General, United States Army Combined Arms Center and Fort Leavenworth	6

ARMY MODERNIZATION

APRIL 3, 2008

Speakes, LTG Stephen M., USA, Deputy Chief of Staff, G-8, United States Army	34
Thompson, LTG N. Ross, III, USA, Military Deputy to the Assistant Secretary of the Army for Acquisition, Logistics, and Technology	39

AIR FORCE AND NAVY AVIATION PROGRAMS

APRIL 9, 2008

Balderson, Hon. William M., Deputy Assistant Secretary for Air Programs, Office of the Assistant Secretary of the Navy for Research, Development, and Acquisition, Department of the Navy	78
Trautman, Lt. Gen. George J., III, USMC, Deputy Commandant for Aviation, United States Marine Corps	87
Myers, RADM Allen G., USN, Director, Air Warfare Division, Office of the Chief of Naval Operations	96
Darnell, Lt. Gen. Daniel J., USAF, Deputy Chief of Staff for Air, Space and Information Operations, Plans and Requirements, Department of the Air Force	98
Hoffman, Lt. Gen. Donald J., USAF, Military Deputy, Office of the Assistant Secretary of the Air Force for Acquisition, Department of the Air Force	104

**DEPARTMENT OF DEFENSE AUTHORIZATION
FOR APPROPRIATIONS FOR FISCAL YEAR
2009**

TUESDAY, APRIL 1, 2008

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

**THE ARMY'S NEW DOCTRINE (FIELD MANUAL 3-0,
OPERATIONS)**

The subcommittee met, pursuant to notice, at 9:34 a.m. in room SR-222, Russell Senate Office Building, Senator Joseph I. Lieberman (chairman of the subcommittee) presiding.

Committee members present: Senators Lieberman and Cornyn.

Majority staff members present: Daniel J. Cox, Jr., professional staff member; and William K. Sutey, professional staff member.

Minority staff members present: William M. Caniano, professional staff member; Paul C. Hutton IV, professional staff member; and Gregory T. Kiley, professional staff member.

Staff assistants present: Fletcher L. Cork and Ali Z. Pasha.

Committee members' assistants present: Jay Maroney, assistant to Senator Kennedy; Jon Davey, assistant to Senator Bayh; Gordon I. Peterson, assistant to Senator Webb; Stephen C. Hedger, assistant to Senator McCaskill; and Brian Polley, assistant to Senator Cornyn.

**OPENING STATEMENT OF SENATOR JOSEPH I. LIEBERMAN,
CHAIRMAN**

Senator LIEBERMAN. Good morning and welcome to this hearing. I was going to start with an apology that I have a little bit of a sore throat, but the sound system is so good that I'll just make believe that I'm all right.

I want to welcome Lieutenant General William Caldwell, Commanding General of the Combined Arms Center at Fort Leavenworth. This is the first of two Airland Subcommittee hearings this week that focus on changes to the Army's Capstone operational doctrine. That is the definitive statement about war and how the Army expects to fight and win and keep the peace and what those changes mean for organizing, equipping, training, and employing the U.S. Army.

At the outset I want to both welcome and thank my colleague and ranking member, Senator Cornyn, for the work that he and his

staff have done in a real collegial fashion to help the subcommittee carry out the oversight responsibilities which we're involved in this morning.

We are here today to continue the important and urgent task of deciding what kind of Army America needs to have for the future security and freedom of our country.

The fight against Islamic extremists has been the defining national security issue of the past 7 years, that is since September 11, 2001. America's ground forces and especially the Army have been asked to carry the brunt of that fight and have done so exceedingly well. But of course that has also caused some stress on our forces.

Not only has the tempo of operations been extraordinarily high, but the Army has had to rapidly shift between conventional warfare and irregular warfare. In 2001, Special Operations Forces, some on horseback, but employing state-of-the-art electronics, accompanied Afghan forces into battle to successfully overthrow and evict the Taliban from Afghanistan, the place from which the attacks were planned and launched against the United States on September 11, 2001.

Two years later, Army heavy brigades defeated Saddam's Republican Guards and raced to Baghdad to topple that murderous dictator. No sooner had the conventional phase of the war concluded than the Army found itself confronting Iraqis in irregular warfare, while at the same time conducting stability operations and nation-building.

As the range of missions expanded, the Army had to reorganize some units, give others tasks for which they were not previously organized, equipped, or in some cases trained, and the Army was forced to develop and field equipment it had not previously envisioned needing. The fact is that we were simply not ready for the aftermath of Saddam's defeat, certainly not as ready as we should have been.

The full Senate Armed Services Committee held hearings last year at which the Army leadership and some of the most respected and thoughtful retired officers and outside experts addressed the question of what kind of Army do we need for the future. All the witnesses agreed that we went to war in 2001 with the world's best conventional Army, but many of the experts also said that the subsequent insurgencies in Iraq and Afghanistan demonstrated the limits of that largely conventional Army in successfully fighting the kind of war we are in now, and that we will probably have to continue to fight in the years ahead.

Of course, the Army has adjusted, as has the Marine Corps and the other Services, with remarkable skill in dealing with the new threat environment.

Last year's full committee hearings brought forth what I would describe as two conflicting recommendations for organizing, training, and equipping the future Army. The Army's recommendation, which is embraced I would say generally speaking in the new Capstone doctrine, was to increase the size of the Army, create more brigade combat teams, and to add to some low density, high demand capabilities, to give the brigade combat teams full spectrum

capability, to better deal with both irregular warfare and conventional warfare.

The different recommendation from some of the outside experts it seemed to me was to build an Army substantially changed in both size and structure by creating specialized units to match the changes in conflict and doctrine.

So there was a difference of opinion expressed and a debate that began, a healthy debate. It's an important one, too, and the choices we make as we sift through it are consequential to our future security. I found the analysis and recommendations from the outside experts to be both interesting and at some points persuasive, so I don't think that we should in the interest of our national security simply accept the Army's different recommendation without examining it and its implications closely, particularly because we in Congress are the people who will now be asked to both authorize and fund the vision of our future Army.

I think we have to answer three basic questions: First, for what will we hold the Army responsible? Will we insist on an Army ready for all possible combat and non-combat operations, on the full spectrum from stable peacekeeping to general warfighting? Should we build a force ready for the full spectrum of missions, but prioritized from higher, more dangerous or likely threats, to lower, less risky or unlikely threats? Or should we build a force only for specific missions on the conflict spectrum and, if so, for which ones?

Second, what operational doctrine should the Army adopt that provides for the greatest probability of success regardless of threat or intensity of conflict or commitment? Should the Army, as it proposes, combine the ability to execute offensive, defensive, and stability civil support missions simultaneously and for long duration, or should it adopt some other concept?

Third, how should the Army organize, train, and equip to execute its doctrine? Should the Army continue to organize around brigade combat teams that could be tailored for specific missions or should it build both conventional units and specialized counterinsurgency training, advisory, stabilization, reconstruction units?

The Army recently released, that is earlier in March, Field Manual (FM) 3-0, Operations, which is its new Capstone doctrine and is really an answer to some of these critical questions. It places the conduct of stability operations, significantly, on the same operationally required level as conventional warfare. As the Army Training and Doctrine Command (TRADOC) has said, this fundamental change redefines our basic notion of combat power from how we generate it to how we apply it, and its impact on the force and the application of the doctrine I'm quoting, and I agree—"will be revolutionary."

General Wallace, the TRADOC commander, also notes that "FM 3-0 adds to the Army's requirements for resources and will influence the Army's organization, training, equipment, leadership, education, and soldier concerns." I believe that he's right and that a change of this magnitude therefore requires a thorough vetting. We have to answer the question, what kind of an Army, in a way that makes this Army fully capable of successfully implementing this revolutionary doctrine. Of course, I hope that today's hearing will do exactly that.

The fiscal year 2009 Army budget request was developed over a year ago and delivered to Congress before this new Capstone doctrine, of course, was released on March 7, 2008. The budget request is heavily tilted toward resetting, modernizing, and transforming the existing heavy force. But I think we need to determine whether it includes enough money to fund the changes that the new Capstone doctrine logically and inevitably requires or whether the existing budget has shaped those requirements. We need to find out whether we should begin to make changes to either the programs or the priorities that have been requested. That includes whether the existing authorization of end strength for the Army is sufficient to implement the Capstone doctrine that the Army issued less than a month ago.

Hopefully, our hearing today will begin to answer those questions. I will note for the record that on Thursday the subcommittee will ask the Army for an update on its equipment modernization plans, with an emphasis on transformation to the Future Combat Systems, which this subcommittee has over the years proudly played a leading role in supporting.

We will also ask how the Army intends to modernize and transform the individual soldier to ensure that we begin now to build the right Army to protect the security and freedom of our country and our people during the generations ahead.

I thank you for hearing me out on that opening statement and I'm now honored to call on the subcommittee's ranking member, Senator Cornyn, from Texas.

STATEMENT OF SENATOR JOHN CORNYN

Senator CORNYN. Thank you, Mr. Chairman. It's good to see you.

Senator LIEBERMAN. You too.

Senator CORNYN. Thank you for scheduling this hearing.

General Caldwell, thank you for being here. I look forward to your testimony and your answers to the questions that the subcommittee propounds.

Today the subcommittee will receive testimony on the new Field Manual for Operations. This edition of the FM represents the first major update since 2001 and was crafted from the lessons learned in Iraq and Afghanistan, and that's what I would like to focus some of my questions on. The appropriateness of the Army and the military, as opposed to other institutions of the Federal Government, how those will be coordinated in order to leverage and maximize resources—my impression is post-Katrina Hurricane there was some discussion about giving the uniformed military services additional roles in natural disaster relief because, frankly, I think most people view the military as the most competent institution in the Federal Government. But the problem is that with that competence and professionalism, it can clearly be stretched too thin and overloaded and perhaps given missions that are inappropriate or divert it from its main mission. So, I'd like to talk a little bit about some of that.

Recognizing the Army's long commitment to the development of military doctrine, this can be traced back to the Continental Army and Valley Forge in the winter of 1777 and 1778. I'm reminded of the connection between the release of the most recent counter-

insurgency FM, just in terms of talking about what the impact of these manuals can have, the impact of that counterinsurgency FM and the revised strategy we've had in Iraq, which has from my perspective turned things around in a way that's very positive, and I'm not the only one that feels that way, obviously.

In 2006 the Army and Marine Corps released the new FM on Counterinsurgency Operations. It had been 20 years since the Army had published a formal FM devoted to that subject, and of course, General Petraeus oversaw the preparation of that FM. In 2007, just a month after the release of that FM, President Bush announced a new strategy in Iraq, and that new strategy has been sometimes referred to, of course, as the surge strategy, but closely parallels the doctrine advocated in that new counterinsurgency FM.

Now, a year later, the subsequent improvements in security in Iraq have been notable and I believe demonstrate the extant connection between doctrine, strategy, and change.

General Caldwell, in today's discussion of the Army's new FM on Operations, I'd like to ask you a little bit about how and in what respects you consider this to be revolutionary and whether that revolutionary change is in fact something that the Army can do, given the fact of our international commitments and the fact that, as Senator Lieberman said, end strength concerns remain and stresses on the military given its current mission, and what changes that you would foresee in the institutional Army and the organization of the Army's combat formations, the requirements for future systems being fielded to the force, the roles and missions of the Army Reserve and the National Guard, and the mobility requirements of the Army and the training of young officers and non-commissioned officers.

I'm particularly interested in whether a career path for a military officer conducting stability operations is something that would be considered a plus or a minus and how we deal with that very practical concern.

In addition, I'd like to ask you a little bit about how this FM can be harmonized with joint doctrine and how it has been received by our allies, coalition partners, and other agencies and departments in the Federal Government with whom the Army and the military need to work to bring all aspects of U.S. power to the table.

It's our Army's soldiers, of course, who will execute this doctrine and learn the new lessons that it requires. Thus, General Caldwell, we're going to ask you a little bit about the kind of feedback that you received from soldiers.

There's no doubt that our Nation will require a more agile, responsive, campaign quality, and expeditionary Army to meet the challenges of persistent conflict and change that will characterize the strategic environment well into the 21st century. I'm confident that this FM is an important contribution to the Army successfully meeting the high demand for Army forces and capabilities.

Mr. Chairman, thank you again for calling this important hearing and I look forward to the testimony.

Senator LIEBERMAN. Thanks very much, Senator Cornyn, for that excellent statement. I appreciate what you said at the beginning about the Army. I was just over in Iraq again about 2 weeks ago,

and our military is an extraordinary experience in our society. It's hard to find another group like it that has a sense, a similar sense of purpose, resourcefulness to respond to changing environments, a tremendous sense of loyalty within the group to one another, and a sense of real pride in what they're doing for our country.

So it's in that spirit, General Caldwell, that I welcome you again, as I stated for the record, Commander of the Combined Arms Center at Fort Leavenworth, KS, in which capacity you have overseen the drafting of this new FM and doctrine. We welcome your testimony now. Thank you.

STATEMENT OF LTG WILLIAM B. CALDWELL IV, USA, COMMANDING GENERAL, UNITED STATES ARMY COMBINED ARMS CENTER AND FORT LEAVENWORTH

General CALDWELL. Thank you, Mr. Chairman. Sir, if you don't mind, I have a written statement I'd like to submit for the record.

Senator LIEBERMAN. Sure. Without objection, we'll include it in full in the record.

General CALDWELL. Then I just have a brief opening one. If I may, Chairman Lieberman, Senator Cornyn, and other members of the subcommittee: I appreciate the opportunity to come here today to discuss on behalf of our Army our new Capstone manual, FM 3-0, Operations.

My command at the Combined Arms Center has oversight of our Army's 17 schools and centers across the country, which have the responsibility for doctrine, leader development, lessons learned, capability development, cultural training, education, and knowledge management. This wide variety of responsibilities and capabilities, combined with the tremendous pool of subject matter experts, gives us a unique insight into the state of our Army and helped us to shape this Capstone manual.

As the intellectual center for our Army, the Combined Arms Center plays a central role in shaping what will become the operational Army, from the doctrine that guides the actions of our forces to the structure and capabilities of those organizations that prosecute those actions, from the training and education that prepares our soldiers for the uncertainties of the future that we see ahead to the leader development programs that produce those creative thinkers and those adaptive leaders that are absolutely essential for our Army in this era of persistent conflict.

Your Army's role through transformation and beyond remains to fight and win our Nation's wars. However, this new doctrine puts stability operations and civil support, as you have said, Mr. Chairman, on an equal footing with offensive and defensive operations, institutionalizing our commitment to support and integrate it in a whole new governing approach to future operations.

This approach will not be easy and it will require a renewed commitment by all within our Nation's government. Your Army can win every battle and every engagement. We will never lose. But we alone can never win the peace. This can only be accomplished through an integrated effort by both uniformed and civilian personnel, working in the same synchronized manner as our joint forces do today.

Additionally, this manual recognizes the unparalleled power of information that we are seeing here in the 21st century. Our Army is asking more of our soldiers than ever before and it is our responsibility as leaders to empower them with the road map, the skills, and the decisionmaking abilities to complete their missions. Probably more than at any time in our Nation's history, our Army requires flexible and agile forces with the capability to conduct joint and multinational operations at any point across the spectrum of conflict.

The new FM 3-0 reflects what we believe to be the blueprint for the future of our Army, one that will take us out the next 10 to 15 years. Although the environment in which we operate will consistently change, the constant will be our soldiers. I ask you to join me in sharing and saluting their incredible sacrifices and join me in reaffirming our commitment as leaders to provide them with the right combination of skills, training, equipment, and leadership they need to accomplish the mission we have set before them.

With that, sir, I'm prepared to take whatever questions you might have.

[The prepared statement of General Caldwell follows:]

PREPARED STATEMENT BY LTG WILLIAM B. CALDWELL IV, USA

FM 3-0 represents a break from past precedent and theory within the Army; in its own right, this edition of our capstone manual marks a revolutionary shift in focus. Where our capstone doctrine was once based upon a traditional approach to military operations that focused operations on seizing terrain and destroying enemy formations, this edition acknowledges that the current and future operating environments will be characterized by conflict against amorphous enemies that hide among and are supported by civilian populations. Consequently, successful operations must incorporate robust measures to favorably influence the perceptions of such populations and garner their support. They must enable the support of our interagency and intergovernmental partners while facilitating the efforts of non-governmental organizations operating alongside our formations. In other words, FM 3-0 places primacy on capabilities that focus on the people among whom we operate, ensuring their safety, security, and well-being in an era of persistent conflict.

Two strategic realities shape American landpower in the 21st century: persistent conflict and change.

Today the United States remains a nation at war. This war is unlike any other in our history; it represents a fundamental clash of ideologies and cultures that could span generations. We face an era of persistent conflict, with intractable enemies intent on isolating the world from American access and influence extremist enemies of uncommon resolve fueled by unparalleled hatred for the rights and freedoms reflected in our democratic society. The enemy of today is patient, resourceful and committed to bringing terror to the American homeland. The enemy of tomorrow may possess capabilities and intentions that challenge the global balance of power. Ours is a complex and volatile world, where chaos is commonplace and hatred a basic tenet of an expanding social abyss. Globalization inherently ties our economy to countless others while the information revolution has eroded the protection once offered by our borders. American dominance of the maritime, air, and space domains is no longer the effective deterrent it once was, although it does give pause to nations who share our enemies' hatred of the United States.

Success in this era of persistent conflict will require the steadfast application of land power. The ability to engage, close with, and destroy our enemy on the ground remains indispensable. But it is the "soft power," constructive capabilities of the force—or as we prefer to say, "smart power" skills—that we must increasingly promote as the tools required to make permanent the otherwise temporary effects of successful combat actions. Armored combat vehicles patrolling the streets may intimidate our enemies for a period, but they cannot repair the damaged infrastructure of a failed state or bring lasting peace and stability to a war-torn country. In this uncertain future, our Nation requires constructive, nonlethal capabilities that complement Army combat capabilities. Therefore, our forces must be as proficient

at stability operations as they are at traditional combat operations. This requirement changes what we as soldiers must provide our Nation.

The second strategic reality shaping the future of the Army is change.

In the midst of this historic conflict, the Army has undertaken a historic transformation effort, reshaping itself into a decisive force with unique expeditionary and campaign capabilities. The Army has broken the mold of the traditional divisional army to forge a modular, brigade-based force capable of prompt, sustained land operations against any opponent across the spectrum of conflict. With this transformation, the Army cedes the concentrated tactical striking power of the division in favor of the elasticity of brigades operating across widely dispersed land areas. This gives the Nation an Army with much greater strategic flexibility and the ability to select and deploy various mixes of forces for crisis response or theater security cooperation requirements.

We are also transitioning from a Cold War tiered readiness system to a cyclic Army force generation process that will provide deployment-ready expeditionary forces that are organized, trained, and equipped to meet any contingency worldwide, yet it is flexible enough to provide formations optimized for the fundamentally dynamic environments of an uncertain future. The impact of this change on the Army will be profound.

At the heart of the Army's transformation effort is a shift in doctrinal emphasis that captures the essence of more than 6 years of current operational experience that has characterized military service since September 11. For the Army to remain agile and adaptive in this chaotic and uncertain era of persistent conflict, it is imperative that we capture and codify this experience within our capstone doctrinal manual.

Within the Army, doctrine is recognized as a driver for change. It is a dynamic catalyst that cements organizational change across the force. Through doctrine, the very institutions that represent the Army begin to transform, adapting to meet the requirements of the future while embracing the enduring lessons of our past. This edition of FM 3-0, our operations manual, is no exception. It represents the collective experiences of a team of veteran authors, yet was shaped by the vision of our most senior leaders. This, the 15th edition of the Army's capstone manual, reflects the lessons learned and best practices of our troops in Afghanistan and Iraq, yet maintains a strong lineage to Secretary of War Elihu Root's 1905 Field Service Regulations and Baron von Steuben's 1779 Regulations for the Order and Discipline of the Troops of the United States.

As with each previous edition, today's capstone manual shapes all Army doctrine, while influencing our organization, training and education, leader development, materiel acquisition, and soldier concerns. But its contents are not truly capstone doctrine until Army forces internalize it. This requires education, debate and individual study by all Army leaders, measuring the new doctrine against strategic, operational and tactical realities. Much of this edition has evolved from its predecessor, published in 2001. Many of the principles and fundamentals remain unchanged. However, others reflect the wisdom gained from our recent operational experience. So, while elements of this doctrine may be evolutionary, its ultimate impact on the force will be revolutionary.

This edition of our operations manual reflects Army thinking in a complex period of prolonged conflict and unique opportunities. The doctrine recognizes that current conflicts defy solution by military means alone and that landpower, while critical, is only one element of a much broader effort. Success in this era of persistent conflict will require the protracted application of all the instruments of our national power—diplomatic, informational, military, and economic, as well as military. Thus, Army doctrine now equally weights tasks that concern the population—stability or civil support—with those related to offensive and defensive operations. This parity is critical: it recognizes that 21st century conflict involves more than combat between armed opponents. While defeating the enemy with offensive and defensive operations, Army forces must simultaneously—not sequentially—shape the broader situation through nonlethal actions to restore security and normalcy to the local populations among whom we operate. This is the essence, the very core of this manual.

Today, I would like to share with you what I see as the four most significant changes reflected in our new operations manual. While aspects of the new doctrine are evolutionary in nature, in application our capstone manual will have a revolutionary impact on the force. This is a doctrine meant for a force led by creative thinkers, adaptive leaders, and soldiers who reflect the values of our Nation in every corner of the world today. Many of you have had an opportunity to review the manual. You understand that this manual is our "commitment" to soldiers to enable their success in an uncertain future. But this manual is also our "contract" with

Congress and our Nation: it declares that we are committed to providing our soldiers with the tools needed to win in this era of persistent conflict.

First, the manual is framed around a central operational concept—full spectrum operations—that drives initiative, embraces risk, and focuses on creating opportunities to achieve decisive results. Full spectrum operations represents the core of Army doctrine. It is more than just a concept that describes how commanders apply unique, simultaneous combinations of offensive, defensive and stability or civil support tasks to solve complex operational problems. It fundamentally redefines our basic notion of combat power, from how we generate it through the warlighting functions to how we apply it synergistically through combined arms operations. It drives initiative and emphasizes accepting prudent risk to create opportunities to achieve decisive results.

The manual details how the concept applies to every Army operation across the spectrum of conflict. It explains how Army forces apply full spectrum operations in every conceivable situation, from stable peace to general war. It describes how Army forces adapt to the requirements of a fundamentally dynamic operational environment and how they conduct operations within that environment combining Joint force capabilities, synchronized action and mission command. Full spectrum operations focuses on the Army's preeminent challenge: balancing expeditionary agility and responsiveness with the endurance and adaptability needed to carry any campaign to a decisive and successful conclusion, regardless of circumstances.

Second, this edition of the manual emphasizes the central role of the commander in operations, recognizing the need for human solutions to the complexities of conflict. In the future, chaos, chance and friction will dominate land operations, reflecting the increasing complexity of the operational environment. Understanding and knowledge are the commander's greatest weapons in this environment, where the art of command—drawing on vision gained from years of operational experience and education—is paramount to success. This edition ties together battle command and operational art, providing an integrated model for the creative application of the commander's experience, knowledge, and intuition in full spectrum operations.

The manual is underpinned by understanding, the expression of mental acumen by commanders (and their staffs) to define and frame complex operational problems and design operations that fundamentally reshape the conditions of the operational environment consistent with national interests and strategy. It is the creative application of the agile mind that enables the commander to understand the broader context of a given situation through the lens of experience, knowledge, education, intelligence and intuition.

Understanding, the cornerstone of battle command, is essential to the commander's ability to leverage competent leadership into decisive action to accomplish the challenging, complex missions our soldiers face today. Understanding is the driving force behind the operational concept that frames our capstone doctrine; it provides the impetus to bridge the chasm between risk and opportunity. Understanding is the catalyst that fosters initiative, the seasoned expression of the agile mind. Ultimately, understanding lies at the core of decisive action.

Third, the manual gives equal priority to the skills representative of nation building, elevating stability operations to an equal status with traditional offensive and defensive operations. This edition of the manual addresses the realities of a complex era of persistent conflict, in which stability operations are as important as offensive and defensive operations—if not more so. Soldiers will consistently operate in and among the people of the world, conducting operations in an environment fundamentally human in character. In this environment, the efforts of the force must focus primarily on the people. These efforts—stability tasks—improve the people's safety, security, social well-being, and livelihood; they shape a “whole of government” approach that integrates the activities of a wide array of military and civilian participants; and they fulfill our legal and moral obligations under the Hague and Geneva Conventions.

Toward this end, the manual elevates stability operations to coequal status with the offense and defense. While previous editions focused on the warfighting capabilities of the Army, this version acknowledges that secure, lasting peace is only achievable by combining the destructive capabilities inherent in offensive and defensive operations with the constructive capabilities innate to stability operations. Through unique combinations of offensive, defensive and stability operations, land forces establish the conditions that foster the success of the other instruments of national power and—through unified action—enable the processes that engender a stable peace.

Finally, the manual highlights and embraces the unparalleled power of information in contemporary operations. Successfully executing these stability tasks also depends on influencing attitudes. The final success or failure of a stability operation

often rests with the perceptions of the people. The actions of soldiers exert the most powerful influence on the people. Soldiers and leaders must secure the trust and confidence of the population; they must be consistent in the actions and messages. They must master information. For the people, perception equals reality. Altering perceptions requires accurate, truthful information molded for broad appeal and acceptance and presented in a way that accounts for how people absorb and interpret information. This is the essence of information engagement.

No other military activity has as significant a human component as operations that occur among the people. Human beings capture information and form perceptions based on inputs received through all the senses. They see actions and hear words. They compare gestures and expressions with the spoken word. They weigh the messages presented to them with the conditions that surround them. When the local and national news media are unavailable or unreliable, people turn to the internet, where information flows freely at unimaginable speeds. Again, to the people, perception equals reality. This new doctrine—the very core of our intellectual foundation—ensures that we work to change these perceptions as we shape a positive future for a people once on the brink of despair.

CONCLUSION

Today's FM 3-0 recognizes that the United States faces a global security challenge and should expect to remain fully engaged throughout the world for the next several decades, locked in a persistent conflict against an enemy dedicated to our defeat as a nation and eradication as a society. This conflict will be waged in an environment that is complex, multi-dimensional and rooted in the human dimension. This conflict cannot be won by military forces alone, but instead requires close cooperation and coordination among the diplomatic, informational, and economic instruments of our national power. This doctrine embraces that reality, and sets a waypoint that ensures the close synchronization of landpower with a broader, "whole of government" effort. As Army training evolves to meet the requirements of this doctrine, the result will be a true full spectrum force: one balanced, versatile, and able to provide expeditionary and campaign capabilities to joint and combined-force commanders. Full spectrum operations emphasize the importance of adaptive, flexible forces able to prevail in any situation, whether facing an intractable terrorist group bent on destroying our way of life, or a population in crisis relying on our benevolence for its very survival. Ultimately, however, it is soldiers—defined by their valor, devotion to duty and commitment to one another and the United States of America—who execute full-spectrum operations, and it is soldiers who remain the centerpiece of our formations.

Senator LIEBERMAN. Thanks very much, General. We certainly join you in that commitment to our troops.

I think we'll do 10-minute rounds and see how long we continue to have questions for you.

Let me go back to my opening statement and ask you to respond to what I believe I heard at the hearing that the full committee held last year on the future of the Army and try to relate that to this new FM 3-0, which is that—and this is obviously taking a lot of testimony and simplifying it, but there seemed to be a difference of opinion as to whether, essentially, the existing brigade combat team structure could be made into a full spectrum structure or whether, on the other hand, we needed to develop highly specialized units to engage in the different kinds of operations that the Army says it will have to engage in, from low intensity peace-keeping stability operations, to the broadest notion of general warfighting.

So did I hear that correctly, what's the answer that FM 3-0, in your opinion, gives to that good healthy debate we had before the full committee last year?

General CALDWELL. Sir, it's an excellent question. I can tell you from the symposiums we conducted out at Fort Leavenworth just over the last 8 months that I've been in command out there, that was one of the very subjects we took on and addressed, because it

is a great intellectual debate and it's one that should be done. Out of that, though, the position that the Army has taken we have codified in the FM, is that in fact we will take these brigade combat teams, this modular force, and develop within it the abilities so that it can, in fact, conduct full spectrum operations from literally peacekeeping type operations to major combat operations, rather than developing unique and specialized forces, other than, obviously, our special operating forces. We will continue to grow.

Senator LIEBERMAN. So do I understand correctly that the vision, the policy decision in the FM 3-0, is that each of the brigade combat teams will have the full spectrum capabilities?

General CALDWELL. That's correct, sir. Now, Mr. Chairman, there are 76 brigade combat teams in the total Army. We have another 223 additional combat teams that are of other types. We have recognized that elements like civil affairs are critical in this type environment. So from one Active Duty civil affairs battalion, we now have an Active Duty civil affairs brigade, and we're growing to two Active Duty civil affairs brigades.

So it's not that the brigade combat team alone can do it all, but there will need to be other combat-type multipliers that can be augmented with them and support them in that effort. Fortunately, through the authorization that Congress gave us, we're growing the Army by about another 76,000 people, and in that growth we will find those additional enablers being added into the force structure that will give us that enhanced capability.

Senator LIEBERMAN. So what were the people who were on the other side of the debate last year and at the symposium asking as you understood it? That, essentially that the existing brigade combat team structure and organization be set aside and that you organize separate units for separate purposes? Was that the debate?

General CALDWELL. Yes, sir. Obviously, if you take a tank battalion, about a 600-person unit that has to go through the qualifications of tank gunnery and learn how to operate as a combined force, and then as a combined arms force, and then ask it to do something like stability operations, entirely different skill sets are being applied at that point. So there will be a decrement in their tank gunnery skills and their ability to conduct tank operations, which they're going to have to go back and recalibrate.

But in fact, we recognize that with the agility we have built into the soldiers today in our Army, Mr. Chairman, we literally have—I brought with me today Captain Kuhlman who is sitting behind me. Captain Kuhlman just came out of Iraq, has just been assigned out there to work with me. I asked to have him because I had met him one time when I went to the Beiji oil refinery.

He's an infantry company commander from the 82nd Airborne Division. He went over there with his 140-man company with the primary mission to bring peace, security, and stability to the country. The next thing he knew, he had an area of operations and he's now responsible for literally helping run infrastructure. He has the Beiji oil refinery, the number one major oil-producing oil refinery in Iraq. He's handling the electrical plant. He's dealing with the local governance committees. He's working through corruption issues. He's having to deal with the interagency.

He literally has taken on, become a full spectrum type adaptive leader that we're finding across the Army today, that are just doing incredible things. Through our educational process, the experiences we give them, the training that they have, and now they find themselves in this case in this situation in Iraq, and he's having to apply all those diverse kind of skills, as are his soldiers, as he can talk about how he took and formed Task Force Oil with a young sergeant E-5 and a young specialist, who took on working within the plant on a daily basis to understand better the operations of the plant. These are military members who are having to work at that full spectrum.

In the debates we had at Fort Leavenworth at the symposiums was whether or not there should be an organization that doesn't have tanks, that is given the sole mission to conduct stability operations, that becomes very specialized in those skills. The challenge you do find as we've continued this debate is, Captain Kuhlman still had to conduct force-on-force combat operations at different times. It wasn't like he was free of the ability to not have to worry about some external threat.

As they found themselves being more successful in reducing the level of the corruption and increasing the output of oil through the refinery there, the insurgents did, in fact, start conducting more attacks against his forces and against the truck drivers and other things like that, where he was then required to use his military force in response to that. So he became a full spectrum unit operating over there in Iraq.

Senator LIEBERMAN. That's a really interesting response and story. I guess in a way you're saying that there will be some specialized units to supplement the brigade combat teams—and this gets to the individual soldier and certainly the individual officer, such as the captain you've described, which is the remarkable, you might call it, agility or resourcefulness that our troops have demonstrated in Iraq, and Afghanistan, but I'm focused on Iraq now, that allows them to do this range of assignments.

Is there a way you try to train somebody to be an officer like this?

General CALDWELL. Yes, sir, that's a great point. Out there, as the educational director for our Army on behalf of our chief of staff, that's, in fact, what we do at the Combined Arms Center, with our 17 schools and centers. We have taken a lot of time and effort to inculcate into the educational process the development of those very skills.

The importance of taking this manual—sir, I spent 30 years in the Army. I was in Panama and then had to work the aftermath when we had to get the basic services going and stand up the police. Then I went to Operation Desert Storm and found the same thing up in Iraq. Then I went into Haiti, did it all over again, trying to get the police stood up and trying to get basic services going.

Here we are now in Iraq, we are doing the same thing. The Army has always withdrawn from those kind of skill sets after we've been required to do them and we have had to do them in every conflict, and has refused to inculcate them into our educational process, to recognize them and to say that this is a responsibility that we have to be able to execute. We now have done that in FM 3-0. We have

observed what's occurring in Iraq and Afghanistan over the last 6 years. It's, in fact, a skill set that they're demonstrating on a daily basis, those remarkable young men and women in uniform, and we have codified it now and said, this will be something that we're going to capture and bring into the educational and training process and put into our doctrinal manuals, so that we don't lose that skill set in the future, but rather continue to reinforce it and, as you asked earlier, sir, reward those and develop the incentives so that if, in fact, they have done those type of skill sets it's something that's recognized by our Army as being very important and not something that's not important.

Senator LIEBERMAN. That's an excellent answer. So in a way, we train the brigade combat teams for full spectrum, but we're training individual soldiers to have the really mental acuity and individual leadership capability and resourcefulness to deal with an array of different problems. What you're saying is that FM 3-0 now accepts an institutional responsibility of the Army to the best of their ability, of your ability, to train our forces to carry out that range of responsibilities, and, in fact, puts it at a level that's equal to the traditional warfighting.

General CALDWELL. Exactly right, sir. That's so important because there are those who are very comfortable with offensive and defensive, the kinetic type operations, and the recognition of making stability operations as equally important, recognizing that we simultaneously are executing all of those in these current operations today and will in the future, now is, in fact, reinforcing and going to reward those who, in fact, engage in those type activities.

Senator LIEBERMAN. That was great, thank you.

Senator Cornyn.

Senator CORNYN. Thank you, Mr. Chairman.

General Caldwell, this significant development of this FM to incorporate into Army doctrine the requirement of stability and civil support in a much more formal sort of way, do you see any conflict between the traditional warfighting function of the Army and providing enhanced responsibilities for these kind of operations, or do you believe it's inherent in that warfighting capability?

General CALDWELL. Sir, I believe it's inherent, and it's something we'll be doing for the next 10 or 15 years. We've spent a lot of time looking at the threat out in the future and examining that as part of this manual development, and one thing we do say is that there will continue to be these type of operations for the next 10 or 15 years.

Senator CORNYN. After September 11 we heard a lot about stovepipes in the intelligence community, and of course in the military we've been working a long time to build a joint capability between the various branches of the military. But I'm wondering whether it's time to look at removing some of the stovepipes in terms of all U.S. Government power through greater interagency cooperation, to perhaps engage in a more meaningful way from my perspective the State Department and other U.S. Government agencies in these stability and civil affairs operations.

Could you comment on that?

General CALDWELL. Sir, I have three objectives out in my command. First is leader development, obviously; and second is inter-

agency. I am aptly passionate and cannot agree with you more. If you just take our educational process, where we have to start it, if you go out to the Command and General Staff College, our mid-grade level leaders at 10 years we're bringing out there and educating, I have 1,100—I'm the commandant of the college out there. I have 1,100 majors. 100 of them are from other nations. I have 82 different nations represented to give me the international flavor so that we can have that kind of cultural dialogue exchange between us.

I have 200 from the other Services, from the Navy, the Air Force, and the Marine Corps. I'm down now to about 800 Army officers. I have three from the interagency. Two of them are from the Diplomatic Security Corps, and one is from the Defense Intelligence Agency. I literally have, for the last 8 months, put a team together to try to somehow get the interagency to participate and be a part of the educational process, because if we don't train and educate together we're going to be challenged when we go into the type of situations we see in Iraq and Afghanistan today.

Sir, just having come out of Iraq, I can tell you that the members of the U.S. Government that are there other than the military are incredible heroes, putting forth a 110 percent effort. They're absolutely committed and dedicated and they're working every day with us. But they just aren't resourced and funded to be able to do what's necessary there, nor in this case to provide, like students, who can come out to the Command and General Staff College and spend 10 months in an educational process with all those other students out there, to enrich the training environment so that we educate and train ourselves as we will find ourselves operating in future environments in the world that our Nation may commit us to.

Senator CORNYN. You mentioned funding and of course a key to stability operations that you outlined are the provincial reconstruction teams (PRTs) and their efforts to rebuild key infrastructure. A large portion of the PRT funding, the economic support fund, was in the fiscal year global war on terrorism supplemental funding request. In December, Congress appropriated only \$15 million out of the \$797 million requested to fund the PRTs.

In your opinion, how does this impact the PRTs' ability to provide stability operations?

General CALDWELL. Sir, it obviously starts much earlier, because the other branches of the government are challenged to find the people to put into the PRTs because they aren't resourced with that kind of expeditionary capability. Given, though, that the members that we do find there—the PRTs are essential if we're going to eventually transition and provide greater stability and quality of life for the Iraqi people or the Afghan people.

Captain Kuhlman can share a personal example of how, here he is at the Beiji oil refinery, where you think you would find every element of U.S. Government engaged up there, and he has one person that he's able to find from a PRT that's nearby, who's coming in and working with him and helping provide some connectivity back into the whole government, and that's it. Had it not been for that PRT, had it not been for that one department person outside the U.S. military, he would have had no outside engagement with him through his first 6 or 7 months there in trying to figure out,

how do we help the Government of Iraq get the Beiji oil refinery, its major number one refinery in the country, more operational and functioning better.

Senator CORNYN. I was interested to see in chapter 7 of the FM, it's about information superiority and particularly information operations. Information operations divides into five Army information tasks, with particular emphasis on information engagement. Could you explain a little bit what you see as the proper role of the military when it comes to information superiority?

General CALDWELL. Sir, in the 21st century, as we all know, the information medium has exploded, and the messages and ways people can transmit information have quadrupled. So the question is, are we as a military going to understand and embrace this information medium and establish the procedures, the methods, the means by which we can, in fact, use it to educate and inform others and help work and understand that the perceptions of the people, because we're working among the people, in fact, becomes reality, and therefore your actions on the ground, that of the American soldier, he or she and what he or she does on a daily basis has a tremendous impact.

But then there's also the other medium of conveying a message through the Internet, through radio, through TV, through newspapers, that are out there, and we need to understand better and take advantage of. We haven't fully embraced and taken hold of that medium yet. We need to. It's critical to the 21st century.

Some people call it "soft power." In the Combined Arms Center we prefer to call it "smart power." It's taking these nonlethal elements like information and figuring, how do we take and use that in the 21st century, where, in fact, force-on-force is not necessarily the means by which you're going to achieve an objective, but rather informing and educating people and making them understand what's going on will, in fact, many times change their behaviors and their attitudes much more quickly than anything else will.

So this information medium is absolutely paramount. It's a major change in this manual. If you were to say what are the four major things, one of them of course is elevating stability operations equal to and as important as offensive, defensive. Another one is this information domain. I had the opportunity yesterday to talk to every public affairs officer in the United States Army at a worldwide public affairs conference and share with them and talk to them about this information domain, because it is so critical and they're a key element of helping us get at that. They're not alone in this effort, but they're an aspect of it, because we do have to figure it out if we're going to better inform and educate others about what the objectives are of our U.S. Government.

Senator CORNYN. I'm glad to see the emphasis on that and the emphasis on that issue, because frankly, I think the enemy we are confronting is a master of using information tactics to enhance, to advance their cause. I remember being with a bipartisan group of members of this committee in Kirkuk in August 2003 with General Odierno and General Petraeus at the time, and listening to a briefing of the good work that was being done there, and marveling that that information just never seemed to get out.

Obviously, in terms of the public support for the mission of the military, I think it's important for the public to know what the military's doing and not to leave it to the halls of Congress for people to spin and characterize it for whatever their motives might be, but actually to get good solid information. So I'm glad to see that the FM does view that as an important part of the function of the military, to make sure that information, accurate information, does get out in a way that enhances our ability to do the job.

Mr. Chairman, I'll turn it back to you for right now.

Senator LIEBERMAN. Thanks very much, Senator Cornyn.

General Caldwell, let me come back and ask you to talk some about the process that led to the FM and the Capstone doctrine that we're focused on, which is a very important document. The first question is, what were the Army's assumptions about the likelihood of employment of Army personnel at different points on the conflict spectrum over the next generation and the resultant priority among expected missions?

In other words, did you go through a process where you reached some assumptions about whether it was more likely that you be called on for conventional, irregular, or stability operations, and if so, what kind of priority was there?

General CALDWELL. Sir, we did, in fact, do that, and our assumption is that we will be called on over the next 10 to 15 years on a somewhat regular basis, and that, in fact, there will be more of the lower end kind of operations, not major combat operations.

Senator LIEBERMAN. So lower end, define it a little bit for the record?

General CALDWELL. The best way I could tell you, being responsible for helping put together our Army doctrine, we're rewriting right now our Army training manual, the manual that will tell you how we're going to train the United States Army. What we have done, sir, we've laid out that spectrum of conflict and we have actually put a circle on it and said, here is the area in which we think we'll most likely see U.S. military forces operating over the next—

Senator LIEBERMAN. You mean geographically or in terms of?

General CALDWELL. Geographically, yes, sir. We haven't published it yet, sir. We're publishing it in about 90 days. We're out briefing it. We're conducting the sensing sessions. We're talking to the other Services. A lot like we did with FM 3-0, to ensure there's not something we've missed before we publish this.

Senator LIEBERMAN. That's very important to know. So hopefully this hearing can be a part of that process, too.

General CALDWELL. Yes, sir. What we're telling everybody is that, instead of focusing on major combat operations, we're going to focus on slightly less than that.

Senator LIEBERMAN. So give us an example of what slightly less, something we've experienced?

General CALDWELL. Yes, sir. Like out at our Combat Training Center, sir, at the National Training Center and the Joint Readiness Training Center, instead of just having major force-on-force operations, we have over the last couple of years now been building large urban areas out of different elements, makeshift towns. We've hired on lots of Afghan Americans or Iraqi Americans, depending

on what unit is going to go to what area of the world, and have brought them in and they're doing role-playing, and they're in native costumes, with organizations set up. Then we bring the unit just before it's prepared to deploy about 3 months out there for what we call a mission rehearsal exercise, where they're rehearsing their final mission before they deploy and have them actually exercise and go through about a 10-day iteration out there, giving different challenges, situations changing, very dynamic depending on what they do and how the people react, putting them through the challenges of IEDs, and everything else we do.

Senator LIEBERMAN. So is it fair to say that you think that we're going to face more situations like we're facing in Iraq and Afghanistan today in the next 10 or 15 years, or are those more large-scale than you anticipate as the most significant responsibilities the Army will be asked to take on?

General CALDWELL. Sir, our assumption is that there will be like type operations in a smaller scale.

Senator LIEBERMAN. On a smaller scale. Then how about, what ranking do you give stability operations?

General CALDWELL. Sir, we really do see it as coequal, it truly is. I know we say that in doctrine, but when we put them out through our—and again, I have oversight for our Army, of our combat training center exercises. The Army has given us, we educate, we write it in doctrine, and we also collect the lessons learned, and then we go out and do the collective training, too, out there.

So we've, in fact, incorporated that in so that everybody has to go through the stability operations aspects when they're doing a rotation at either the National Training Center or the Joint Readiness Training Center.

Senator LIEBERMAN. Let me go back to the question that I raised on my first round and just see if I can ask you to focus in on this aspect of it, which is, in the same way you've described some of the assumptions that you've made about the likelihood of the threat environments or activities you'll be called on, what was the process that you followed that led to your decision to rely more on the full spectrum general purpose units than on the specialized units organized, trained, and equipped for specific missions?

In other words, you made a decision here that did reject an alternative view and I want to understand on what basis you made that decision.

General CALDWELL. Sir, what we're experiencing over the last 6 years in both Iraq and Afghanistan is that a military unit when it goes in, who may be one day conducting stability operations, can very well the very next day be conducting combat operations. Given the complexities of that environment, it's just not sterile enough where you can just do one thing.

Senator LIEBERMAN. So the alternative view is in some sense unrealistic, is that what you're saying, the one that focuses on more specialized units?

General CALDWELL. We want specialized like units that can bring in and augment.

Senator LIEBERMAN. To supplement or augment.

General CALDWELL. That's absolutely imperative, sir, like I said, with the civil affairs. One battalion was not enough for our United

States Army. We're literally going to have six times as much here because of what Congress gave us in allowing us to have the growth we're experiencing right now.

Senator LIEBERMAN. So I think I better understand why you made the decision, and it was that in what you see as the normal circumstance now it's not—and this is why I used the word “realistic”—realistic to think you can send in one unit to perform one kind of operation and have another ready for another operation, whether it's on the conventional, irregular warfare spectrum, or information, or peacekeeping, stability operations. Presumably based on what our troops are being called on to do now, particularly in Iraq and Afghanistan, that their presence there puts them in a position where it's much more realistic and, I suppose you're saying, efficient to train those units for a broad spectrum of responsibilities, rather than thinking you can send in specialized units to deal with whatever problems emerge.

General CALDWELL. Yes, sir. I can share a personal experience. One of our great coalition partners, the Republic of Korea, has sent a unit into northern Iraq that is providing great stability operations assistance. That's all they're able to do and that's all that their government has allowed them to do. They're providing medical care and training in how to operate heavy machinery. They're educating them in bakery goods. They're doing a lot of great things for the people of Iraq.

But they're very, very limited in what we can do with them. They're only able to stay just within their operating base and, although they're able to perform self-defense if attacked, we are unable to use them for anything else. So if some incident occurs in a nearby town, we have to bring in additional forces from outside the area to assist the Iraqi forces.

Senator LIEBERMAN. Let me ask you about another assumption. You had a very interesting, I think important, exchange with Senator Cornyn about the fact that we know that the Army and the Marine Corps are being called on to perform an extraordinary range of functions that go well beyond what most people would think our military should be doing or would be asked to do. We're very lucky, blessed, that you're doing it so well.

But you get very little help from other Federal agencies and as a result you're doing stuff not only that in the normal organizational chart we would assume that the State Department, the Treasury Department, the Agriculture Department—you could go on—would have been asked to do, but they don't have the personnel to do it.

So my question is, is one of the assumptions that you've made here as you put together this new doctrine that, in fact, in the next 10 to 15 years the Army won't be getting much more help from other Federal agencies than you are today?

General CALDWELL. Yes, sir, it is. But we also talk about—

Senator LIEBERMAN. Talk about reality. I'm afraid you may be right, but it's unfortunate.

General CALDWELL. But we make sure that they understand how critical it is that we don't want to ever lose, and continue to push, to try to get the whole of government engaged and involved in this process. Again, sir, I'd just go back to my personal experiences. Lit-

erally, I sat there in Panama after we did Operation Just Cause, and I remember my division commander turning to me and saying: "Okay, Bill, how are you going to get the police force up now?" I was the plans officer and I said: "Get the police force up? We haven't even thought about that and what we went through." Then I watched in Haiti. Again, it was standing up a police force and working to get the International Criminal Investigative Training Assistant Program and Ray Kelly down and everything else, and then how are we going to pay them and what are the standards. Then I walk into Iraq, sir, and it's *deja vu* all over again.

So this manual, which I am very thankful we're finally codifying it there, has recognized the importance of that aspect of stability operations and ensuring that it's in our educational processes and we do train to it and we have discussions about it.

We're writing right now, sir, FM 3-07, called "Stability Operations." We, in fact, will host an interagency conference on it, out at Fort Leavenworth in the late part of June for 2 days. We will have the ambassador who's in charge of the Department of State security and reconstruction come out and be our keynote speaker, because he understands how critical this is to the whole of government. He's assisting us, his office is, greatly in this effort, as are many elements of the U.S. Government. But at the same time, everybody recognizes they don't have the resources they can contribute to the effort.

But we're still going to write the manual. We'll have it out by this fall and it will be truly a U.S. Government manual. Although it will have an Army stamp on it, it will be anything but an Army manual. It will be a "How the U.S. Government should conduct stability operations." We will not publish anything that everybody is not comfortable with, because it's that critical to us that we have it right for the whole government.

Senator LIEBERMAN. Good for you. Look, we have an obligation on our side, and obviously whoever is president in the years ahead has the same obligation, to try to get some of those other Federal agencies to pick up more of the responsibility.

But in the mean time, again it's amazing what the Army and the Marine Corps are doing over there on the ground. People talk about economic development and microfinancing and building up self-government, the Iraqis' capacity to protect their own people and local police forces. It's astounding the range of functions that the Army is carrying out successfully on our behalf.

I know General Petraeus said to me at one point that the Commander's Emergency Response Program (CERP) funds are so critical that he'd trade a lot of other things he's getting money for so he'd have enough of that CERP money, because that's actually helping, now that the surge has created some security, to build the country back up, to help the Iraqis take control of their destiny. It's quite something.

Senator Cornyn.

Senator CORNYN. Thank you, Mr. Chairman.

There was some criticism that going into Iraq we were looking for a replication of what happened in Afghanistan, and we found something entirely different due to the failure of intelligence to let us anticipate what we encountered. I don't mean from a military

standpoint. I mean in terms of the disintegration of civil society, the insurgency, and the like.

Are you concerned at all that this FM, responding as it does to the current need for increased stability and civil affairs operations, is a response to what we've experienced in Iraq, that may or may not be present, a need that may or may not be present in future conflicts?

General CALDWELL. Senator, that's a great question. We've had a lot of discussion on that. The lessons we have learned over the last really 7 years now from both Afghanistan and Iraq have been taken and used in helping formulate this manual, but it's much more than that. It's also, as the chairman asked, what assumptions do we make in trying to look to what we're going to foresee that we could face in the future, and then having that as a major building block, too.

But very much so, we are influenced by and wanted to ensure we didn't lose the lessons learned from the last 6 or 7 years.

Senator CORNYN. My notes tell me here that more than 90 percent of civil affairs troops are reservists currently. Could you confirm that or not? Do you expect the regular Army as it adopts a larger role in the stability and civil affairs operations to—now that it's been doctrinally elevated to a core Army mission, is it going to change the need to have more of that capability in the regular Army?

General CALDWELL. Sir, I'd have to come back to you on the exact percentage. I don't believe it's 90 percent any more. But I would really want to come back to you if I could on that and give you a definitive answer I'd like to be correct.

[The information referred to follows:]

The percentages of all soldiers assigned to structured Civil Affairs units are as follows. This is based upon approved Civil Affairs growth through fiscal year 2011.

Component	2005	2006	2007	2008	2009	2010	2011
Active Army Civil Affairs Personnel	409	409	618	757	898	898	898
Active Army (Percent)	7	7	10	12	13	12	12
Army Reserve Civil Affairs Personnel	6,240	6,248	6,176	6,532	6,924	7,231	7,295
Army Reserve (Percent)	93	93	90	88	87	88	88

General CALDWELL. But what I can tell you, sir, is we only had one Active Duty civil affairs battalion when September 11 occurred. We're going to have six of them very shortly. It's an acknowledgment of how critical that asset is, and that will be six in the Active-Duty Force, not—there will be still some in the Reserves, but it's going to be six in the Active-Duty Force, because we also recognized that we did put too much of it into the Reserve component. Again, but it's because we had not said stability operations are equal and are as important as offensive and defensive operations. We have now, and in doing so therefore must have more civil affairs in the Active-Duty Force.

Senator CORNYN. As this becomes a core Army mission of stability and civil affairs operations, I read one article suggesting that some military officers may not see this as particularly an advantageous career path leading to a promotion. Are you concerned about that?

General CALDWELL. Sir, I am. I can tell you one thing that we have just done in the Army, too. We have taken and put all our leader development under the Training and Doctrine Command. In fact, today General Wallace is chairing the first of the quarterly leader development reviews so that we can look specifically at leader development issues. They were very much dispersed across the Army in different areas. We've now just in the last 6 months pulled them all together. We have a team out at Fort Leavenworth that's working this for him, and we're having our first quarterly review today, which literally will include everybody in the Army, from the Army G-3, the G-1, our personnel people, our Training and Doctrine, our Forces Commands. They're all coming and meeting, with General Wallace chairing the session, as we work through and then not only prioritize these leader development things, but then put the resources against it, which is the part that has also been missing. So that he has been given the authority to move resources within the Army, so that we ensure if we say this is our number one critical thing that it will be resourced so that it occurs, which would then follow on with things like board instructions that give instructions for promotions and acknowledgment of how important those kind of skills are.

Senator CORNYN. We all know that the current conflicts in which our Nation is engaged have put a lot of stress on the Army with repetitive deployments. Of course, one way we're responding to that is by growing the end strength of the Army and the Marine Corps. Does this change in the Army FM call for any changes in your opinion with regard to the numbers of new members of the Army or the Marine Corps that we're going to need?

General CALDWELL. Not directly, sir. If we're trying to figure out end strength, I think perhaps what we do is we look at what do we think are the mission requirements and then what are the forces to accomplish those missions.

Senator CORNYN. I guess to clarify my question maybe, since we're talking about more than offensive and defensive operations, more than just being the most lethal force on the planet, but expanding the role, it would seem to me you're going to need more people if your role is going to be expanded. Now, maybe you'll tell me you're doing it anyway now and really it's just recognizing reality. But I would be interested if you do believe—and you can certainly take it under advisement, come back to us if you think there is any need to increase the numbers or growing our end strength in the Army or the Marine Corps as a result of this new core requirement of the FM.

General CALDWELL. Sir, what I can say, in the current growth that's been approved, the 72,000, over 65,000 or so is Active Duty. That's where, in fact, we're doing the civil affairs growth and some of these others. As we say, this doctrine is evolutionary in nature because there has been the acknowledgment that these kind of things have been required, but it's revolutionary in that we codified it in writing. So that's the revolutionary aspect of this.

So in the growth that Congress did approve already for the United States Army, a lot of that is already starting to occur and has been looked at. I will tell you there are still ongoing reviews, again because we also do that out of Fort Leavenworth for the

Army, in the overall force structure. We are not finished with it. There are still dialogues and discussions. We will go back here in about 2 more weeks with another major series of events that will lead up to about the 1st of July where we will go back to the Department and make a recommendation on some further changes within our force structure.

Senator CORNYN. I appreciate your candor in responding to Senator Lieberman's question about whether you can rely on other agencies of the Federal Government to perform this function or whether the uniformed military is going to have to do it because, frankly, there is not going to be a lot of help from elsewhere. I would be interested if you have recommendations—I believe your staff and mine have talked a little bit about—what over and above the Army FM and this elevation of this stability and civil affairs operations to a core part of the Army doctrine, what other ideas you might have about how we could engage the full spectrum of the Federal Government to assist.

I think you've acknowledged reality and I happen to agree with you under present circumstances. But I don't think we ought to give up. If there are things that we could do that would supplement or enhance this capability of the Army in providing these operations by funding or training or some other reorganization of U.S. Government power, I would appreciate the benefit of your thoughts and ideas on that.

General CALDWELL. All right, sir. We'll come back to you on that, sir. You are right, sir. Our staffs are engaged, and I appreciate that dialogue that's been going on.

[The information referred to follows:]

The Army Command and General Staff College (CGSC) is currently working with the Combined Arms Center (CAC) to extend a successful Interagency Exchange Program that was approved by the Chief of Staff of the Army. This program provides education and training to the key agencies and departments of government to improve the capability of these organizations to meet the challenges of conducting stability operations in difficult areas of the world through an effective "whole of government" approach. Results of this program have been successful thus far, with 17 students from 8 departments/agencies coming to CGSC for classes beginning in July 2008 and continuing through June 2009.

In turn, the Army is sending seven officers as interagency interns to work in six departments/agencies to gain broadening experiences for the interns while contributing knowledge to the host departments/agencies. Instructors and guest lecturers are also coming to CGSC from the interagency to assist in the cross-pollination process. It is recommended that this type of collaborative learning be expanded further within the Army and the interagency to maximize the ability to train together as we intend to operate together in the theater of operations. To accomplish this, the Army and the individual agencies will need additional budget authority from Congress for added personnel and travel expenses that will accrue.

The above is just one example. What we need overall to continue this type of cooperation between the military and the interagency is for Congress to help with the following:

- a. Provide additional funding to the concerned agencies so they can participate in individual and collective education and training for joint Army/interagency operations without sacrificing other ongoing requirements for which they are still responsible. This should include opportunities at CGSC as are already underway under the above initiative, as well as exercises and simulation opportunities at the CAC Centers and Schools, and the Combat Training Centers.
- b. Staff the respective agencies so they have the personnel to send for education and training with the military forces they will be working with in the theater of operations.

c. Provide authorization and funds for exchange assignments where a member of one organization is temporarily assigned to another organization for broadening opportunities that will be of value to both organizations. This should go both ways, i.e., military to interagency, and interagency to military to provide the needed learning experiences for all parties. The authorization should enable use of military funds for sending an individual to an interagency assignment and use of interagency funds for sending an individual to a military assignment for the purposes of broadening the education and training of each organization.

d. Implement some sort of congressionally endorsed Presidential Executive Order or a Goldwater-Nichols Act for interagency (akin to what was done for joint service operations) that will provide directives and incentives to cooperate in the changes needed to make “whole of government” operations feasible and effective.

e. Enforce (d) above just as occurred with the individual Military Services to require all the Services to work together with interoperable capability. Make it enticing to participate. Career paths must support training and interagency education, which should in turn be made a key element for promotion. In the beginning some Services were slow to fully embrace Joint Professional Education programs, as it was viewed as a detriment to an operational career path. However, that view was changed as a result of policies enacted to support promotions. So this is needed to ensure cooperation by all Services, departments, and agencies.

f. Produce written guidance and codify actions in support of nation building. This includes economic development, the Rule of Law, humanitarian assistance and social well-being, governance, reconciliation, strategic infrastructure, etc. To date, there has been marginal support for efforts to capture and codify tasks as they apply to each agency.

g. Develop a process to establish unity of command amongst the interagency and intergovernmental organizations. For example, there are periods in reconstruction operations when the Department of Justice (DOJ) should have primacy due to the need to establish the rule of law. However, there are times when economic development must take center stage because it is the overriding concern. When this occurs, someone must be in charge. To date, there is no formalized process in establishing unity of command and the subsequent unity of effort among the key agency players.

h. Establish a coherent and synchronized training program for interagency and intergovernmental personnel deploying in support of reconstruction operations. For example, there is no place for DOJ, Department of State (DOS), and United States Agency for International Development (USAID) to send their personnel for integrated training. In the military we have the CONUS Replacement Center where all military personnel go for training prior to deploying. There is no such location or organization in the interagency and intergovernmental community. The training does exist for some organizations, but it is not synchronized and unstructured.

i. Rotational cycles for the interagency and intergovernmental community serving in operational areas are not standardized. DOS, DOJ, Department of Transportation, et cetera, all have different rotational policies, that’s if they can even require their personal to deploy. The non-standard tours create perpetual turbulence in the execution of reconstruction tasks. This is exacerbated by the lack of deployment policies that require personnel to deploy in support of reconstruction efforts.

j. Many of the interagency and intergovernmental personnel are not integrated into existing command and control structures. As a result, their actions are not synchronized with the military or other agencies executing reconstruction tasks. There are no such things as command or support relationships in the interagency and intergovernmental community. As a result, everyone is establishing their own priorities when it comes to rebuilding a country.

k. Many of the government agencies are understaffed to allow them to contribute to both “whole of government” operations in theater and to training our forces before they deploy. DOS and USAID are two organizations that come to mind, since they are currently working very hard with us to provide their expertise to support training at the Army’s four combat training centers. If Congress could expand the size of the agencies normally involved in stability operations it would be a positive step to improving the current training situation.

The importance of interagency personnel training with the Army cannot be understated, since it is a reciprocal learning experience. That is, by training together, our soldiers and agency personnel learn about each other's operational capabilities, and—more importantly—internal cultures—i.e., how each thinks and conducts business. Without those agencies personnel, we are forced to contract personnel to role play our interagency partners. Ideally, those contracted role players have been in those actual roles in a former life; for example, we have used the services of contracted retired ambassadors to act out those roles in exercises. Naturally, we would like to have other organizations, such as the Federal Bureau of Investigation, Central Intelligence Agency, and Defense Intelligence Agency routinely train with us. Having enough people in the agencies so that they could be part of the train up of our uniformed forces would greatly improve pre-deployment training and provide subject matter experts with current experience.

This interaction would help make the agency personnel and our soldiers smarter to leverage each other's capabilities and establish relationships to work together as a unified team. The more opportunities there are to work with our joint, interagency, intergovernmental, and multinational partners in training, the more likely we will be successful in actual operations.

Senator CORNYN. Thank you very much.

Senator LIEBERMAN. Thanks, Senator Cornyn. Very good questions.

I just have a couple more. I want to pick up on one of the exchanges with Senator Cornyn about end strength and whether the new doctrine, FM, requires additional end strength even beyond what we've authorized. Let me focus in on this part of it. To carry out these full spectrum of missions, you're going to need good time for training of our troops. Under the current deployment schedule, obviously, there is less time, to some extent even less resources. The institutional Army has been cut back some to enable the Army out there on the field to carry out its responsibilities.

So my question is, as deployments are more frequent, do you see that the Army will have enough time to train our troops to carry out the extraordinary range of responsibilities that the doctrine will give them individually?

General CALDWELL. Sir, with the current deployments that are ongoing today, we are only able to train our forces for the mission which they have been directed to execute. So the forces that we are sending into both Iraq and Afghanistan today are trained not to conduct high-end operations. We recognize what the environment there is and we train them for that environment. It still requires them to have the capability to conduct force-on-force and stability operations, but they are not taught to conduct major force-on-force operations.

We are sacrificing that part of our ongoing training so that they are fully prepared and ready for what they will face in Iraq or Afghanistan. We call it their directed mission essential task list.

It takes about 18 months dwell time in between deployments in order for us to get at the full spectrum of the military skill sets which every military unit needs to have the capability to execute. Right now, we're at about a 12-month rotation between deployments. So therefore we are challenged and have a difficulty in getting at that full spectrum.

But what we do ensure is that every man and woman who is deployed into theater has all the training they need for that environment upon which they're going to operate.

Senator LIEBERMAN. I hear you. So I think you're doing the best you can and really damn good under trying circumstances. I think

as you consider some of the questions that Senator Cornyn asked, I'd like you to consider that question of whether there's a real need for greater end strength to allow the Army to train our troops more broadly for the missions, the broad spectrum of missions that they're going to be given under the new FM doctrine.

My own hope—I appreciate your testimony today—is that this is the beginning of a dialogue. I understand this is a proposal that you're now vetting and I hope that you'll continue, if you will, to vet with us also, because we have the ultimate responsibility, obviously, along with the President, but Congress has a unique responsibility under the Constitution to fund our military. I think we want to understand what the doctrine is and make sure that we can support it and also to fund it, so that we're reducing the stress that the Army is feeling in carrying out the responsibility that you take on for our country.

General CALDWELL. Yes, sir. Sir, if I could just say, from having again had the privilege and opportunity to serve with our men and women over there, we are extremely grateful for the support that Congress has continued to give to us and the American people. It's just absolutely overwhelming. I've never seen anything like it in my military career. We're greatly appreciative. On behalf of all of us serving in uniform, I just want to say thank you very much.

Senator LIEBERMAN. General, we owe it to you. This has been, as is obvious in this room, a controversial war in terms of the politics of it. But I think what's not controversial, although the two occasionally have bumped into each other on the floor of the Senate anyway, is our support for the troops. I think the general notion of supporting the troops is broadly held in our society. Sometimes the specifics of how we do it in terms of funding on the floor has come into confrontation politically.

But I go back to what Senator Cornyn and I both have said. This is a remarkable Army that has found itself being asked to do things that really it could not have anticipated—maybe it should have anticipated, but it didn't—it would be asked to do, not just within the foreseeable range of Army responsibilities, but all these other departmental responsibilities that the other agencies of the Federal Government are not carrying out, not picking up.

It's really one of the great untold stories of this conflict, both Iraq and Afghanistan, the tremendous human commitment by individual soldiers to make this work, beyond the warfighting—living in the neighborhoods, interacting with the people. When I was there, not this last time 2 weeks ago, but the time before on Thanksgiving, I was hearing one of the marines telling me about how they used some CERP funds to help the local imam fix up the mosque and not a lot of money really, but a tremendous impact on the attitude of the local population toward us and toward their own future.

So bottom line: Let's continue the discussion.

I have some further questions which I'm going to submit to you in writing for you to answer. We'll keep the record of the hearing open if Senator Cornyn or I or you want to add to it, for 15 days from this date. But for now, thank you for your testimony. Thank you for your leadership and, through you, thanks to all the men and women who wear the uniform of the U.S. Army and are per-

forming with extraordinary honor and effect. We can't thank you enough.

General CALDWELL. Thank you.

Senator LIEBERMAN. The hearing is adjourned.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR JOSEPH I. LIEBERMAN

MILITARY TRANSITION TEAMS

1. Senator LIEBERMAN. General Caldwell, the Military Transition Teams' (MiTTs) success in both Iraq and Afghanistan has been incredible, and has proven invaluable in not only advising and mentoring local security forces, but also setting an example of military professionalism. It was unfortunate that we did not have this capability established earlier and lost valuable time creating it ad hoc. If this specialized type of unit had been part of the standard Army organization, we may not have lost that valuable time. This new Operations Manual directs that stability operations will be a major part of future operations. It would make sense that elements such as the MiTTs would be an inherent and major part of these operations. What is the Army doing to ensure that we have this capability in the future?

General CALDWELL. To ensure the Army has this capability in the future, the Army is currently developing the training operational concept and training organizational design for an enduring capability to train Full Spectrum Army forces for the advisor/trainer mission. This capability is planned to reach full implementation no earlier than December 2011, and is currently planned to collocate at Fort Polk, LA, with the Joint Readiness and Training Center. It will have the ability to train individuals and units to conduct the advisor/trainer mission.

The Army must be ready to train and advise foreign security forces through both pre-conflict security cooperation activities, such as ongoing efforts in Colombia and Saudi Arabia, and post conflict conditions, such as our current efforts in Iraq and Afghanistan. The type of training and advising required spans from the ministerial level through the institutional army and from national army headquarters to small tactical units. The ministerial level requires a joint solution that the Army contributes to, while foreign army institutions require assistance from the Institutional Army such as the Training and Doctrine Command. Full Spectrum Army modular forces are ideally suited to train and advise foreign army tactical forces.

For all these forces, the key consideration is expertise in their core function—something not necessarily resident in an advisory corps. For example, U.S. Army infantry, medical, or engineer units are experts at conducting their wartime function and therefore ideally suited to train and advise counterparts. Future requirements to train and advise foreign security forces will be addressed with a combination of U.S. embassy military groups, Special Operations Forces, full spectrum modular forces, and small scale specialized forces. However, before Army forces conduct a training or advising mission, they must prepare for the unique aspects the mission entails. To that end the Army is creating an enduring advisor/trainer training capability.

2. Senator LIEBERMAN. General Caldwell, will the Army expect Brigade Combat Teams (BCTs) to be capable of transitioning to the MiTT mission seamlessly?

General CALDWELL. If directed prior to deployment during the reset phase of Army Force Generation (ARFORGEN), BCTs can execute the training with personnel and equipment required to support the MiTT mission seamlessly. BCTs have a rich history of training and advising the forces of partner nations in peacetime, and have continued that tradition during operations in Iraq and Afghanistan today.

FM 3-0, Operations (Feb 08), recognizes that battlefield success is not longer enough ultimately, success requires concurrent stability operations to lay the foundation for lasting peace. Army BCTs are designed to conduct Full Spectrum Operations—simultaneous offensive, defensive, and stability operations. Emerging Army training doctrine requires BCTs to initially achieve proficiency in their core mission-essential tasks as part of the ARFORGEN process. These tasks are full spectrum tasks and are based on the as-designed mission of the unit prior to deployment. This core mission essential task list provides the baseline skills for the MiTT mission. Army forces will not train on these core mission essential tasks lists, until the dwell time is at least 18 months, unless otherwise directed. However, since BCTs have been involved in all aspects of stability operations, to include understanding the Afghan and Iraqi cultures and languages for the past 5 years, as well as working with

transition teams during that time, it will be easy for them to assume they are capable of transitioning to the MiTT mission seamlessly.

If a BCT is directed to conduct the MiTT mission, the commander will analyze that mission's requirements and develop a directed mission essential task list (DMETL)—the tasks that are essential to accomplish the MiTT mission, as well as personnel, training, and equipment requirements for the MiTT mission. Internal sources of a MiTT changes the usual duty positions of soldiers within the BCT and redirects them from their core missions. However, as we have seen in OIF and OEF, soldiers are very adaptive. The train-up time necessary to provide new skill requirements to soldiers and leaders is included in the force generation training cycles.

3. Senator LIEBERMAN. General Caldwell, the Army has created significant advisory structure currently deployed throughout Iraq and Afghanistan. If we assume that we will need teams similar to the structure of the MiTT over this period of extended conflict, would it make sense to build this force structure permanently?

General CALDWELL. The MiTTs were created specifically to meet the operational needs of the Iraqi and Afghan armies at a time when U.S. Army BCTs were committed to counterinsurgency operations. However, MiTTs may not be the best structure for requirements beyond Iraq and Afghanistan, but the lessons learned about trainer/advisor roles, missions, and skills will apply in the future as the Army develops the capability for an enduring advisor/trainer institution.

To help capture this expertise, the Army is tracking soldiers with transition team experience by assigning a Project Development Skill Identifier (PDSI) to soldiers who successfully complete transition team training. As of 17 April 2008, 2,829 soldiers have been awarded a PDSI. Further, both officer and enlisted selection boards include specific instructions that explain the duties and responsibilities of those who have served on transition teams and emphasizes the importance of the transition team mission.

Future requirements to train and advise foreign security forces will be addressed with a combination of U.S. embassy military groups, Special Operations Forces, full spectrum modular forces, and small scale specialized forces. Organizations such as the U.S. Army Security Assistance Training Management Organization (SATMO) will continue to provide small scale security assistance teams (SATs) to train and advise foreign militaries. For example, in fiscal year 2007, SATMO provided 29 permanent SATs in 15 countries and 36 temporary SATs in 24 countries executing over 8,400 overseas workdays in security assistance to foreign militaries.

BRIGADE TROOPS BATTALIONS AND MANEUVER ENHANCEMENT BRIGADES

4. Senator LIEBERMAN. General Caldwell, the Brigade Troops Battalions (BTBs), and at higher levels, the Maneuver Enhancement Brigades (MEBs), seem to be the elements best suited to conduct stability operations. These units have organic military police, engineers, and intelligence forces that are combat multipliers in stability operations. Will stability operations become a mission essential task of these elements, and if so, do they have the proper equipment for these tasks?

General CALDWELL. The Brigade Special Troops Battalion (BSTB) doctrinally is primarily organized to provide command and control for the BCT company and smaller units. The BSTBs subordinate units are military intelligence, communications, engineer, military police, and CBRN reconnaissance. The BSTB provides these capabilities to the BCT and the Combined Arms Battalions during offense, defense, stability, and civil support operations in addition to securing BCT command posts. As part of a BCT conducting simultaneous operations, the BSTB would have the task to conduct stability operations. However, the current BSTB design is not resourced, based on recent staff reductions and lack of maneuver companies, with the required capabilities to plan and execute, other than non-kinetic, stability operations.

One of the MEB's Core capability mission essential tasks is to conduct stability operations. The MEB is optimized to conduct stability operations and with its unique breadth and capabilities of the staff and the likely mix of units, it will become the preferred headquarters to conduct stability operations. Since an MEB is a multi-functional organization that is task-organized based on mission requirements, the MEB can be optimally tailored with the requisite capabilities to provide the required support for stability operations.

5. Senator LIEBERMAN. General Caldwell, will these organizations (the BTBs and MEBs) have enough training to both support the combat mission and exercise mission command over and execution of stabilization efforts?

General CALDWELL. All Army forces train for combat missions, which include offense, defense, and stability operations tasks. A unit's training plan is developed based on its DMETL. Each DMETL is tailored for the mission the unit is being deployed to conduct and involves some level of offensive, defensive, and stability operations used in combination. A BTB can train and execute command and control of its forces for the mission they will execute in support of its parent BCT. This includes offense, defense, and stability operations tasks. However, since the BTB contains unique units that support the entire BCT, those units will often be controlled directly by the brigade or by other subordinate battalions they are directly supporting. A MEB is a multi-functional brigade able to train and execute command and control over a varying amount and type of Army functional units such as military police, engineers, chemical, air defense, and maneuver units. The MEB, like a BCT, is capable of battlespace management, command and control, and conducting full spectrum operations (including offense, defense, and stability tasks).

6. Senator LIEBERMAN. General Caldwell, is the Army modernizing these combat support elements with the same priority as our combat elements?

General CALDWELL. Yes. We are modernizing and modularizing forces in all capability areas. BSTBs are being "modernized" and "modularized" with their parent BCTs. MEBs are being built in new modular formations and are receiving a whole host of modern equipment.

COORDINATION WITH OTHER SERVICES

7. Senator LIEBERMAN. General Caldwell, FM 3-0 discusses the importance of the Army fighting as part of an interdependent joint team. A new Capstone doctrine would be incomplete if it were not fully coordinated and supportable by the other Services. What coordination did the Army conduct with the Joint Staff and staffs of the other Services in the development of this doctrine?

General CALDWELL. From the outset, development of FM 3-0 was coordinated closely with our sister Services and the Joint Staff. We staffed each draft through the other Services' doctrine centers, and collaborated with Joint Forces Command on specific aspects of the manual to ensure that we cemented the linkages between Joint and Army doctrine. This collaboration was essential in shaping the final content of FM 3-0 and was instrumental in articulating the role of the Services in achieving true joint interdependence in the land domain.

We also played a key role in the development of the joint doctrine from which the underpinnings of FM 3-0 were derived. By synchronizing the development of FM 3-0 with the writing of Joint Publications 3-0 (Joint Operations) and 5-0 (Planning for Joint Operations), our team was able to collaborate closely with writers from Joint Forces Command. Key elements of FM 3-0 emerged from that process, and were further developed through ongoing discussion with individual representatives of Joint Forces Command.

This level of coordination also extended beyond the Department of Defense. In August 2007, the other agencies of the United States Government provided their assessment of the manual. We captured that input and rewrote parts of the text to better reflect the role of the interagency in the conduct of land operations. That synergy is vital to ensuring the coordination and collaboration required among the interagency to achieve success in future operations where outcomes will be wholly dependent on "whole of government" engagement.

Overall, FM 3-0 is probably the most widely-vetted doctrinal manual the Army has ever produced, and that trend will only continue to expand as we develop and institutionalize other key aspects of our doctrine. We recognize that we will never conduct operations again as a single Service or even a joint force; we will always do it with other elements of our national power. As we enter this era of persistent conflict and confront the uncertain future before us, we will engage as a Nation, where the solutions to the complex challenges we face will only be resolved through the integrated employment of all the instruments of national power—diplomatic, information, military, and economic—in a true, "whole of government" approach that brings to bear all the rich capabilities of our interagency partners. We recognize the nature of our future, and have engaged our sister Services and the Joint Staff in forging a doctrine that truly supports the great challenges of the future before us.

8. Senator LIEBERMAN. General Caldwell, how detailed was the coordination to determine the other Services' ability to support this doctrine with changes in air lift, sea lift, and information, surveillance, target acquisition, and reconnaissance assets?

General CALDWELL. FM 3-0, Operations is the most thoroughly-vetted doctrinal manual the Army has ever produced, and included an unparalleled level of participation and support from our sister Services and the Joint Staff. As we developed FM 3-0, we staffed each draft through the other Services' doctrine centers, and collaborated closely with Joint Forces Command on specific aspects of the manual to ensure that we cemented the linkages between joint and Army doctrine. This collaboration was absolutely essential in shaping the final content of FM 3-0; it was fundamental to capturing and accurately articulating the roles of the Services in attaining true joint interdependence in the land domain.

Through joint interdependence, the Services are able to achieve an unprecedented level of effectiveness, producing complementary and reinforcing effects that maximize the ability of the Joint Force while leveraging the strengths of the individual Services to achieve decisive results as a coherent, integrated force. This interdependence begins with doctrine, which provides the theoretical and intellectual foundations that enable the Joint Force "to be greater than the sum of its parts." Doctrine cements change in our institutions and sets the waypoint for applying our individual capabilities in integrated, synchronized joint operations. Now that FM 3-0 is published, our sister Services will need to conduct a more deliberate review to assess their ability to meet the requirements established within the new doctrine. As the new manual is based on a foundation of expeditionary and campaign capable forces, there may be changes necessary to ensure broad joint interdependence is maintained across each domain—air, land, space, maritime, and information. This is a normal element of the capstone doctrine development process, but was facilitated through the collaborative efforts initiated early during the writing of FM 3-0.

As we continue to develop the body of doctrine that institutionalizes the precepts of FM 3-0 throughout Army doctrine, this trend toward inter-Service collaboration will only expand. It is already encompassing the interagency in the development of our stability operations doctrine and must continue to do so if we are to forge the "whole of government" approach so critical to the success of our Nation in this era of persistent conflict.

9. Senator LIEBERMAN. General Caldwell, did the other Services concur with the revisions to the doctrine, including their capability to meet requirements?

General CALDWELL. From the outset, development of FM 3-0 was coordinated closely with our sister Services and the Joint Staff. We staffed each draft through the other Services' doctrine centers, and collaborated with Joint Forces Command on specific aspects of the manual to ensure that we cemented the linkages between Joint and Army doctrine. This collaboration was essential in shaping the final content of FM 3-0 and was instrumental in articulating the role of the Services in achieving true joint interdependence in the land domain. However, that does not mean they agreed with every aspect of the manual during the development process. In fact, in some cases, our sister Services presented strong objections to certain elements of the manual. But that is why close collaboration is so important to this process, and to the ability of our Services to work together in an environment of trust and mutual respect. In every case, we reassessed those potentially contentious elements of the manual and rewrote that content in a manner we could all agree upon. In developing this Capstone doctrine, we could not simply "agree to disagree" with our sister Services; to achieve the level of integration required for true joint interdependence requires a precise and accurate understanding of the capabilities of each individual Service, and that understanding was the ultimate focus of our collaborative efforts. Therefore, we did not publish this manual until we had the support and concurrence of each of our sister Services. We also extended collaboration beyond the Department of Defense and into the interagency. We recognize that the nexus of interagency cooperation and coordination exists within the land domain; as a result, we also ensured that FM 3-0 was thoroughly vetted through the other agencies of the United States Government. We captured that input and rewrote parts of the text to better reflect the role of the interagency in the conduct of land operations; that synergy is vital to ensuring the ability of the interagency to achieve broad success in an uncertain future where outcomes will be wholly dependent on "whole of government" engagement that brings to bear the full capabilities of the instruments of national power—diplomatic, information, military, and economic. As we enter this era of persistent conflict and confront the uncertain future before us, we will engage as a Nation, where the solutions to the complex challenges we face will only be resolved through the integrated employment of all the resources available to our leaders.

[Whereupon, at 10:44 a.m., the subcommittee adjourned.]

**DEPARTMENT OF DEFENSE AUTHORIZATION
FOR APPROPRIATIONS FOR FISCAL YEAR
2009**

THURSDAY, APRIL 3, 2008

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

ARMY MODERNIZATION

The subcommittee met, pursuant to notice, at 3:15 p.m., in room SR-222, Russell Senate Office Building, Senator Joseph I. Lieberman (chairman of the subcommittee) presiding.

Committee members present: Senators Lieberman, Inhofe, and Cornyn.

Majority staff members present: Daniel J. Cox, Jr., professional staff member; and William K. Sutey, professional staff member.

Minority staff members present: Michael V. Kostiw, Republican staff director; William M. Caniano, professional staff member; Paul C. Hutton IV, research assistant; and Gregory T. Kiley, professional staff member.

Staff assistants present: Benjamin L. Rubin and Brian F. Sebold.

Committee members' assistants present: Frederick M. Downey, assistant to Senator Lieberman; Jon Davey, assistant to Senator Bayh; M. Bradford Foley, assistant to Senator Pryor; Gordon I. Peterson, assistant to Senator Webb; Anthony J. Lazarski and Nathan Reese, assistants to Senator Inhofe; Todd Stiefler, assistant to Senator Sessions; and Brian Polley, assistant to Senator Cornyn.

**OPENING STATEMENT OF SENATOR JOSEPH I. LIEBERMAN,
CHAIRMAN**

Senator LIEBERMAN. The hearing will come to order.

I apologize both to our witnesses and, of course, to my colleagues. I blame this totally on the acting ranking member of the committee, the former chairman, Senator and squire from Virginia, John Warner, who engaged me in conversation on the floor during this vote. I apologize.

Before we begin, I want to take a moment to embarrass Dan Cox; or to recognize Dan Cox. That is what I meant. [Laughter.]

Dan is a longtime staff member of this subcommittee and, if I may say so, a true patriot who has dedicated his entire adult life to public service. He came to this committee after a distinguished

career in the U.S. Army and has staffed the members of this subcommittee ably for the past 11 years.

He is now leaving the U.S. Senate family for a position in private industry, which is not unrelated to the work that we do here, and perhaps, after the passage of a year or so, we may bump into him again.

But this is the last hearing of this subcommittee for Dan, and I did not want this occasion to go by without thanking him for his service to our country, for his service to the Senate, for his service to this committee and subcommittee, and to tell him what a pleasure and an honor it has been for me to work with him. Thank you, Dan. [Applause.]

Today we welcome Lieutenant General Stephen Speakes, Deputy Chief of Staff, G-8, U.S. Army; and Lieutenant General Ross Thompson, Military Deputy to the Assistant Secretary of the Army for Acquisition, Logistics, and Technology.

This is the second Airland Subcommittee hearing this week which will focus on the urgent and important task of answering the big question, which is what kind of Army do we want to have for the future.

The Army recently released Field Manual (FM) 3-0, Operations, its new Capstone Doctrine, which is its answer, if I can put it that way, to that big question. This new doctrine places the conduct of stability operations on the same operationally required level as conventional warfare, and that is very significant.

Today's hearing is in some sense a continuation of Tuesday's hearing. We want to ask about how the Army is adapting its program to the requirements that have emerged from this new Capstone Doctrine.

The fiscal year 2009 Army budget request was developed over a year ago and delivered to Congress before FM 3-0 was released on March 7, 2008. The Army's unfunded priority list does not appear to support either the Army's priorities, nor does it address the additional need for resources. The budget request is heavily tilted toward resetting, modernizing, and transforming the existing heavy force.

So we need to find out whether it includes enough money to fund the changes that the new doctrine would seem, logically, to require, and we need to find out whether we should begin to make changes to either the programs or the priorities that have been requested.

Today, we also look forward to hearing from the witnesses and receiving from them an update on the Army modernization plan with emphasis on transformation to the Future Combat System (FCS), Army aviation modernization, and the individual soldier programs, weapons, mobility, and protection and situational awareness programs, which will give our troops engaged in both irregular warfare, conventional warfare, and stability operations capability equivalent to the best that we would want them to have.

I look forward to your testimony. Again, I apologize to my colleagues, and I would call at this point on my distinguished colleague and ranking member, Senator Cornyn.

STATEMENT OF SENATOR JOHN CORNYN

Senator CORNYN. Thank you, Mr. Chairman. Thanks for calling this hearing, and I join you in welcoming Generals Speakes and Thompson to this hearing and expressing my appreciation, along with all of us, for your many years of distinguished service to our Nation.

The transformation and modernization of our Army is vital to maintaining our technological edge over potential adversaries, providing better protection for our soldiers and giving our men and women in uniform significantly improved capabilities to accomplish their mission. These are matters of the highest priority.

In testimony before the full committee in November and again in February 2008, Secretary Geren and General Casey testified that our Army remains the best led, best trained, and best equipped army in the world, but is out of balance. They described a plan to return the Army to a proper balance. The plan stressed four imperatives: sustain, prepare, reset, and transform.

Today's hearing follows logically, as the chairman said, on the subcommittee hearing we had on the new Army FM and provides an opportunity to explore in greater detail the Army's plan for transformation and modernization. An area of special interest to the subcommittee will be the FCS. This multi-year, multi-billion dollar program is at the heart of the Army's transformation efforts. It is also the Army's major research, development, and acquisition program. The witnesses will be asked about the importance of FCS, the cost of the program, the characterization that FCS is high risk, the challenge of networking all of the FCS subsystems together, and the testing of the FCS technology currently ongoing at Fort Bliss in El Paso, TX.

In addition, the witnesses will be asked, among other things, about how the Army's modernization program will meet Army Reserve and Army National Guard requirements, progress toward resetting all components of the Army, how Army modernization and transformation plans will impact future requirements for strategic and tactical mobility, the Army's requirement for joint cargo aircraft, the modernization of the Army's helicopter fleets, Mine Resistant Ambush Protected (MRAP) vehicles, whether or not the Army's transformation and modernization plans are in concert with the new Army doctrine, and specifically whether or not the Army's modular organization in FCS can meet the Army's requirements for full spectrum operations as described in the new FM.

In closing, I would like to say that though the focus of this hearing will be on Army programs and systems, it is the individual soldier identified by his or her courage, dedication, and loyalty who is the core of our Nation's military forces.

Mr. Chairman, thanks for convening the hearing and I look forward, along with you, to hearing the testimony.

Senator LIEBERMAN. Thanks, Senator Cornyn.

Normally the subcommittee practice is to limit opening statements to the chair and the ranking member, but Senator Inhofe, if you would like to add anything, I feel that I now owe you because I was 15 minutes late.

Senator INHOFE. No. You do not owe me a thing. I am anxious to hear the opening statements, and I have a couple of questions

and areas I want to pursue having to do with FCS. So we can just get on with the hearing.

Senator LIEBERMAN. Good. Thank you.

General Speakes, thank you for being here. We look forward to your testimony now.

**STATEMENT OF LTG STEPHEN M. SPEAKES, USA, DEPUTY
CHIEF OF STAFF, G-8, UNITED STATES ARMY**

General SPEAKES. Chairman Lieberman, Ranking Member Cornyn, and distinguished members of the subcommittee, on behalf of the Army and our great soldiers, Lieutenant General Thompson and I thank you for the opportunity to appear in front of you today to discuss Army modernization in all of its aspects, as you have illuminated in your opening statements.

I would like to submit our written statement for the record, and I would also like to ask that we be permitted to make a short opening statement to put in perspective the questions you have.

Senator LIEBERMAN. Please do. We will accept your full statement, and it will be printed in the record.

General SPEAKES. Thank you, sir.

Our modernization strategy is designed to ensure that we accomplish every mission that is given to the Army and that our soldiers are never placed in a fair fight.

Our testimony today will focus on two specific topics. First, we will talk about the implementation of FM 3-0. I brought it with me here today to symbolize the continuity in our testimony to that of General Caldwell who has appeared before you earlier. He eloquently shaped for you the perspective of an Army at war that understands the nature of the war that we are fighting and understands how we must continue to transform and shape this Army not just for today, but for tomorrow in an era of persistent conflict. So FM 3-0 provides that perspective and it also shapes and illuminates the programs that General Thompson and I are jointly responsible for developing.

FM 3-0 is important because, in addition to the offense and defense operations that we are familiar with, it also adds to stability operations. Stability operations are vital for all of us as we consider the nature of involvement today and what we project for the next several years of this century, which is that we will operate among soldiers in a network-dependent environment, and we will have to put great trust and confidence in soldiers who are on their own to carry out the Nation's bidding. So, thus, FM 3-0 is very important for all of us as we shape the strategy and the equipping that will illuminate the way for our soldiers.

Modernization is the strategy that we use to improve the capabilities and to enhance the ability of our soldiers to accomplish their missions. The Army modernization strategy has four essential elements to it.

First, what we want to do is ensure that we provide soldiers the very best possible new equipment, and with your support, and I would like to single out this committee in particular for the extraordinary support you have given the Army, we have 94 new systems that we have been able to field to the tune of over \$100 billion worth of new capability over the course of the last 5 years since

the start of the war. I would single out, for example, the support of the MRAP vehicle program, a capability that Lieutenant General Odierno, as he left command in Baghdad, singled out as being responsible for saving the lives of soldiers as an example of the quick response between the identification of a capability and then the immediate ability to field that, thanks to you.

Also, we see the need to upgrade and modernize existing systems. For example, if we take a look at the tanker Bradley that we have today that soldiers are fighting with in Iraq, it is substantially improved over the tanker Bradley that we started this war with, once again thanks to vigorous support of recapitalization and modernization programs that have enabled us to materially advance the quality of the current formation and the current fleet.

Then, third, we have to incorporate new technologies that are derived from FCS. You rightly singled out FCS as absolutely essential to the Army. For the last several years, it has been our single major focus for research and development (R&D). That R&D that you have so well supported is now bearing fruit. So as we look at soldiers in Baghdad today, we see capabilities that are directly traceable to the investments we made in FCS.

Now, as we look forward to Fort Bliss, TX, and the soldiers who are operating with FCS capabilities, the first spin-outs that are now in evaluation by the Army, we also see FCS bearing fruit.

So the point is where FCS was once a distant promise, FCS is now a reality. It is directly benefitting soldiers in combat today, and it has immediate promise for the future. We are excited about that promise and we will be thrilled to tell you about it.

Finally, we have to set conditions to field actual FCS brigade combat teams. Those have remarkable promise. Stryker showed us the benefit of a common platform with a common view for creating a brigade combat team. FCS will bring that to the next level.

So for all these reasons, the Army modernization and its four elements is a vital strategy for us. It is one that is absolutely essential. As we look at soldiers today, we know that they are brilliantly equipped because of you. We also want to ensure that soldiers that go into whatever it is we ask them to do in harm's way in future years are properly supported and equipped. Our modernization strategy is designed to do that and will continue to do that with your support.

So thank you very, very much. I would like now to defer to General Thompson.

[The joint prepared statement of General Speakes and General Thompson follows:]

JOINT PREPARED STATEMENT BY LTG STEPHEN M. SPEAKES, USA, AND LTG N. ROSS THOMPSON III, USA

Chairman Lieberman, Ranking Member Cornyn, and distinguished members of the subcommittee: on behalf of the Army and our great soldiers, Lieutenant General Thompson and I thank you for the opportunity to appear before you today to discuss Army Modernization. Army modernization is instrumental to ensuring that our Army remains the preeminent landpower on Earth, one fully capable of meeting any and all missions across the full spectrum of operations. Our modernization strategy is designed to ensure that we accomplish every mission, now and in the future, and that our soldiers are never in a fair fight.

Today's testimony focuses on the Army modernization strategy, which is informed both by lessons learned from the wars in Iraq and Afghanistan and the Army's oper-

ational concept of full-spectrum operations, recently unveiled in the revised Field Manual (FM) 3-0, Operations.

FM 3-0 reflects the Army's thinking, in an era of persistent and complex conflict, where stability operations are given the same level of importance and emphasis as offensive and defensive operations (Figure 1). Stability Operations encompass various military missions, tasks, and activities conducted outside the United States in coordination with other instruments of national power, to maintain or reestablish a safe and secure environment, provide essential governmental services, emergency infrastructure reconstruction, and humanitarian relief. The goal of stability operations is to create conditions that support the transition to legitimate host nation governance, a functioning civil society, and a viable market economy.

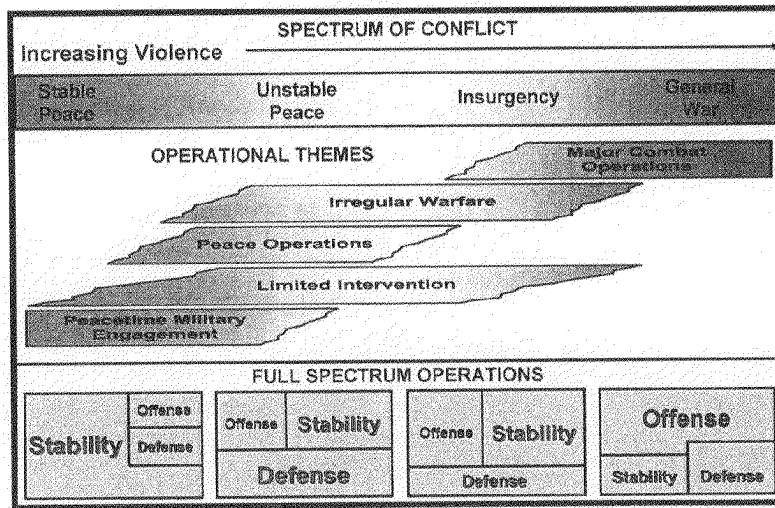


Figure 1

Given the nature of the current international security environment, soldiers will consistently operate in and among the people of the world, conducting operations in an environment fundamentally human in character. FM 3-0 also recognizes the unparalleled power of information in modern conflict, and the fact that information has become as important as lethal action in determining the outcome of operations. In addition, FM 3-0 provides the detailed doctrinal foundation to optimize the operational agility that we have designed into our modular formations, giving us true capability across the full spectrum of operations. Finally, concepts embedded in FM 3-0 will shape future Army budgets.

Modernization provides the materiel solutions to improve capabilities that enhance the Army's ability to conduct full-spectrum operations, and meet the demands of persistent conflict in the 21st century.

The Army Modernization Strategy seeks to ensure that we remain the preeminent landpower on Earth, an expeditionary force with full spectrum capabilities. To achieve this end, our strategy employs four ways or what we call the four elements of modernization. They are:

- Rapidly field the best new equipment to the current force
- Upgrade and modernize existing systems within modular formations to ensure all soldiers have the equipment they need
- Incorporate new technologies derived from Future Combat Systems (FCS) research and development as they become available
- Field FCS Brigade Combat Teams (FCS BCT)

The Army has modernized core systems and updated key weapons and equipment since the early days of the war; working steadily to improve speed and efficiency in this area. Modernization is essential for closing both current and future capability gaps.

Modernizing the Army's Tactical Wheeled Vehicle (TWV) fleet is a critical imperative that strives to provide the soldier the best possible protection, payload and performance in each vehicle in the fleet. The TWV Strategy will achieve the proper balance between numerous competing factors: support of current operations and fleets, Army Transformation and future fleet capabilities while optimizing strategies for procurement, recapitalization, and sustainment. The strategy seeks to ensure fleet viability and combat effectiveness for the next three decades. A modernization plan is being developed for each category of the TWV fleet: light, medium, and heavy wheeled vehicles and trailers. A couple of key vehicles of our TWV Strategy are the Mine Resistant Ambush Protected (MRAP) vehicle and Joint Light Tactical Vehicle (JLTV).

MRAP vehicles are being procured as rapidly as possible and provide more advanced, armored protection against the greatest casualty-producing threats in Theater, underbelly improved explosive devices. It is a new class of medium tactical vehicle that provides our operating forces multiple mission-role platforms capable of mitigating roadside bombs and mines. It has already proven its effectiveness on the battlefield.

JLTV is a joint program with the U.S. Marine Corps that will replace the Uparmored High Mobility Multipurpose Wheeled Vehicles (UAV). As currently planned, JLTV has the potential to provide significant and revolutionary increases in protection, performance, and payload capabilities beyond those available in the current HMMWV or UAV. This family of vehicles will provide greater force protection and payload than the current UAV. The JLTV has been designated as an FCS complementary system.

We have made great progress in Army Aviation modernization. Army Aviation is transforming and modernizing to meet current and future full spectrum aviation requirements. The aviation transformation plan restructures Army Aviation warfighting units into Combat Aviation Brigades, ensuring that aviation units are modular, capable, lethal, tailorable, and sustainable. Their inherent mobility, flexibility, agility, lethality, and versatility are instrumental in enabling the air-ground task force commander to conduct decisive joint operations. The transformation plan also addresses the urgent need to address the steadily deteriorating condition of the aviation fleet, and accelerate Army National Guard and Army Reserve modernization. The affected Aviation platforms include the Armed Reconnaissance Helicopter, the UH-60M/HH-60M Black Hawk, C-27J Joint Cargo Aircraft, commercial, off-the-shelf UH-72A Lakota Light Utility Helicopter, CH-47F Chinook, and AH-64 Apache helicopter fleet.

Success of the Army's Battle Command Strategy is indispensable to Army future operations. We are developing robust networking solutions that will enable commanders, leaders, and soldiers to access critical data and information any-where, anytime. We are accomplishing this by migrating existing systems where possible and developing new net-ready programs to meet the unique challenges of a net-centric environment resulting ultimately in a robust and revolutionary communications capability while on the move—anywhere on Earth.

Central to this overall strategy is our approach of moving beyond the era of 'stovepiped' networks to deliver multi-functional, multi-band tactical Army communications systems. The Joint Tactical Radio System (JTRS) will contribute to that capability. JTRS is a family of ground, airborne and maritime domains of common software-defined radios that provide seamless network connectivity throughout the battlefield. We will begin to see the initial capabilities of this revolutionary modernization effort in 2010 when Spin Out 1 delivers a sensor-to-soldier link through the network.

As the Army's cornerstone modernization effort, the FCS program will provide our soldiers an unparalleled understanding of their operational environment, increased precision and lethality, and enhanced survivability. The FCS program is structured to bring advanced capabilities to today's force as rapidly as possible in a process known as "Spin Outs." Spin-Outs are a product of the technological capabilities achieved from FCS research and development.

FCS capabilities will be integrated into our current BCTs to increase their capabilities and to maximize their interoperability with FCS BCTs. Integrating Spin-Outs and other technologies onto other combat platforms, such as the Abrams, Bradley, and Stryker, will allow these battle-proven platforms to fight in concert with FCS BCTs well into the 21st century.

Indeed, several "FCS like" capabilities are already being used in combat operations in Iraq and Afghanistan and are protecting our soldiers today. These technologies include:

- Frag Kit 5 armor protection is used on Up-Armored HMMWVs.

- The Gas Micro Air Vehicle, an early precursor of the FCS Class 1 Unmanned Air Vehicle, has been highly effective in Navy explosive ordnance disposal operations in Iraq and is planned for use by 25th Infantry Division soldiers in urban warfare operations in Iraq this year.
- The iRobot Packbot® robot being used by soldiers and marines in Iraq and Afghanistan is the precursor of the FCS Small Unmanned Ground Vehicle. This manpackable robot has been invaluable during urban warfare and explosive ordnance disposal operations. This is also a shining example of the ingenuity and entrepreneurial strength that small American businesses bring to enhance our National security.
- The Excalibur Artillery round that is currently being used in Afghanistan is being adapted for use with the FCS Non-Line-of-Sight Cannon.

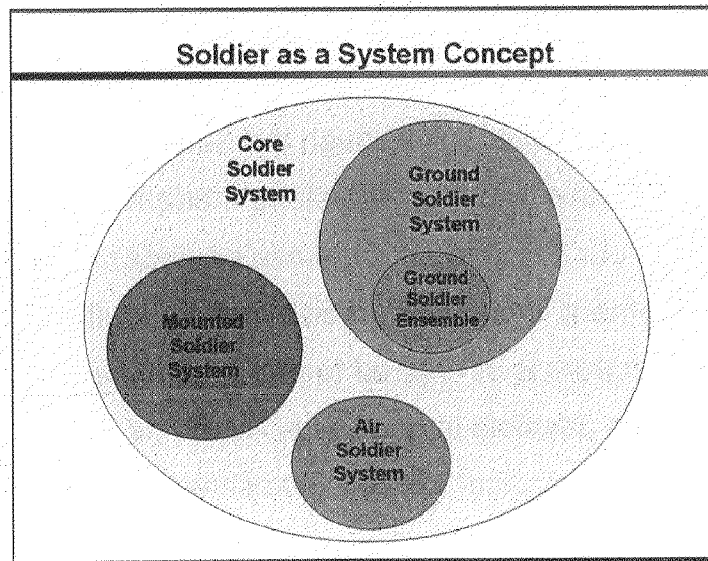


Figure 2

Finally, the Army's concept of the soldier as a system envisions equipping individual soldiers with an integrated ensemble, providing mission tailorable capabilities. Figure 2 depicts the soldier as a system concept and the relationships among core, ground, air, and mounted soldiers. All soldiers are equipped with the Core Soldier System, enabling them to train on, and perform Basic Warrior Tasks and Battle Drills. When added to the Core Soldier System, the Ground, Air, and Mounted Soldier Systems enable soldiers to perform warfighting functions based on position and role within their unit.

Mr. Chairman, and members of the subcommittee, on behalf of our soldiers, we greatly appreciate the tremendous support we receive from this Congress. In order to successfully implement the plans we have shared with you today, we urge you to provide full, timely, and predictable funding. The Army is modernizing, while simultaneously conducting wartime operations, and preparing for the future defensive challenges our Nation will likely face. Our challenge is to balance these two requirements to ensure that we can defend the Nation today and tomorrow. We never want our soldiers to be in a fair fight. The Army's partnership with Congress demonstrates our collective commitment to ensure that we remain the preeminent landpower on Earth, an expeditionary Army, capable of full-spectrum operations—The Strength of the Nation. Thank you for this opportunity to appear before you today.

Senator LIEBERMAN. Thanks, General Speakes.
General Thompson?

STATEMENT OF LTG N. ROSS THOMPSON III, USA, MILITARY DEPUTY TO THE ASSISTANT SECRETARY OF THE ARMY FOR ACQUISITION, LOGISTICS, AND TECHNOLOGY

General THOMPSON. Chairman Lieberman, Senator Cornyn, and Senator Inhofe, first I want to thank you for holding this hearing today because the modernization of our weapon systems and equipment is absolutely essential to our soldiers. Every day our soldiers make great sacrifices to help win the global war on terror and to fulfill our other worldwide commitments.

I want to thank you, as General Speakes stated, for your strong and steadfast support of all of our men and women in uniform and particularly the Army. We are meeting our equipping demands for our soldiers because of the guidance and the resources we are provided by this committee and Congress. We constantly strive to be good stewards of these resources.

I would just like to echo your comments about Dan Cox and his long service not just to the committee, but to the United States Army. He is just an example of the many professional staffers and personal staffers represented around the room today in this committee where you can always have a candid and frank dialogue and see a reasoned approach to where we need to go with our Army modernization programs. But in particular, I would like to thank Dan today because this is his last hearing.

I was here yesterday before a different subcommittee, and I would just like to go on record here and say I do not want to make this a daily occurrence, nor do I want a building pass. But I am delighted to be here again today.

Mr. Chairman, we are a high technology Army and we have a comprehensive strategy for our continuous modernization. Of all of our high priority programs, force protection is probably the number one concern, and that includes the continued fielding of MRAP vehicles and eventually our joint light tactical vehicle. Our other high priority programs, and they are in no particular order, are improving the soldier and the system, our tactical wheeled vehicle modernization program, modernizing our aviation platforms, fielding the first increment of the warfighter information network tactical, fielding unmanned aerial systems, and the continued development of our command and control enhancement to provide the means to share critical and timely information.

Our FCS is the foundation of our Army modernization and the cornerstone of the Army's future modular force. The FCS program is structured to bring advance capabilities to today's force as rapidly as possible in a system or process known as spin-outs. Our first spin-out equipment set is currently in the hands of combat-experienced soldiers at Fort Bliss, TX, as part of the Army Evaluation Task Force. The FCS program is currently undergoing 75 tests. So it is no longer just a development program. When you start to test capabilities, you are on the cusp of fielding those capabilities to soldiers, and we are starting to do that today in Fort Bliss, TX.

Mr. Chairman, the Government Accountability Office (GAO) recently issued its annual report on FCS, and the Army welcomes the helpful insights from the GAO and I mean that sincerely. I want to provide my perspective on just a couple of key areas out of that

GAO report, and I will take some further questions on that during the hearing.

First, GAO pointed out that capability demonstrations frequently fall late in the schedule. Like I just stated, we do have the Army Evaluation Task Force in Fort Bliss, and we have 75 tests ongoing today.

One of the things that GAO stated was there was less content in this program, and that is true from the standpoint of we went from 18 to 14 systems because of our experience in Iraq and Afghanistan that led to a reduction of the number of unmanned aerial vehicle (UAV) platforms and the elimination of the armed reconnaissance vehicle and our intelligent munitions systems.

Independent cost estimates are pointed out by GAO that are higher than the Army's, and I would say that we have consistently demonstrated the credibility of our cost estimates by operating within our budgets.

Then finally, high level requirements, GAO pointed out, are poorly defined and/or late. The yearly budget cuts that have been inflicted on this program have driven the program to change its schedule, and in many cases it changed the work to be performed. This was reflected also in the software development process, and we will talk about that more later in the hearing.

We are continuing to conduct wartime operations while preparing for our future commitments. Our challenge is to balance these two requirements to ensure that we can defend the Nation today and prepare ourselves to continue to do so tomorrow.

I would just like to leave you with two thoughts. First, our 19-year-olds today use cell phones to talk to one another, access the Internet, send e-mail, transmit photographs, and transmit videos. Should these young people as soldiers not have the same capabilities? On today's battlefield, they do not in many cases. We are working through our modernization programs to make sure that they do as quickly as possible, and FCS is the cornerstone of our modernization programs.

Second, we face an adaptive enemy who is always acquiring new technologies and new ways to frustrate and defeat us. In my opinion, our greatest risk is the failure to realize that the world has changed and so too must the Army. We must stay ahead of a resourceful enemy, and our comprehensive modernization strategy is designed to do just that. It is a living, working document that reflects current operational experience and results.

This concludes my opening remarks, Mr. Chairman. I look forward to your questions.

Senator LIEBERMAN. Thanks very much, General. I appreciate the opening remarks.

Perhaps we will go to 8-minute rounds so we can keep it moving.

I want to focus in first on the FCS. This subcommittee has been quite supportive of FCS and actually has gotten into some battles over the years over it. We continue to believe in it. But let me express some concerns and invite your response.

FCS has, I worry, become a bill payer for other programs in the last few years. It was cut by over \$300 million last year and over \$200 million the year before. Some have criticized it now for being over budget and over schedule, but these shortcomings have been

compounded, I am afraid, by congressional cuts and unpredictable funding, which is unfortunate because as you have said and as I believe, this is the Army's number one modernization program.

There are now reports that I have heard that the Army is working on a plan to accelerate aspects of the program, possibly fielding the first FCS brigade combat team and producing prototypes of the manned ground vehicles (MGVs) earlier than originally planned.

So I want to ask you to respond to some of those concerns and describe where the program is basically to talk about the current issues being faced as a result of past cuts in the FCS. What are the military risks that could result from future restructuring of the program?

General SPEAKES. Mr. Chairman, if it is all right, what I would like to do is start and discuss the fiscal element and then turn it over to General Thompson who has the specific programmatic responsibility.

Senator LIEBERMAN. That is fine. Sure.

General SPEAKES. Sir, you are absolutely right. From the standpoint of our fiscal program, the cuts are a serious concern, and the fact that it has been an annual event for the past 3 years has greatly complicated the work that General Thompson and his team have had to undertake.

We have a plan. It is a performance-based plan in which early on we undertook the research-development activity that would then bear fruit as we begin to bring the first elements of the strategy forward for formal evaluation this summer. The challenge of delivering these capabilities to the level required on the schedule has been something that has been very complicating as we try to bring this program along.

From my standpoint, the other challenge is this, that in an Army at war, we seek to balance the needs of soldiers at war as our pre-eminent requirement. But we also recognize the vitality and importance of this strand of modernization.

So the first point that we make is that right now FCS is about no more than one-third of our basic investment strategy out of the base program of the Army. So as we look at the base program of the Army, we think it is eminently affordable within the current construct that we are operating under.

We seek then to ensure that we keep this program moving ahead and delivering capability. The first critical evaluation will be Spin-Out 1 this summer, which then sets conditions for the fielding of Spin-Out 1 to the force in fiscal years 2010 and 2011.

We are, obviously, always looking at opportunities to accelerate capability. In fact, part of the concept of spin-out says evaluation of capabilities is done as they are developed and then they are spun out to the force as fast as we can. You identified in your question some of the things that we would like to consider accelerating.

Senator LIEBERMAN. Right.

General SPEAKES. You talked specifically about some capabilities such as MGVS. There is enormous attraction, for example, in accelerating MGVS because what you bring is modern capabilities in terms of efficiency, you bring modern capabilities in terms of the ability to protect soldiers. So to the extent possible, we would always look at opportunities to ensure that we do it correctly.

However, as GAO noted in their report, there is the issue of the technical maturity of the systems we are trying to bring and the ability to ensure, when we bring these systems forward, they have the requisite capabilities to meet the needs of soldiers at war. As we evaluate these twin dynamics, we will always try to ensure we do the right thing and do not rush to something that would not bear fruit and properly protect soldiers.

Senator LIEBERMAN. Yes. I think you have answered the follow-on I was going to ask, which I appreciate, which is you want to accelerate some of these programs, but obviously, you do not want to move them out before they are ready to be moved out.

General SPEAKES. Absolutely, sir. That is a key issue because we have a responsibility, obviously. There is nothing like having soldiers in combat to steel the eyes of all of us who are in a support role right now to ensure that the capabilities we bring will stand the test of soldiers.

That is the great thing about the Army Evaluation Task Force. We are not going to speed a system now quickly to Iraq. What we are going to do is we are going to bring it to the Evaluation Task Force and they, under the tough leadership of soldiers who are combat-experienced, will evaluate these systems before we bring them to the Army. That is the first challenge, sir.

Then I would defer to General Thompson to talk about what he is trying to do to manage the program to deliver capability.

Senator LIEBERMAN. Go right ahead.

General THOMPSON. Steve, I am not sure I have a lot to add to what you just said because your answer was very thorough and comprehensive.

I will say from an acquisition perspective that the insights that we gain from the soldiers at the Army Evaluation Task Force at Fort Bliss really help us to adjust the program. There have been reductions to the program over the last three budget year cycles. We have adjusted the cost schedule and delivery inside of the program. We continue to operate within the budget.

The program is very well run. We have an annual review not just inside the Army, but also with the Office of the Secretary of Defense to look at all the requirements of that program. We will have another one of those annual reviews again this summer.

We are looking, as General Speakes pointed out, at existing spin-outs and then beyond those spin-outs, which have four of the FCS systems that are planned to be part of the Spin-Out 1, is what else can we accelerate. What else we can accelerate is dependent on the technological maturity and also the resources. We are taking a very balanced approach, and that is really no different than what we do anytime we build the program, for not just the next budget year, but also for the 5 or 6 years after that. We always look at what is the balance, and FCS, since it is such a large program and is really the cornerstone of our modernization efforts, is central to that.

Senator LIEBERMAN. But, obviously, there are no second thoughts about the priority of the program. This remains, as you just said, the cornerstone of the Army modernization program.

General THOMPSON. Yes, sir, and I chose those words very carefully.

Senator LIEBERMAN. Understood.

What is your response to the adequacy of the funding for the program in the budget presented to Congress this year?

General THOMPSON. We think that the funding in the budget presented this year is adequate, but I would say there is a caveat. We do have currently a reprogramming request that is on the Hill for \$27 million that gets at the issue of accelerating the small unmanned ground vehicle and the class 1 UAV, to put that capability in the hands of the soldiers at Fort Bliss. Candidly, we have already cash-flowed that a little bit, and that is in the hands of the soldiers at Fort Bliss today, and we would like to continue to do that because that is one of the challenges that the Chief of Staff gave us.

Senator LIEBERMAN. Are you meeting any resistance on that reprogramming?

General THOMPSON. It has passed through three of the four committees, and we are working our way through the last committee right now.

But beyond that, Mr. Chairman, there is another reprogramming request coming that allows us to keep the non-line-of-sight (NLOS) cannon and the Spin-Out 1 capabilities on track. That is a larger reprogramming request. It is a result of the budget cuts that have happened over the last 3 years. The last budget cut in 2008 was a little too much, and we are committed to keeping the NLOS cannon and the Spin-Out 1 on track. Therefore, we need to get the support for the reprogramming request to go with that.

So the short answer is the budget is nearly adequate but not quite, and that is going to be reflected in the reprogramming request that comes over here.

Senator LIEBERMAN. My time is up, but I want to ask you a big question and ask for a short answer.

Is there any potential for the other Services to participate in this program? You are doing some really pioneering breakthrough work. Is it possible that they may consider procuring parts of the system? What effect might that have on the cost sharing?

General SPEAKES. Sir, the first thing is this is a joint program in the sense that the network, for example, is a system that comes out of the joint network concept. In terms of Service integration, we have had a sharing relationship at the program office level with the Marine Corps because, obviously, it is our fellow member of the ground component. We have to develop systems that at least have compatibility, if not the same capabilities. We are working that now, and there is vigorous information sharing between us and the Marines.

General THOMPSON. Beyond just the FCS program, Mr. Chairman, if I might, the Army and the Marine Corps have an Army-Marine Corps board where we meet at different levels, the three-star level, even on a very periodic basis, to share ideas on how do we do things jointly together.

Senator LIEBERMAN. Thanks.

We are about 8 minutes into a vote. Do you want to go ahead?

Senator CORNYN. I will go vote and come back.

Senator LIEBERMAN. All right. If you do not mind, with apologies, we are going to recess. We will go vote quickly and then we will be back. Senator Cornyn will be next. [Recess.]

Senator INHOFE [presiding]. If I could have your attention, I am going to go ahead and reconvene this. Are we in recess now? Is that where we are? All right. Well, we are now out of recess. I thought I would get a chance to ask a couple of questions while we are waiting for them to return since I have another commitment.

I think the chairman was getting into most of the concerns that I had. I think this is unique, though, that we have the two of you. I do not want to lose this opportunity. As I said to you earlier, we had General Thompson on how do we get it and then General Speakes on what do we do with it once we got it.

My concern has always been, of course, the sliding of FCS, going back in years when some of our areas of weakness were there, such as the NLOS cannon. We are still using the antiquated Paladin. At one time, we were going to go into the Crusader, and it was President Bush that axed that program. Quite frankly, there was no warning. I thought it was the end of the world. I believe that probably has a silver lining in that we would not be where we are today with the FCS, in my opinion, if that had not happened. This is far, far more significant and more important.

I know that with all the competition that is out there, and with the testimony of General Cody and others talking about how stressed things are, the way we respond to things is you just let off what is not bleeding today. That has been my concern about the modernization program.

I gave a talk on the floor this morning about how we got into this position of where we are today. During the 1990s we let the military slide and some of the modernization programs lost about \$412 billion over what it would have been if we just had level spending. We saw a lot of programs falling behind at that time.

The chairman asked you about the possible acceleration of the FCS program, and I think I left right before we got the full answer of that. I would like to ask you to comment on the discussion that has taken place on accelerating the FCS program. But more importantly, do we have the necessary resources to keep FCS on track as it is today?

General SPEAKES. Sir, let me address the adequacy of resources. You correctly identified the challenge of the 1990s and the fact that we lost critical capabilities to bring R&D through its cycle so we could field capabilities. We have spent the first years of this decade now recovering from those challenges. Thanks to your support and the support of other members, we have been able to generate the capital to invest and bring programs very quickly to the Army, an Army that very much needs additional capabilities for protection and a host of other issues.

So at this point, within an overall budget that we understand, we believe we have put FCS into a place in our modernization strategy that is approximately one-third of our overall investments that we are making for new capability. We think that third of a share of investments is affordable. We think it enables us to proceed with the other elements of modernization that are essential. Obviously, we need trucks. Obviously, we need command and con-

trol capability. So we need a host of other capabilities that essentially must move along with FCS to bring the Army as an entity forward.

So we are in the process of continuing that balanced strategy, a strategy that will bring us forward, and bring capabilities online in a balanced way. We believe that this program is appropriate for the size budget that we have today, and for the planning period we have out through 2015.

So in short answer, the plan that we have today will provide us an FCS program that will give the Army what it needs. It is affordable within the overall construct of an Army at war. We will continue to work that.

General Thompson has identified in his testimony the impact of the cuts that we have taken over the past years, and those cuts are important because they disrupt the program's ability to execute the plan that they have. They also cause this issue of realignment of program requirements over time that causes others to believe that we have challenges with the delivery of programs and the ability to make the contribution that people would expect.

Senator INHOFE. That is a good answer, and that is what I wanted.

General Thompson, did you have anything to add to that?

General THOMPSON. Sir, what I said when you had to step out is that we have a near-term reprogramming request that has been through three of the four committees on the Hill. We are working our way through the last committee—to accelerate the small unmanned ground vehicle and the UAV to get that into the hands of the soldiers at Fort Bliss to be able to experiment and test with that.

Following behind that is another reprogramming request that is essential for us to be able to keep the NLOS cannon and the Spin-Out 1 program on track. If you take the fiscal year 2006, fiscal year 2007, and fiscal year 2008 reductions to the FCS program that were taken in the budget, it totals \$789 million. We have not reduced the scope of the FCS program as a result of those cuts. So of those two reprogramming requests, one is an add to accelerate, and the other one is to maintain the schedule for near-term capability. But we will have to put money back into the FCS program in order to keep the scope and maintain the schedule, and that is one of the things we are looking at in our 2010 to 2015 program objective memorandum (POM).

Senator INHOFE. That is good.

You were talking also about the spin-out program and what is happening at Fort Bliss. I told my friend, Senator Cornyn, that I had already planned one trip to come down. I would like to see what is happening there. Do any of these spin-out programs adversely affect the ultimate fielding of the total system in a negative way?

General THOMPSON. No, sir, they do not. As a matter of fact, it helps us reduce risk. When the technology readiness is such that we can accelerate those and put them in the hands of soldiers, we will do that. I characterize the FCS blueprint as still being the blueprint of capability that we want to see in the future. I can de-

liver against that blueprint sooner with some capabilities, and that is what we are trying to do when we look at acceleration.

Senator INHOFE. I have often said, not because of any parochial concern, but the NLOS cannon and NLOS mortar are two of the areas we are most deficient in with what we have right now. That is why I want to make sure they are going to be the first components that we will be fielding and that it stays that way.

What I would like to ask of you is if either of you gentlemen see a problem that you do not see today coming up, if you would let me know and advise your staff accordingly, I would appreciate that very much.

General THOMPSON. One comment on the NLOS cannon system. It is the first of the eight MGVs. Because of the way the program has been constructed, which is good operational sense and good business sense, that is the foundation for the common chassis for the other prototypes. So 70 percent of the MGVs are going to be common from a components standpoint.

So this year at the Army birthday, the Chief of Staff gave us a challenge of having on display the first prototype of the NLOS cannon. So when you attend our Army birthday in June, we will show you that capability here in Washington, DC.

Senator INHOFE. I will be there singing.

Thank you, Senator Cornyn, for allowing me to go in front of you.

Senator CORNYN. Happy to do it.

I know Senator Lieberman is en route back, and I think we will just stand down until he returns.

Senator INHOFE. His staff advised me we could go ahead.

Senator CORNYN. Is that right? Okay. I did not want to usurp any privileges of the chair. Thank you, Senator Inhofe.

Gentlemen, forgive me if I am repeating some things that you have already responded to, but due to the centrality of the FCS being so much of what we are talking about in terms of modernization, I think it bears nailing down some of these things that I want to ask you about specifically.

While everyone in the room appreciates the importance of this weapons system, I think it is important for the American public that we get it on record for this hearing why FCS is important to our men and women in uniform. I would ask you to briefly tell us why FCS is important so the public can fully understand the critical role in our Nation's defense.

The reason why I say that is so important is because some elected officials have stated that they want to slow down the development of FCS, implying that it is not taxpayer money well spent. I will just footnote that by saying I am one of those that if our military tells me they need something to do their job, as far as I am concerned, I am going to do everything I can to see that they get it. On the other hand, if it is going to result in waste of the taxpayers' dollars and it is not an efficient use of those resources, then I want to know that too so we can take appropriate corrective action.

So if you would just tell us and the American people why you think development of FCS is important, why its development should not be slowed down, and why you believe, if in fact you do, and I think you do, that it is taxpayer money well spent.

General SPEAKES. Sir, let me begin. The first point that we would make is FCS has the kinds of capabilities that are directly needed and identified as being essential. FM 3-0 lays out a blueprint for what we think is going to be the operational environment that we are going to be able and required to operate in both today and tomorrow. What this manual says is that we are going to operate with the American soldier on land, that on land we will have a need to defend this country, and that America's critical interest will be involved on land and the American soldier will have a pivotal role to play.

We have also said that when we put that American soldier out wherever it is to defend American interests, he or she will have to operate in and among other populations. So what we need then is a capability that we can deploy, that we can operate with efficiency, and that enables us to be able to be precise and also to be economical. We cannot afford large operating footprints and we cannot afford cumbersome and inefficient systems. We need to bring the power of the network to not just the headquarters, the general, the colonel, but to the soldier on patrol or to the soldier at the checkpoint.

So all of this is reflected right now when we assess the adequacy of our current equipment. Our current equipment is the best in the world at this point, but what we have had to do is invest major efforts just to make it operational for this war. We have essentially put appliques of new capability on to try to make it relevant. We would liken it to your 20-year-old family car that you put a global positioning system (GPS) on. Yes, it has GPS capability, but it is not the same as a car that was born and bred with that capability in it.

So although we have made enormous investments and improvements in our current force, we see the need for the future. We see the need for an Army that is able to operate much more efficiently and much more effectively and an Army that we think will have the need to be committable and usable to a greater degree than many of us would like.

So if that is the case, then what we need is the power of the network. We need the power of a common platform to drive us to greater efficiencies and operating capabilities, and we need the ability to be precise with everything we do because we are going to be operating in populations, among people where there will be both friend and foe, and we need to be able to distinguish between them.

So these are the capabilities that we see in FCS. So we replaced a series of platforms that were born and bred to operate in Central Europe in the last century, and now we face an Army that must operate in very different environments with much more taxing capabilities. We believe FCS answers those requirements.

General THOMPSON. Senator, if I can just?

Senator CORNYN. Please.

General THOMPSON. Very briefly from an acquisition perspective. It is really a misperception that some people may have. FCS is not just one MGCV platform. It is a family of systems designed to provide a capability for our brigade combat team, and a brigade combat team in today's Army is the coin of the realm. The FCS pro-

gram has the network and the connectivity we want, as I said in my opening remarks, to give the soldiers out there, whether they are in a vehicle or dismounted from a vehicle, the ability to see, transmit information, to know where their buddies are, to know where the enemy is, and to be able to operate and create an environment where they are in an unfair fight because they are so advantaged that the enemy does not have an opportunity.

So you have the network. You have eight MGVs. You have a couple variants of unmanned ground vehicles, and you have a couple variants of UAVs. You look today in Afghanistan and Iraq at the great success that we are having with UAVs, and the FCS UAVs, if I can use the acronym, are the next generation of that. Again a powerful, powerful capability to give the information and the surveillance and the reconnaissance capability and link it not just down to the commander but link it all the way down to the soldier level.

So there is that misperception that FCS is just a system. It is a family of systems. The function that FCS performs is it causes us to have to align all of the other modernization capabilities in the Army. So we call all of these things complementary programs.

In the last year in great detail, I have personally gone down and looked at 67 other programs that are not part of FCS to make sure that the schedule, the operational capability and the technical capability of those programs, like the Joint Tactical Radio System, Warfighter Information Network-Tactical, and the joint light tactical vehicle are all aligned so that they operate together as a brigade combat team. We do not develop individual systems and then later on figure out how they have to work together. That is the different approach that we are taking from an acquisition perspective.

Is it challenging? Yes, it is. Do I have the best people in the Army and the best people in the country working on this? Yes, we do, and we are getting there.

Senator CORNYN. Perhaps it is because while this subcommittee and the Senate, I believe, have been very supportive of FCS in particular, I think the House has cut FCS a number of times. It's to the point now where, if I understand correctly, it is not just cutting fat or even muscle. It is cutting into the bone; perhaps creating the impression that FCS can pay for other programs, other weapon systems, and the like, which I think is wrong from what you have told us and everything I know.

Could you elaborate on the negative effects slowing down and consequently delaying the fielding of FCS would have on our troops? I am thinking of a conversation I had with General Odierno, who just got back from Baghdad, and what you alluded to in terms of the spin-out capability and its present-day applications to the warfighter in Iraq and Afghanistan. What would be the effect of slowing down or delaying the fielding of FCS in its entirety?

General SPEAKES. Sir, I think that there is one very simple answer right now, and that is that when we take a look at the operational needs statements that are the commanders' call for help as they communicate back to the Pentagon and tell the Pentagon that they need capabilities they do not have, 80 percent of the oper-

ational needs statements that we have seen in this war have been directly related to our ability to deliver capability in FCS.

In other words, we answer their calls for help when we bring FCS on because what they are asking for are the critical capabilities that General Thompson so well explained: the ability to ensure that we bring the network to soldiers so we can get them the communication they need, the ability to put a UAV out overhead, the ability to use robotics to separate the soldier from the improvised explosive device (IED). All those things that are so obvious and so relevant that we see that are lacking, to a large degree, in some of the formations we fielded over the last years are now fixable and eminently improvable if we bring FCS online.

That is why the urgency of the program is so obvious to those of us in the Army who understand the nature of this war and understand that FCS has a direct relationship to fixing those issues, as General Thompson said so well, on a systematic basis.

We are fielding a brigade system when we bring the first brigade combat team with FCS capabilities online. It is harmonized. It is synchronized. There is enormous agility in it because it has a common platform, common logistics, and common operating capabilities. Today we are fielding individual capability improvements incrementally, and then what the soldier in the field has to do is make them work together. That puts the soldier in the field under enormous stress that he or she should not have to operate under.

So this is important. You are exactly right, sir. We need to field the capability. It answers directly the requests of commanders in the field, and that is what makes us so excited about FCS.

Senator CORNYN. Thank you.

Mr. Chairman?

Senator LIEBERMAN [presiding]. Thanks, Senator Cornyn.

Let me ask one follow-on question on FCS. General Speakes, you used a phrase, which is a common-sense phrase, that we are in a period of persistent conflict and that will continue with all probability in the generation ahead. Part of that persistent conflict brings us into counterinsurgency warfare.

I have seen some comments from independent military analysts who have expressed a concern that the Army may be overstating the role for FCS in counterinsurgency warfare. I wonder if you have seen any of those and whether you would comment on that.

General SPEAKES. Sir, that is a very challenging point. I think the first thing that FM 3-0 tells us is that the Army of today and tomorrow must be full spectrum. We cannot have a myopic focus on today's war and ignore the potential for what we may have to do in a year or 5 years or the next decade. The great thing about FCS is it is deliberately designed to provide us capabilities that are not just usable in counterinsurgency operations. I think they are very usable, very flexible, and very applicable, but it also gives us the kind of capabilities that would be enormously important should we be in a mid- or high-intensity operation.

When we take, for example, the capabilities of active protection, the ability to essentially repel an inbound threat to an armored vehicle, we are giving ourselves capabilities that if you would have asked me 10 years ago could you even imagine such a capability, I would not have believed it possible. Now in testing, we are get-

ting positive results and we believe that it is part of the capabilities we want to bring forward.

So those are the things that tell me that this FCS concept is applicable for the future operating environment, one in which we cannot predict how it will be used. We cannot predict the nature of the enemy. We cannot predict the operating environment.

Senator LIEBERMAN. Including counterinsurgency work.

General SPEAKES. Absolutely.

General THOMPSON. Absolutely.

Senator LIEBERMAN. Do you want to add to that, General Thompson?

General THOMPSON. I would just like to make a couple of clarifications. General Speakes used the term operational needs statement, and I know many of you know the answer to this, but we normally develop a requirement through the Joint Requirements Oversight Council process. An operational needs statement is a statement of need from a commander in the field today that we try to meet very quickly.

What General Speakes was adequately pointing out is that a lot of the operational needs statements that we see from commanders today, 80 percent he referred to, could be met by FCS capabilities. To me that means that FCS has applicability in the counterinsurgency environment and then beyond that.

You know the challenges we have today with IEDs. The active protection system is the ability to sense an incoming rocket propelled grenade or an incoming missile and take it out before it hits the MGV platform. You will be able to sense it. The testing is going on right now at White Sands Missile Range for the active protection system as part of the FCS program, actual rockets being fired where the sensor sees the incoming missile, fires a rocket, orients itself, and it takes out the incoming missile before it hits the vehicle. That is an incredible capability, and that is one of the things we would spin out early on.

Senator LIEBERMAN. That is miraculous. Of course, this is, over the history of warfare, the ability to take the technologies that are breaking through in the rest of society and then apply them first and best to warfare, which you are doing in this program.

Let me ask you a very different kind of question. You happen to be here today and you probably saw in the Washington Post this headline story, Contracts for Body Armor Filled Without Initial Tests. The lead sentence is, "Government auditors said yesterday that nearly half of 28 contracts to manufacture body armor for Army soldiers were completed without the gear ever going through an initial test." Of course, we all remember the emotional reaction here in Congress and the pressure that we all put you under and the money we appropriated because of the public concern about the inadequacy of body armor. So it is in that context.

I wanted to give you an opportunity, since you are here, to let us know, this committee, and for the record what the Army position is on the findings of the Department of Defense (DOD) Inspector General (IG). I suppose the bottom line is whether the people to whom we are giving the body armor, our troops, can have some confidence that it will work to protect them.

General THOMPSON. Sir, the first thing I would like to say is the troops can have absolute confidence that they have the best body armor in the world.

Senator LIEBERMAN. Right.

General THOMPSON. We will meet tomorrow inside the Army and then meet with the DOD IG and then come over next week and talk to any Member of Congress or any of the professional staff members or individual staff members to explain the position.

Let me just point out a couple of things that I think are very important to understand.

First off is a First Article Test (FAT). A first article means a pre-production model, or an initial production sample. We do FATs before we go into a contract with any producer. Every producer of body armor has had to go through a rigorous FAT to make sure that what they are going to potentially contract for passed that rigorous testing.

Once a producer begins to produce body armor for the Army and they stay in continuous production and there is no change to the design, we do not go back and do a very expensive FAT. However, we do lot acceptance tests (LATs) on every batch of armor that is produced.

Every producer of body armor for the United States Army has gone through a FAT and passed and every lot that has been produced under contract has had a LAT and sampling done. We reject some of those lots and do not take them until we have confidence that the body armor produced in that lot is to our standards. There may be a change in the manufacturing process, but we do the proper sampling. We have that data to be able to demonstrate that we have done the FAT. This is called out in the Federal Acquisition Regulation. It is the way it is taught in the Defense Acquisition University.

I do not quite understand why the DOD IG drew the conclusions that they did. I have great confidence in the DOD IG, but we need to reconcile the scope of this audit and the evidence that we have that we have done the proper testing. I can assure you and I assure the soldiers out there in the field that we have the best body armor in the world. We will be over next week with the DOD IG in order to explain that.

Senator LIEBERMAN. Good enough. I appreciate the answer.

Let me go back to FM 3-0 and ask you a similar question that I asked General Caldwell. From your perspective, what impact does this new Capstone Doctrine have on the Army's fiscal year 2009 budget request and, insofar as you can see, on succeeding budget requests? Obviously, the doctrine is important. It has some quite revolutionary changes in it, but it is not going to mean as much as it should mean if we are not giving you the money to carry it out.

General SPEAKES. Sir, the value of doctrine is something that our Army recognizes. We had the last publication of doctrine right before the events of September 11. Over the course of the period of the time from September 11 to now, the Army has been living an update of how we are doctrinally organized. I would typify that with the modular transformation of the Army that we began with

some detailed thinking in 2003, put into execution in 2004, and now are more than 50 percent through.

We also took a very serious look at the other elements of how we operate. For example, we have already done major work to transform how we train our formations. Formations now, as they prepare for combat, are trained in substantially different ways than we used to train formations prior to the September 11 experience.

Those are but two examples of the kinds of very important changes that our Army has been making in progress.

FM 3-0 was about 2½ years in the writing and coordinating and vetting. I think that is very important because the Army leadership took the view that when we put this together, we would ensure we had it right because everybody who had a view about what the Army was doing within the Army had a chance to work it, comment, and have their voice heard. So at this point then, the publication of this manual in February only recognizes or documents what most of the Army has been operating on and changing the face of the Army over the course of the past several years.

Senator LIEBERMAN. So you would say that the budget request for fiscal year 2009, therefore, reflected the changes that are expressed in FM 3-0?

General SPEAKES. Yes, sir. But I would also liken it to building an airplane in mid-flight. What I do not want to portray is that we have made all the changes and that they are all complete. This voyage of putting together the airplane in flight continues.

So part of the challenge of the Secretary of the Army and the Chief of Staff of the Army is to continue a very thorough evaluation of how we can continue to improve and transform our Army to make it more relevant for what we see as the future operating environment. We are, for example, changing the way we train leaders. Leaders require a different education than what we knew before.

Senator LIEBERMAN. Right.

General SPEAKES. That is a part of this voyage in progress. So the Army will continue to change and evolve. This is a continual process.

I can assure you that the basic operating concepts that are in FM 3-0 are understood and supported by what we have in fiscal year 2009 even though this document was produced after we had submitted the fiscal year 2009 budget.

Senator LIEBERMAN. I am a little over my time. I would ask Senator Cornyn's indulgence just to ask a final question that is relevant.

General Caldwell said, and I am sure you agree, that FM 3-0 will add mission requirements and appropriately so. Looking forward, what kind of investment changes do you think we will need to make to meet the additional mission requirements that are associated with this new Capstone Doctrine?

General SPEAKES. Sir, you ask a question that we do not have a final answer to. But I can point to several illustrations of the kind of effort that is underway within the Army to continue the transformation of the Army to support the vision that this manual outlines.

One element of it is a concept that says we have to continue to develop new ways to train the force. The Chief of Staff of the Army has been in dialogue with the leaders of our training community over the past several weeks. His challenge to them is now how do we align what we call our combat training centers, the places you know as Fort Irwin or Fort Polk, to support not just a mission rehearsal exercise for forces that are bound for Iraq or Afghanistan, but let us look past that to where we want to be in several years when we begin to actually prepare forces that are not immediately destined to go back into combat in Iraq or Afghanistan. So what he described was training in a more full spectrum way where, yes, they would be counterinsurgency capable, but they would also have within that same experience the ability to do high-intensity training verification. So that is one of the challenges that we point out.

The other issue in this same vein that is being worked very seriously is a concept for how we alter the training of leaders and the educational programs of leaders. Obviously, language is an area that the Army has found itself very deficient in.

Another area that the Army is exploring, for example, is how we train and educate our civilians. The civilian work force of the Army has been enormously important and, frankly, ill-recognized in our training strategies. General Casey's challenge was let us figure out how to institutionalize that.

So there are additional resource requirements that we will have to build into our program in the upcoming years. Our assurance is that they are going to be thoughtful, they are going to be well-considered, and they are going to be relevant to the kind of Army we need for the future.

Senator LIEBERMAN. Thank you very much. I note in your bio that you speak both Mandarin Chinese and Spanish. Presumably you do not speak Mandarin Chinese with a Spanish accent. [Laughter.]

General SPEAKES. It was a challenge, sir.

Senator LIEBERMAN. That is very impressive.

Senator CORNYN.

Senator CORNYN. Last year, Secretary Gates established the MRAP vehicle as the top priority program within DOD, and Congress responded with \$22 billion to fully fund more than 15,000 of these armored vehicles. Today, almost 3,600 MRAP vehicles are operating in Iraq.

I might say that when I was there back in January, I had a chance to visit Ghazaliya on the edge of Baghdad and ride in an MRAP vehicle. I can tell you that the soldiers are very happy to have that capability and it has served as additional protection for them.

We know the enemy in Iraq has been extremely effective at adapting to past protective measures to our troops. Things like the Iranian-provided explosively formed penetrators come to mind for one. Could you tell us how these may affect the future production needs for these vehicles or additional requirements over and above what is already contained in the 2009 budget?

General THOMPSON. Sir, let me start and I will ask General Speakes to jump in for any amplifying points.

First off, the MRAP vehicle has been a very successful program and one where every soldier and marine out there truly appreciates the support of Congress to give us the resources to accelerate that capability.

We have pretty much settled on what the requirement is, although we are not quite to the definitization stage for the Army requirement. The Marines, I know, have settled on their number for the MRAP vehicles. We are still in a range of somewhere between 10,000 and 12,000, and we have adjusted the production of the MRAP vehicle over time so that the acquisition and the delivery matches up with the requirement.

That capability will be used in the future. One of the things that we have done with our route clearance companies, which go out and obviously clear a route in advance of a convoy or a soldier patrol, and our explosive ordnance disposal teams is we looked at the need for the vehicles for those kinds of units. And 1,000 of the MRAP vehicles we will buy will meet those long-term enduring needs. So we have tried to not look at MRAP as just a now capability, but also what will be the capability that it will be used for in the future.

So 1,000 of the Army's MRAP vehicles will have an enduring mission, and I am pretty sure that is not going to be the end of the use of the MRAP vehicles. I suspect a large number of them, when the requirements come down for the demand for forces, will probably be reconditioned and put in preposition stocks. We are looking at what is the right number of those vehicles to do that.

We are also looking inside the Department at the rationalization of our long-term vehicle strategy for both combat vehicles and wheeled vehicles. MRAP vehicles are part of that equation. We have close to 150,000 high mobility, multi-purpose wheeled vehicles (HMMWVs) in the Army today. We are looking at the future requirement for the joint light tactical vehicle (JLTV), which is out on the street right now with a request for proposal, and we expect the industry bids back in here in about 30 to 45 days. But MRAP vehicles are part of that equation.

So it is the rationalization of the HMMWVs today, the JLTVs in the future, and the MRAP vehicle is part of that. We owe an answer back to ourselves and also to the Office of the Secretary of Defense here within the next couple of months on what is that long-term strategy.

Senator CORNYN. I know just while we have been in Iraq, we have seen where HMMWVs, which were the standard transportation because of force protection concerns, were then uparmored and then, of course, now the evolution into the MRAP vehicle with enhanced protection due to the V-shaped hull and other aspects of it.

You did describe, General Thompson, that the Army is looking at this vehicle design not just for today's threat but for threats that may arise in the foreseeable future. I realize you cannot predict everything, but that process is going forward.

General THOMPSON. Yes, sir. If I can name another thing that comes to mind, it gets back to the importance of the FCS program. The continued investment by the FCS program in armor development has been the foundation for the armor protection kits that we

have put on HMMWVs and has been the foundation for the armor protection we have put on the MRAP vehicles. So it is a very smart acquisition decision on our part.

That is another strength of the FCS program. So we look at the testing on the MRAP vehicle and it informs the future development of FCS just like the development of armor in the FCS program has informed what we have put on the uparmored HMMWVs and on the MRAP program.

Senator CORNYN. As I noted earlier, as far as I am concerned, whatever warfighters need I am willing to support appropriations for that need. But occasionally you will have people come up, constituents and others, who say the Army and the military is not providing X, body armor. I do not know whether you call them urban myths or not about soldiers having to purchase their own body armor.

I know that the requirement in the case of these vehicles has changed over time. I do not know and perhaps maybe you could comment on whether there has been an evolving standard in terms of what the Army would provide the warfighter in the field in terms of body armor and other equipment and resources. Could you respond to that?

General THOMPSON. Yes, sir, I can. We are on our fifth upgrade of body armor since the war started. It is Frag Kit 5, the armor protection kit, that is on most of the HMMWVs today and we are looking at the development of Frag Kit 6, which gets after the explosively formed penetrator threat. So it is a continual evolution of capability.

Going back to the FCS program, one of the strengths of that program is the fact that we will be able to have the attachment points for upgraded armor on the vehicles that we produce under FCS, so we do not have to bolt them on after the fact. So it is an integrated development approach.

We do the same thing with all of our systems, whether it is rifles, body armor, or night vision goggles. We are always looking at cutting in upgrades or changes of those programs that make sense. So there is no static program out there, helicopter to what the individual soldier wears. I use the body armor as a great example.

Senator CORNYN. I know that seems like a shocking statement for someone to make, that a soldier would have to buy their own body armor. I have never really confirmed that to be the case.

I am wondering with this evolution of systems, whether it is body armor, uparmored HMMWVs or MRAP vehicles we are continually setting a higher standard. In one sense, there may be the perception that because the latest and greatest is not deployed universally, somebody is getting less than what we are capable of providing them for either their protection or ability to do their job.

General THOMPSON. I think we can say, though, Senator, that the latest and greatest of the capability that we have is with the soldiers that are deployed in harm's way or the soldiers that are getting ready to go into harm's way. So you are always chasing that next increment of capability, and once we achieve that next increment of capability, it first goes to the soldiers that are in harm's way.

Senator CORNYN. I cannot help but recall what Chairman Lieberman said when the stories broke in the Washington Post over Walter Reed and the outpatient housing. I remember his statement that this was embarrassing. I thought that was a good way to describe it because I have to tell you that our commitment is to do whatever is needed to provide for our warfighters and servicemembers and our veterans. That is, I would say, a universal commitment of this committee and Congress.

So when somebody throws out a curve ball like that and suggests that we are not doing it, my first reaction is I hope that is not true. Second is if it is, this is embarrassing because certainly it runs counter to every impulse, every instinct that I know Congress has when it comes to providing for our warfighters or their families or veterans across the board.

Mr. Chairman, thank you.

Senator LIEBERMAN. Thanks very much, Senator Cornyn. Of course, I totally agree with what you have said.

I have just one or two more quick questions for you. I wanted to talk for a moment about the Land Warrior program which is one that I have been quite interested in. It just strikes me that with the formal recognition of the equal importance of stability operations, which will be executed in large part by small units of dismounted soldiers, that the Land Warrior program, which was the program of record, as I saw it, for modernizing those dismounted soldiers' abilities may deserve a second look.

Obviously, it was cut after a decade of development and right after it was being sent into theater for its true operational test, which I gather has been extremely successful. I have heard reports from the 4th Battalion of the 9th Infantry Regiment that they feel it has really added to their capabilities and also their protection.

So I wanted to ask you, in terms of our own work here this year in authorizing and appropriating, whether you have thoughts about expanding the fielding of Land Warrior, and whether, if that is the case, we can help you avoid some undesirable reprogramming by authorizing and appropriating for that purpose. So overall, give me your sense of the importance of Land Warrior, whether you are leaning forward on it now, and to what extent we can help by funding it instead of forcing you to reprogram.

General SPEAKES. Sir, your knowledge that we have a very, very strong basis of support from 4-9 and the Manchus who are using it in Iraq today is absolutely correct.

Accordingly, the strategy that has been adopted by General Wallace, the U.S. Army Training and Doctrine Command (TRADOC) commander in collaboration with the Chief of Staff of the Army and the Secretary of the Army, is to move forward with this program. The concept would be that the next thing we need to do is equip a brigade combat team. The brigade combat team would then use it as a part of their pre-deployment training and then as a part of our process of preparing forces and certifying them for deployment. They would then deploy with this capability.

So at this point what we have is a request for reprogramming that is about \$102 million, and \$102 million is approximately what it takes to equip one brigade combat team with this capability.

Now, the capability that we tested several years ago and the capability that is now in Iraq today are substantially different. We have cut the weight, for example, of the radio that is on the back of each individual soldier by about one-third. It is a remarkable transformation that shows, just like our cell phones today, we are evolving capability with incredible speed. So we continue to develop and refine, based upon this experience in combat, what Land Warrior is, what forms it takes, what information it displays for the soldier, and how it integrates with the rest of our tactical operating environment.

We will continue that effort then with the brigade combat team, and we would like to go ahead and prepare that brigade combat team with a set of this stuff and then deploy them as a part of our normal force generation process.

Senator LIEBERMAN. That is great news. I really appreciate that decision. I think this is a great program. I know everything you give a soldier that is improved is good for the soldier, but listening to the exchange you had with Senator Cornyn about the body armor, this Land Warrior program, obviously, not only increases the capability of the individual soldier, but I think also increases his security and protection.

We will take it under advisement, if we can help you by authorizing and appropriating to that level so you do not have to reprogram more. But I thank you very much for that decision. That is great to hear.

The final question is on the Army's current basic rifle needs. There have been some statements that the Army's current basic rifle needs to be replaced, and I wanted to ask you what the current requirement, as you see it, is and what kind of program you have for the rifles within the Army at this point.

General THOMPSON. Sir, the current rifle in the Army is an M-16A4, and the current carbine is the M-4 carbine.

Senator LIEBERMAN. Right.

General THOMPSON. We are looking with a capabilities-based assessment, which is done by the requiring activity, TRADOC, at what should be the future requirement for the rifle. That capabilities-based assessment took a long time to develop. It is now out of the infantry school and has been reviewed once at TRADOC. It is soon on its way to the Pentagon to go into that staffing process and then to go into the joint requirements process.

We feel like we have very capable individual weapons out there in the hands of our soldiers today, both with the M-16 version and the carbine, which has been evolutionarily changed over time with engineering change proposals. We always continue to evaluate all of our weapons. We recently ran a test on the M-4 carbine and found some issues when we were working with the manufacturer in order to improve that capability.

We also found with that test that we need to replace the magazines because the magazines were the source of some failures in the testing that was done. We had an ongoing development program to improve the magazine. We are going rapidly into production on that, and then by the end of this year, every soldier in theater will have an improved magazine to reduce the possibility of stoppages with the weapon.

We have done a number of independent surveys not done by the acquisition community. The one survey that was done recently I think was done by the Center for Naval Analyses to give some independence. The soldier feedback has been positive on the weapons.

The weapons work well. They are engineered well. They have to be properly taken care of. The soldiers that have the least problems with weapons are the soldiers that use them because they are infantry men, are out there on the front lines, and so it is not just the weapons themselves but also how you take care of it. So it is a package deal in making sure they meet the requirement.

The short answer is we are updating the requirement and then we will look at that and decide whether an acquisition or a materiel solution is the best thing in order to upgrade the capability.

Senator LIEBERMAN. Thanks.

Is Senator Cornyn returning, do you know? I am questioned out. So let us assume that Senator Cornyn is too.

I want to thank the two of you. I was thinking, as I was listening to you, that we really ought to thank you not only in general for your service to our country, but you are really two impressive individuals. You are obviously smart. You are very well-spoken. You give me a sense of confidence that you are on top of the very significant responsibilities you have. So I did not want this occasion to go by. We hear a lot of people testify in a lot of committees up here in many subject areas, but honestly, I would say no witnesses have handled questions with more authority and directness in any of the committees I have been on over the long-term than the two of you. Therefore, we ought to express our gratitude to you that not only are you good witnesses, but you happen to be wearing the uniform of the United States Army.

Senator Cornyn, do you have any additional questions?

Senator CORNYN. I do not. Thank you very much.

General THOMPSON. Sir, I do not want the last word, but this body armor thing is really so important. I would just like to make a clarification on something I said earlier because I always like to be as precise as possible.

I said something about the FAT. Obviously, we award a contract because a manufacturer is not going to give us an article to test unless he has a contract. But we do not go into production unless that manufacturer passes that FAT.

I have a quote from a GAO report that was just issued in April about the body armor for the Marines and the Army. I just pulled this piece of paper out, and it is so significant to make the point. This is from the GAO report, "In this review, we found that the Army and Marine Corps have taken several actions to assure testing. They have controls in place during manufacturing and after fielding to assure that body armor meets requirements, and they share information between the Services regarding ballistic requirements and testing and the development of future body armor systems."

On page 5 of the report, "The Army and the Marine Corps have controls in place during manufacturing and after fielding to assure that it meets requirements." I am restating that. "Both Services conduct quality and ballistic testing prior to fielding and lots are

rejected if the standards are not met.” That is the GAO report from April.

So again, I go back to we have to reconcile the differences between the DOD IG report. I regret sincerely that it made the NBC nightly news. I am not sure that all due diligence was done before that was reported. But my key point here is I want soldiers in the field to understand that there is no reason for them to have a lack of confidence in the equipment that we give them today and particularly the body armor. That is my last statement.

Senator LIEBERMAN. I appreciate that statement.

General, you were not suggesting that a television station or network would put a story on without due diligence? You do not have to answer the question. [Laughter.]

I can testify by personal experience to the accuracy of that suggestion. [Laughter.]

Thank you both.

We are going to hold the record of the hearing open for 10 days in case any of the members of the subcommittee want to submit questions to you in writing or you want to add any testimony in writing.

Again, thank you very much for your service and your assistance to this subcommittee today.

The hearing is adjourned.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR JOSEPH I. LIEBERMAN

FIELD MANUAL 3-0

1. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, the Army’s procurement objectives now and into the future are large and growing, especially considering the growth in end strength, additional brigades, and additional missions now documented in Field Manual (FM) 3. Do projected Army research and development and procurement budgets through fiscal year 2015 fully fund continued upgrades to M1, M2, and Stryker vehicles; Future Combat System (FCS) spin outs 1, 2, and 3; other FCS procurement; completion of modularity conversions for Active-Duty units; fully equipping Army National Guard (ARNG) units at 100 percent equipment; and modernization of the Army’s wheeled tactical vehicle fleet, including the Joint Light Tactical Vehicle (JLTV)? If not, which of those efforts is the Army’s priority?

General SPEAKES and General THOMPSON. With the competing demands on an Army at war, we are constantly faced with this question. The answer is one of achieving balance across time, measured against an anticipated threat. These are difficult choices as our adaptive enemy gets a vote, planning for natural disasters is uncertain, and technology successes and failures dictate our program’s progress. We believe we can achieve a balanced plan that meets all of the challenges you lay out, but also will continue to present opportunities to accelerate our plans and programs that are beyond our ability to resource within our obligation authority.

2. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, the Army also has significant funding and procurement pressures related to its current and future force structure. Beginning in fiscal year 2015, the Army plans to have four types of combat brigades: light, Stryker, heavy, and FCS. Two of those brigades, the Stryker and FCS, provide a medium weight capability. Heavy brigades will organize around two types of M1 tanks and two types of Bradley fighting vehicles. What specific analysis has the Army completed that demonstrates the need for four different types of brigades and two types of medium weight brigades?

General SPEAKES and General THOMPSON. To inform Army analysis and decisions related to the mix of Brigade Combat Teams (BCTs), the Army relies on several inputs: National Defense and National Military Strategies, the Quadrennial Defense Review (QDR), Department of Defense (DOD) initiatives, Operational Availability

studies, combatant commander requests, and current operational demands. The current force is comprised of Heavy BCTs (HBCTs), Infantry BCTs (IBCTs), and Stryker BCTs (SBCTs). Each of the three current formation types has unique capabilities best suited for differing parts of the spectrum of conflict.

The Army uses extensive force design and force structure analysis to determine the balance of capabilities and capacity. The modular force reorganization decision in February 2004 used Task Force Modularity analytical efforts to move from 17 different maneuver brigade types in the force to 3 standardized organizational designs. However, we were careful not to swing the standardization pendulum too far.

The need for a mix of maneuver forces was highlighted during the Joint Forces Command and Army cosponsored transformation wargames, Unified Quest 2003 and 2004. This need was later codified in the Army capstone concept document, Training and Doctrine Command Pamphlet 525-3-0, The Army in Joint Operations, The Army's Future Force Capstone Concept 2015-2024, published on April 7, 2005. This document highlighted the need to reconcile expeditionary agility and responsiveness with the staying power, durability, and adaptability to carry a conflict to a victorious conclusion. It also highlighted the need to maintain and improve a hybrid mix of capabilities that can be flexibly combined to address any contingency.

As the Army transforms in the future, the force will incorporate FCS BCTs (FBCTs). Though medium in weight, an FBCT is capable of spanning the range of capability from light to heavy. The need for two types of so-called "medium brigades" (SBCT and FBCT) is driven by more than the weight of vehicles. The requirement for BCT types comes from the capabilities within a given formation. The weight of its capital systems is derived from achieving operational requirements, such as survivability, lethality, or transportability, within an organizational framework. While affordability plays a role in the final outcome, the capabilities inherent in a given type unit and the number of soldiers needed to man the formation are greater drivers for force design and force mix than simply the dollars for equipment. Additionally, the Army must weigh the need to maintain the technological advantage within effective, sustainable, survivable, and lethal formations to ensure an attainable modernization path for each type of BCT.

After QDR 2006, Army analysis of the Major Combat Operation requirements (inherently High Intensity) and the Steady State Security Posture (spanning the spectrum of conflict from High to Low) identified a requirement for 76 BCTs. The Army continues to reassess the BCT force mix to ensure the best balance of capabilities for executing the National Security Strategy and providing Joint Force Commanders with multiple options for success.

3. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, what potential conflicts would require that mix of brigades, or is this mix based simply on affordability?

General SPEAKES and General THOMPSON. Strategy and concepts call for full-spectrum capability with the flexibility to adapt as the environment and situation demand. The three current types of combat brigades—heavy, infantry, and Stryker—each have unique capabilities that provide the Army the best overall ability to meet National Security Strategy requirements. HBCTs provide the maximum in combat power and survivability and are optimized for open terrain, but require the most in strategic lift and logistics. IBCTs provide the lightest unit for force projection by airlift or air assault, and are optimized for close terrain. SBCTs are the Army's newest and offer improved tactical ground mobility with reduced logistics requirements, and have performed well in urban areas. Future BCTs, scheduled to begin entering the force in 2015, will join the current three types of combat brigades and will provide the Army enhanced lethality and survivability with reduced logistics requirements. Because BCT formations are mutually supporting and complementary, BCTs can be task organized and tailored to the required environment and mission.

We cannot know for sure where and against what threat Army capabilities will be required, so we keep a mix based on operational planning and future modeling within the DOD Analytic Agenda. We shall task organize to best match capabilities to the needs of ground force commanders. In order to operate effectively across the range of military operations, in all types of terrain, and provide prompt and sustained landpower, the Army must retain a mix of BCTs. The Army will continuously evaluate how best to maintain the technological advantage within effective, sustainable, survivable, and lethal formations to ensure an attainable modernization path.

4. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, what is the incremental additional operating cost to the Army of indefinitely maintaining three fleets of combat vehicles: (1) legacy tanks, Bradleys, and armored personnel carriers; (2) Strykers; and (3) FCS vehicles?

General SPEAKES and General THOMPSON. The Army estimates operating costs for units, not vehicle systems. The Army uses the Training Resource Model (TRM) to compute the estimated operating cost for units based on previous years' cost experience. The output from TRM serves as the basis for the Army's base program home-station training budget requests. Exact operating costs vary substantially based on the unit's component, location, and mission. For example, the average estimated operating cost for a HBCT in the active component located in the Continental United States (CONUS) is approximately \$66 million per year. For a HBCT in the Reserve component, the cost is approximately \$16 million per year. The average estimated operating cost for a SBCT in the active component stationed in CONUS is approximately \$45 million per year. Since the Army is not scheduled to begin fielding BCTs until fiscal year 2015, the TRM model is not capable of estimating the cost of a FBCT. However, operational assessments using modeling and simulation techniques indicate FBCTs are likely to have lower operating costs than HBCTs while conducting commensurate missions.

The Army will continue to provide combatant commanders with trained and ready forces to meet the Nation's national security requirements. Further, the Army will continue to work with the joint community to review and update the appropriate mix of forces, including number and type of BCTs, to meet the Nation's security needs. Thus, future operating costs for the Army's BCTs will depend on the evolving nature of operations, the mix of forces chosen to prepare for and conduct those operations, and the method in which the chosen forces are employed.

UNFUNDED PRIORITIES LISTS

5. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, over the years, Congress has requested that each Service chief provide a list of unfunded programs that we can then use to guide our judgment to ensure that additional resources, if applied, are focused on priorities. The Chief of Staff of the Army's unfunded priorities list for fiscal year 2009 apparently does not reflect the most urgent unfunded requirements of the Army to meet its next most important operational or investment shortfalls. Rather the list is crafted to address only the dual use equipment shortfalls of the National Guard rather than the total Army. Why did the Chief of Staff decide to use his unfunded priority list this way?

General SPEAKES and General THOMPSON. Per the memorandum attached to the fiscal year 2009 Unfunded Requirements (UFR) list, the Army believed, "that the fiscal year 2009 base budget along with the anticipated fiscal year 2008 global war on terror funding would provide the necessary resources to grow the Army; sustain soldiers, families, and civilians; prepare soldiers for success in current operations; reset to restore readiness and depth for future operations; and transform to meet the demands of the 21st century." The UFR list focused on "funding ARNG equipment shortfalls of dual use items."

The ARNG is engaged around the globe and across the Nation in support of the global war on terror, Homeland Defense and Civil Support missions. Accelerating funding for these items would help ensure that Guard units continue to fulfill a critical role in supporting civil authorities in domestic disaster relief operations that occur during fires, hurricanes, floods, and earthquakes. The UFR list identified a list of items the Army "would accelerate" if additional funding became available.

6. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, I note that the Army's list is in alphabetical rather than in priority order. Please prioritize this list and return it to the defense committees not later than 2 weeks from receipt of this question.

General SPEAKES and General THOMPSON. The Army's most critical UFRs for fiscal year 2009 focus on ARNG equipment shortages for dual-use items. This UFR list was approximately \$3.94 billion. The original ARNG equipment UFR list has been modified by the Army to account for substitutions for seven unexecutable lines on the original list. The result is a slight decrease in the UFR, which is now identified to be \$3.93 billion. The adjusted ARNG equipment prioritized UFR list is enclosed.

All lines on the current UFR list will have a positive impact on ARNG readiness. The acquisition of this equipment will enable the ARNG to train to a higher level of proficiency to meet both State and Federal missions while simultaneously supporting current overseas missions. The most critical of the dual-use items are trucks (HMMWVs and HEMTTs). The ARNG's on-hand quantity of trucks is at a critical all time low. The receipt of trucks will have an immediate impact on readiness and mission effectiveness.

P-1 Line	NOMEN	BAND	\$ ADJ Amount (k)
4	HMMWV	BAND 1	\$1,000,000
		Subt	\$1,000,000
7	HEMTT	BAND 2	\$572,900
4	HMMWV	BAND 2	\$331,300
3	LIQ LOG STORAGE & DISTRO	BAND 2	\$23,200
23 thru 31	MILSATCOM	BAND 2	\$19,000
	MOVEMENT TRACKING SYS	BAND 2	\$23,600
77, 79	NIGHT VISION GOGGLES	BAND 2	\$28,800
143, 144, 151	WATER PURIFICATION SYS	BAND 2	\$1,200
		Subt	\$1,000,000
4	HMMWV	BAND 3	\$262,000
182	AMC CRITICAL ITEMS	BAND 3	\$2,400
5, 10	AVN LUH	BAND 3	\$47,750
22	AVIONICS	BAND 3	\$11,300
27 thru 34	AVN SPT EQUIP	BAND 3	\$6,600
27 thru 34	AVN SPT EQUIP	BAND 3	\$1,700
43	COTS TACTICAL RADIOS	BAND 3	\$22,800
	DRIVER VISION ENHANCEMENT	BAND 3	\$152,450
137	FIELD FEEDING SYSTEM	BAND 3	\$5,400
7, 11	HEAVY EQUIPMENT TRANSPORTER	BAND 3	\$43,100
7	HEMTT	BAND 3	\$178,400
10	LINE HAUL	BAND 3	\$156,300
107, 112	LOG AUTOMATION	BAND 3	\$300
44, 145	MEDICAL FIELD SYSTEMS	BAND 3	\$5,700
(AF) 37	NAVSTAR GPS	BAND 3	\$16,500
24 thru 45, 49	SMALL ARMS	BAND 3	\$87,300
		Subt	\$1,000,000
165	TACTICAL ELEC PWR	BAND 4	\$44,600
1 thru 3	TRAILERS	BAND 4	\$46,400
148 thru 160	CONSTRUCTION EQUIPMENT	BAND 4	\$25,000
	DRIVER VISION ENHANCEMENT	BAND 4	\$473,050
6	FIRE TRUCKS TACTICAL	BAND 4	\$4,000
78	LONG RGE SCT SURV SYS	BAND 4	\$17,600
1 thru 3	LTV HIGH MOB TRLR	BAND 4	\$138,800
35	NON-LETHAL AMMO	BAND 4	\$4,100
5	PALLETIZED LOADING SYS	BAND 4	\$80,700
166	ROUGH TERRAIN CONTAINER HANDLING	BAND 4	\$8,600
5, 10	AVN LUH	BAND 3	\$47,750
16, 17 & 124, 125	TACTICAL BRIDGING	BAND 4	\$29,000
172 thru 174	TEST, MEASURE, DIGITAL EQUIP	BAND 4	\$8,200
		Subt	\$927,800
		TOTAL	\$3,927,800

ACTIVE PROTECTION SYSTEMS

7. Senator LIEBERMAN, Lieutenant General Speakes and Lieutenant General Thompson, this subcommittee has been a strong advocate for the development of force protection technologies to defeat current and next generation threats to our soldiers. The subcommittee has authorized additional funding for active protection systems (APS) for Army vehicles that can help defeat rocket-propelled grenades (RPG) and other weapons systems that are being used in theater and can easily be proliferated at very sophisticated levels. I know that a number of contractors are developing APS for deployment on vehicles and that the Israeli Defense Force is moving towards deploying a system. I believe that the Army strategy is to develop a vehicle APS through the FCS program and then to spin-out the technology to current force vehicles, like Strykers and trucks. Have any realistic live fire tests occurred on Army vehicles using the FCS APS?

General SPEAKES and General THOMPSON. The FCS APS has not completed any “full up” tests on vehicles to date. The FCS APS system is still being designed under the FCS System Development and Demonstration (SDD) effort. To date, the FCS program has conducted developmental and technical tests and is currently scheduled to complete on-the-move live-fire tests in May–June 2008. These tests will provide supporting evidence of the FCS APS maturing to Technology Readiness Level 6, addressing the “system/subsystem model or prototype demonstration in a relevant environment (ground or space).” Further, APS design maturation and testing is planned through the remaining FCS SDD effort. The FCS program is scheduled for Milestone C decision review in 2013. At that time, the APS will be integrated on current force platforms that are capable of meeting its size, weight, and power requirements.

8. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, is the Army evaluating Israeli and other APS approaches as potential near-term solutions to address RPG threats to light vehicles?

General SPEAKES and General THOMPSON. In May 2006, the APS developer (Raytheon), the United States Army, the FCS Lead Systems Integrator, and industry representatives performed a technical trade study to identify and assess APS alternatives and select an APS design from among competing alternatives. The APS technical trade study evaluated 19 “hard kill” APS, including Israeli Trophy APS, for suitability to accomplish the FCS requirements (7 APS alternatives survived the initial screening process). The study concluded that Raytheon’s Vertical Launch APS solution was the best design approach. The study did not select the Israeli Trophy system because it failed to meet several technical threshold requirements imposed by the FCS Operational Requirements Document.

9. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, does the fiscal year 2009 Army budget request include sufficient funding to rapidly develop, test, and field an APS that can defend light vehicles deployed in Iraq and Afghanistan? If not, what is the shortfall?

General SPEAKES and General THOMPSON. The fiscal year 2009 budget request includes funds to develop APS for Stryker platforms and the family of FCS Manned Ground Vehicles. The Army is not developing APS for other platforms. Our current platforms are severely limited in their ability to accept APS by size, weight, and power constraints. High priority modifications such as add-on armor and Improvised Explosive Device defeat systems have enhanced the force protection capabilities of vehicles in Iraq and Afghanistan. These modifications have also exacerbated the size, weight, and power limitations of deployed platforms by adding weight or consuming the space and power that would be needed to accommodate APS. For example, the Stryker Mobile Gun System currently consumes over 91 percent of its generated power during missions; adding APS results in a power deficit of over 3 kilowatts. The Bradley consumes over 80 percent of its generated power during missions; adding APS results in a deficit of over 2 kilowatts. Integrating APS on currently deployed platforms would require costly power and suspension upgrades at the expense of theater requirements and may not be achievable based on current platform limitations.

10. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, when do you expect an APS to be operationally fielded on lighter vehicles like a Stryker?

General SPEAKES and General THOMPSON. We expect to achieve a sufficient maturity level (Technology Readiness Level 6) for the APS system in fiscal year 2009 (fiscal year 2008) to begin integration work on existing systems, but we are severely challenged by the limitations of current platforms in our ability to field APS in the near term. The current Stryker platform does not currently have the power generation to support the integration of the APS. For example, the Stryker Mobile Gun System currently consumes over 91 percent of its generated power during missions; adding APS results in a power deficit of over 3 kilowatts. The Stryker program is initiating a Stryker Product Improvement Plan which plans to integrate the power management sufficient to meet APS requirements. The Milestone A decision will occur this June, and a Milestone B decision is in planned for the third quarter of fiscal year 2009. The first unit is expected to be equipped in fiscal year 2015.

ARMY SCIENCE AND TECHNOLOGY INVESTMENTS

11. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, the Army's science and technology (S&T) budget is down by over \$1 billion relative to last year's appropriated levels. Of particular concern, is the reduction in investments in energy and power technologies research. I know that the FCS program is critically dependent on advanced battery technologies and for energy conservation and cost reasons, the Army is also interested in fuel cells, hybrid engines, and other alternative energy technologies. What is the current investment in Army research in alternative power and energy technologies?

General SPEAKES and General THOMPSON. The Army's S&T President's budget request (PBR) for 2008 was \$1.7 billion and was appropriated at \$2.9 billion, including \$1.2 billion for congressional increases. The Army's S&T PBR for 2009 is up by \$114 million or 6.6 percent over the PBR for 2008. The 2008 PBR investment in alternative power and energy technologies is \$85 million, while the 2009 PBR is \$89.5 million. This investment supports basic research in biofuels and hydrogen generation; applied research in manportable hybrids, fuel cells, and solar technologies; and advanced technology development in batteries and energy storage, alternative auxiliary power, and hybrid propulsion.

12. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, in general, what are your top areas of budget shortfalls in S&T?

General SPEAKES and General THOMPSON. Despite the demands of the ongoing global war on terror, the Army has been able to maintain its S&T investment at over \$1.7 billion for the past three PBRs. The Army S&T PBR for 2009 is \$1.8 billion, an increase of \$114 million or 6.6 percent increase over 2008. We believe this level of investment is sufficient to support our acquisition priorities consistent with our broad resource demands.

Areas of investment that would benefit from additional resources are those being challenged by the continuing war on terrorism: (1) force protection efforts like information assurance to keep our net-centric information technology systems secure and new biometrics technologies to assure that we can identify and track potential insurgents; and (2) medical efforts initiated to address issues such as regeneration of tissue for soldier's skin, muscle, and eventually limbs and efforts to prevent and ameliorate effects of traumatic brain injury and post-traumatic stress disorder.

STRYKER MOBILE GUN SYSTEM

13. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, the Stryker Mobile Gun System (MGS) is a recently deployed vehicle that has received mixed reviews from both operators in theater and the Directorate of Operational Test and Evaluation. Soldiers operating it in Diyala province are calling it the "most lethal ground support vehicle for an urban environment in Iraq today," but there are also many complaints about cabin heat. Reports tell of vehicle temperatures reaching 130 degrees during the day and 115 degrees at night. Some commanders are shutting down the Commander's Panoramic Viewer during the hottest time of the day to minimize heat induced failures to the system. There have been stories about soldiers patrolling while injected with an IV to stay hydrated in the intense heat before they were issued special cooling vests. These vests seem to work for soldiers, but cannot be used on the heat sensitive electronic systems.

Last year's National Defense Authorization Act (NDAA) included a provision requiring the Secretary of the Army to certify that the Stryker MGS is operationally effective, suitable, and survivable. Will the Secretary of the Army be able to certify to Congress that the Stryker MGS is operationally effective, suitable, and survivable or will he need to request the National Security Waiver Authority provided to the Secretary of Defense?

General SPEAKES and General THOMPSON. The Stryker MGS is filling a much needed capability gap within the SBCTs against the current threat. As the Army continues to improve the Stryker MGS, it is undertaking an aggressive program to mitigate limitations, such as those you mention, which are not uncommon on complex weapon systems.

The Secretary of the Army has requested that the Secretary of Defense approve and submit a waiver to allow further procurement of the Stryker MGS in the interest of national security. The decision is based primarily on the restrictive nature of the language contained in the NDAA for Fiscal Year 2008 (Pub. L. 110-181), which requires an unqualified certification of operational effectiveness, suitability, and survivability by the Secretary of the Army.

AVIATION MODERNIZATION

14. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, the last few years has seen a major shift in Army aviation modernization funding. The cancellation of the Comanche helicopter freed up \$14.6 billion to be invested in fixing the remainder of Army aviation. You have been able to procure more Black Hawks and Chinooks, increase aircraft survivability, and begin acquisition of new aircraft, including the Light Utility Helicopter, the Armed Reconnaissance Helicopter (ARH), and the Joint Cargo Aircraft. The ARH program experienced some problems that led to a stop work notice and a shift in funding to extend the life of the Kiowa Warrior. The fiscal year 2009 budget request includes \$439 million for 28 of these aircraft. What actions were taken to ensure that the program was back on track, both by Bell and in Army oversight?

General SPEAKES and General THOMPSON. The Army has continued to work with the Office of the Secretary of Defense (OSD) and the contractor to mitigate risks on the ARH Restructure Program. An OSD Program Support Review team conducted reviews of the ARH Program at both the ARH Program Office and Bell Helicopter to allow for a common understanding of the risks. In order to mitigate identified risks the Army added a second Limited User Test, made program schedule adjustments to align testing events with decision points relative to production, added two SDD prototype aircraft to mitigate risks relative to transitioning to production, restructured the SDD contract to align cost and schedule estimates, and scheduled a Restructure Defense Acquisition Board (DAB) review on July 2, 2008. At the Restructure DAB the Army will seek approval of the revised Acquisition Strategy, the procurement of 10 Production Representative Test Vehicles, the increase of the Army Acquisition Objective from 368 to 512 aircraft, and a formal restructure of the Acquisition Program Baseline.

15. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, when is the next assessment to see if Bell has actually corrected the problems cited?

General SPEAKES and General THOMPSON. There are several key events on the horizon for the program. There is a DAB review scheduled for July 2008, a second Limited User Test scheduled for the spring of 2009, and a Milestone C scheduled for the summer of 2009.

16. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, what actions will be taken if you encounter problems again?

General SPEAKES and General THOMPSON. Just as in the previous case, the Army and the OSD will take a hard look at the program to determine if it remains the best approach—technically and economically—for the Army to meet the warfighter's requirement.

17. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, how long can we extend the Kiowa?

General SPEAKES and General THOMPSON. The OH-58D Kiowa Warrior's (KW) lifespan is based on the actual aircraft condition rather than a projected hour level or years of service. Due to delays in the fielding of the ARH, the Army intends to sustain and maintain the capability of the OH-58D KW to at least fiscal year 2020. Congress provided additional funding to the OH-58D KW program for the Safety Enhancement Program (SEP), which brings the fleet to a common configuration by fiscal year 2011. Known deficiencies with the OH-58D KW require additional investment in the fleet so that the aircraft remains safe and combat effective beyond fiscal year 2011.

There are currently 335 KWs in the field today to resource the 368 total aircraft requirement under the current OH-58D KW force structure. Of the 335 aircraft, 73 are over 20 years old and all have components that are over 35 years old that were retained from the original OH58A/C Kiowas built for the Vietnam war. With each passing year, KW fleet management must address the risk of experiencing systemic component failures and significant sustainment issues. Based on the current attrition rate of 5 to 7 aircraft lost per year during our wartime footing, the fleet size is projected to be as few as 251 aircraft by fiscal year 2020 without replacement aircraft. This equates to a large deficit of combat power when we are resourcing units to the warfight and limited remaining resources for training and sustainment. As currently planned, the ARH will begin replacing the OH-58D KW in fiscal year 2011 when the first unit is equipped. However, the first OH-58D KW will not likely be divested until fiscal year 2013 when the ARH has replaced three units worth of aircraft.

TACTICAL WHEELED VEHICLE STRATEGY

18. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, the Army has plans to purchase around 10,000 Mine Resistant Ambush Protected (MRAP) vehicles, as well as over 2,000 new Stryker vehicles. At the same time, it plans to begin producing the JLTV. While the JLTV is a much needed improvement in the tactical vehicle fleet, and would support the power intensive FCS network, it would still perform many of the same tasks currently assigned to High Mobility Multipurpose Wheeled Vehicles (HMMWVs) and MRAPs.

A Joint Requirements Oversight Council (JROC) decision permitted the Army and Marine Corps to not pursue a one-for-one HMMWV for MRAP replacement strategy. The justification for the JROC decision is unclear to me. Can you clarify the Army's motivation for pursuing a strategy and a two-thirds MRAP/one-third HMMWV strategy?

General SPEAKES and General THOMPSON. A recent JROC validated an interim requirement for 12,000 MRAP vehicles. The theater MRAP and HMMWV mix is based on initial feedback from commanders that MRAP may not be suited to all missions because of its large size: HMMWVs are smaller and more maneuverable in densely populated areas. Theater commanders are still evaluating the MRAP's performance and will provide feedback at a later date.

The JLTV is a separate Army-wide initiative with a potential requirement for 144,000 vehicles. The Army's emerging JLTV strategy is focused on Army-wide light tactical vehicle requirements and is not necessarily tied to theater requirements in the near-term. The Army is currently developing its Tactical Wheeled Vehicle (TWV) strategy, of which JLTV is intended to be a component.

19. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, how will the MRAP vehicles be integrated into the force structure and TWV strategy after the wars in Iraq and Afghanistan wind down? Will it substitute other vehicles, such as the HMMWV or the Armored Security Vehicle?

General SPEAKES and General THOMPSON. The Army is still assessing the MRAP and how it will be used in the future force. Current feedback indicates that while it provides outstanding protection for our soldiers, based on these and follow-on assessments, the Army will explore various options for future placement of the MRAP in the force. Decisions will be based on a myriad of factors including, but not limited to, performance of each variant and condition of the fleet upon completion of operation in Iraq and Afghanistan.

20. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, in testimony given last November, Marine Corps Commandant, General James Conway, said that the Marines intended to half their MRAP vehicle order due to vehicle limitations. This leads us to question the overall vehicle strategy and what redundancies are occurring, both in MRAP and JLTV. What is the Army doing to ensure that the future vehicle strategy will minimize redundancies and support costs while maximizing commonality?

General SPEAKES and General THOMPSON. The Army is currently developing its TWV strategy. In doing so it has compared the capabilities of the vehicles that compose its TWV fleet. The results indicate that there are redundant individual capabilities between vehicles there are no two vehicle types with identical capability sets.

RADIOS

21. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, an integral part of the FCS, and Army modernization overall, is the ability to transmit large amounts of information in a secure manner. Your testimony states that "FM 3-0 also recognizes the unparalleled power of information in modern conflict, and the fact that information has become as important as lethal action in determining the outcome of operations." The Joint Tactical Radio System (JTRS) is the next evolution in the capability to manage and distribute this information, but has faced some setbacks in its development. There are still concerns that it will not be able to meet the challenges in terms of interoperability, meeting size, weight, and power constraints, and meeting information assurance requirements.

In January, outgoing Assistant Secretary of the Army for Acquisition, Logistics and Technology, Claude Bolton, stated that within 5 years, the Army may have too little radio spectrum to allow its next-generation, networked force to work as it is designed to do. This communication system seems to be a key to connecting our warfighters. Is the Army's current procurement strategy vis-a-vis the Single Chan-

nel Ground and Airborne Radio System (SINGGARS) consistent with the Army's intent to transition to JTRS radios in the coming years?

General SPEAKES and General THOMPSON. Yes. The Army's SINGGARS procurement strategy is consistent with its intent to transition to JTRS. The SINGGARS program addresses the Army's current single-channel line-of-sight (LOS) voice communications requirement. Once JTRS products are available, the Army will begin its transition to JTRS by purchasing various JTRS products. In the current Future Years Defense Plan, the Army programmed funds to procure the Ground Mobile Radio (GMR) and various JTRS Small Form Fit (SFF) radios.

The Basis of Issue (BOI) for the Army JTRS requirements is currently being developed and completion is currently scheduled for July 2008. The BOI will map out the distribution of JTRS products by type for each brigade-sized unit within the Army, accounting for distribution quantities from the brigade headquarters down to the individual soldier. This BOI will be the basis for the inclusion of additional JTRS procurement funds in the Army's future budget submission for the procurement of additional GMR and SFF radios, as well as JTRS Handheld, Manpack and Small Form Fit (HMS) and Airborne, Maritime, Fixed (AMF) radios.

22. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, what is the current status of the development of JTRS? Is the Army's SINGGARS acquisition strategy a reflection of its confidence, or lack thereof, in the JTRS program?

General SPEAKES and General THOMPSON. The Joint Program Executive Office for the JTRS Program has made significant progress, highlighted by the AMF radio Milestone B decision and SDD contract award. In addition, the Acquisition Program Baseline (APB) updates for the GGMR, Handheld, Manpack and Small Form Fit (HMS) radio, and Network Enterprise Domain (NED) were approved and signed by the Under Secretary of Defense (Acquisition, Technology, and Logistics). These efforts, in process since fiscal year 2007, represent major steps toward the acquisition and delivery of JTRS Increment 1 capabilities.

The JTRS program anticipates a Milestone C for GMR in the 4th quarter of fiscal year 2010, which supports initial fielding for FCS Spin Out 1. Full Rate Production is anticipated in fiscal year 2013/14. The HMS Low Rate Initial Production (LRIP) is scheduled the third quarter of fiscal year 2010 and the AMF (rotary wing) LRIP is scheduled for the first quarter of fiscal year 2013.

The SINGGARS acquisition strategy is not a reflection of the Army's confidence, or lack thereof, in the JTRS program. The SINGGARS program addresses the Army's current single-channel LOS voice communications requirement. When available, JTRS products will be procured to meet not only the Army's single-channel LOS voice requirement, but other tactical radio communications requirements, to include mobile ad-hoc networking and beyond LOS voice and data communications.

Finally, the Army and Defense senior leadership have expressed concern about the affordability of JTRS GMR. The Army will review and investigate cost savings options and alternatives that will leverage and reduce the cost of the JTRS GMR. Any adjustments to the program baseline will be reflected in the future budget submissions with required policy changes to support the new acquisition strategy.

23. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, are there potential radio spectrum limitations that could stop this system from working as planned?

General SPEAKES and General THOMPSON. The JTRS program is in the process of developing multiple radio products with spectrum agility. The Joint Tactical Radio (JTR) sets are software defined radios that can be programmed to utilize available frequencies from 2 Megahertz (MHz) to 2 Gigahertz (GHz). The ability of JTRS to operate between 2 MHz to 2 GHz is a significant benefit in spectrum planning because it enables many more options than would be the case for radios technically constrained to particular frequencies. Also, JTR sets can be programmed to the same frequency utilized by current force radios to achieve interoperability with Channel Ground and Airborne Radio System (SINGGARS), Enhanced Position Location and Reporting System (EPLRS), High Frequency (HF), and Ultra HF (UHF) Satellite Communication radios. Further, through frequency cross-banding, the JTRS family will be able to connect radios operating in different frequency bands to allow interconnectivity between disparate radio networks. For example, the GMR provides interconnectivity between legacy EPLRS and JTRS Wideband Networking Waveform data networks, and the GMR and JTRS Manpack radio provides interconnectivity between legacy SINGGARS and JTRS Soldier Radio Waveform voice networks.

As indicated by Secretary Bolton, our military's demand for access to the radio frequency spectrum increases with the advent of JTRS and other radio development programs. These systems compete for spectrum resources along with industry and commercial applications. A number of actions are being taken in JTRS Increment 1 to mitigate the spectrum risk. These include thorough radio frequency communications planning, and early outreach to nations expected to host JTRS. Additionally, spectrum related technological enhancements are being considered for implementation in later JTRS Increments. One promising technology is dynamic spectrum access. This technology is being developed by the Defense Advanced Research Projects Agency (DARPA) and is expected to enable radios to find frequencies and operate in temporarily unused spectrum. This capability would significantly increase the RF spectrum available during JTRS operations. Preliminary DARPA capability demonstrations are encouraging and are currently being considered for incorporation into JTRS and other radio development programs.

ACCELERATION OF GROW THE ARMY

24. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, the Secretary and Chief of Staff of the Army have testified that they want to accelerate the growth of Army end strength beyond its planned 7,000 for fiscal year 2009. Yet the budget request does not include the additional funds necessary to accomplish this. How does the Army intend to accelerate end strength growth?

General SPEAKES and General THOMPSON. The Army's planned growth of Active component end strength at about 7,000 per year is a metered approach for building total Army capacity and sustaining the All-Volunteer Force through the foreseeable future. This growth ramp, however, falls short of alleviating stress on the force in the near term. The Army's desire to grow end strength more rapidly in fiscal year 2009 addresses this need by improving manning levels of the next-to-deploy forces. This provides the much deserved dwell time to soldiers returning from theater. As a global war on terror-driven requirement, the Army anticipates a request in the fiscal year 2009 global war on terror funding request to support acceleration of end strength.

25. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, what are the major investment requirements necessary to support this growth?

General SPEAKES and General THOMPSON. There are no major investments required to support the acceleration of end strength growth. The largest preponderance of the costs is associated with military pay and allowances. There are some requirements associated with training and base operation support.

ARMY INFORMATION SYSTEMS PROGRAMS

26. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, the Department is moving towards developing joint and interoperable information systems to support military operations wherever possible. A major effort in this vein is the development of joint global command and control systems. My understanding is that the Services are all driving towards adopting command and control technologies developed by the Defense Information Systems Agency (DISA) under the Network Enabled Command Capability (NECC) program.

At this point, both the Director of Operational Test and Evaluation and the Director of Defense Research and Engineering have commented in reports on the technical immaturity and aggressive schedule in the program. I understand that the Department still plans to migrate Service command and control problems, like the Army's Global Command and Control System, into the joint NECC solution around the 2012 timeframe.

Given your current and anticipated future operational needs for command and control, what risks will the Army be taking if the NECC program continues to slip its schedule and does not deliver capabilities on time?

General SPEAKES and General THOMPSON. The Army is a strong supporter of the NECC joint program as a partner with DISA, the Navy, Marine Corps, and Air Force. DISA and the Joint Forces Command lead this program, with active participation of the Army, Navy, Marine Corps, and Air Force. All Services agree that further development of command and control (C2) systems must be done on a joint basis to move beyond the current systems that have limited horizontal interoperability. The Army, along with the other Services, has also been concerned with key

program issues such as technical maturity and the aggressiveness of the program schedule. The Army is an active participant in the OSD-led NECC Joint Action Team (JAT), established to mitigate these risks.

The Army has fully funded NECC Increment 1 and is developing plans, in conjunction with the joint program, to fully replace the Global Command and Control System (GSSC)-Joint and GSSC-Army (GCCS-A) systems providing Joint C2 to strategic and operational Army headquarters by the end of fiscal year 2013. The GCCS-A will not be retired until the Army replaces GCCS-A functionality with NECC capabilities at all GCCS-A sites. Maintaining GCCS-A until it can be replaced by NECC at all GCCS-A sites will reduce the risk to the soldier of losing current functionality. The Army plans to continue GCCS-A development to support soldiers through fiscal year 2010. The remaining risk is the need to continue GCCS-A maintenance funding until NECC has completely replaced it. The Army has procurement funding to sustain GCCS-A until fiscal year 2013. If the NECC schedule slips substantially, there is a risk that the Army would not have sufficient funding to maintain GCCS-A until NECC Increment 1 is delivered.

27. Senator LIEBERMAN. Lieutenant General Speakes and Lieutenant General Thompson, what role is the Army playing to ensure that the NECC program delivers the command and control capabilities it needs in a timely fashion?

General SPEAKES and General THOMPSON. The Army is a strong supporter of the NECC program and participates proactively in all of the requirements (Joint Capability Integration and Development System), resourcing (Planning Programming Budgeting and Execution System), and acquisition (DOD 5000) forums supporting this program. The Army has fully funded NECC Increment 1 and is developing plans, in conjunction with the joint program, to fully replace the GCCS-J and GCCS-A systems providing Joint C2 to strategic and operational Army supported headquarters by the end of fiscal year 2013. As a partner in this joint development program, the Army staffs and maintains an Army Component Program Management Office (CPMO) under the NECC Joint Program Management Office along with DISA, the USN, USMC, and USAF. The CPMOs will be the development offices and anticipate developing NECC capabilities related to their Service operation mission areas. The Army CPMO is expected to be the developer for the most important capabilities supporting ground operations across all increments of the NECC program.

QUESTIONS SUBMITTED BY SENATOR MARK PRYOR

BRIGADE COMBAT TEAM CONVERSIONS

28. Senator PRYOR. Lieutenant General Speakes and Lieutenant General Thompson, the Army's fiscal year 2009 operation and maintenance budget request for readiness supports the Reserve component conversion of deployable, brigade-centric forces. The 39th BCT from the Arkansas National Guard represents this modernization. While the 39th BCT is now designed to fight without augmentation as a BCT, and are trained to do so as a cohesive unit, they were not deployed to Iraq last month in support of Operation Iraqi Freedom as a BCT. The Army has fragmented the 39th BCT into company size elements and dispersed the team throughout Iraq for force protection, support of Joint Visitors Bureau operations (providing bodyguards for dignitaries and embassy personnel), and convoy security. Why is the Army budgeting/funding these BCT conversions if they are not using them in battle?

General SPEAKES and General THOMPSON. The 39th BCT is deployed to the U.S. Central Command Area of Responsibility (AOR), and is conducting final preparations to assume the mission-critical tasks assigned by the combatant commander. First U.S. Army provided oversight of the readiness, mobilization, and training validation for the 39th BCT, as is the process with all our ARNG units. The unit was brought on Active Duty with its leadership and organization intact, to train and deploy together.

Once in theater, the combatant commander is in the best position to make decisions on command and control of security force units, based on his awareness of the tactical and strategic situation. Due to the nature of the mission, some unit dispersal is likely as units spread out within their respective AORs to provide security at forward operating bases. Decisions on specific security force missions—convoy escort, fixed site security, quick reaction force or other requirements—will be made by the combatant commander based on the conditions on the ground. The 39th BCT is uniquely well-suited for these vital missions, and we are proud of their service and their professionalism.

M4 RIFLES

29. Senator PRYOR. Lieutenant General Speakes and Lieutenant General Thompson, in recent comparative tests the M4 rifle performed worse than three of its competitors, the HK416, the MK16, and the HKXM8, as the Army's main weapon of choice for its soldiers. Having experienced a total of 882 stoppages and 19 Class 3 (serious) failures while being tested in extremely dusty conditions, the Army is standing by its decision to outfit/modernize the force with the M4 carbine despite these reliability questions. In spite of this information, the Army intends to spend \$300 million to produce M4 rifles through fiscal year 2009. Why?

General SPEAKES and General THOMPSON. The M4 remains in high demand by all our deployed units and soldiers and has proven itself through numerous tests under a wide variety of conditions and in combat throughout the years. The M4 Carbine is an extremely reliable weapon design that meets or exceeds the United States Army's requirements and has the confidence of the overwhelming majority of soldiers based on post combat and other surveys. The Army considers soldier feedback on weapon performance very important. A United States Army Infantry Center post combat survey showed that 90 percent of soldiers armed with the M4 rated it as effective or highly effective. A Program Executive Office soldier sponsored post combat survey conducted by the Center for Naval Analyses in 2006 reported 89 percent of soldiers armed with the M4 are satisfied with its overall performance. In the same survey, only 1 percent recommended the M4 be replaced.

In regard to the tests mentioned, the M4 had more stoppages than the other three weapons but still only had 1.4 percent malfunctions out of 60,000 rounds fired. The other competitors experienced less than 1 percent malfunctions out of 60,000 rounds. All of these weapons performed exceptionally under these extreme conditions. The vast majority of the M4 malfunctions were Class 1 and 2 malfunctions, solved either by immediate action or minor remedial action by the operator. Over 200 of the malfunctions were attributed to the M4 and M16 magazines, and at the time of the tests a program was already underway to provide an improved magazine to our soldiers.

BODY ARMOR

30. Senator PRYOR. Lieutenant General Speakes and Lieutenant General Thompson, the Army currently uses Enhanced Small Arms Protective Insert (ESAPI) plates to compliment the interceptor body armor system used by our soldiers in Afghanistan and Iraq. The contract for the acquisition of ESAPI plates ends in May of this year. The Army has initiated a request for proposal for the next generation Small Arms Protective Insert plates and intends to award a contract in the fall of 2008. Does the Army have a plan to bridge the gap in this short pause in procurement to account for an adequate supply of ESAPI plates to support the readiness of our troops?

General SPEAKES and General THOMPSON. The Army has a plan to ensure an adequate supply of ESAPI plates supporting soldier readiness after we procure the Army ESAPI requirement of 966,000 sets by May 2008. The Defense Logistics Agency (DLA) is responsible for ESAPI sustainment and awarded three contracts in December 2007 to provide sustainment quantities of ESAPI. DLA ESAPI sustainment contracts will mitigate the time lag for procurement of the next generation ballistic plate. The ESAPI sustainment contracts also will ensure the industrial base maintains the capability to manufacture ballistic plates. The U.S. Army also is working with the vendors to reduce their monthly delivery requirements to stretch out their production runs. This reduction must be balanced to ensure there is no gap in addressing fielding requirements. Fielding requirements will always remain the priority.

31. Senator PRYOR. Lieutenant General Speakes and Lieutenant General Thompson, has the Army considered the consequences to the industrial base as a result of existing contracts and the contracts projected for award later this year?

General SPEAKES and General THOMPSON. From the outset, the U.S. Army understood the need to have an orderly transition of ESAPI to any potential next generation body armor production to avoid an adverse affect on industry. The U.S. Army has had to extend all current ESAPI supplier contracts several times due to industry requests to delay the current body armor solicitation that is being competed on a full and open basis. The U.S. Army will continue to work with industry to minimize the impact until any potential follow-on contracts are awarded. However, there will be a reduction of ESAPI monthly production rates. The DLA is responsible for ESAPI sustainment and awarded three ESAPI sustainment contracts in December

2007. DLA ESAPI sustainment contracts will mitigate the delay in procuring the next generation ballistic plate. The ESAPI sustainment contracts will ensure the industrial base maintains the capability to manufacture ballistic plates. The U.S. Army also is working with the vendors to reduce their monthly delivery requirements to extend their production runs. This reduction must be balanced to ensure there is no gap in fielding requirements. Fielding requirements will always remain the priority.

32. Senator PRYOR. Lieutenant General Speakes and Lieutenant General Thompson, is the Army still on schedule with its acquisition goal of 966,000 ESAPI plates?

General SPEAKES and General THOMPSON. Yes. The Army completed fielding ESAPI to deployed forces in Operation Iraqi Freedom and Operation Enduring Freedom in February 2006 and will procure the Army-wide ESAPI requirement of 966,000 sets by May 2008.

QUESTIONS SUBMITTED BY SENATOR JAMES M. INHOFE

M4 RIFLES

33. Senator INHOFE. Lieutenant General Speakes and Lieutenant General Thompson, the Army recently conducted extreme dust testing of the M4 rifle and three other carbines. Officials at the Army Test and Evaluation Center, Aberdeen Proving Ground, tested 10 each of the 4 carbine models, firing a total of 60,000 rounds per model. What were the results of the test?

General SPEAKES and General THOMPSON. The results of the test showed two primary things. First, all four weapons were challenged by an extreme environment and an extremely constrained maintenance regimen, yet all the weapons performed well. Each weapon performed greater than 98.6 percent of the time over 60,000 rounds. Second, all of the weapons showed wear that was to be expected in a laboratory test designed to accelerate the individual weapons' expected wear-out period.

While this test was not scheduled in the programmed life of the M4, the U.S. Army took the opportunity to use the data produced to further improve the M4 Carbine. The test showed that in an extreme dust environment, all weapons needed to be lubricated with a liberal coat of the U.S. Army standard lube CLP instead of a light coat as previously thought and all needed regular cleaning in accordance with the current instructions in the manual which is: before every mission and daily in dusty environments. There was a very small difference in performance between all four weapons; i.e., the range in performance differential between all the weapons was about 1 percent. This confirmed what the previous market research showed, that there was no significant leap ahead capability in the current market place. Engineers from both APG and Picatinny Arsenal are conducting further analysis to further improve all aspects of the weapon, as we have over the life of the weapon, which is standard procedure for U.S. Army equipment including all weapons.

34. Senator INHOFE. Lieutenant General Speakes and Lieutenant General Thompson, what is the way ahead for the Army and the M4?

General SPEAKES and General THOMPSON. The Army plans to continue funding the M4 carbine due to high demand for M4s in theater Operational Need Statements and the constant growth in M4 carbine requirements experienced each year since September 11. The M4 carbine requirement will be recompeted after June 2009 as the current manufacturer, Colt, will no longer retain the Technical Data Package Rights to the M4. The Army will conduct a full and open competition for the production of future carbines. Prior to this competition, the Training and Doctrine Command and the United States Army Infantry Center will update the requirements document to make it Joint Capabilities Integration and Development System compliant, to incorporate all modifications in the capabilities since the original document was approved, and to account for improvements in carbine technology. Results from testing, such as the recent dust test, any lessons learned from the current operations, and industry developments will also be incorporated into the new document as needed.

QUESTIONS SUBMITTED BY SENATOR BILL NELSON AND SENATOR HILLARY RODHAM CLINTON

ARMY TACTICAL RADIO SYSTEMS

35. Senator BILL NELSON and Senator CLINTON. Lieutenant General Speakes and Lieutenant General Thompson, what is the Army's current (most updated) SINCGARS request for the fiscal year 2008 defense supplemental?

General SPEAKES and General THOMPSON. The Army fiscal year 2008 SINCGARS defense supplemental request is \$500.4 million.

36. Senator BILL NELSON and Senator CLINTON. Lieutenant General Speakes and Lieutenant General Thompson, has there been a change since the request was submitted?

General SPEAKES and General THOMPSON. Yes. Of the \$500.4 million supplemental request, there was an OSD-directed decrement of \$139.3 million applied to this program to address other higher Army priorities. A supplemental balance of \$361.1 million remains.

37. Senator BILL NELSON and Senator CLINTON. Lieutenant General Speakes and Lieutenant General Thompson, the fiscal year 2009 budget request asks for \$84.5 million for SINCGARS. Do you expect the second supplemental request to ask for additional funding for SINCGARS?

General SPEAKES and General THOMPSON. The fiscal year 2009 budget request was \$84.5 million for SINCGARS requirements. This request will satisfy the Army SINCGARS Radio System requirement. Currently, there is no requirement to submit an fiscal year 2009 supplemental request for SINCGARS. However, battlefield operational conditions will dictate whether additional funding is required to meet any new emerging requirements.

38. Senator BILL NELSON and Senator CLINTON. Lieutenant General Speakes and Lieutenant General Thompson, is it true that the Secretary of the Army has recently directed that any future requirements for SINCGARS capability be met through full and open competition, in accordance with the specifications of the SINCGARS Operational Requirements Document (ORD)? If so, why?

General SPEAKES and General THOMPSON. Yes. On March 27, 2008, Secretary Geren received a SINCGARS decision brief on Requirements and Acquisition Strategy. To ensure all vendors received a fair opportunity for business, Secretary Geren directed a full and open competitive procurement be conducted for the remaining 56,000 SINCGARS receiver-transmitters (RTs) required to satisfy its Army Acquisition Objective (AAO) of 581,000 RTs.

39. Senator BILL NELSON and Senator CLINTON. Lieutenant General Speakes and Lieutenant General Thompson, given the Army decision to procure SINCGARS legacy technology over modern JTRS technology, what is the justification to continue spending additional funds for GMR or Handheld/Manpack/Small Form Fit (HMS) development (less the small form factors)?

General SPEAKES and General THOMPSON. The JTRS program is the Army tactical radio of the future. However, current operational conditions and equipment demands dictate a need for a Combat Net Radio now to conduct battlefield operations. The SINCGARS, with its proven technology, satisfies that requirement. Upon validation and approval of JTRS program milestones, the Army is programmed to migrate to this future technology when available in fiscal year 2011.

40. Senator BILL NELSON and Senator CLINTON. Lieutenant General Speakes and Lieutenant General Thompson, has an acquisition strategy to bridge to JTRS been developed? If so, what is it?

General SPEAKES and General THOMPSON. Yes. The Army is currently refining its JTRS migration strategy which bridges current force tactical radio capabilities to future force JTRS capabilities. The plan requires internal Army staffing and is scheduled to be completed March 2009.

41. Senator BILL NELSON and Senator CLINTON. Lieutenant General Speakes and Lieutenant General Thompson, have you reexamined the current tactical radio modernization plan in accordance with the NDAA for Fiscal Year 2008? If so, how?

General SPEAKES and General THOMPSON. Yes. The Army is constantly reviewing its tactical radio modernization plan to ensure current battlefield operational needs are met. The Army is refining its JTRS migration strategy which will explain and

layout the Army plan to migrate current force radios to its future JTRS architecture. This plan will be available March 2009.

42. Senator BILL NELSON and Senator CLINTON. Lieutenant General Speakes and Lieutenant General Thompson, what is the Army's position on the Army Science Board recommendation to cease procuring SINCGARS and transition to a JTRS approved product?

General SPEAKES and General THOMPSON. The Army Science Board Summer study, Options for an Affordable LandWarNet, is being reviewed and evaluated by senior Army leadership. The study must be briefed to the Executive Office Council before an official Army position can be determined. While the study is still in a pre-decisional draft form, we expect the report will be finalized and released by early spring.

43. Senator BILL NELSON and Senator CLINTON. Lieutenant General Speakes and Lieutenant General Thompson, the Secretary of the Army made a commitment to reexamine requirements and determine whether the SINCGARS ORD continues to meet needed capabilities. Has the reexamination taken place? If so, please explain the reexamination.

General SPEAKES and General THOMPSON. The Army G3 did reexamine the requirements and reviewed available commercial off-the-shelf systems to determine if "SINCGARS-like" products could meet our requirements for full spectrum combat. Our analysis indicated there were certain operational capabilities that we could not afford to trade off without significant operational risk. The SINCGARS ORD continues, at this juncture, as our benchmark which guided our decision to competitively compete future contract awards.

44. Senator BILL NELSON and Senator CLINTON. Lieutenant General Speakes and Lieutenant General Thompson, does the SINCGARS ORD require an embedded Global Positioning System (GPS) capability and if so, are all SINCGARS equipped with functional embedded GPS, including those procured in the last 2 years?

General SPEAKES and General THOMPSON. The SINCGARS ORD, dated August 14, 1998, states "the system shall include embedded GPS capability." The SINCGARS RTs procured in the last 2 years do include an embedded GPS capability.

45. Senator BILL NELSON and Senator CLINTON. Lieutenant General Speakes and Lieutenant General Thompson, has the Army enforced full ORD compliance for the program of record?

General SPEAKES and General THOMPSON. The SINCGARS ORD continues, at this juncture, as our benchmark for a Combat Net Radio program of record.

46. Senator BILL NELSON and Senator CLINTON. Lieutenant General Speakes and Lieutenant General Thompson, has the Army altered or waived any of the requirements for SINCGARS?

General SPEAKES and General THOMPSON. No. The SINCGARS ORD continues, at this juncture, as our benchmark for a Combat Net Radio program of record. In 2005, because of emerging global war on terror requirements and ITT's production inability to meet Army surge requirements, an operational decision was made to accept risk and procure the Harris AN/VRC-110 and the Thales AN/VRC-111 products which augment the SINCGARS radio requirement and are currently satisfying a Theater-specific requirement.

47. Senator BILL NELSON and Senator CLINTON. Lieutenant General Speakes and Lieutenant General Thompson, are all Army units integrated into the tactical internet (TI) with the SINCGARS radio? If not, is a JTRS approved product acceptable in non-TI environments?

General SPEAKES and General THOMPSON. Not all Army units require integration into the TI with the SINCGARS radio. Some Combat Support and Combat Service Support units have voice-only requirements and do not require TI capability. Yes, a JTRS-approved product has been deemed acceptable for non-TI environments only in Theater. Current SINCGARS ORD requirements specify that ORD compliant radios must fill Modified Table of Organization and Equipment and Table of Distribution and Allowance requirements.

48. Senator BILL NELSON and Senator CLINTON. Lieutenant General Speakes and Lieutenant General Thompson, will the Army consider utilizing SINCGARS capable commercial off-the-shelf (COTS) radios for the MRAP vehicles? Please explain.

General SPEAKES and General THOMPSON. Yes. The Army is using the Harris AN/VRC-110 and the Thales AN/VRC-111 radios in its MRAP vehicles. These radios consist of two handheld RTs which are powered by vehicular adapters and offer the soldier a “jerk-n-run” capability as well as other multi-band capabilities. The MRAP vehicles are identified as a Theater requirement. As previously mentioned, the Army has procured the Harris AN/VRC-110 and the Thales AN/VRC-111, COTS radios to augment its Theater radio requirement supporting global war on terror. The SINCGARS radios are still issued against ORD-compliant Modified Table of Organization and Equipment and Table of Distribution and Allowance requirements.

49. Senator BILL NELSON and Senator CLINTON. Lieutenant General Speakes and Lieutenant General Thompson, please explain why the Army now considers the AN/VRC-110/111 Vehicular Amplifier Adapter to be a theater unique requirement.

General SPEAKES and General THOMPSON. The AN/VRC-110 and AN/VRC-111 are COTS products procured to augment SINCGARS and to satisfy Army Theater requirements. Those products are being used to support the Army’s Up-Armored Vehicles requirement and portions of the MRAP vehicle requirements. The SINCGARS radio is still the primary ORD-compliant radio which is being issued to satisfy documented Modified Table of Organization and Equipment and Table of Distribution and Allowance requirements. The Harris AN/VRC-110 and the Thales AN/VRC-111 were procured, at Army risk, to meet surging operational demands, in which the prime vendor (ITT) was unable to satisfy and the Army was not willing to wait. The VRC-110 and VRC-111 offered a Command, Control, Communication, Computers, Intelligence, Surveillance, and Reconnaissance capability with minimal risk, but does not meet all ORD requirements for a full spectrum capability.

50. Senator BILL NELSON and Senator CLINTON. Lieutenant General Speakes and Lieutenant General Thompson, what contract options are available to the Army fiscal year 2007 main supplemental funding? Have these options been exercised? If so, what was the value?

General SPEAKES and General THOMPSON. The current SINCGARS contract with ITT has options which will allow award of fiscal year 2007 main supplemental funding. The current contract with ITT has options up to \$2.2 billion. There is about \$600 million remaining headspace on this contract.

51. Senator BILL NELSON and Senator CLINTON. Lieutenant General Speakes and Lieutenant General Thompson, is there a ceiling on the existing tactical radio contract? If so, what is the dollar amount? Has the ceiling been reached? If not, when do you expect it will be reached?

General SPEAKES and General THOMPSON. The current dollar ceiling on the existing SINCGARS contract with ITT is about \$2.2 billion. There is about \$600 million remaining headspace on this contract. We anticipate we will reach the headspace on this contract in fiscal year 2008.

52. Senator BILL NELSON and Senator CLINTON. Lieutenant General Speakes and Lieutenant General Thompson, in fiscal year 2008 and beyond, what other contracting alternatives has the Army explored? Has the Army made a decision about how to proceed?

General SPEAKES and General THOMPSON. The Army has committed to full and open competition for the next SINCGARS procurement. We are in the process of reviewing options in light of validated requirements and will have better fidelity regarding our acquisition strategy once the competition is completed in late 2008. We will keep Congress informed in regard to this matter and our acquisition way ahead.

[Whereupon, at 4:45 p.m., the subcommittee adjourned.]

**DEPARTMENT OF DEFENSE AUTHORIZATION
FOR APPROPRIATIONS FOR FISCAL YEAR
2009**

WEDNESDAY, APRIL 9, 2008

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

AIR FORCE AND NAVY AVIATION PROGRAMS

The subcommittee met, pursuant to notice, at 2:05 p.m. in room SR-222, Russell Senate Office Building, Senator Joseph I. Lieberman (chairman of the subcommittee) presiding.

Committee members present: Senators Lieberman, Pryor, Chambliss, and Cornyn.

Committee staff member present: Cindy Pearson, assistant chief clerk and security manager.

Majority staff member present: Creighton Greene, professional staff member.

Minority staff members present: Gregory T. Kiley, professional staff member; David M. Morriss, minority counsel; and Sean J. Stackley, professional staff member.

Staff assistants present: Ali Z. Pasha and Benjamin L. Rubin.

Committee members' assistants present: Frederick M. Downey, assistant to Senator Lieberman; M. Bradford Foley, assistant to Senator Pryor; Samuel Zega, assistant to Senator Warner; Clyde A. Taylor IV, assistant to Senator Chambliss; and David Hanke, assistant to Senator Cornyn.

**OPENING STATEMENT OF SENATOR JOSEPH I. LIEBERMAN,
CHAIRMAN**

Senator LIEBERMAN. The subcommittee will come to order. I want to extend a welcome to our distinguished panel of witnesses and thank each of you for appearing before the subcommittee today.

This subcommittee meets against the backdrop of continued bravery and exemplary performance by the members of our Armed Forces in Iraq, Afghanistan, and really throughout the world. I think we always want to, as we begin specific inquiries, note that reality with great appreciation.

We convene this session of the Airland Subcommittee to discuss the present and future of aviation programs which come under the jurisdiction of this Airland Subcommittee. Every year we are faced

with the challenge of balancing a number of competing demands for limited resources and in some sense balancing the demands of current operations with or against the requirement for future modernization. Decisions we make today I assure you we understand are important because in the most direct sense they can result in lives being saved in the next year or even years down the road.

So with that introduction, let me just touch on a few of the issues that I hope that we will learn more about from the witnesses today. Two years ago Congress authorized the Air Force to enter into a multi-year procurement contract for the F-22 aircraft program. Now that program is facing a production shutdown. The fiscal year 2009 budget, that is the one that's before Congress now, for F-22 includes neither funds for advanced procurement of additional aircraft in 2010 nor money to pay for line shutdown charges.

But I think the Air Force's view is clear on this, particularly noting that General Moseley's unfunded priority list—underline, “priority list”—for fiscal year 2009 includes \$497 million for advanced procurement for 24 aircraft that would be produced in a later fiscal year. However, self-evidently, others within the Department of Defense (DOD) hold a view that the currently approved program of 183 F-22 aircraft is enough to meet the needs of our warfighters. Now, the subcommittee really needs to hear from our witnesses today more about those differing views.

We should also get an update on where the Joint Strike Fighter (JSF) stands today. We all know how important the JSF is to the modernization of all three Services represented here today.

Beyond that, there are a couple of other areas of concern we have. One of these is the prospect for meeting future force structure requirements. For example, today we are facing the prospect that the Department of Navy program will lead to potentially large gaps between the resources that the Chief of Naval Operations has said he needs and the resources that will be available to his successors.

Under current plans for Navy and Marine Corps tactical aircraft acquisition, we are facing a shortfall that optimistically will amount to 125 tactical fighters needed to outfit our 10 aircraft carrier air wings and three Marine Corps air wings. That's an optimistic view that we're going to be 125 planes short of what's needed.

With shortfalls that large, we could be faced with some tough choices: drastically reducing the number of aircraft available on short notice to the combatant commanders, either because we have deployed understrength air wings or because we did not deploy the carrier at all because of these aircraft shortages. These are really urgent, important questions. Perhaps even in asking them and documenting it in this way we make the point that I know my friend and colleague, Senator Cornyn, shares with me, which is that, though we are spending obviously a very large amount in absolute dollars for the DOD budget, the fact is that we are underfunding with those dollars some critically necessary programs. So we want to do our best to try to evaluate the needs and then authorize as close as we can up to the level of those needs in the interest of our national security.

I'm now pleased to call on my ranking member and coworker in these efforts, Senator John Cornyn.

STATEMENT OF SENATOR JOHN CORNYN

Senator CORNYN. Thank you, Mr. Chairman.

I join the chairman in welcoming all of you here today. While many focus on the contributions of our U.S. ground forces in Iraq and Afghanistan, and rightly so, the efforts of U.S. aviators on behalf of our Nation are nothing short of exceptional. Our aviators have been actively engaged in the Central Command (CENTCOM) area of operations for 17 years: the first Gulf War, the enforcement of the Iraq no-fly zones, and now Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF).

These deployments, in addition to operations elsewhere throughout the world in support of humanitarian efforts, have made maximum use of this Nation's air forces. Of course we all extend an expression of gratitude to these men and women and their families as they continue their sacrifice and service to our Nation.

While we recognize the joint aviation's invaluable contribution to defense, we face the challenge of balancing competing demands for funding current operations and investing in modernization. Since September 11, 2001, the balance has been tilted toward current operations, to the neglect of modernization. The shift is partly a result of the needs of the Army and the Marine Corps ground forces as operations in the Persian Gulf rightly demanded. Our Nation's ability to put off aviation modernization, however, is fast coming to an end, and I offer two quick examples.

For fiscal year 2009, the Air Force submitted an unfunded priorities list of items that did not make it into the final budget request totaling \$18.7 billion. The Air Force's unfunded list is 4 times the Navy's list, nearly 5 times the Army's, and 10 times the Marine Corps's list.

Last year during an Airland Subcommittee hearing, Navy witnesses testified to a potential gap in strike fighters. While the uncertainties of the service life of the current F-18s and the production schedules for the future F-35 were discussed, the potential gap could reach over 220 Navy aircraft by the middle of the next decade.

We must collectively commit to properly funding aviation modernization and then support those efforts. Moving forward, we cannot lose sight of the contributions the current forces are making, but we must adequately fund and support systems for the next generation of aviators and airmen.

I'm particularly concerned with the actions taken, reports, and rumors on the next generation, the so-called fifth generation, tactical aircraft programs, the F-35 and F-22. Once again, the F-35 JSF program eliminates funding for the development of a second engine. Last year we held extensive hearings on the subject, discussing the pros and cons of ensuring that a competitive environment is maintained for the production of aircraft engines. Yet, contrary to expert opinion and congressional direction, this budget eliminates funding for a second source, and I'd like to hear from our witnesses why the Department chose not to follow the law.

The Government Accountability Office (GAO) recently released a report critical of the F-35 JSF. The GAO took exception to the program's current risk reduction program, schedule, and cost estimates. I'd like to hear from our witnesses their response to the program critique by the GAO.

Recent press reports question the Department of Navy's commitment to the program and I'd like to hear whether those reports are accurate or not.

On the F-22, the fiscal year 2009 budget presented to Congress neither funded advanced procurement for additional F-22 aircraft beyond fiscal year 2009 nor included funding to shut down the production line. As presented, the budget for the F-22 is incomplete. I'd like to hear what our witnesses expect Congress to do with the F-22 program.

Without getting into proprietary information or jeopardizing ongoing protests, I'd like an update on other aviation modernization efforts, including the new KC-45 tanker, the next generation combat search and rescue helicopter, and the VH-71 presidential helicopter program. I have concerns in other areas as well and I hope the witnesses will address these in their testimony or in the question and answer period that will follow. The witnesses should expect questions on the impact of aviation requirements resulting from the planned Army and Marine Corps end strength increases, the latest DOD unmanned aerial vehicle (UAV) roadmap, and efforts to make air power more relevant to irregular warfare.

I thank the witnesses and I look forward to your testimony.

Thank you, Mr. Chairman.

Senator LIEBERMAN. Thank you, Senator Cornyn.

I think we'll begin with Mr. Balderson, based on seniority. I don't know about age. Probably age, but seniority and position and general civilian authority. We're not going to ask you for any statements about your age, Mr. Balderson.

Mr. Balderson is the Deputy Assistant Secretary for Air Programs in the Office of the Assistant Secretary of the Navy for Research, Development, and Acquisition. It's a pleasure to have you here and why don't you begin now.

STATEMENT OF HON. WILLIAM M. BALDERSON, DEPUTY ASSISTANT SECRETARY FOR AIR PROGRAMS, OFFICE OF THE ASSISTANT SECRETARY OF THE NAVY FOR RESEARCH, DEVELOPMENT, AND ACQUISITION, DEPARTMENT OF THE NAVY

Mr. BALDERSON. Thank you, Mr. Chairman, and I will say I'm senior only in age at this table.

Mr. Chairman, Senator Cornyn: I appreciate the opportunity to appear before you today to discuss Navy and Marine Corps aviation programs. I do have a written statement that I respectfully submit for the record.

Senator LIEBERMAN. Without objection.

Mr. BALDERSON. Out of respect for the subcommittee's time, I will limit my opening remarks to the following points. First, the Department of the Navy's acquisition team continues to work aggressively to identify efficiencies in the development, testing, and procurement of the products and services we provide to the fleet.

The fiscal year 2009 budget request reflects considerable effort in identifying affordable solutions for the Department's aviation programs, and we are striving to address Navy and Marine Corps warfighting needs in the most cost effective way possible. As a prominent example, 60 percent of the production aircraft included in the fiscal year 2009 President's budget are being purchased via multi-year procurement contracts.

Second, the fiscal year 2009 budget request is a balance between sustaining our fleet of legacy aircraft while also recapitalizing with newer, more capable, and more reliable aircraft. Our proposed plan procures 206 aircraft—that's 134 fixed wing, 69 rotary wing, and 3 UAVs—and continues development of the F-35, the E-2D Advanced Hawkeye, the P-8A, the CH-53K, the E-18G, the VH-71, and a number of other critical recapitalization programs.

Mr. Chairman, I'll conclude by thanking the members of this subcommittee for your outstanding support. The great efforts of our men and women in theater today and tomorrow will reflect the return on your investment in them and the systems they take to fight.

Once again, thank you and I look forward to your questions, and I'd be most happy to address any of the naval topics that you listed in your opening statements.

[The joint prepared statement of Mr. Balderson and Admiral Myers follows:]

JOINT PREPARED STATEMENT BY HON. WILLIAM M. BALDERSON AND RADM ALLEN G. MYERS, USN

Mr. Chairman and distinguished members of the subcommittee, thank you for providing us with this opportunity to appear before you to discuss the Department of the Navy's fiscal year 2009 tactical aviation programs.

AVIATION PROGRAMS SUMMARY/OVERVIEW

The fiscal year 2009 President's budget request implements a recapitalization strategy to obtain new capabilities—and initiatives to reduce operating costs while sustaining legacy fleet aircraft that are performing magnificently in current operations. We continue to work with industry in seeking ways to reduce costs via multi-year procurement (MYP) contracting strategies on the F/A-18 E/F airframe, H-60S/R, and the V-22; and we will implement a 'prototype' strategy on the Joint Air-to-Ground Missile (JAGM) to ensure high technology readiness and reduced risk prior to entering System Development and Demonstration (SDD). The fiscal year 2009 budget plan ensures that the Navy and Marine Corps maintain a joint force able to meet the spectrum of threats. Our proposal continues the development of the F-35, the E-2D Advanced Hawkeye, EA-18G, the VH-71 Presidential Helicopter Replacement Aircraft, the CH-53K Heavy Lift Replacement aircraft, Unmanned Aviation, and new strike weapons capabilities. In total, Navy/Marine Corps aviation will procure 134 additional tactical and fixed-wing aircraft, 69 rotary-wing aircraft, and 3 Vertical Take Off and Landing Tactical Unmanned Aerial Vehicles for a total of 206 aircraft.

I. TACTICAL AIRCRAFT/TACTICAL AIRCRAFT SYSTEMS

F-35 Joint Strike Fighter

The fiscal year 2009 budget requests \$1.5 billion research, development, test, and evaluation, Navy (RDT&E.N) for continuation of F-35 SDD and \$1.98 billion Aircraft Procurement, Navy (APN) for the Low Rate Initial Production lot 3 (LRIP 3) for 8 Short Take-off and Vertical Landing (STOVL) aircraft and the long lead requirements for 14 STOVL and 4 CV aircraft as part of LRIP 4.

A fifth generation aircraft, the F-35 will enhance precision strike capability with unprecedented stealth, range, sensor fusion, improved radar performance, combat identification and electronic attack capabilities compared to legacy platforms. The F-35 carrier variant (CV) complements the F/A-18 E/F Block II and EA-18G in pro-

viding long-range strike capability and much improved persistence over the battlefield. The STOVL combines the multi-role versatility of the legacy F/A-18 and the basing flexibility of the AV-8B. The commonality designed into the F-35 program will minimize acquisition and operating costs of Navy and Marine Corps tactical aircraft, and allow enhanced interoperability with our sister Service and allies.

Impressive technical progress continues across the development program. The SDD jets are taking longer to build than anticipated but setting new standards for quality, and manufacturing efficiencies improve with each jet. In flight testing, the initial Conventional Take-off and Landing (CTOL) aircraft (AA-1) continues to demonstrate superb performance and reduce program risk, with 31 sorties flown through mid-February 2008. In addition, the flying avionics test bed has flown 91 hours and has accomplished significant risk reduction on the avionics systems. The first STOVL variant (BF-1) roll-out occurred on-time in December 2007 and STOVL First Flight is currently projected for fourth quarter fiscal year 2008. Manufacture and assembly of all remaining flight test aircraft is well underway. LRIP 1 contract for two CTOL aircraft awarded in 2007, as was the LRIP II long lead contract for six CTOLs and six STOVLs. STOVL first flight is a key event for award later this year of STOVL fiscal year 2008 LRIP 2 full funding and LRIP 3 long lead funding. The CV Air System Critical Design Review was successfully completed June 2007 and CV first flight is scheduled for 2009. The STOVL and CV variants are projected to meet their respective Key Performance Parameters.

The F135 engine development has completed 9,000+ test hours on 12 engines through mid-February 2008. F135 engine test failures in August and February occurred in nearly identical operating modes. Both Pratt & Whitney and the F-35 Program Office understand the causes of these failures and are actively developing a mitigation plan to minimize the schedule impacts to the program.

The Department of the Navy (DON) supports the omission of continued funding for the alternate engine (F136) in the President's budget request. The DON maintains there are higher priority needs in the budget and that the risks associated with a single engine supplier continue to be manageable. The three fiscal year 2007 congressionally-directed engine studies have been completed. The conclusions, while supportive of competition in general, reinforced the Department's initial findings that the projected savings from not doing competition outweigh the investment and sustainment costs.

F/A-18 E/F Super Hornet

The fiscal year 2009 budget requests \$1.9 billion in APN for 23 F/A-18 E/F Block II aircraft for the final year of the 5-year MYP contract (fiscal year 2005 to 2009). The F/A-18 E/F continues to transition into the fleet, improving the survivability and strike capability of the carrier air wing. The Super Hornet provides a 40 percent increase in combat radius, 50 percent increase in endurance, and 25 percent increase in weapons payload over our older legacy Hornets. Over 410 F/A-18 E/Fs will have been procured through fiscal year 2008 which is on track to complete procurement of the program of record of 493 aircraft by 2012. The Super Hornet has used a spiral development approach to incorporate new technologies, such as the Joint Helmet Mounted Cueing System, Advanced Targeting Forward-Looking Infrared (FLIR), Shared Reconnaissance Pod System, and Multifunctional Information Distribution System data link. The Active Electronically Scanned Array (AESA) radar system in our Block II aircraft has completed operational testing and the full rate production decision was approved in June 2007. The first 2 tactical AESA-equipped F/A-18F squadrons have now received all 12 of their allotted aircraft with full Integrated Logistics Support support. The FA-18 E/F fiscal year 2009 budget request also includes \$129.3 million to implement commonality, maintain capabilities, and improve reliability and structural safety.

F/A-18 A/B/C/D Legacy Hornet

The fiscal year 2009 budget requests \$321.6 million for the continuation of the systems upgrade programs for the F/A-18 platform. As the F/A-18 program transitions to the F/A-18 E/F, the existing inventory of over 648 F/A-18 A/B/C/Ds (as of February 2008) will continue to comprise half of the Carrier Strike Group until 2012. Included in this request is the continued procurement of recently fielded systems such as the Joint Helmet Mounted Cueing System, Advanced Targeting FLIR, Multi-Function Information Distribution System, and a Digital Communications System. The Marine Corps continues to upgrade 61 Lot 7-9 F/A-18A models to a Lot 21 F/A-18C avionics aircraft capability with digital communications and a tactical data link. The Marine Corps anticipates programmed upgrades to enhance the current capabilities of the F/A-18 C/D with digital communications, tactical data link and tactical reconnaissance systems. This upgrade ensures that our F/A-18s re-

main viable and relevant in support of Tactical Air Integration and Expeditionary Maneuver Warfare. The Marines expect the F/A-18 to remain in the active inventory until 2023. The Marines are also employing the Litening targeting pod on the F/A-18 A+/C/D aircraft in expeditionary operations, to include Operation Iraqi Freedom (OIF). When combined with data link hardware, the Litening pod provides real time video to ground forces engaged with the enemy through Remotely Operated Video Enhanced Receiver workstations. Continued analysis of tactical air (TACAIR) inventories will continue throughout 2007 and beyond to determine the health of the legacy fleet as the F/A-18 A-D is transitioned to the F-35.

Airborne Electronic Attack (AEA)/EA-18G

The fiscal year 2009 budget requests \$128.9 million in RDT&E,N for continuation of SDD and \$1.68 billion in APN for 22 full rate production EA-18G Lot 3 aircraft. The EA-18G continues its development as the Navy's replacement for the EA-6B AEA aircraft. The EA-18G will replace carrier-based Navy EA-6B aircraft by 2012. A total quantity of 27 aircraft will be procured in LRIP. The Navy is using the F/A-18 E/F MYP contract to buy the Lot 3 aircraft in fiscal year 2009. SDD continues on schedule with the two development aircraft having first flown in 2006 and are currently in developmental test at NAWC, Patuxent River. The program is on track to begin Operational Evaluation in fall 2008, leading to Initial Operating Capability (IOC) in fiscal year 2009 and Full Operating Capability (FOC) in fiscal year 2012.

The Office of Naval Research (ONR) is working to develop adaptable, modular, and open architecture hardware, firmware, and software for a next-generation jamming capability that will be hosted by the EA-18G. In this regard, the Navy is working with the Air Force on jamming transmitters, and has leveraged previous work completed as part of their B-52 Standoff Jammer (SOJ). The Navy and Air Force technology teams continue to meet quarterly to ensure their efforts are coordinated. The fiscal year 2009 President's budget requests \$69.3 million of RDT&E,N under PE 0604270N (EW Development) of which \$46.1 million is for Next Generation Jammer technology maturation.

The EA-6B is in near continuous use in Iraq and Afghanistan today in support of our troops on the ground as DOD's only tactical electronic attack aircraft performing communications jamming and information operation missions. Program priorities are current readiness of EA-6B and ALQ-99 systems, deployment of increased airborne electronic attack (AEA) capability through products such as ICAP II/III aircraft upgrades, ICAP III kits, and Low Band Transmitters. In an effort to achieve those objectives, the fiscal year 2009 budget requests \$33.4 million in APN for procurement of critical AEA products and continuing EA-6B readiness improvements to increase operational availability and reduce operating cost of this low density high-demand aircraft. The EA-6B upgrades include procuring 22 Low Band Transmitters to provide a new jamming capability and replacement of aging transmitters to be employed on legacy EA-6B and new EA-18G aircraft. The budget request also provides for operational safety and cost-wise readiness improvement initiatives to ensure availability of the aging EA-6B aircraft.

AV-8B

For the AV-8B, the fiscal year 2009 budget requests \$29.9 million RDT&E,N funding to support development of the Engine Life Management Plan, Tactical Moving Map Display, Litening pod updates, and aircraft safety and reliability modifications, to include a Readiness Management Plan. We also request \$54.5 million of procurement funding for engine production line transition efforts, Open Systems Core Avionics Requirement installs, engine sustainment efforts, Day Attack Upgrade/Attrition Recovery efforts, trainer aircraft upgrade efforts, and Litening pod upgrades.

P-8A Multi-mission Maritime Aircraft (MMA)/P-3C

The future of the Navy's maritime patrol force includes plans for sustainment, modernization, and recapitalization of the force. Results of the P-3 Service Life Assessment Program (SLAP) revealed the need for an aggressive approach to P-3 airframe sustainment. The accumulation of two decades of heavy demand by the combatant commanders, to include Operation Enduring Freedom and Operation Iraqi Freedom, resulted in advanced fatigue. Our fiscal year 2009 budget request includes \$297.9 million to sustain the P-3C until transition to the P-8A Multi-Mission Maritime aircraft. Over half of this amount (\$152.7 million) is for Special Structural Inspections-Kits (SSI-K), which will allow for airframe sustainment to support the CNO's P-3 Fleet Response Plan, as well as supporting EP-3E requirements which are executed within the P-3 SSI-K program. In December 2007, ongoing refinement of the model used to calculate wing stress indicated that the lower wing surface of the P-3 aircraft had fatigue beyond standards for acceptable risk resulting in the

grounding of an additional 39 P-3 aircraft. To correct this issue, additional funding is being sought to mitigate operational impacts. In addition to fiscal year 2008 requests, fiscal year 2009 funding is being separately requested for P-3C wing panels, supporting hardware and installation; acceleration of the Fatigue Life Management Program; and P-8A acceleration. Key elements of the sustainment approach are strict management of requirements and flight hour use, special structural inspections to keep the aircraft safely flying, and increased use of simulators to satisfy training requirements. The fiscal year 2009 budget request also reflects a systems sustainment and modernization budget of \$145.2 million to continue to address a multitude of mission essential efforts to replace obsolete components, integrate open architecture technology, and leverage commonality.

To recapitalize these critical aircraft, the Navy is developing the P-8A MMA, a 737 commercial-derivative aircraft. This past year, the program completed both its overall system Critical Design Review and its Design Readiness Review. The fiscal year 2009 budget requests \$1,132 million in RDT&E,N for continuation of P-8A SDD efforts. Program objectives for 2009 include executing a contract option for three Stage II test aircraft, and completing the first flight of the initial Stage I test aircraft. Our comprehensive and balanced approach has allowed for re-capitalization of these critical assets.

EP-3 Replacement/Sustainment

The Navy plans to recapitalize its aging EP-3E fleet with a land-based, manned, airborne Intelligence, Surveillance, and Reconnaissance (ISR) platform, called EPX, to meet maritime requirements. The fiscal year 2009 budget requests \$74.6 million in RDTE,N funds for this effort to support studies focused on capabilities, documentation, and technology development. Our plan also requests \$55.7 million in RDT&E,N and \$72.4 million in APN to address EP-3E signals intelligence sensor and communications equipment obsolescence issues that are necessary to keep the EP-3E viable until the replacement platform is fielded, and to develop follow-on capabilities that can be migrated to the EPX. This funding supports Operational Test (OT) and procurement for JMOD Common Configuration (JCC) Spiral 2 data fusion capabilities, and engineering development for JCC Spiral 3 and Recapitalization Capabilities Migration (RCM).

E-2D Advanced Hawkeye (AHE)

The E-2D Advanced Hawkeye is a critical enabler of transformational intelligence, surveillance and reconnaissance that provides robust overland capability against current and future cruise missile-type targets. The Advanced Hawkeye program modernizes the E-2 platform by replacing the current radar and other system components to maintain open ocean capability. The radar for the Advanced Hawkeye will provide enhanced performance overland and in the littoral environment while improving performance against clutter, adding transformational surveillance, and theater air and missile defense capabilities. The fiscal year 2009 budget requests \$484.2 million in RDT&E,N for continuation of SDD and \$589.1 million in APN-1 for three Low-Rate Initial Production (LRIP) Lot I aircraft. Two SDD aircraft are in flight test with the first mission system flight completed in December 2007. An 'Operational Assessment' is scheduled in fourth quarter of fiscal year 2008 to support a Milestone-C decision planned for March 2009.

KC-130J

The fiscal year 2009 budget requests \$153.5 million in APN for 2 KC-130J aircraft. To date, the Marine Corps have taken delivery of 29 KC-130J aircraft, with 7 more aircraft on contract to be delivered during fiscal years 2008 through 2010. The planned procurement of 2 aircraft in fiscal year 2009 will bring the total number of KC-130J aircraft to 38. The KC-130J provides major enhancements to the current fleet of KC-130s, extending its range, payload, and refueling capabilities while reducing operating costs. Additionally, we have continued to ensure the tactical capability of our existing KC-130R/T series aircraft by installing night vision kits and upgraded aircraft survivability equipment.

T-6B Joint Primary Air Training System (JPATS)

The fiscal year 2009 budget requests \$289.3 million to procure 44 aircraft under an Air Force MYP contract. The T-6 is the primary flight training aircraft for Navy and Marine Corps pilots, and naval flight officers. It replaces the T-34C. The current requirement is for 315 aircraft, of which 98 aircraft have been procured to date.

Integrated Defensive Electronic Countermeasures (IDECM)

The fiscal year 2009 budget requests \$125.6 million in APN for the procurement of 73 ALQ-214 on-board Radio Frequency Countermeasure and \$24.7 million in am-

munition procurement for 558 ALE-55 Fiber Optic Towed Decoys, pending a full rate production decision. The IDECM Block 3/ALE-55 Integrated Development Test and Operational Test (IDT/OT) identified several anomalies which required correction. The corrective actions have been incorporated, the system has been certified for Operational Test, and a Full-Rate Production decision is expected in the first quarter of fiscal year 2009.

Digital Radio Frequency Memory (DRFM) Onboard Jammer

The fiscal year 2009 budget requests \$31.5 million in RDT&E,N for development of an on-board jammer that will employ state-of-the-art Digital Radio Frequency Memory devices to replace the ALQ-126B Jammer that was last produced in 1991. This effort will measurably improve the survivability of tactical naval aircraft by delaying, denying, and defeating air-to-air and surface-to-air missile system threats operating in the radio frequency spectrum. The lead platform for the DRFM program is the F/A-18 C/D, followed by the AV-8B. An Analysis of Alternatives has been initiated to investigate alternative solutions, costs, and schedules. This developmental effort is late-to-need and the capability is required to pace rapidly proliferating threat systems.

Infrared Countermeasures (IRCM)

The Navy has a multi-faceted approach to providing aircrew protection against current and next generation IR guided MANPADs. The fiscal year 2009 budget requests \$63.2 million in RDT&E,N for continued development of the TADIRCM Program to provide improved missile warning systems for the MV-22 (lead platform) and smaller USN helicopters such as H-1 & H-60 (follow-on). The fiscal year 2009 budget also requests \$25.8 million of APN-5 and \$226.0 million of 'APN-5 Supplemental' funding for procurement of the advanced 'Large Aircraft Infrared Counter-Measure System' (LAIRCM) for USMC CH-53E and CH-46E heavy-lift rotary aircraft. The DON is also pursuing advanced expendables under the PANMC appropriation, and plans to complete fielding of an upgraded AAR-47B(V)2 Missile Warning System to provide improved probability of detection in clutter environments for those aircraft not getting DIRCM upgrades with the additional fiscal year 2009 APN-5 supplemental request.

II. ROTARY-WING AIRCRAFT

VH-71 Presidential Helicopter Replacement Aircraft

The fiscal year 2009 budget requests \$1,047.8 million in RDT&E,N for continuation of SDD for the VH-71 program. The VH-71 program is executing an evolutionary acquisition approach through a two-part incremental development to deliver a safe, survivable and capable Presidential Vertical Lift aircraft while providing uninterrupted communications with all required agencies. The goal of Increment-1 is to satisfy an urgent need to provide a replacement Presidential helicopter with capability equivalent to or better than the current inventory of aircraft. Increment-2 will provide enhanced performance and state-of-the-art communications capabilities to satisfy long-term needs. The program is completing Increment-1 integrated test utilizing three government and two contractor test articles. Additionally, the government will take delivery of five Increment-1 Pilot Production aircraft. Increment-2 development will continue as this phase of the program is restructured, and the program progresses towards a System Functional Review. It is anticipated that a second quarter Defense Acquisition Board will approve a new VH-71 program baseline significantly reducing program concurrency and schedule risk. The Presidential Helicopter Replacement Program continues to receive executive level oversight and review in an effort to fully evaluate program progress while mitigating risks wherever possible.

V-22

The fiscal year 2009 budget requests \$2.2 billion in APN for procurement of 30 MV-22s and continued development of follow-on block upgrades. Fiscal year budget request 2009 is the second year of the MYP contract. Our MYP strategy supports a continued cost reduction and affordability trend, provides a stable basis for industry, and best supports the warfighter. The Advance Acquisition Contract funding associated with the second year of the MYP and fiscal year 2008 Economic Ordering Quantity and Cost Reduction Investments was awarded in March 2008.

The DON is developing, testing, evaluating, procuring, and fielding a tilt rotor, Vertical/Short Take-off and Landing (V/STOL) aircraft for Joint Service application. The V-22 Program is designed to provide an aircraft to meet the amphibious/vertical assault needs of the Marine Corps, the strike rescue needs of the Navy, and the special operations needs of the Air Force and Special Operations Command. The

MV-22 variant will replace the CH-46E in the Marine Corps. The CV-22 variant provides a new capability and will augment the MC-130 in the Air Force/Special Operations Command inventory for special operations infiltration, extraction, and resupply missions. The existing MH-53 fleet will be drawn down commensurate with the fielding of the CV-22. V-22 capability is being increased and fielded over time via a block upgrade acquisition strategy. MV-22 Block A provides a "Safe and Operational Test and Training Asset" configuration that is supporting developmental flight test, operational flight test and fleet training. Block B provides for correction of previously identified deficiencies and suitability improvements. Block C provides mission enhancements, primarily in the areas of environmental control systems upgrades and mission systems improvements. CV-22 Block 0/10 is a CV-unique configuration for Special Operations Capabilities to include radar and electronic countermeasures upgrades. CV-22 Block 20 provides an enhanced CV-unique configuration with planned communications and aircraft system performance upgrades. Both Osprey variants continue along their prescribed roadmaps for follow-on developmental and operational test. The CV-22 Program is currently in IOT&E. The MV-22 has successfully completed Operational Evaluation and the first operational deployment is underway.

AH-1Z/UH-1Y

The fiscal year 2009 budget requests \$3.8 million in RDT&E,N for continued product improvements and \$474.1 million in APN for 20 AH-1Z/UH-1Y aircraft. The H-1 Upgrades Program will replace the Marine Corps' AH-1W and UH-1N helicopters with state-of-the-art AH-1Z and UH-1Y models. The program is a key modernization effort designed to resolve existing safety deficiencies, enhance operational effectiveness, and extend the service life of both aircraft. Additionally, the commonality gained between the AH-1Z and UH-1Y (84 percent) will significantly reduce life-cycle costs and logistical footprint, while increasing the maintainability and deployability of both aircraft. The program will provide the Marine Corps with 180 AH-1Z helicopters and 100 UH-1Y models through a combination of remanufacturing and new production.

The first lot of low rate production aircraft has been delivered as well as several aircraft from the second lot. The final phase of OPEVAL is ongoing and a full rate production decision is expected later this year. We are developing the capability to newly fabricate some of the AH-1Z aircraft to reduce the number of AH-1W aircraft removed from service for remanufacturing. This will be particularly critical as the annual production rate increases. The optimum mix of remanufactured and newly fabricated aircraft is being evaluated with the results to be reflected in future budget requests.

MH-60R and MH-60S

The fiscal year 2009 budget requests \$1,185.8 million in APN and \$70.3 million in RDT&E,N for continued replacement of the Light Airborne Multi-Purpose System (LAMPS) MK III SH-60B and carrier-based SH-60F helicopters with the new configuration designated as the MH-60R. This program reached full-rate production with the first operational squadron standing up in 2006. The fiscal year 2009 budget also requests \$549.7 million in APN and \$47.3 million in RDT&E,N funds for the MH-60S, to continue development of the Organic Airborne Mine Countermeasures (Block II) and the Armed Helo (Block III) missions. The MH-60S is the Navy's primary combat support helicopter designed to support Carrier and Expeditionary Strike Groups. It will replace four legacy platforms with a newly manufactured H-60 airframe. The Army and Navy are executing a platform multi-year contract that includes both the MH-60R and MH-60S, and a second multi-year contract for integration of mission systems into the MH-60R.

CH-53K Heavy Lift Replacement Program

The fiscal year 2009 budget requests \$570.5 million RDT&E,N to continue SDD of the CH-53K, which will replace the Marine Corps' current heavy-lift helicopter, the CH-53E "Super Stallion." The CH-53K program is on track to conduct a Preliminary Design Review later this year and the Critical Design Review in late fiscal year 2009.

The legacy CH-53E was built for sustained shipboard operations and first flown in 1974, the CH-53E continues to demonstrate its value as an expeditionary heavy-lift platform. This aging but very relevant helicopter is in high demand, making significant contributions to missions in Iraq, Afghanistan, and the Horn of Africa; non-combatant evacuation operations in Lebanon; and disaster relief operations around the world. Expeditionary heavy-lift capabilities will continue to be critical to successful sea-based operations in future anti-access, area-denial environments, ena-

bling sea basing and the joint operating concepts of force application and focused logistics.

As a design evolution of the CH-53E, the new-build CH-53K will fulfill sea-based, heavy-lift requirements not resident in any of today's platforms, and directly contribute to the increased agility, lethality, and persistent presence of Joint Task Forces and Marine Air-Ground Task Forces. The CH-53K will include significant enhancements to extend range and payload performance; expand survivability and force protection capabilities; improve inter-modal cargo handling and turn-around; and meet interoperability requirements while reducing heavy-lift operations and support costs.

The CH-53K will be capable of transporting 27,000 pounds to austere landing sites at distances of 110 nautical miles under challenging environmental conditions. Task Force commanders of 2015 and beyond will then have the option to rapidly insert, to the far sides of the littorals, a force equipped with armored combat vehicles and heavy weapons at a rate equivalent to two uparmored High Mobility Multi-Wheeled Vehicles (HMMWVs) per sortie. To sustain that force, the CH-53K will be the critical air connector to sea-based logistics, transporting up to three independent loads per sortie, with each load tailored to individual receiving units. This efficient, reliable, cost-effective, heavy-lift capability will also address critical challenges in maintainability, reliability, and affordability found in present-day operations.

III. WEAPONS

In an era of continuing global uncertainty and shifting threats, the DON is developing and deploying air-to-air and strike weapons to enhance our warfighter's capabilities in an evolving and uncertain security environment. Our fiscal year 2009 budget request for each new weapon or weapon system modification program is directed towards deterring potential aggressors, power-projection, sea-control, or other maritime and expeditionary warfare security objectives. Our budget request would provide resources for weapon systems that directly support troops deployed in the field—as well as weapon systems that will shape our plans to address potential near-peer competitors. The Navy/Marine Corps weapons programs take into account the lessons-learned from ongoing combat operations as well as the results of our research, development, and test efforts. The resulting fiscal year 2009 weapons budget request provides for a portfolio of affordable weapons programs that is balanced between solutions to address global war on terrorism threats and development of new military capabilities.

Direct Attack Moving Target Capability

In response to an urgent requirement identified by the combatant commanders in Iraq and Afghanistan, the DON approved a Rapid Deployment Capability (RDC) in fiscal year 2008 to develop a Direct Attack Moving Target Capability known as DAMTC. DAMTC improves our ability to attack and strike moving targets by leveraging off of the highly successful, congressionally-supported procurement of dual-mode systems. The fiscal year 2009 budget requests \$35.9 million to transition the RDC to a formal acquisition program, support a competitive acquisition strategy, and acquire 2,758 additional weapons from potentially multiple sources at reduced costs.

Joint Air-to-Ground Missile

The DON, in conjunction with our Army partners, received formal approval from USD(AT&L) to proceed with the development of the JAGM in January 2008. JAGM will become the next-generation, forward firing precision-guided munition capable of being launched from Navy/Marine Corps fixed-wing, rotary-wing, and unmanned platforms with both global war on terrorism and conventional warfare applications. Under USD(AT&L) direction, the JAGM program implements a technology development strategy to carry two contractors through Prototyping and Test and the Preliminary Design Review (PDR) phase of the program. Using a rolling down-select strategy, the Navy and Army will determine how far beyond PDR the two contractors should potentially be carried to ensure a high-level of technical maturity and risk reduction before proceeding into a formal SDD program. The intent behind this prototyping and technology development strategy is to improve the probability of overall program success and reduce program costs through competition. To support this critical development program, our fiscal year 2009 budget requests approval of \$62.3 million of RDT&E,N to implement this acquisition strategy.

Hellfire Weapon System

While the DON develops JAGM, we are requesting continued support for legacy Hellfire weapons. Hellfire continues to be one of the priority weapons in the global

war on terrorism and provides our Navy/Marine Corps warfighters the ability to attack targets in the caves of Afghanistan as well as the urban canyons of Baghdad. Our fiscal year 2009 budget request is for \$95.4 million for 1,068 weapons with a mix of thermobaric, blast/fragmentation, and anti-armor warheads to provide the maximum operational flexibility to our warfighters.

Joint Standoff Weapon (JSOW)

The combat proven JSOW family of joint Navy and Air Force air-to-ground weapons continues on cost and schedule to develop a JSOW-C1 variant. JSOW-C1 adds a 'moving target capability' to the highly successful baseline JSOW-C variant with the addition of a datalink and guidance software improvements. The fiscal year 2009 budget requests \$22.5 million for continued JSOW-C1 development and \$149.1 million for JSOW-C production totaling 496 all-up-rounds to fill our weapons magazines that remain below approved Non-Nuclear Ordnance Requirements. Production of other JSOW variants remains deferred as we continue to work with the Office of the Secretary of Defense and our sister Service to resolve unexploded battlefield ordnance issues that are of a concern to the Department and our Allies.

Tactical Tomahawk BLK IV Cruise Missile

The Tactical Tomahawk budget request supports the continued procurement of this combat proven, deep-attack weapon in order to meet ship-fill loadouts and potential combat requirements. The BLK IV Tactical Tomahawk missile is in a full-rate production status and the fiscal year 2009 budget request is \$281.1 million for an additional 207 BLK IV weapons and associated support.

Harpoon Block III Anti-Ship Cruise Missile

The DON is upgrading our air-launched and surface-launched Harpoon cruise missiles to provide the all-weather, anti-surface warfare (ASuW) capability needed to operate with 'improved selectivity' in the cluttered littoral environment. Under the Harpoon BLK III Program, the Navy is upgrading this very capable system to enhance our standoff ASuW operations by integration of: network; two-way datalink; and GPS capability for use under stringent littoral battle-space rules of engagement. The fiscal year 2009 budget requests \$68.2 million in RDT&E,N to continue development of this capability.

Small Diameter Bomb (SDB II)

The DON is partnering with the Air Force on the development of the Small Diameter Bomb II (SDB II) program. SDB II provides an adverse weather, day or night standoff capability against mobile, moving, and fixed targets—that also allows for target prosecution while minimizing collateral damage. SDB II is of special interest to the Department as it will be integrated into the 'internal carriage' of Navy/Marine Corps variants of the Joint Strike Fighter (JSF). SDB II acquisition consists of a competitive development, risk reduction phase between two industry teams with a down-select at Milestone-B that is estimated to occur in early fiscal year 2010. The fiscal year 2009 budget requests \$19.6 million of RDT&E,N for the continued development of this joint program.

Advanced Anti-Radiation Guided Missile (AARGM)

The AARGM development program transforms the legacy High-Speed Anti-Radiation Missile (HARM) into an affordable, lethal, and flexible time-sensitive strike weapon system. AARGM adds multi-spectral targeting capability with supersonic fly-out to destroy sophisticated enemy air defenses and expand upon the traditional anti-radiation missile target set. The program has completed all design reviews, began its formal test program in fiscal year 2007, and is scheduled to be deployed on the F/A-18 Hornet in 2010. The fiscal year 2009 budget requests \$16.4 million for the development and test program and \$42.7 million for low-rate initial production of tactical and training weapons.

Sidewinder AIM-9X Air-to-Air Missile

The Joint Navy/Air Force (Navy-led) Sidewinder missile is the newest variant of the Sidewinder family and is the only short-range infrared air-to-air missile integrated on USN/USAF strike-fighter aircraft. This fifth generation-9X weapon incorporates high off-bore sight acquisition capability and thrust vectoring to achieve superior maneuverability and provides increased sensitivity through an imaging infrared focal plane array seeker and advanced processing. The fiscal year 2009 budget requests \$6.7 million for research, development, and test efforts, and \$57.5 million for production of 205 all-up-rounds and associated hardware.

Advanced Medium-Range Air-to-Air Missile (AMRAAM) AIM-120

AMRAAM is a Joint Navy/Air Force (Air Force-led) advanced, medium-range missile that counters existing aircraft and cruise missile threats with advanced electronic attack capabilities operating at high/low altitudes from both beyond visual range and within visual range. AMRAAM provides an air-to-air first look, first shot, first kill capability working within a networked environment in support of the Navy's Sea Power-21 Theater Air and Missile Defense Mission Area. The fiscal year 2009 budget requests \$8.6 million for research, development, test and evaluation efforts and \$146.8 million for production of 147 all-up-rounds and associated hardware.

IV. OTHER

Strike Fighter Shortfall

Our aviation plan balances aviation capabilities through cost-wise investments in recapitalization, sustainment, and modernization programs. One of the issues we will be dealing with in the fiscal year 2010 budget development process is the strike fighter shortfall.

F/A-18 A/B/C/D aircraft are reaching life limits and will require extensions to bridge the gap to JSF. The Service Life Assessment Program (SLAP) is currently assessing the remaining life on these airframes. The initial SLAP analytical data necessary to determine extension to 10,000 flight hours was released in January 2008. Costing data to support the extension is planned to be released in June 2008, and the required engineering change proposals to support the extension will begin to be developed in July 2008.

The best estimate for the most likely magnitude of the strike fighter shortfall is a projected 125 aircraft shortfall for the entire Department and 69 for the Navy in 2017, assuming the program of record.

Our air wings will be increasingly more capable as legacy Hornets are replaced by the modern, more capable JSF aircraft. However, delays to the JSF program, budget cuts reducing JSF and/or F/A-18 E/F procurement, or early Hornet retirement will increase the projected Strike Fighter shortfall. The impact of procurement reduction would directly impact our ability to provide warfighting effects to the combatant commanders.

SUMMARY

The fiscal year 2009 President's budget request reflects considerable effort in identifying affordable solutions for the Department's aviation programs through a balance between sustaining fielded capabilities, as they are employed in the global war on terrorism and continued forward presence worldwide, and a substantive recapitalization effort that will deliver significantly better capabilities to the warfighter. The Department's aviation acquisition team continues to work aggressively to identify efficiencies in the development, testing, and subsequent procurement of platforms, components, and weapons systems in order to ensure that investments made result in quality products and services provided to the fleet.

In closing Mr. Chairman, we thank you for the opportunity to testify before your subcommittee regarding the DON's aviation programs.

Senator LIEBERMAN. Thanks very much, Secretary Balderson.

While we're with the Navy, why don't we offer General Trautman and Admiral Myers the opportunity to testify.

**STATEMENT OF LT. GEN. GEORGE J. TRAUTMAN III, USMC,
DEPUTY COMMANDANT FOR AVIATION, UNITED STATES MARINE CORPS**

General TRAUTMAN. Chairman Lieberman, Ranking Member Cornyn, and distinguished members of the subcommittee: It's a pleasure for me to be before you today to discuss the 2009 budget submission as it relates to Marine Corps aviation. The Marine Corps is operating at the highest operational tempo in decades. We are flying our aircraft hard, deploying our marines often, and doing our best to take care of families, who are growing tired under the strain of the operational pace we're required to maintain. However,

the magnificent men and women who serve our Corps continue to meet every challenge that comes their way.

As we speak, the aviation combat element of the 24th Marine Expeditionary Unit is deployed in support of a force of over 3,400 marines in Afghanistan. When combined with the forces already in Iraq and those that are rotated through the Pacific, this year will see us reach a new operational peak, with 68 percent of our squadrons either deployed or preparing to deploy.

The many accomplishments of Marine aviation over the past year are a direct reflection of the extraordinary dedication to duty and tireless pursuit of mission accomplishment that is the hallmark of your Marine Corps. I know that I speak for each and every one of them when I thank you today for your equally tireless dedication to those who must serve in harm's way.

Over a decade ago, with exceptional support from visionaries in Congress, the Marine Corps made a conscious decision to make the MV-22 Osprey and the F-35B Lightning II the centerpieces of our future warfighting concepts of operation. As the first combat deployment of the Osprey in Iraq comes to a close this week, our abiding belief in the significant benefits of tilt rotor technology has been validated in the skies over Iraq.

We are similarly committed to the vitally important fifth generation warfighting capabilities resident in JSF. The short take-off, vertical landing (STOVL) JSF enables flexible, distributed shipboard expeditionary airfield basing; rapid response to crises; high sortie generation rates; a small footprint; and vastly improved survivability. The STOVL concept is predicated on the utility of austere forward basing at a time when conventional basing and access are projected to be less and less available, either through risk of enemy attack or the vagaries of politically imposed operating restrictions.

We see F-35 and V-22, along with the KC-130J, H-1 upgrades, and the CH-53K, as part of an essential bridge from the aging legacy platforms we must fly in combat today to the advanced aviation warfighting capabilities we so desperately need in the future.

My respect for the accomplishments of the men and women who comprise Marine aviation past and present is only exceeded by my confidence that, with your continued support, we are properly poised to continue the success of our current endeavors and to meet our future challenges. Your Marine Corps is operationally engaged and working hard to maintain our hallmark of 232 years of warfighting excellence.

I would like to close by expressing my gratitude for the brave warriors of every Service who are committed to defending this great Nation both at home and abroad.

Thank you for the opportunity to speak with you today and I look forward to answering your questions.

[The prepared statement of General Trautman follows:]

PREPARED STATEMENT BY LT. GEN. GEORGE J. TRAUTMAN III, USMC

I. INTRODUCTION

Chairman Lieberman, Senator Cornyn, and distinguished members of the subcommittee, it is a privilege for me to appear before you today to discuss Marine Corps aviation. The significant accomplishments of those who serve our Nation are

a direct reflection of the tireless efforts and consistent support of the military by this committee. Thank you for your dedication and oversight.

Marine Corps aviation continues to add to its rich legacy in the skies over Iraq and in support of operations with our friends and allies around the world. We have been fully engaged for the last 6½ years and we are prepared to continue that same level of operational tempo as long as it is required. We remain ever mindful of the historical precedence the Marine Corps has set through a virulent devotion to operational preparedness, fiscal responsibility and world-class care of our marines, sailors, and their families. This methodology has served us well in the past and will continue to do so in the future.

II. STRESS ON THE FORCE—AVIATION COMMITMENTS

These challenging times have highlighted the ever present need to expand, modernize and train our forces to cope with an uncertain future. Within Marine aviation, our sustained contributions to the current fight have necessitated a concerted effort to re-energize our commitment to readiness as the foundation of a flexible and adaptable warfighting force. We seek to maintain capabilities across the full spectrum of conflict in order to ensure our aging platforms and equipment seamlessly evolve into a future force that is characterized by integrated, cooperative, and distributed capabilities and concepts. Our vision portends a network-enabled and digitally interoperable expeditionary Aviation Combat Element postured to execute responsive, persistent, lethal, and adaptive full-spectrum operations. Within that framework, we have articulated three primary goals that will chart the course of Marine aviation for years to come. First, we expect to sustain our wartime operational tempo while improving current readiness and combat effectiveness through the efficient use of resources. Second, we will execute our planned type/model/series (T/M/S) transition strategies from our legacy platforms to the advanced capabilities associated with next generation platforms: F-35B, MV-22, UH-1Y, AH-1Z, KC-130J, CH-53K and Unmanned Aerial Systems (UAS). Finally, we will improve warfighting integration by developing new transformational concepts of operation (CONOPs) that will significantly enhance the systems that we are acquiring.

The fiscal year 2009 President's budget request balances sustainment of legacy aircraft that are performing ably in current operations with continued recapitalization of more modern capabilities. The stress on the legacy forces remains considerable as our level of commitment has been sustained at a surge rate for the past several years. Before the current conflict, Marine aviation had a recurring commitment for 21 squadrons deployed with an additional 15 squadrons in training workups preparing to deploy. With the recent addition of the 24th Marine Expeditionary Unit (MEU) deployment to Afghanistan while our squadrons are still engaged in Iraq, our level of commitment is now 47 squadrons, with 68 percent of Marine aviation currently deployed or preparing to deploy.

Responding to the pressures of sustaining high operational tempo in support of current operations, Marine aviation has sought the means to mitigate the effects of these stressors. First, particularly in the case of our aging legacy platforms (F/A-18, AV-8, CH-46, UH-1N, AH-1W and CH-53D), we carefully manage risk and seek to optimize support to our warriors in combat through the application of sound airframe service life management initiatives. With exceptional leadership evident throughout the force, our aviation mishap records in 2006 and 2007 were the second and third lowest in our history. Second, we have become full partners in the Naval Aviation Enterprise (NAE) in order to place us on a path to achieve optimized readiness and sustain the health of our assets into the future. The operational business models, support plans, and cooperative work exchanges resident within the NAE construct will lead to improved readiness and prepare our resources for future growth and transition. Third, we are optimizing the growth of aviation as the Corps continues on a path to 202,000 marines. This planned increase in manpower will enable us to train to the full spectrum of military operations while improving the ability of Marine aviation to address the future challenges of an uncertain environment. Our future growth in personnel will reduce operational risk and recover our ability to respond to the clearly articulated needs of the combatant commanders.

III. SUSTAINMENT OF LEGACY AIRCRAFT AND SYSTEMS

The Marine Corps' aging fleet of fixed and rotary wing aircraft is the oldest in the Department of Defense. Exacerbating the impact of combat losses and high operational tempo, legacy aircraft production lines are no longer active. Sustaining these legacy aircraft has become increasingly more expensive and time consuming for our maintainers. For each legacy platform, we strive to make prudent investment in systems upgrades as a mitigating bridge to the future capabilities we desperately need.

The Marine Corps' Tactical Aviation (TACAIR) platforms, the AV-8B Harrier, the F/A-18 A+/C/D Hornet and the EA-6B Prowler, are rapidly approaching the end of their planned service lives. Many of our assault support platforms, including the CH-46 Sea Knight, the UH-1N Huey, the CH-53D Sea Stallion and the KC-130F/R Hercules, date back to the Vietnam era yet they continue to deploy at extremely high turnaround rates in order to meet Marine aviation's requirements in support of global commitments. Currently flying between two and five times their programmed utilization rates while in support of operations in Iraq, these aircraft must remain relevant, not only to the irregular fight we're in now, but also to the multitude of contingencies our forces may face in the future.

AV-8B Harrier

The fiscal year 2009 budget requests \$29.9 million research, development, test, and evaluation (RDT&E) funds to support development of the AV-8 Engine Life Management Plan (ELMP)/Engine Monitoring System, Tactical Moving Map Display, the Readiness Management Plan (RMP), and moving the Litening targeting pod to the aircraft's centerline station. This effort will increase the ordnance carriage capability of the Harrier to better support combat operations. The fiscal year 2009 budget also requests \$54.5 million procurement funding for the Open Systems Core Avionics Requirement, ELMP upgrades, and the RMP, which addresses aircraft obsolescence and deficiency issues associated with sustaining the current AV-8B fleet. Additionally, the Litening targeting pod will be upgraded to the latest configuration to better support the warfighter. Finally, the AV-8B program is upgrading a day attack aircraft to a night attack configuration as part of the attrition recovery effort to address significant legacy inventory shortfalls until transition to the F-35B.

F/A-18 A+/C/D Hornet

The fiscal year 2009 budget requests \$96.4 million (APN-5) for the continuation of the systems upgrade programs for U.S. Marine Corps legacy F/A-18 platforms. Included in this request is the continued procurement of successful programs such as Joint Helmet Mounted Cueing System, Multi-Function Information Distribution System, and Digital Communications System. The Marine Corps continues avionics upgrades to Lot 7 through Lot 9 Hornets, as well as upgrading other F/A-18 aircraft with digital communications and tactical data link. The ongoing upgrade to the F/A-18 C/D with digital communications, tactical data link and tactical reconnaissance systems ensures our F/A-18s remain viable on the battlefield and relevant partners in the Department of the Navy's Tactical Air Integration plans. We are experiencing great success employing the Litening targeting pod on the F/A-18 A+/C/D aircraft in Operation Iraqi Freedom. When combined with data link hardware and the ROVER Ground Station, the Litening pod provides real time video to ground forces engaged with the enemy, adding a new dimension to precision fires and Intelligence, Surveillance, and Reconnaissance (ISR). Our fleet of legacy F/A-18Ds is currently flying at three and half times their programmed rate. Given this high utilization rate, our sustainment initiatives are critical to ensuring we have adequate numbers of F/A-18s to meet our requirements until we transition to the F-35B.

EA-6B Prowler

The Marine Corps remains fully committed to the EA-6B as we look to enhance our legacy capabilities and posture to create a future Electronic Warfare (EW) capability comprised of a networked system-of-systems (F-35B, UASs, and other relevant air and ground systems). The Prowler continues to maintain an extremely high deployment tempo supporting operations against growing and diverse irregular warfare threats. Ongoing structural improvements and the planned Improved Capabilities III upgrades have extended the aircraft's service life and will deliver increased capability through its Program of Record of 2016. The Prowler has the highest utilization rate of any aircraft in our inventory while operating at an unprecedented five times its peace time utilization when deployed to Iraq. The fiscal year 2009 budget requests \$33.4 million for the procurement of ALQ-99 pod upgrades to sustain the capability of this national asset until it is replaced by the constituent components of a networked array of EW systems.

CH-53D/E Sea Stallion/Super Stallion

The CH-53D/E Sea Stallion/Super Stallion provides unparalleled combat heavy lift to the Marine Air Ground Task Force (MAGTF). While these aircraft are achieving unprecedented operational milestones, they are reaching the end of their service life (the CH-53D has been operational for over 38 years and CH-53E is approaching 30 years) and will be incapable of supporting the Marine Corps' future warfighting

concepts. To keep these platforms viable until the CH-53K is procured, the fiscal year 2009 budget requests \$56.4 million targeted at a variety of near-term enhancements including the Force XXI Battle Command Brigade and Below (FBCB2) Blue Force Tracker, ballistic armor kits, T-64 Engine Reliability Improvement Program kits and improvements to engine operation at increased Power Inlet Temperature (T5) operating limits for increased power margin at higher operating altitudes.

CH-46E Sea Knight

The venerable CH-46E continues to perform well and is poised to maintain operational relevancy through its projected retirement in 2018. The fiscal year 2009 budget requests \$34.6 million targeted at improvements and enhancements in dynamic components, avionics, and Aircraft Survivability Equipment (ASE) that will sustain the health of the airframe as we progress through the transition to the MV-22. Only the Marine Corps could maintain a fleet of helicopters that will be over 50 years old when they retire and yet still remain relevant and engaged in the protection of the Nation. This is a true testament to the men and women of the CH-46 community who work so hard to keep these aircraft in the fight.

AH-1W Cobra/UH-1N Huey

Sustaining and improving our aged utility and attack helicopter fleet is an imperative necessary to support our deployed forces while we continue our efforts to upgrade the UH-1N and AH-1W to the Yankee and Zulu variants, respectively. The fiscal year 2009 budget requests \$6.4 million for the AH-1W and \$8.9 million for the UH-1N. Current upgrade efforts to the legacy AH-1W include 20MM cannon reliability enhancements and completion of the turned exhaust modification. UH-1N funding is requested to procure BRITE Star Block II night vision systems that will forward fit into the UH-1Y. These essential enhancements will ensure that both the UH-1N and the AH-1W are reliable, survivable, and lethal until the transition to the Yankee and Zulu is complete.

VH-3D/VH-60N

The fiscal year 2009 budget requests an investment of \$40.2 million that will be used to extend the operational life and improve the capabilities of our legacy Presidential Support Aircraft (VH-3D and VH-60N). The improvements to our executive transport fleet focus on key component upgrades combined with a Service Life Assessment/Extension Program. The key component upgrades for the VH-3D will be the addition of Carson Blades as part of the Lift Improvement Program and several survivability improvements. VH-60N upgrades will focus on technology insertion in a cockpit upgrade. The investment in both aircraft will include a Service Life Assessment/Extension Program which will ensure continued safe and reliable executive transport until integration of the VH-71 occurs.

Aircraft Survivability Equipment

In order to provide increased protection for our critical assets we have developed and procured improved ASE for assault support aircraft. We continue to mitigate threats to rotary wing aviation through a combination of tactics, centralized command and upgrades to existing equipment. To prevent current technology lagging behind the threat, increased science and technology (S&T) focused on developing the next generation helicopter survivability equipment is required. For fiscal year 2009 the Department of the Navy has requested \$38.9 million for continued Directed Infrared Countermeasures RDT&E, and hardware procurement (APN-1/5/6). This state-of-the-art ASE will enable Marine aviation to pace the threat of advanced anti-aircraft systems proliferation. Funds obligated to date have been used for development and first year procurement which will begin delivery of 72 systems in October 2008. The remaining unfunded portion is for an additional 70 systems equating to 1 year production capacity in 2009. Continued support of this critical need for our fleet of aircraft is greatly appreciated as we ensure our pilots and aircrew have the most current survivability technology available to them.

Aviation Weapons Programs

Over the past year Marine aviation flew over 115,000 combat hours, delivered over 2,700 precision-guided munitions, and dropped over 4,000 bombs. The fiscal year 2009 budget requests includes funding for precision-guided munitions (PGM) programs that will directly support combat operations.

- a. Joint Air-to-Ground Missile (JAGM). The Marine Corps has expended over 1,500 Hellfire and 1,000 TOW air-to-ground missiles in support of ground forces engaged in combat since 2003. A low collateral damage PGM for moving targets, like JAGM, is critical for Marine aviation as a replace-

ment for our aging stockpiles of TOW, Hellfire and Laser Maverick family of weapons. The fiscal year 2009 budget requests \$183.7 million.

b. Advanced Precision Kill Weapon System (APKWS). The past year has witnessed the successful test firing of the laser guided 2.75” rocket. This initiative seeks to provide a precision capability to a once unguided rocket fired from attack helicopters. The \$6 million provided by Congress in fiscal year 2008 ensured continued development of this capability and the fiscal year 2009 budget request of \$13.1 million will complete development in anticipation of procurement beginning in 2010.

IV. RESETTING THE FORCE

Resetting Marine aviation means getting more capable and reliable aircraft into the operational deployment cycle sooner; not merely repairing and replacing damaged or destroyed aircraft. The operational demands and harsh environments of Iraq, Afghanistan, and the Horn of Africa highlight the limitations of our aging fleet. While deployed, our aircraft are flying at two to five times their designed utilization rates (Figure 1).

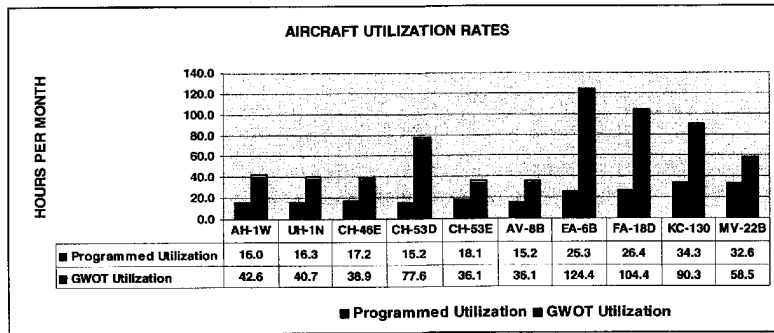


Figure 1

Maintaining the readiness of our aviation assets, while preparing aircrews for their next combat rotation is, and will continue to be, an enormous effort and constant challenge for our marines. To maintain sufficient numbers of aircraft in deployed units, our non-deployed squadrons have taken significant reductions in aircraft and parts, thus resulting in a 30 percent decrease in the number of non-deployed units that are “deployment capable” over the last 5 years.

Reset programs have helped us mitigate degradation of our aircraft materiel readiness through aircraft modifications, proactive inspections and additional maintenance actions. The reset funding provided by Congress has been absolutely essential to our ability to maintain and sustain our legacy force during this stressful period. Moreover, it has enabled us to create avenues to build the long-term health of Marine aviation and served as a catalyst to establish reliability-centered processes and practices with proactive and forward-looking metrics. Continued funding support is critically needed as we are simply running short of aircraft on our flight lines due to age, attrition and wartime losses.

Our Current Readiness (CR) aviation logistics improvement strategy is now a mature pillar within the NAE. We have developed a clear set of readiness improvement goals and implemented business rules that provide top-down performance alignment from the Marine Force (MARFOR) Commanders and the Deputy Commandant for Aviation down to individual squadrons. The Marine Aviation Executive Readiness Board (MAERB), comprised of the four Wing Commanders and Deputy MARFOR Commanders, provides recurring oversight to the process which is enabled by T/M/S teams, each led by a subject matter expert Marine Aircraft Group Commander. The T/M/S teams define their standards and readiness goals and provide focus of effort and alignment to AIRSpeed concepts (the integrated application of theory of constraints, Lean and Six Sigma). This process not only enables efficiencies in the current maintenance and supply environment, but also postures our logistics effort for future success as we neck-down our airframes in concert with the Marine Aviation Plan.

Improved aviation logistics readiness processes and dedicated reset programs have helped us mitigate degradation of aircraft materiel readiness through the wise application of aircraft modifications, proactive inspections and additional maintenance actions. These efforts have successfully bolstered aircraft reliability, sustainability and survivability even in the face of high utilization rates. Nevertheless, additional requirements for depot-level maintenance on airframes, engines, weapons, and support equipment will continue well beyond the conclusion of current hostilities.

V. MODERNIZING MARINE AVIATION

The Marine Aviation Plan (AvPlan) provides the way ahead for Marine aviation over the next 15 years as we transition 39 of 69 squadrons from 13 legacy aircraft models to 6 new ones. The AvPlan also incorporates individual program changes and synchronizes aviation equities in support of our end strength growth to 202,000 marines.

F-35B Lightning II (Joint Strike Fighter)

The December 2007 rollout of the first production F-35B Short Take-Off/Vertical Landing (STOVL) aircraft marked the beginning of the transition from production to testing of the technologically superior fifth generation platform that is destined to become the centerpiece of Marine TACAIR. Over a decade ago, with exceptional support from visionaries in Congress, the Marine Corps made a conscious decision to make the MV-22 Osprey and the F-35B Lightning II the center pieces of our future warfighting CONOPs. As the first combat deployment of Osprey comes to a close this week, our abiding belief in the significant benefits of tilt-rotor technology has been validated in the skies over Iraq. We are similarly committed to the vitally important enhanced fifth generation warfighting capabilities resident in the Joint Strike Fighter (JSF). STOVL JSF enables flexible distributed shipboard and expeditionary airfield basing, rapid response to crises, high sortie generation rates, a small footprint and vastly improved survivability. STOVL is predicated on the utility of a forward basing concept at a time when conventional basing and access are projected to be less and less available—either through risk of enemy attack or the vagaries of politically imposed operating restrictions. Along with the MV-22, the F-35B will be the cornerstone of Marine aviation and a critical enabler of the future MAGTF for many decades to come.

In the next year, we expect to see issues resolved and expectations achieved that will ensure our planned F-35B Initial Operational Capability (IOC) in 2012. F-35B development is on track with the first flight of BF-1 (the JSF STOVL variant) scheduled for the summer of 2008. The System Development and Demonstration (SDD) program for the F-35 Pratt & Whitney engine has also progressed steadily, leveraging heavily on the investment made in the Pratt & Whitney F-119 engine for the F-22. Ultimately, the Lightning II will replace our aging F/A-18 and AV-8 legacy fleet with state-of-the-art aircraft that will be fully network enabled and digitally interoperable in support of the MAGTF across the full spectrum of combat operations.

As we manage the bridge to F-35B, we will continue to take prudent measures to mitigate our legacy TACAIR shortfall. A declining AV-8B inventory has already required a reduction in AV-8B Primary Assigned Aircraft (PAA) and has increased the operational tempo of our seven deployable Harrier squadrons. We have accepted additional near term risk by placing four F/A-18 squadrons in cadre status. We plan to recoup the AV-8B PAA adjustments and return the four F/A-18 squadrons to active status as JSF is delivered. If our TACAIR shortfall unexpectedly accelerates or the bridge to F-35B lengthens, we will take whatever steps are necessary to further mitigate the impact.

Adequate investment in legacy sustainment, combined with prudent management of airframe life expenditure and a properly funded F-35 program, will be the key factors in ensuring the Marine Corps' TACAIR transition from legacy to fifth generation occurs seamlessly. There are numerous variables to the TACAIR shortfall and all are closely monitored to ensure that a balanced set of choices are always available. A 2012 IOC best supports the Marine Corps' transition strategy and any delay would increase risk to the Marine Corps in the short term by exacerbating the TACAIR shortfall. While we have time to execute other options should conditions change, at this point in time the Marine Corps' confidence in F-35B has never been stronger. The fiscal year 2009 budget requests eight aircraft for delivery in fiscal year 2010. These aircraft will support pilot transition training and are essential to preserving our IOC of fiscal year 2012. This budget provides a fiscally responsible approach to a TACAIR inventory that confirms our strongly held belief that the F-35B is the right aircraft for the future of our Corps.

Future of Electronic Warfare

Beyond the Prowler, the future of EW within the Marine Corps will be comprised of a networked system-of-systems. The constituent components of this network include the F-35B JSF, with its impressive array of embedded EW capabilities; UAS capable of carrying scalable and specifically tailored EW payloads; ISR pods and payloads; Next Generation Jammers (NGJs) operating from multiple platforms; and ground systems already fielded or under development. This system will possess both offensive and defensive capabilities. A key tenet of our future vision is the array of EW capabilities accessible throughout the battle space, not just those that reside on dedicated EW platforms, with the individual pieces of hardware used as tentacles of the distributed EW network. This is a critical and important distinction that promises to make USMC EW capabilities more readily available and applicable to MAGTF and Joint Force Commanders of the future in ways that are only now beginning to be well understood and exploited.

MV-22 Osprey

The transformational tilt-rotor MV-22 is now in Full Rate Production (FRP). The 360 MV-22 aircraft planned for procurement by the Marine Corps will bring revolutionary assault support capability to our forces in harm's way. The MV-22 is replacing the CH-46E aircraft which is over 40 years old and has limited lift and mission capabilities to support the MAGTF.

The fiscal year 2009 budget requests \$2.2 billion in APN for procurement of 30 MV-22s and the continued development of follow-on block upgrades. Like the F-35, the MV-22 has implemented a block improvement strategy. Block "A" aircraft are training aircraft, Block "B" are operational aircraft, and Block "C" aircraft are operational aircraft with mission enhancements that will be procured in fiscal year 2010 and delivered in fiscal year 2012.

The current inventory of 57 operational MV-22 aircraft are home based at Marine Corps Air Station New River, NC. Our AvPlan projects the transition of two CH-46 HMM squadrons to VMM squadrons each year by leveraging the procurement of 30 aircraft per year in concert with the Multi-Year Procurement plan that was approved in fiscal year 2008. At the current rate of production, the transition to MV-22 will be complete in 2018.

With Initial Operational Capability (IOC) declared last June, the MV-22 program met another important milestone when VMM-263 deployed to Al Asad Air Base, Iraq in October 2007. Supporting our marines in combat, the MV-22 has performed beyond expectations. Flying at almost twice the designed utilization rates, the squadron has averaged 7 out of 10 mission ready (70 percent MR) aircraft per day for the 5 months of this initial combat deployment. As an example of the Osprey's operational utility, a flight of just two MV-22s can accomplish its assigned missions in half the time it takes four CH-46s to carry out the same tasks. Additionally, the aircraft's operational reach spans the entire range of the area of operations assigned to Multi-National Force-West in Iraq while flying a majority of its mission profile outside the typical assault support threat envelope. The fleet needed an aircraft that could take us farther, faster, and safer—and now thanks to the foresight and support of Congress, it is here.

KC-130J Hercules

KC-130J Hercules aircraft are continuously deployed in support of Operation Iraqi Freedom providing multi-mission, tactical aerial refueling, and fixed-wing assault support. Its theater logistical support reduces the requirement for resupply via ground, limiting the exposure of our convoys to Improvised Explosive Devices (IEDs) and other surface-borne attacks. The recent introduction of the aerial refuelable MV-22, combined with the retirement of the legacy KC-130F/R aircraft due to fatigue life and parts obsolescence, requires accelerated procurement of the KC-130J.

The Marine Corps is programmed to procure a total of 46 aircraft by the end of fiscal year 2013. To date, 29 new aircraft have been delivered, 7 more are on contract, and 2 aircraft are requested in the fiscal year 2009 budget for a total of 38. This is still 13 aircraft short of our inventory objective of 51 KC-130Js for the Active Force. Ultimately, the Marine Corps will also seek to replace our 28 Reserve component KC-130T aircraft with KC-130Js, thus necking down our aerial refueling force to a single T/M/S.

AH-1Z Viper/UH-1Y Venom (H-1 Upgrades)

The H-1 Upgrade Program, comprised of AH-1Z Viper and UH-1Y Venom aircraft, will significantly enhance the tactical capability, operational effectiveness and sustainability of our attack and utility helicopter fleet. Our Vietnam-era UH-1Ns are reaching the end of their useful life, thus rapidly fielding the UH-1Y remains

a top priority. The fiscal year 2009 budget requests \$3.8 million in RDT&E and \$474.1 million in APN for 20 AH-1Z/UH-1Y aircraft.

IOC for the UH-1Y will occur in 2008. The first operational deployment of UH-1Y is anticipated in the spring of 2009. IOC for the AH-1Z is fiscal year 2011. Eleven production aircraft have been delivered to date and Operational Evaluation (OPEVAL) Phase II, which commenced in February 2008, is ongoing. A full rate production decision is expected in late fiscal year 2008.

The current AH-1Z program of record is utilizing a remanufacturing strategy which requires an AH-1W be removed from operational status for a period of 2 years. To mitigate this shortfall we are adopting a "build new" strategy that will allow the AH-1Ws to remain in operational squadrons while we manufacture AH-1Zs. The intent is to revert back to a remanufacturing strategy once the operational shortfall has been mitigated. The fiscal year 2007 supplemental provided \$50 million for non-recurring engineering to pursue "build new" at a minimum of 50 AH-1Z aircraft.

CH-53K

In operation since 1981, the CH-53E is becoming increasingly expensive to operate. Its replacement, the CH-53K, will more than double existing lift capacity and range, while dramatically improving maintainability, reliability, and survivability, decreasing operating costs, and radically improving aircraft efficiency and operational effectiveness. The program passed Milestone B in December 2005 with a subsequent contract awarded to Sikorsky Aircraft Corporation in April 2006. IOC is scheduled for fiscal year 2015. The program is proceeding through the developmental stages and will begin to procure airframes in the fiscal year 2013. The fiscal year 2009 budget request is \$570.5 million RDT&E to continue development through the Preliminary Design Review later this year and the Critical Design Review in fiscal year 2009.

Unmanned Aerial Systems

The Marine Corps is taking proactive steps to modernize and improve organic UAS capabilities. Our UAS are organized into three echelons, each tailored to the mission and requirements of the supported command. Tier III UAS serve at the Marine Expeditionary Force level; Tier II UAS support Regimental Combat Team and MEU operations; and Tier I UAS support battalion and below operations. At the Tier III level, we have simultaneously transitioned Unmanned Aerial Vehicle Squadrons (VMU) to the RQ-7B Shadow and initiated a reorganization of the squadrons' force structure to better task-organize for mission requirements. The transition to the Shadow provides a temporary Tier III solution as a bridge from Pioneer to our expected Tier III IOC in 2015. As an interim solution, Shadow has been invaluable because it has enabled us to provide MAGTF Commanders with a far more responsive and reliable UAS than its predecessor, Pioneer. We have also begun the stand up of a third active component VMU squadron. The addition of a third VMU squadron is critical to sustaining current operations and will help in decreasing the operational tempo from our current deployment-to-dwell ratio of less than 1:1—to a more sustainable 1:2 ratio. This rapid transition and reorganization, initiated in January 2007, will be complete by the fourth quarter fiscal year 2009.

To best support our deployed forces, we have instituted an ISR services contract to provide Scan Eagle systems to fill the Tier II void until future fielding of the Tier II/Small Tactical UAS which will occur in 2011. At the Tier I level, the Marine Corps is transitioning from the Dragon Eye to the joint Raven-B program, which is also common with the U.S. Army. When fully fielded, our UAS family of systems will be networked through a robust and interoperable command and control system that provides commanders a significantly enhanced warfighting capability.

Aviation Command and Control Family of Systems (AC2FoS)

The Marine Aviation Command and Control System (MACCS) continues to contribute to the success of Marine aviation operations by planning and executing tactical air support while ensuring proper integration of aviation into the MAGTF scheme of maneuver. The future of Aviation Command and Control (AC2) is defined by a Family of Systems (FoS) designed to fuse real and near real-time data from sensors, weapons and C2 systems into a single integrated display. This fused data will be networked and distributed MAGTF-wide, increasing battle space awareness at all levels, from operators to commanders.

The centerpiece of the AC2FoS will be the Common Aviation Command and Control System (CAC2S) which replaces dissimilar legacy C2 equipment with a common, scalable suite. CAC2S will fuse the sensor inputs from expeditionary radars, as well as data from the F-35B and UAS assets, vastly improving full spectrum surveillance and awareness. Our continued focus will ensure emerging systems are

fully interoperable and designed to enhance our capabilities, while leveraging these systems to facilitate effective command functionality. Armed with fully networked systems, the MACCS will improve the ability to affect command, integrate resources, and employ Marine aviation most efficiently in support of MAGTF and Joint Force Commanders in the future.

VI. CONCLUSION

The Marine Corps has a heritage of fighting battles and winning wars on the ground, at sea, and in the air. Since 2001, we have done so while supporting extremely high operational tempo, conducting combat operations, growing the force and introducing new aircraft and systems. My respect for the accomplishments of the men and women who comprise Marine aviation, past and present, is only exceeded by my confidence that we are poised to meet our future challenges. As we move forward we will execute the Marine Aviation Plan with a careful eye to maximizing efficiency gained early in each T/M/S transition. The resources Congress provides will continue to be used wisely in direct support of our most precious and important asset—the United States marine. Thank you for your consideration.

Senator LIEBERMAN. Thanks very much, General. I just did want to enter for the record that you're the Deputy Commandant for Aviation.

Admiral Myers, glad to have you here, the Director of Air Warfare for the Navy.

STATEMENT OF RADM ALLEN G. MYERS, USN, DIRECTOR, AIR WARFARE DIVISION, OFFICE OF THE CHIEF OF NAVAL OPERATIONS

Admiral MYERS. Chairman Lieberman, Ranking Member Cornyn, distinguished members of the subcommittee: Thank you for this opportunity to appear before you to discuss the Department of the Navy's Fiscal Year 2009 Aviation Programs. I appreciate the opportunity to share time with my colleagues here from the Department of the Navy, the Marine Corps, and the Air Force to convey the critical needs of naval aviation in our Armed Forces.

The Navy has been fully engaged in OEF and OIF for the last 6½ years and we're prepared to continue that same level of operational tempo as long as it's required. The remarkable performance of our sailors and marines could not have been possible without this subcommittee's tireless devotion and significant contributions, not only to our Navy but to our Nation as a whole.

Naval aviation continues to play a major role in providing tailored effects in support of OEF and OIF, as well as the broader global war on terrorism. The ability of naval aviation to shape strategic, operational, and tactical environments is reflective of the substantive return on your investment in our people, our combat readiness, and our refined spectrum of critical warfighting capabilities.

Also, these investments in surveillance, command and control, and persistent strike, among others, ensure our tactical aircraft can operate effectively from aircraft carriers that can exploit the vast maneuver space provided by the sea.

Our aviation plan balances aviation capabilities through cost-wise investments in recapitalization, sustainment, and modernization programs. One of the challenges that we will be dealing with in future programming processes is the Strike Fighter shortfall. The best estimate for the most likely magnitude of the Strike Fighter shortfall is projected to be 125 aircraft for the entire Department and 69 for the U.S. Navy portion of the Department,

peaking in the 2017 timeframe, and that assumes the program of record.

Now, our F/A-18 A through D, our legacy Hornets—these aircraft are reaching their life limits and will require extensions to bridge the gap to reach the JSF. The Department of the Navy has made significant investments in a thorough Service Life Assessment Program and is currently assessing the remaining life of these legacy platforms.

The preliminary Service Life Assessment Program analytical data necessary to determine whether or not we can extend these aircraft to the 10,000-hour mark. Originally, they came to us from the factory with a 6,000-hour life. We think that we can extend them with the preliminary data that we received in the January timeframe, but the final costing data to support the extension is planned to be released around the June timeframe. With that final data, we will start to put together the engineering change proposals to support the extensions beginning at the end of the summer.

Now, the Navy's strategic vision for tactical air (TACAIR) is based on a mix of capabilities of both the JSF and the Block 2 F/A-18 E and F. Our air wings will be increasingly more capable as the older legacy Hornets are replaced by the modern more capable JSF. However, delays in the JSF program, budget cuts that reduce either the JSF or the F/A-18 E and F procurements, or early legacy Hornet retirements all could increase our projected JSF shortfall and will directly impact our ability to provide warfighting effects to our combatant commanders.

These Navy aviation programs, comprised of both platforms and weapons, directly underpin our Navy's strategic plan and directly support our new maritime strategy. The fiscal year 2009 President's budget maintains the trends of balancing conventional and irregular warfare aviation capabilities. It reduces excess capacity and achieves technological superiority through cost-wise investments in recapitalization, sustainment, and modernization programs.

The adjustments reflected in the budget maintain sufficient capacity to meet global presence and warfighting requirements, manage the overlap with joint capabilities, and preserve warfighting relevance through the 2024 timeframe.

Thank you again for the opportunity to appear before you today and thank you for your support of naval aviation and our Fleet, which defends our great Nation today and tomorrow. I look forward to your questions.

Senator LIEBERMAN. Thanks very much, Admiral. I know we'll have some questions for you about some of the items you touched on.

We'll go now to the Air Force. Lieutenant General Daniel Darnell is the Deputy Chief of Staff for Air, Space and Information Operations, Plans and Requirements. General Darnell, thanks for being here.

**STATEMENT OF LT. GEN. DANIEL J. DARNELL, USAF, DEPUTY
CHIEF OF STAFF FOR AIR, SPACE AND INFORMATION OPER-
ATIONS, PLANS AND REQUIREMENTS, DEPARTMENT OF THE
AIR FORCE**

General DARNELL. Mr. Chairman, thank you. Mr. Chairman, Senator Cornyn, distinguished subcommittee members: Thank you for the opportunity to speak before you today.

Your Air Force is the most battle-tested in history, as Senator Cornyn pointed out earlier, and every day your airmen find innovative ways to accomplish their mission more effectively and more efficiently. Our first priority is to win today's fight. In the global war on terror, we continue to fulfill our roles as airmen for the joint team, working with our sister Services to provide the desired effects to the combatant commanders.

Every day your Air Force flies over 300 sorties in Iraq and Afghanistan, directly integrated with and enhancing ground operations. Since September 11, America's airmen have flown over 394,000 mobility sorties, moving equipment and troops to and from the CENTCOM area of responsibility. The Air Force has flown over 80 percent of the coalition's combat sorties in support of OIF and OEF. Since 2001 we've flown over 50,000 missions protecting the Homeland for Operation Noble Eagle.

Air Force engagement in the global war on terror is only the tip of the iceberg. Over 40 percent of the total force and 53 percent of the Active-Duty Force are directly engaged in and supporting combatant commanders' operations every day. On any given day, the Air Force has approximately 206,000 airmen fulfilling worldwide combatant commander needs. This includes approximately 127,000 airmen conducting activities such as operating and controlling satellites, standing alert in our intercontinental ballistic missile facilities, operating UAVs, launching airlift and tanker sorties, providing intelligence assessments, and many other functions critical to each of the combatant commanders.

Airmen fulfilling combatant commander tasks today are fully ready to perform their missions, but future dominance is at risk. America faces a dangerous and uncertain future. Our enemies do not sit idly by. Adversaries both declared and potential continue to develop and field new and better means to threaten our Nation, our interests, and worldwide stability. At the same time, the average age of our air and spacecraft continue to rise and our ability to overcome future threats diminishes. We must be capable of setting the conditions for America's success and we're doing all we can to become even more efficient and effective and to defray these rising costs.

We thank you for your continued support. Once again, I appreciate the opportunity to speak with you today and I look forward to answering your questions.

[The joint prepared statement of General Darnell and General Hoffman follows:]

JOINT PREPARED STATEMENT BY LT. GEN. DONALD J. HOFFMAN, USAF, AND LT.
GEN. DANIEL J. DARNELL, USAF

I. INTRODUCTION

Senator Lieberman, Senator Cornyn, and distinguished members of the subcommittee, thank you for the opportunity to appear before you today to discuss Air Force Tactical Aviation and other matters that are important to our Air Force and the Nation.

Your Air Force is actively fighting terrorism and insurgents around the world in the global war on terror, and we appreciate the Senate Armed Services Committee's continued support of our Nation's air, space, and cyberspace forces. Since the global war on terror began, congressional supplemental funding each year, including the \$5.5 billion provided for fiscal year 2008, ensured that your airmen deployed in combat overseas are trained, equipped, and ready day-to-day to perform their mission. As we prepare for the next year of global operations, the Air Force is grateful for the subcommittee's support provided through the 2008 National Defense Authorization Act, and as always, we appreciate the great lengths to which the subcommittee has gone to support airmen, their pay, and their quality of life.

In the global war on terror, we continue to fulfill our roles as airmen for the joint team working with our sister Services to provide the desired effects to the combatant commanders. Simultaneously, we stand prepared for rapid response and conflict across the globe as our Nation's sword and shield. For over 17 years, the United States Air Force has been engaged in continuous combat operations providing our Nation unparalleled advantage in three warfighting domains: Air, space, and cyberspace. Your airmen have maintained constant watch, deployed continuously, engaged America's adversaries directly, responded to human crises around the world, and provided the Global Vigilance, Global Reach, and Global Power to secure our Nation.

Your Air Force is the most battle-tested in Air Force history, and every day your airmen find innovative ways to accomplish their mission more efficiently and effectively. Your airmen are dedicated to the defense of this Nation and have committed themselves to go to the ends of the Earth, to the most dangerous or austere locations, in our Nation's hour of need or in the world's moment of despair. If tonight, tomorrow, or in 20 years America calls; we will go, because it is our sacred oath to provide America and its joint team, wherever it might be engaged, the full might of air, space, and cyberspace power.

To ensure success, your Air Force is organizing, training, and equipping our airmen for both the current and future fights, building in the flexibility to operate across the entire spectrum of conflict. It is no accident that America's Air Force has unprecedented Global Vigilance, Global Reach, and Global Power. We learned our lessons from our own history and others', and we invested resources and effort to establish and maintain dominance in our three warfighting domains: air, space, and cyberspace. Even after the victory in Operation Desert Storm, the Air Force upgraded, modernized, and completely changed its training mindset and programs. The result was a flexible, responsive, and lethal force that contributed greatly to the joint successes in Operations Allied Force (OAF), Enduring Freedom (OEF), and Iraqi Freedom (OIF). Even with these advances, airmen continue to find ways to improve the combat power provided to the joint team. Your forces engaged in combat today are fully ready to perform their missions, but future dominance is at risk.

America faces a dangerous and uncertain future and our enemies do not sit idly by. Instead, adversaries—both declared and potential—are developing and fielding new and better means to threaten our Nation, our interests, and stability around the world. At the same time, the average age of our air and space craft continues to rise, and our ability to overcome future threats is diminishing. We also face increased operations, maintenance, and personnel costs that cut into our ability to finance future dominant capabilities. We are doing all we can to become even more efficient and effective and to defray these costs. Despite our best efforts, we face declining readiness and soaring recapitalization rates. Therefore, we have taken significant steps to self-finance a vital recapitalization and modernization effort for our aging air and space force. The Air Force must be capable of setting the conditions for America's success against emerging threats in the uncertain years that lie ahead.

II. WIN TODAY'S FIGHT

Our first priority is to win today's fight. Air Force global war on terror missions are only the latest in a string of over 17 continuous years of combat since Operation Desert Storm began. Throughout this period, our strategic forces have remained on

constant alert. In fact, the United States Air Force has underwritten the national strategy for over 60 years by providing a credible deterrent force, and we continue to serve as the Nation's force of first and last resort, reassuring allies, dissuading competitors, and deterring adversaries by maintaining an always-ready nuclear arm.

Today, Air Force operations are ongoing in Iraq, Afghanistan, and the Horn of Africa. Every day, your Air Force flies over 300 sorties in Iraq and Afghanistan directly integrated with and enhancing ground operations. Since global war on terror operations began, your Air Force has flown over 80 percent of the coalition's combat sorties in support of OIF and OEF. These missions provide the joint and coalition team airlift, aero-medical evacuation, air-refueling, command and control, close air support to ground operations, strike, Intelligence, Surveillance, and Reconnaissance (ISR), and electronic warfare. We have flown over 394,000 mobility sorties moving equipment and troops to and from the CENTCOM area of responsibility (AOR). Our intra-theater airlift missions shift convoys to the air eliminating the need to place troops and vehicles in harm's way. Aero-medical evacuation missions move wounded soldiers, sailors, marines, and airmen to higher levels of medical care at hospitals as far away as the continental United States. In 2007, America's airmen conducted nearly 1,600 precision strikes in Iraq and Afghanistan, many under the control of Joint Tactical Air Controllers. In Iraq, strikes increased by 171 percent over the previous year. Added to those numbers, your Air Force has flown over 50,000 sorties protecting the homeland for Operation Noble Eagle.

Air Force engagement in CENTCOM is only the tip of the iceberg. Airmen operate around-the-clock and around-the-globe to provide all combatant commanders (COCOMs) with critical capabilities. Over 40 percent of the total force and 53 percent of the Active-Duty Force are directly engaged in or supporting COCOM operations everyday. On any given day, the Air Force has approximately 206,000 airmen (175,000 active duty plus an additional 31,000 Guard and Reserve) fulfilling COCOM tasks. This includes approximately 127,000 airmen conducting activities such as operating and controlling satellites, standing alert in our Intercontinental Ballistic Missile facilities, operating unmanned aerial vehicles, launching airlift and tanker sorties, providing intelligence assessments, and many other functions critical to each of the COCOMs. There are a further 57,000 airmen stationed outside the continental United States in direct support of the Pacific Command and European Command missions. Finally, a portion of the above forces plus an additional 22,000 airman from the current AEF rotation are made available for deployments in support of other COCOM requirements.

III. STATUS OF THE FLEET

As requested by the subcommittee, the following information provides updates on U.S. Air Force Tactical Aviation:

Legacy Fleet

The Air Force fighter force is the oldest it has ever been, at an average age of more than 19 years, it is generally able to accomplish today's missions. However, all our legacy aircraft are showing signs of age. In addition, global war on terror duration and operations tempo have accelerated service life consumption for numerous platforms, and the cost of keeping them in the air in terms of dollars and manpower is increasing. This sustained high operations tempo has contributed to lower readiness levels, which does not allow us to take much risk in operations and maintenance. We must sustain readiness and be able to fight today. global war on terror is forcing the Air Force to maintain some legacy systems to meet the current threat.

The Air Force continues to improve fighter aircraft capability to conduct precision targeting in close coordination with our soldiers on the ground by fielding the Sniper and Litening Advanced Targeting Pods (ATPs) with video downlink (VDL) capability. VDL-equipped pods are able to transmit streaming sensor video directly to ground forces equipped with the Remotely Operated Video Enhanced Receiver terminal, greatly speeding target acquisition and providing a revolutionary improvement in support to ground forces both in the traditional Close Air Support (CAS) and emerging nontraditional intelligence, surveillance, and reconnaissance (NTISR) missions. There are currently 155 Sniper and 225 Litening ATPs in the Combat Air Forces. Of those, 33 Sniper and 111 Litening are VDL equipped, and 53 of the 77 ATPs in theater have VDL.

A-10

The A-10 provides the Joint Force Commander lethal, precise, persistent, and responsive firepower for Close Air Support and Combat Search and Rescue. It has performed superbly in Operation Desert Storm, OAF, OEF, and OIF. However, the age

of the A-10 and high operations tempo have taken their toll on the fleet. In the Fall of 2006, the Air Force Fleet Viability Board (FVB) recommended that the Air Force upgrade 242 thin-skin center wing A-10 aircraft with thick-skinned center wing replacements. Additionally, A-10 landing gear failures have resulted in a program for replacing failure prone parts. In the near term, a Service Life Extension Program (SLEP) and overhaul programs will allow us to continue flying these venerable aircraft. The Air Force is upgrading all 357 A-10s to the "C" configuration through the Precision Engagement modification. This integrates digital data links and advanced targeting pods, adds color displays, pilot throttle and stick controls, and increases precision-guided weapons carriage capability. Additionally, we have integrated beyond-line-of-sight radios into the A-10 for faster communication with ground units, forward controllers, and command and control centers.

F-15 A-D

The average age of the F-15A-D fleet is over 25 years old. However, analysis suggests that Air Combat Command can manage the fleet through scheduled field/depot inspections under an Individual Aircraft Tracking Program.

The F-15A-D fleet has returned to flying status after engineering analysis confirmed they are safe for flight. Of the 429 aircraft in the inventory, only 9 remain grounded due to the longeron crack. The Commander of Air Combat Command has proposed that five will be repaired and four will be retired due to their proximity to planned retirement. We anticipate that most of these aircraft will be repaired this year at a cost of approximately \$235,000 each using organic materials and labor at the Warner-Robins Air Logistics Center.

On the recommendation of Boeing and depot engineers, the Air Force has instituted recurring inspections of F-15 longerons every 400 flight hours to detect cracks before they become catastrophic. Analysis confirms that this interval is very conservative and will avoid a mishap such as the one that occurred on 2 November 2007. Additionally, the Air Force will conduct a full-scale fatigue test, aircraft tear-down, and improved structural monitoring to help establish the maximum F-15 service life and more effectively manage structural health of the fleet. We expect these efforts to successfully enable the 177 F-15C/D "Golden Eagles" to operate safely and effectively through 2025.

F-15E

The F-15E fleet, which was not affected by the longeron crack, has an average age of over 16 years and continues to provide support for ongoing operations in Afghanistan and Iraq. Like the A-10, the F-15E performed superbly in Operation Desert Storm, OAF, OEF, and OIF. The Air Force has been working hard to improve the F-15E's ability to rapidly engage and destroy time sensitive targets by adding secure radios and data links for faster communications with ground units and forward controllers; by integrating the latest precision weapons that not only accurately hit a target but are designed to reduce collateral damage; by adding a helmet mounted cueing system that will reduce the F-15E's time to engage a target by up to 80 percent; and by adding a state-of-the-art radar system that not only addresses sustainment issues with the current system but will give the F-15E advanced capabilities to identify and engage targets, share real-time information with other aircraft, and protect itself from enemy threats. The Air Force plans for the F-15E to be an integral part of the Nation's force through at least 2035.

F-16

Our F-16s, the bulk of the fighter fleet, are undergoing a structural upgrade program to replace known life-limited structural components. This upgrade program is required to achieve an airframe life of 8,000 flight hours. Wing pylon rib corrosion, a known problem with the F-16 aircraft, is an issue we monitor closely. This corrosion can prevent the F-16s from carrying pylon-mounted external fuel tanks, which limits their effective combat range. While we currently have three F-16 aircraft grounded and 13 flight restricted from carrying external tanks due to wing pylon rib corrosion, the corrosion problem is somewhat common across the fleet. For example, within the past 24 months, we identified 27 aircraft at Aviano Air Base, Italy with some degree of corrosion in this area. We currently inspect F-16 aircraft every 800 hours to monitor for this problem.

In other inspections, approximately 16 percent (63 of 399) of our Block 40/42 F-16 aircraft have been found to have bulkhead cracks. As of March 31, 2008, 18 Block 40/42 F-16 aircraft were in non-flying status awaiting bulkhead repair or replacement. An additional 42 aircraft continue to fly with increased inspection requirements to measure crack growth. We will continue to monitor this situation closely.

The Common Configuration Implementation Program (CCIP) is the top F-16 priority and will enable the maintenance of a single operational flight program configu-

ration on both the Block-40 F-16s and Block-50 F-16s. The Block-50 modification is complete and the Block-40 modification will be complete in fiscal year 2010. It combines several modifications including a new mission computer, color displays, air-to-air interrogator (Block 50/52 only), Link-16, and Joint Helmet Mounted Cueing System.

Future Fighter Shortfalls and Plans to Mitigate Shortfalls

The Air Force has been at war for 17 continuous years with operations in Southwest Asia, the Balkans, global war on terror, and defending the Homeland. This extremely high operations tempo has accelerated the service life consumption for nearly all of Air Force platforms and especially the fighter force. This sustained high operations tempo has contributed to lowered readiness levels, with increasing risks to operations and maintenance.

Your Air Force aircraft are the oldest they have ever been, averaging over 24 years of age. While your Air Force remains able to carry out the missions of today, it is becoming clear that the aging of the fleet is having negative effects that are difficult to forecast. The Air Force faces a recapitalization challenge unlike anything before. Airmen must ensure that adequate forces and the right balance of aircraft types are available to meet both the near-term and future needs of our Nation. Today's airman must ensure that future airmen inherit an Air Force that is relevant, capable, and sustainable.

Capitalization of our fifth generation fighter force is essential to meet our commitment of securing the national defense. F-35s will not achieve full production rates until 2015 yet we are already retiring F-15s and F-16s, and will continue to do so well into the out-years. During this period of retiring aircraft before F-35 full rate production, F-22 production is capped, effectively interrupting our ability for fifth generation recapitalization until the middle of the next decade. By 2025, most of our legacy air frames will be retired. The Air Force position remains that a 2,250 combat aircraft inventory is the required force. However, airmen realize this will be a difficult challenge based on likely budget availability.

Fifth Generation Fighters

Fifth generation fighters like the F-22A and the F-35 are key elements to our Nation's defense and deterrence. As long as hostile nations recognize the ability of U.S. airpower to strike their vital centers with impunity, all other U.S. Government efforts are enhanced, which reduces the need for military confrontation. This is the timeless paradox of deterrence; the best way to avoid war is to demonstrate to your enemies, and potential enemies, that you have the ability, the will, and the resolve to defeat them.

Both the F-22A and the F-35 represent our latest generation of fighter aircraft. We need both aircraft to maintain the margin of superiority we have come to depend upon, the margin that has granted our forces in the air and on the ground, freedom to maneuver and to attack. The F-22A and F-35 each possess unique complementary and essential capabilities that together provide the synergistic effects required to maintain that margin of superiority across the spectrum of conflict. The Office of the Secretary of Defense (OSD)-led 2006 Quadrennial Defense Review Joint Air Dominance study underscored that our Nation has a critical requirement to recapitalize tactical aircraft forces. Legacy fourth generation aircraft simply cannot survive to operate and achieve the effects necessary to win in an integrated, anti-access environment.

F-22A Procurement Plans

We're proud to tell you the F-22A program has established a world-class production program. The F-22A production program is currently delivering Lot 6 aircraft ahead of scheduled contract delivery dates at a rate of about two per month. Additionally, construction has started on Lot 7 Raptors, the first lot of the 3-year multiyear procurement contract we awarded last summer. When the plant delivers the last aircraft of Lot 9 in December 2011, we will have completed the program of record of 183 Raptors. The Air Force supports the President's budget and greatly appreciates the SECDEF commitment to keep the F-22A production line open through a supplemental request. Because of our economic order quantity buy under the multiyear contract, some vendors early in the build process will complete deliveries and begin shutdown in November this year. As such, we are on track to release a shutdown request for proposal later this summer, and we anticipate fiscal year 2009 shutdown costs to be \$40 million.

On the current unfunded requirements list, we requested an additional \$600 million to buy four more aircraft to replace global war on terror losses of legacy aircraft. These aircraft would be dovetailed in at the end of Lot 9 and will only keep the production line open for an additional 2 months. If we want to keep the line

open and deliver an additional F-22A Lot, then the Air Force would require \$595.6 million in fiscal year 2009 for Advance Procurement of 24 aircraft. In either case, we are at a critical crossroad: we must make a decision by November to avoid increased costs and a break in the production line before our suppliers begin to exit the market.

F-22A Future Capabilities and Modifications

The F-22A Raptor is the Air Force's primary air superiority fighter, providing unmatched capabilities for operational access, homeland defense, cruise missile defense, and force protection for the Joint Team. The multi-role F-22A's combination of speed, stealth, maneuverability and integrated avionics gives this remarkable aircraft the ability to gain access and survive in high threat environments. Its unparalleled ability to find, fix, track, and target enemy air and surface-based threats ensures air dominance and freedom of maneuver for all Joint Forces.

The Air Force has accepted 116 F-22A aircraft to date, out of a programmed delivery of 183. Most of these aircraft include the Increment-2 upgrade, which provides the ability to employ supersonic Joint Direct Attack Munition (JDAM) and enhances the intra-flight data-link to provide connectivity with additional F-22As. The F-22A fleet will be upgraded under the Joint Requirements Oversight Council approved Increment-3 upgrade designed to enhance both air-to-air and precision ground attack capability. Raptors off the production line today are wired to accept the Increment-3.1 upgrade, which when equipped, upgrades the APG-77 Active Electronically Scanned Array (AESA) radar to enable synthetic aperture radar ground mapping capability, provides the ability to self-target JDAMs using on-board sensors, and allows F-22As to carry and employ eight small diameter bombs (SDB). Increment-3.1 is funded and begins to field in fiscal year 2010. Future F-22As will include the Increment-3.2 upgrade, which is funded and features the next generation data-link, improved SDB employment capability, improved targeting using multi-ship geo-location, automatic ground collision avoidance system (Auto GCAS), and the capability to employ our enhanced air-to-air weapons, the AIM-120D and AIM-9X. Increment-3.2 should begin to field in fiscal year 2013. The Increment-3.3 upgrade is currently unfunded. It plans to include Mode 5/S, which is the next generation Identification Friend or Foe and advanced air-traffic control transponder, radar auto search/auto detect, which gives automated target cueing using a fourth generation AESA radar, and a ground-moving-target-indicator-and-tracking capability.

F-35

The F-35 program will develop and deploy a family of highly common, affordable, fifth generation strike fighter aircraft meeting operational needs of the Air Force, Navy, Marine Corps, and allies. The F-35 will provide our Nation with a highly capable and affordable strike aircraft in sufficient quantities to destroy a wide array of targets in a protracted conflict. Air Force and OSD studies, such as the Sustaining Air Dominance and Joint Air Dominance studies, have demonstrated the requirement for both the air-to-surface payload and survivability of the F-35 in the face of advanced surface-to-air missile threats. Legacy fourth generation aircraft simply cannot survive to operate and achieve the effects necessary to win in an integrated, anti-access environment. Failure to recapitalize the fighter force with the F-35 will result in significantly increased risk to both our air and ground forces.

The F-35 is meeting all Key Performance Parameters, and as of March 31, 2008, the first Conventional Take-off and Landing (CTOL) test aircraft, AA-1, has completed 39 test flights. Recently it completed its first two in-flight refueling missions, and the Cooperative Avionics Test Bed continues to provide unprecedented risk reduction at this stage in a major weapon system not seen in any legacy program. Most recently, the F-35 program has received approval to award the second Low Rate Initial Production lot which consists of six CTOL aircraft, which will be awarded this spring, and six short take-off and vertical landing aircraft, which will be awarded this summer.

Joint Strike Fighter Alternative Engine Program

The Department continues to believe the risks associated with a single source engine supplier are manageable and do not outweigh the investment required to fund a competitive alternate engine. However, the Air Force and Navy are executing the \$480 million appropriated by Congress in the 2008 budget to continue development. We completed the Critical Design Review for the alternate engine in February 2008, and we have completed over 300 hours of engine testing for the CTOL aircraft.

The cost to complete remaining F136 engine development is estimated at \$1.4 billion in Research, Development, Test, and Evaluation through 2013. Starting in 2009, the F136 program would require approximately \$31 million for long lead items

in preparation for production and \$1.7 billion across the Future Years Defense Program beginning in fiscal year 2010 for the production of the F136 engine.

IV. CLOSING

We are building a 21st century Air Force prepared to succeed—strategically, operationally, and tactically. Our highly capable and lethal aviation programs provide Global Vigilance, Global Reach, and Global Power. These capabilities are critical today and for the future Joint Force.

The United States of America depends on air, space, and cyberspace power to an extent unprecedented in history. We are ready and engaged today, and looking toward securing the future. We cannot rest on the laurels of our current capability. Our Nation must invest today to ensure tomorrow's air, space, and cyberspace dominance.

Senator LIEBERMAN. Thanks, General.

Finally, we'll have Lieutenant General Donald J. Hoffman of the Air Force, the Military Deputy to the Assistant Secretary of the Air Force for Acquisition. Good to see you again, General.

STATEMENT OF LT. GEN. DONALD J. HOFFMAN, USAF, MILITARY DEPUTY, OFFICE OF THE ASSISTANT SECRETARY OF THE AIR FORCE FOR ACQUISITION, DEPARTMENT OF THE AIR FORCE

General HOFFMAN. Mr. Chairman, thank you. We may have the most battle-tested Air Force that we've ever had, but we also have the oldest equipment we've ever had, as General Darnell mentioned. We're now over 24 years average age. Our Chief and Secretary have testified we need around \$20 billion a year to arrest that. That won't reverse it, but that will at least arrest the aging. As my role as the Military Deputy for Acquisition, I'd be glad to answer any questions you may have on our recapitalization efforts to do that to meet our future threats.

Senator LIEBERMAN. Thanks.

How much is in the budget for you this year? Are you anywhere near that number in the next year, during the Program Objective Memorandum (POM)?

General HOFFMAN. That's over and above what's in the budget, is what we think we need to arrest it.

Senator LIEBERMAN. At some point it's a larger question. Senator Cornyn and I have talked about somehow, maybe at the beginning of the next administration, we need to do that, is to try to formulate hopefully a bipartisan public education campaign about the extent to which we're not funding critical DOD programs because we don't have the money.

Let me go on to some questions, and I'll begin with General Darnell. I wanted to talk about the F-22. Let's do 7-minute rounds and we'll just keep moving, and you'll let me know when I come to the end of the 7 minutes.

I understand, General, that one part of the difference of opinion between the Air Force and the DOD about the F-22s and how many to buy centers on whether the currently planned 183 aircraft would be sufficient to meet wartime requirements. I know that in this public forum we cannot discuss the specific differences, but I want to say in that context it appears that the Air Force, to me, that the Air Force and the Office of the Secretary of Defense are using different estimates of the threat.

My understanding is that the Defense Intelligence Agency (DIA) is responsible for publishing coordinated threat estimates against which the whole Department fields capabilities. So I want to ask this question, and I understand your answer will be within the context of this public forum. Is the Air Force using the DIA-approved threat estimates in arriving at its conclusion that you need more F-22s?

General DARNELL. Mr. Chairman, it is my understanding that we are using the DIA threat estimates.

Senator LIEBERMAN. Okay.

Then this question is either to you, General Darnell or General Hoffman. On page 11 of your prepared testimony today you make a statement regarding the timing of the decision to obligate the funds for advanced procurement for F-22 to keep the line operating past the current end of production with fiscal year 2009 procurement of 20 aircraft. I'm going to quote here. You say: "We must make a decision by November to avoid increased costs and a break in the production line before our suppliers begin to exit the market."

At the full Senate Armed Services Committee posture hearing in February, Secretary Gates, regarding this F-22 production issue said, "My objective is to give the next administration an option." Air Force officials, including Secretary Wynne, have told us that they're in agreement with the position of the Secretary of Defense.

So what I want to ask is, how would these positions be in agreement, in other words, signing advanced procurement contracts, as you said today, in November 2008 and giving the next administration an option, when obviously the next administration won't take office until January 20?

General HOFFMAN. Mr. Chairman, I think if you recall back on the B-1 story: we cancelled the B-1, we restarted the B-1. So all subsequent administrations have the option. I think it's a matter of at what cost do you exercise that option. To do that in a most efficient manner, which is where I come from in an acquisition standpoint, and that is to have the right advanced notice, to do Economic Order Quantity, multi-year or even single lot advanced procurement in a quantity that makes sense for effective production.

If we go past November, we'll start seeing shutdown of sub-vendor tiers and all that, and then to go back and recapture them will become more expensive. Every month after that the costs will go up of what it takes to go back and recapture them, without a path forward, without a commitment for additional procurement.

Senator LIEBERMAN. Okay, I appreciate that answer. I assumed that's what you had in mind. I'm curious whether you've calculated at all what the dollar and schedule effect would be of waiting actually until January or some time thereafter to make a decision.

General HOFFMAN. It takes about 3 years to build an F-22. From when we go on contract, it's 35 months until it rolls out the door. So that's at an efficient rate. If you're at a less than efficient rate, that number can vary. So December 2011 is when the last F-22 goes out the door right now. So you can back that up to find out when you're in that 35-month window and then it's a month for

month delay to that. Costs go up, and depending on how many months that will be will determine what the cost is.

There's no per-month cost because it's an increasing amount every month as additional sub-vendors close their doors.

Senator LIEBERMAN. But you can say with some certainty that waiting until 2009 to make the advanced procurement decision would cost more money?

General HOFFMAN. Yes, sir. November of this year will be fiscal year 2009, but if you're talking about calendar year 2009 to make the decision we're already into the fiscal year and we do not have the authorizations there to keep those sub-vendors still alive.

Senator LIEBERMAN. So what you're saying is that there's time and money to be saved by doing the advanced procurement in November of this year, and that your understanding of Secretary Gates' position about giving the next administration an option is basically meaning that they can stop the process if they choose?

General HOFFMAN. Yes, sir, depending on when the next administration would form as a team to build or get that decision through Congress as well.

Senator LIEBERMAN. In calendar year 2009, okay.

Admiral Myers, let me ask you a question regarding force structure. We talked about the shortfall in aircraft. I want to understand whether you're saying that the combination of the JSF and upgrading existing planes will actually fill the gap, which we have at least 69 aircraft short of the number required to support the 10 aircraft carrier wings? So is that combination that you talked about in your opening testimony adequate to fill the gap?

Admiral MYERS. Chairman Lieberman, we will have a 69 tactical fighter aircraft gap that peaks in the 2017 timeframe if we continue to follow the current program of record and there are no delays in the JSF. So that assumes that we receive the program of record for the JSF as it's identified in the President's 2009 budget, and that also assumes that we don't have any other early retirements of our legacy Hornets that we're completing the analysis on the Service Life Extension Program.

Senator LIEBERMAN. Let me ask you about how much risk, on that last point, you think we're exposing ourselves and obviously our pilots to by assuming that the F-18, which was designed for 8,000 hours, will be able to fly operationally until it reaches 9,000 hours?

Admiral MYERS. Mr. Chairman, that's a great question. We have over the last few years spent quite a bit of time doing the analysis to try to get what came to us from the factory as a 6,000-hour aircraft—6,000 hours with 8,300 landings and 2,000 cats and traps—and we have already taken those aircraft, the legacy F-18 A through Ds, out to 8,000 hours and extended their landings to 14,500 and 2,700 cats and traps.

So this is the next phase, to try to get the hours from 8,000 to 10,000. We're not going to increase the cats and traps or the landings. Our analysis to date shows that we think we're going to get to the number of aircraft that we need. We have about 640 legacy F/A-18s and if we get half of those to a point where we can extend them, meaning we've looked at each aircraft. We understand the 159 hot spots that are associated with high fatigue and corrosion

areas for every aircraft. Of those 159 hot spots, 100 are going to require some kind of engineering change or augment to extend it if it shows wear.

So what we're doing right now is we're completing the analysis to identify which aircraft will fall into that category that we can extend, and then we'll start with the engineering change proposals at the end of the summer. So it's a little bit early to say that we're going to get there with all of the aircraft that we need for the 10,000-hour extension, but we're confident that we are on the right track and we'll know more here in the next few months.

That's our challenge in POM 10—to make sure that those engineering changes are funded and that we have all the aircraft that we need programmed to try to do what we can to mitigate that shortfall.

Senator LIEBERMAN. My time is up, but just to ask a quick question: I presume you're imposing a high standard of acceptable risk here as you extend the hours of service life for individual planes?

Admiral MYERS. Sir, this is what I would term as the highest standard of acceptable risk. We would not put our tactical aviators in a position in which we weren't confident that we could safely extend the aircraft.

Senator LIEBERMAN. Right. Thank you.

Senator Cornyn.

Senator CORNYN. Thank you, Mr. Chairman.

General Darnell and General Hoffman, we're all aware of the controversy surrounding the KC-45 tanker program and I'm not going to get into the merits of that. But I would like to ask a few basic questions about this top priority program for the Air Force.

First of all, General Darnell, how urgent is the requirement for a next generation of aerial refueling tanker?

General DARNELL. Senator Cornyn, we consider it so urgent that we've made it our number one acquisition priority. Our average fleet age for our KC-135Es is 48 years, and our maintenance man-hour costs per flying hour for the KC-135 have gone up dramatically and exponentially. So we again consider it that important to make it our number one acquisition priority.

Senator CORNYN. General Hoffman, compared to other programs that you've witnessed over your career, would you compare how fair, open, and transparent the bid and award process was for the KC-45 tanker compared to those other programs you've witnessed over your career?

General HOFFMAN. Yes, sir. I would say that this is unprecedented in the amount of effort that's gone into being open to all partners in this, both between the DOD and with Congress on what the game plan is. It's been unprecedented in the amount of exchanges we've had with the vendors of what our intentions are and getting feedback from them before we locked in the requirements, that we made sure we had executable requirements for our industrial partners.

I can think of no program that's gone through the volume of effort that this program has.

Senator CORNYN. General Darnell, General Trautman, and Admiral Myers, I want to ask about the second engine on the F-35, because, frankly, I'm perplexed. Congress acted to restore funding for

the development of the second engine production source for the JSF and actually passed legislation requiring a second source, and the Department has, it looks like has ignored that.

Can you please describe the Department's rationale for doing so, if in fact you agree that's happened? I'd like to know whether the Navy and the Air Force support the Department's decision, and why or why not. General Darnell, you could start, please, or General Hoffman if you think it's more appropriate.

General HOFFMAN. We do support the President's budget and the Department's position on this. In a fiscally constrained environment, the balance of risk versus the benefit of competition is balanced, and we think we have a track record in other aircraft that have a single engine provider to give us confidence that we'll have a successful program.

Senator CORNYN. General Trautman, would you care to respond?

General TRAUTMAN. Senator, the issue for the Marine Corps is how do we stretch the limited resources that we have across a wide range of needs. It is incredibly important that we keep the F-35 on track for a 2012 initial operational capability (IOC) for all the reasons that Admiral Myers so clearly articulated. So it just becomes a matter of that as a decisionmaker for us.

Senator CORNYN. Admiral Myers, do you have anything you'd like to add?

Admiral MYERS. Yes, sir, just that the Navy and the Department continue to believe that the risks associated with a single engine supplier are manageable and do not outweigh the investment required to fund a competitive alternate engine.

Senator CORNYN. I know this has been the subject of a lot of discussion and hearing, over time. I'm one of those who if you tell me the military needs something I'm willing to open up the Treasury to pay for it. But it's a little perplexing why, given the discussion and the conscious decisionmaking process by Congress, that this budget ignores that judgment. So I guess we'll have to go through it again this time.

Let me ask Mr. Balderson and General Hoffman. GAO recently released a report critical of the F-35 and I alluded to that in my opening statement. They took exception to the program's current risk reduction program, schedule, and cost estimates. I'd like to give you an opportunity, if you will, both of you, to respond to that.

Mr. BALDERSON. Senator, I'll start if I can. Actually, there have been two reports. I'd be happy to respond to both of them. The report that you refer to I think basically had two findings. First, it was critical of the midcourse risk reduction plan; and then, second, there were a series of recommendations that addressed the need for an independent cost estimate and schedule risk assessment.

With respect to the midcourse correction recovery plan, we believe that this was a strategy that was carefully considered over a very long period of time. There are really two elements to the risk reduction plan. The first element is a very modest reduction of engineering staffing at Lockheed Martin, during the end of the development phase. When I say modest, there was already, of course, a reduction plan for people at the end of a development program. Our risk reduction plan reduces those people about 5 percent faster.

The second piece of that reduction plan was to reduce two test vehicles. What we have to keep in mind is that when we entered the System Development and Demonstration phase of this program about 6 years ago, we had a test plan at that point and made certain assumptions about the number of test hours we would need and the test vehicles that we would need. Four years into the program, when we decided that we did need to recoup some management reserve and we began to look for opportunities to do that, the Lockheed Martin-government team all unanimously believed that what we had learned during that first 4 years made it clear that there were two vehicles in that test plan that we didn't need.

We didn't go looking for areas to cut and pick test vehicles. It became clear to us from information that we had gleaned over the first 4 years that we could do without those vehicles.

We believe we have a mitigation strategy for both of those areas should we prove to be wrong. First of all, we're going to watch this very carefully over the next couple of years. With respect to the people, very simply, if we're not ready to remove those people we won't remove them. They won't come off the program before the time. We just believe that we will be able to get rid of them at this pace.

Second, we have a fallback position with respect to the two test vehicles. We don't believe we will need those vehicles for the test program, but if we do we're prepared to substitute Low-Rate Initial Production (LRIP) vehicles to complete the op-eval, and we know that we can do that.

Just very briefly, the other piece of the recommendation with respect to independent cost estimate and schedule risk assessment, we completely agree with that. In fact, prior to this particular GAO report coming out, the Department had chartered what we call a joint independent review, where the Navy and the Air Force independent cost teams, teaming with the Office of the Secretary of Defense's (OSD) Cost Analysis Improvement Group, conducted a comprehensive cost and risk assessment that will inform POM 10 and will inform a decision to proceed on with the subsequent LRIPs.

General HOFFMAN. Senator, I would just add, the GAO made a bunch of observations. They took some data points. But we don't necessarily agree with how they connected the dots in projecting forward into the future. I think the program office is the source for the truth on that. We've been tasked in both Services and the OSD staff by Mr. Young to come to closure on what we think the expected completion cost is, and that process is going on throughout the summer.

The select acquisition report for 2007 shows really no change from 2006 in that regard. But we do admit there is cost and schedule pressure in this program. We're trying to define that here in the next couple of months so we can inform POM 10 building so that we can deliver a quality product to you next year with confidence in the way ahead in this program.

I will say that this program has learned a lot from the F-22 program. We have a very robust test fleet and additional test assets, like the cooperative avionics test bed and so forth, to wring the risk out of the program in a timely manner so that we can make in-

formed decisions as we go through our LRIP lots into full rate production.

Senator CORNYN. Thank you. My time has expired.

Senator LIEBERMAN. Thanks, Senator Cornyn.

Senator Chambliss.

Senator CHAMBLISS. Thank you very much, Mr. Chairman.

General Hoffman, going back to Senator Lieberman's comments relative to the F-22, I notice in your statement where you talk about the line being shut down or a line being kept open. Obviously, as you said, under the current procurement situation the line will start shutting down in November. Suppliers will begin backing off. If we're truly going to keep that line open, as you state on page 11, it will require \$595.6 million in the fiscal year 2009 advanced procurement budget, is that correct, for 24 additional aircraft?

General HOFFMAN. Yes, sir. We need \$595 million for advanced procurement. Some of that money can come from money we have set aside right now for the tail-up expenses. If there is a lot 10, that tail-up gets deferred, so the amount of money—\$125 million—that's in there for lot 10 can be applied toward that advanced procurement.

Senator CHAMBLISS. What about the satisfaction of the Air Force as a customer as to what's being done with respect to the F-22 production now? Is it moving the way you want it to move?

General HOFFMAN. Absolutely. You may recall 4 or 5 years ago that we were struggling to get on schedule and stay on schedule. We have more than recovered schedule-wise. Their average delivery is 2 months earlier now and we're actually getting jets that are being delivered with zero writeups on them.

Senator CHAMBLISS. There is conversation about four more F-22s being added to the supplemental. What does that add to the timeframe from the standpoint of the production line being kept open?

General HOFFMAN. Sir, that adds four aircraft to the fleet. It adds very little to the debate about keeping vendors open. At the current production rate, if we blended it in at the same production rate, that would be less than 2 months of production.

Senator CHAMBLISS. Based upon where we are with respect to the F-35, which is a great airplane and obviously I think we all agree we have to continue down the road with that weapons system, but given the current procurement plan, will the Air Force have a gap in your fighter inventory line?

General HOFFMAN. Yes, sir, but I'll let General Darnell talk to that from the requirements standpoint.

Senator CHAMBLISS. Okay.

General DARNELL. Senator, yes, we will. Based on the program of record, beginning in 2017 we will start incurring a gap, out to the 2024 time period. Based on a delivery of 48 F-35s a year and 183 F-22s, we would anticipate a shortage of over 800 aircraft in 2024.

Senator CHAMBLISS. In your opinion is there any need to do an additional study to determine what the right mix is of legacy as well as fifth generation aircraft?

General DARNELL. Senator, right now, in light of that, we're—as Admiral Myers already talked about—starting to review what that

mix of legacy might have to be if we're unable to increase production.

Senator CHAMBLISS. I note from your written statement that, regarding repairing the F-15 A through Ds, that the Commander of Air Combat Command has proposed that of the nine aircraft still grounded due to the longeron cracks, five will be repaired, at a cost of approximately \$235,000 per plane or a total of \$1.2 million. Is that correct?

General DARNELL. That's correct, sir.

Senator CHAMBLISS. Is that the extent you think the expense of those grounded aircraft is going to come to?

General DARNELL. Those are our best estimates at this time, yes, sir.

Senator CHAMBLISS. Do you recommend purchasing any new F-15s?

General DARNELL. No, sir, I do not.

Senator CHAMBLISS. You discuss the F-22A future capabilities and modifications in your written statement. You talk a little bit about the criticality of this program to upgrading our current F-22s. As we know, GAO recently issued a report that was critical of the F-22 modernization program. Do you agree with the GAO's assessment?

General DARNELL. Sir, I probably ought to let General Hoffman talk to that. As an operator, quite frankly, I did not. But he may have a little more insight than I.

Senator CHAMBLISS. General Hoffman?

General HOFFMAN. Sir, I think it's a matter of when you put your probe into the program and all that. They had comments in there about the maturity of some of the technologies. We are well on our way on the early increments of those modernization programs. 3.2 is fully funded. Like all modernization increments, there's continuous debate as technology matures at a certain rate or as funding is available at a certain rate, what crosses the boundary between that increment and the one preceding it or the one following it.

That's the whole beauty of increments, is it gives you that flexibility as you approach that timeframe to make those decisions on content in order to hold schedule and cost.

Senator CHAMBLISS. What's going to happen in that gap period out there? If we're going to be 800 airplanes short, what's the plan?

General DARNELL. Senator, that is one thing we're going to have to figure out, is exactly what we're going to do with our legacy fleet, specifically F-15s. We have 177 programmed to go out to the 2024 time period or timeframe. We're going to do a tear-down analysis this year. We're going to do a fleet viability study; the results are to be out in the May-June timeframe. We're going to do a complete review of the program to see where we need to go.

We've extended the life of the F-15s now to 8,000 hours.

Senator CHAMBLISS. What's the oldest of those F-15s we have in those legacy aircraft now?

General DARNELL. Calendar-age, we have aircraft that are 25-years-old.

Senator CHAMBLISS. General Trautman, you note in your written statement that the KC-130J aircraft are continuously deployed in support of OIF and providing multi-mission tactical air refueling

and fixed wing assault support, and that these aircraft reduce the requirement for resupply via ground and limit the exposure of convoys to IEDs. You also note that the introduction of the aerial refuelable MV-22, combined with the retirement of the legacy KC-130, requires accelerated procurement of the KC-130J.

I note that the Marine Corps unfunded program list includes a request for \$150 million for two KC-130Js. Can you please articulate how procuring these additional aircraft in fiscal year 2009 would support your requirements for refueling and in-theater logistics support and how you might be better able to support deployed marines and marine assets if you had additional aircraft sooner?

General TRAUTMAN. Thank you, Senator. Yes, sir. Our program of record is for 51 KC-130Js in the Active-Duty Force. We've had 36 aircraft delivered or on contract. We've kept these airplanes very busy in the support to deployed forces. In fact, we're flying them at about 250 percent of our planned rate.

That means that beginning about September of this year we'll start the process of taking airplanes off the flight line to put them into required depot-level maintenance. So the stress on the force as we continue this transition will continue and will actually exacerbate itself slightly in the fall. So any additional airplanes that we can put in the hands of our operators will be put to good use.

Senator CHAMBLISS. Thank you, Mr. Chairman.

Senator LIEBERMAN. Thank you, Senator Chambliss.

Senator PRYOR.

Senator PRYOR. Thank you, Mr. Chairman, and thank you for your leadership on these issues; very important.

If I may, Mr. Balderson, let me start with you. I want to ask about helicopters. Of course, you have the MH-60, which has been the workhorse of the Fleet. As I understand it, back in previous budget years there was a decision to consolidate some of our helicopters and have more MH-60s and fewer other type of helicopters. Does that decision that was made a few years ago still make sense, and can you give the committee a better understanding of what Fleet Forces Command's study is trying to address?

Mr. BALDERSON. Senator, if I could I'd like to refer that question to Admiral Myers. It has more of an operational than a budget flavor. I'd be happy to address the acquisition aspects of the program.

Senator PRYOR. Okay. Admiral Myers?

Admiral MYERS. Thank you, Senator. The reduction from seven-type model series of helicopters to two started back in the late 1990s with our helicopter master plan, and that's been refined and updated since 2001 to make sure that we're on the right path. We're essentially going down to two-type model series—the MH-60 Sierra, which will be an anti-surface and a mine warfare platform, as well as a logistics platform and then the Romeo, which will be our anti-submarine warfare helicopter.

Of recent, the last few years, we've taken a look to make sure that we're on the right path. Knowing that our MH-53s are going to retire starting in the 2016 timeframe and be retired out about the 2019 timeframe, that will mean that our heavy-lift/vertical-lift capability goes out with that helicopter. So Fleet Forces Command was requested to do a vertical heavy lift requirements study to make sure that we had a good idea of what the operational envi-

ronment was going to be starting in that timeframe; what the requirement was going to be in that timeframe; and that we had contingencies or a way of operating that would accommodate the things for which we're currently using an MH-53 heavy lift helicopter.

We thought that heavy lift concepts of operation (CONOPs) was going to be completed last fall. It's been rescrubbed and we don't anticipate that it's going to be available for us from Fleet Forces Command until some time early next fall. But that will help set us on the right programmatic path in the future and assure us that we're on the right glide slope with the reduction from the seven-type model series to two.

Senator PRYOR. General Hoffman, let me ask you, if I may, about the C-130J program. As I understand it, there is no request for C-130Js in the fiscal year 2009 budget. Given the aging C-130E fleet and some of the problems we've had there, why have we not requested any more C-130Js?

General HOFFMAN. Senator, I think it's a combination of us completing the multi-year buy that we're presently on, plus the amounts that are in the global war on terror account right now. Then you'll see it pick up again in the 2010 request and on, where we have a steady state level of effort for the C-130J recapitalization.

Senator PRYOR. So will the C-130Js still be manufactured during the fiscal year 2009 cycle?

General HOFFMAN. Yes, sir. In fact, there are some in there. Even though the numbers may be zero in the production there as far as the request, there is more of a steady flow through the factory during that timeframe there because of the Marine Corps buy and because of foreign buys and all that. There's activity throughout that time period.

Senator PRYOR. Let me ask about the CV-22, if I may. General Hoffman, can you give me a good understanding of the acquisition status of that and any kind of problems that you see with the CV-22?

General HOFFMAN. We're completing the initial operational test and evaluation for the Air Force variant of the V-22. We're completing that this summer. We'll get the test report on that. So I'll hold fire until the testers give their professional opinion on what they think is going on.

But I've heard nothing at my level that causes any concern on the acquisition and continued production of that aircraft.

Senator PRYOR. Thank you.

Mr. Balderson, there's one theme that we get tired of hearing here in the Senate oftentimes, and that is that, when it comes to military acquisitions, there are two things that happen. They get behind schedule and they get over budget. I know that you have several items right now in your mix that you're overseeing that are behind schedule and over budget, and it's like what Senator Chambliss asked a few minutes ago. When you start to get into that situation, you still have the needs that are still there.

But let me start with one of those and that is the presidential transport, the VH-71. As I understand it, it's behind schedule and

they may cost more than we thought they would. What's the status of that?

Mr. BALDERSON. Let me speak to the VH-71 in two increments, Senator. Increment-1—which is the initial capability, five aircraft—that program is proceeding I would say reasonably well. There are three increment-1 test vehicles flying at Patuxent River currently. All five of the increment-1 production vehicles are in various stages of production in Yeovil, England. They will all be delivered by the end of this year to begin testing, and we're projecting an IOC of September 2010. That's about 11 months later than the original projection, which is why I say the program is going reasonably well. We lost some time and progress when we initiated that program. We couldn't recover all of that. But we feel confident that program is going well and we'll introduce that initial operational capability of increment-1 in the September 2010 timeframe.

Increment-2 has been a different challenge. Increment-2 is a considerable leap in terms of capability, range, communications, survivability, et cetera. It was always anticipated to be a much more capable aircraft. We recognized at the end of calendar year 2006 that we were not going to be able to execute increment-2 on cost or on schedule and frankly since the end of 2006 we have been evaluating any number of options to proceed forward and deliver that capability.

In fact, toward the end of last year, because of funding shortages for increment-2 and because we were in the process of restructuring, we issued a stop work order and currently there is no work. We have increment-2 on hold.

Recently, having evaluated a large number of options to proceed with increment-2 or other alternatives and working closely with the White House, we've made the determination that the increment-2 capability and the program of record that we have on hold now is really the only way and the only means of meeting the requirement for this capability. So what we have ongoing at the current time is we are now working very closely with Lockheed Martin to get a proposal that would lead to a negotiated restructure of that contract by the end of this year.

We're preparing to go to a Defense Acquisition Board in the fall, which would give us the authority to proceed. As we do that, we're developing and refining our cost estimate for the program. It does look like at this point, depending on how negotiations go and what sort of trades we might be able to make, like we're talking about a cost growth in the neighborhood of \$4 billion and probably roughly 5 years in delivering that IOC.

I would add that the only way we can restart increment-2 in the fall is with the 2009 authorization and appropriation. We don't have funding in 2008 to continue with increment-2 for a number of reasons, which I can go into. There are about \$300 million in the 2009 budget request that would continue increment-2, and we will need that to get the program restarted.

Senator PRYOR. That's not great news, because it sounds like, if I understand it, that program is going to be, what did you say, \$4 billion over budget and 5 years late?

Mr. BALDERSON. The increment-2, that would be a pretty close estimate, yes, sir.

Senator LIEBERMAN. Yes, that's tough news.

Senator PRYOR. Thank you, Mr. Chairman.

Senator LIEBERMAN. We'll pursue that further.

Thank you, Senator Pryor. We'll start a second round of questions.

I want to come back to the questions about the aircraft shortage projected. General Trautman, I know one of the projections for a shortfall for the Marine Corps was a minimum of 56 aircraft short of the required to support the three Marine air wings. Since the Marine Corps, going back to my conversation with Admiral Myers about the F-18, also is flying F-18s and is contributing squadrons to certain carrier air wings, how is that potential gap of at least 56 aircraft going to affect the Marine Corps' ability to meet its commitments?

General TRAUTMAN. It puts us in a different position, Senator. It does hit us about the 2017 timeframe. This gap needs to be managed aggressively and I think the Department of the Navy, the Marine Corps and the Navy, are working together to mitigate the gap through things like the service life assessment program and the service life management programs that we have in place, so that we can make sure we get every single legitimate safe flight hour out of the existing force.

From our perspective, anything that puts pressure and that delays the arrival of F-35B increases our concern about our ability to provide the kind of aviation service to our Marine air-ground task forces that the joint forces commanders expect from the Corps.

Senator LIEBERMAN. This comes back again to the critical importance of the JSF program and doing everything we can to make sure that there are not delays in delivering it, right?

General TRAUTMAN. It's absolutely essential from the Corps' perspective. We made a conscious decision over a decade ago to forego the F-18 E and F.

Senator LIEBERMAN. Right.

General TRAUTMAN. It was a wise decision, I think, when you look at the relative capability sets between this fifth generation strike fighter, the F-35, and the F-18. But as that bridge gets longer and longer, it puts our force under considerable stress and increases the concern that the Commandant and I and others have about our ability to make that bridge.

Senator LIEBERMAN. Absolutely.

In that regard, Secretary Balderson, there have been reports of engine testing failure that certain engines have had when operating—I'm talking about the F-35—in the more highly demanding mode for the Marine Corps STOVL aircraft. Can you give us a status report on the F-35 engine, particularly as regarding the STOVL operating demands?

Mr. BALDERSON. Yes, sir. What occurred on two occasions in the last few months is an engine on a test stand that was undergoing testing, and it was in the lift mode, the highest stress lift mode for the STOVL variant, and the two engines failed. The first one failed at a point where the engine was under the highest stress. It broke a blade in the third stage of the engine.

The company, Pratt & Whitney, believed they understood the root cause fairly quickly. They began ongoing testing on another

engine, and put it in exactly the same mode. The intent actually had been to get it up to a mode where they were able to determine that the engine was about ready to fail, but to cut it off before it failed. They got it into that mode, but didn't get it shut off quickly enough, and at exactly that same mode they had an identical failure. In fact, if you look at the pictures you can see the blade broke in the same place and almost in the same shape.

The company feels pretty confident, based on the fact that they had already been working a fix and this testing was to validate the fact that they understood the root cause; they're pretty comfortable that they understand the root cause, and they're doing additional testing as we speak to verify that. That testing should be completed by the end of April.

Concurrent with that, they are developing a design fix that, assuming the root cause that they've determined proves out at the end of this month, they'll implement the design fix.

At this point, obviously, we view any sort of test failures like this with caution and with great seriousness. We do believe Pratt & Whitney and the government team have a handle on this, and the plan now is to proceed. We're going to delay first flight of STOVL a little bit just to make sure we have the root cause and the fix established. But the plan now is to delay first flight no more than a month, because the first flight of STOVL is going to be in the conventional mode anyway, and one of the things that Pratt & Whitney through their testing is confident of now is that this sort of problem doesn't exist in the conventional mode. It's only in the lift mode for the STOVL.

Senator LIEBERMAN. So at this point your hope is that that engine test failure will result in only a minimal delay in the ultimate availability of the STOVL variant of the JSF?

Mr. BALDERSON. Yes, sir. The current plan is to delay the first flight of the STOVL 1 month in the conventional mode, and I believe I have these dates correct. The first flight in the STOVL mode was supposed to have been in October of this year. We're looking to probably delay that a couple of months.

Now, prior to flying in the STOVL mode, which is projected now for the December timeframe, Secretary Young and Secretary Winter have asked to get together and hold a review of the test data and the technical data to make absolutely sure that we're confident that we have the fix and that they're confident that we can fly safely.

Senator LIEBERMAN. Okay. Obviously, these are very sophisticated, complicated aircraft. But we want to do everything we can, for just the reasons General Trautman said, and I know you agree with this, to get the Marine Corps this plane on time, even beyond that if possible.

General Hoffman, let me change the subject to UAVs. The Army is planning to buy a large number of Warrior UAVs in upcoming years and intends to buy its own fleet of medium endurance UAVs because it does not believe that the Air Force will adequately support the ground forces with Air Force assets.

Last year we heard that the Air Force could end up buying the Army version of the UAV. Is that still the case?

General HOFFMAN. Yes, sir. In fact, we're buying two of them and we are running through the test program. There are many attributes of the Warrior that we like, like automatic take-off and land, heavy fuel-use engine, more ruggedized landing gear, and so forth.

There are some things on the early Warriors that would not serve our CONOPs, if you will, using the reachback methodology that we use right now of actually launching them forward, and flying them from the States. But as Warrior progresses those attributes will be in Warrior as well.

So we're not afraid of the C at all. In fact, we're embracing it, and as soon as it proves itself in tests we'll probably just transition our production from the B to the C.

Senator LIEBERMAN. So you intend—right now you're on a path to become—essentially to join the Army program on this one?

General HOFFMAN. Yes, sir. I would, just to qualify one comment you made earlier, I don't view any of our assets as Air Force assets. I view them all as joint assets. Wherever the theater commander wants them, that's where they go. We do not have Air Force ISR targets that we service for our own needs.

Senator LIEBERMAN. Thank you for that answer.

My time is up. Senator Cornyn.

Senator CORNYN. Let me return for a minute to the F-35 for one or two more questions. Mr. Balderson and General Hoffman, the GAO released a report last month that said the JSF costs had increased by more than \$23 billion over the last year because of a 7-year program extension, future price increases, and increases in the price of materials. However, according to the Selected Acquisition Report (SAR) released this past month by the DOD, the F-35's program costs decreased slightly over the final months of 2007 and the effort did not experience a significant cost breach during that time requiring congressional involvement.

The report says JSF program costs decreased by \$981 million, from \$299.8 billion to \$298.8 billion, over the 3-month period.

In your view, which report more accurately reflects the reality, the GAO report or the SAR?

General HOFFMAN. Senator, I think it's apples and oranges here. If you knew that you were going to die in 10 years and then you found out you were going to die in 17 years, you're going to live 7 years longer and that's going to cost more money than dying in 10 years.

Primarily what GAO is talking about is life cycle costs. Because of the production rates, we're going to be making these things 7 years longer than we originally planned. So if you make them 7 years later, they live 7 years later. Those are operating costs primarily in the out years.

The SAR reflects our development and production of the aircraft. As we both talked about before, I think we'll have more fidelity on that cost through the summer here as we work to build the 2010 POM.

Senator CORNYN. Mr. Balderson, do you have anything you'd like to add on that?

Mr. BALDERSON. I agree with that completely. Secretary Young testified recently, and I mention this because I think this is what

I anticipate also, that we anticipate that when this joint independent cost estimate is done this fall, we probably will have to put modest amounts of funding in the F-35 program to keep it stable. I think that's accurate, and that you will in no way see the kinds of costs GAO is talking about in the development of the production.

Senator CORNYN. Senator Lieberman asked a little bit about UAVs. I'd like to follow up on that subject. In 2001 Congress established as a goal that by 2010 one-third of the aircraft in the operational deep strike force should be unmanned. However, the unmanned systems road map just delivered to Congress does not describe how it plans to achieve this goal, nor does it include striking targets as a key UAV role or mission in the future.

I'd like to know—this will be for General Darnell, General Trautman, or Admiral Myers—how is your Service doing toward meeting the goal set in 2001 for an operational deep strike by UAVs, and do you see striking targets as a potential mission for UAVs in the future, and if so why, or why not?

General DARNELL. Sir, we can tell you that in the President's fiscal year 2009 budget, we have 92 aircraft that we plan to buy. Of those 92, 54 are UAVs. So we feel like we're making a significant statement in where we want to go. Our next generation bomber that we've also specified can be either manned or unmanned. Over the Future Years Defense Program (FYDP), approximately 35 percent of the vehicles that we will purchase will be UAVs.

Senator CORNYN. I think the question really related to the operational deep strike capability. Would you address that issue?

General DARNELL. Senator, we look at deep strike in several different ways. With a Predator UAV, you can still accomplish deep strike. Are you talking about a bomber type aircraft?

Senator CORNYN. The last UAV road map provided kinetic effects as a prime mission area, although the latest UAV road map, written in December 2007, no longer included kinetic effects as a major UAV goal or operational mission area. I'm just trying to get a grasp on what you think these UAVs are going to be used for.

General DARNELL. I can tell you, Senator, as far as the Air Force is concerned, we're going to be doing a combination of reconnaissance and kinetic effects. Like I said, I'm not familiar with that report. I can tell you that our plan is to transition, frankly, to MQ9, which is our Reaper aircraft, a much larger aircraft with much more kinetic capability.

Senator CORNYN. General Trautman, would you agree that kinetic effects, striking targets, is going to continue to be an important role for UAVs?

General TRAUTMAN. Senator, absolutely. It's a growth industry. It's inevitable, and the pace at which it comes is just a function of technology development and finding the resources to apply to the new CONOPs.

With regard to the Marine Corps's role here, we typically don't own assets that do the classic deep strike. Clearly, our UAS approach in the near term has been the tactical level UASs, Raven B, Shadow, and Scan Eagle. We have a plan for a program of record with an IOC in the mid-teens, around 2015, in which we're doing an analysis of alternatives now, and one of the attributes of that system is the desire to do the kind of precision strike that

you're talking about. But it's still a little ways out there for the Corps.

Senator CORNYN. Admiral Myers, would you care to add anything?

Admiral MYERS. Yes, sir, and thank you for the question. The Navy's approach to UAVs is divide them into four areas: First is a fighter or F/A-XX, and we have currently the Navy Unmanned Combat Aircraft System (Navy UCAS) demonstration program that's underway, and that will go out to a carrier. We have two vehicles, X-47, which go out to the carrier in the 2011 timeframe.

Let me just give you a broad brush and then I'll deep dive into each one. In the high end, deep penetrating strike and persistent realm is the F/A-XX, or Navy UCAS. The next level below that is Broad Area Maritime Surveillance (BAMS). The next level below that is our VTOL Tactical UAV (VT UAV), which is currently in testing. That will be deployed on our Littoral Combat Ships. Then below that is, at the extreme tactical level, the Scan Eagle or Small Tactical Unmanned Aircraft System, which is essentially an extended sensor for the deploying unit that's using it.

I'll start with F/A-XX. Right now, our overall road map plan for naval aviation has us recapitalizing a strike fighter type about every 10 years. So if every 10 years we're recapitalizing half of our strike fighter fleet, then that means at this point we're transitioning in the teens into the JSF, IOC in 2015 for the C variant for the U.S. Navy. Ten years later in the 2024-2025 timeframe, when the F/A-18 E and F Block 2 aircraft start to retire, that's when we want to recapitalize with the F/A-XX.

So that's our challenge in POM 2010: to make sure that the program gets moving in the right direction starting with analysis of alternatives and moving forward. In order to deliver that in the 2024 timeframe, we need to move out right about now. We think that it's about a 12-year process to deliver that kind of capability.

One level below that is our BAMS, which we just recently attended a Defense Acquisition Board and will announce more specifically the direction we're heading here in another week. BAMS is an ISR and communication relay, broad area surveillance platform that will augment our maritime aircraft, our P-8s. It is intended to deliver starting in the 2014 timeframe, and it will take about 30 to 33 percent of the workload of ISR off our P-8s. So, therefore, it has a direct corollary to reducing the inventory.

One step below that is VT UAV, and that's currently in testing. That's to augment our Littoral Combat Ships in both the MH-60 Sierra and the MH-60 Romeo variety. So what that'll do is take again about 30 to 33 percent of the flights off the Romeo and Sierra for the Littoral Combat Ships and perform EO and IR, electro-optical and IR type of work, and also a communications relay to enhance the capability for the Littoral Combat Ship to do all three missions—the mine warfare, anti-submarine warfare, and ASUW, anti-surface warfare.

At the tactical level, we're currently enjoying the use of Scan Eagle, but it's time to recapitalize and look at the next generation of capabilities, again at the tactical level, to be used on our surface combatants.

So right now, those are a broad brush of our programs. Our challenges coming into this upcoming POM cycle are to make sure that all of those programs are either funded to the level that we require or are started in a manner that they'll deliver on time.

Senator CORNYN. Thank you very much.

My time has expired.

Senator LIEBERMAN. Thank you, Senator Cornyn.

Senator Chambliss.

Senator CHAMBLISS. Gentlemen, that's pretty exciting, to think about where we're headed with the future of TACAIR and unmanned aircraft. It's just an entirely new generation we're thinking about. I see all four of you are proudly displaying wings on your uniforms. Are we going to replace that with a joystick or something for these guys that'll be flying those? That's truly exciting.

I don't have a dog in this tanker situation from the standpoint of a parochial issue, but I am, as we all are, very concerned about where we're going here, because I think every branch has expressed a real need for this tanker issue to move forward, that we're hitting a critical time.

Now, I realize the Air Force contract is currently being reviewed by GAO and I certainly look forward to hearing what their opinion is on the issue of this particular contract. One issue that I hope you look at closely is to what extent the Air Force accepted or did not accept as compliant the commercial pricing data that the bidders and the partners provided and whether or not this data was dismissed during the Air Force's evaluation of the proposals.

Obviously, if the data was faulty it should not be accepted. But if the data submitted was accurate and did comply with what the Federal Acquisition Regulation requires, it seems to me it should be accepted as such.

General Hoffman, I wouldn't ask you to necessarily comment on that because I think this is something that I just want to get in the record. But it is an issue that we have to be very clear on as we move forward on this.

I think, Mr. Chairman, that's all I have.

Senator LIEBERMAN. Thanks very much, Senator Chambliss.

I don't know if Senator Cornyn has more questions. Okay, I'll delay a little bit. I don't have any more questions, although I thought while I had you all here I would repeat something and just throw a jump ball out there and see if anybody wants to respond.

This was a comment from a colleague recently—it's very different from anything that we've talked about today; it probably reflects a lot of thinking from people who are just watching our military situation. The comment was this: The Army and Marine Corps are so deeply involved in Iraq and Afghanistan that, as this colleague said, if we get into another crisis we're really going to have to totally rely on the Navy and the Air Force.

You may want to contend with the first part, the first premise there. But I'm curious. This is the lay person's conventional wisdom out there, and I wonder if any of you have a response to it?

General DARNELL. Mr. Chairman, I would have to probably agree with that, if we're talking about another major conventional operation, at least at the outset.

Senator LIEBERMAN. Yes. In other words, that we wouldn't have the available Army and Marine Corps capabilities to go into another major conventional operation.

General DARNELL. I testified about a month ago to the Readiness and Management Support Subcommittee and my biggest concern in that discussion with the subcommittee was the fact that we are looking at some troubling readiness indicators now and today, and my concern was we're mortgaging our capabilities for tomorrow, for the very scenario that you bring up.

Senator LIEBERMAN. Anyone else? Admiral?

Admiral MYERS. Sir, some of your comments, I think, are appropriate if you would look at our new maritime strategy and the six tenets, where it ranges from our ability to provide humanitarian assistance and disaster relief, to partnerships at sea and sea control. The items that you just mentioned fall in the area of deep strike or deterrence. What you're essentially saying from your colleague is that you're relying on a couple of Services to provide the deterrence or the ability to strike and control overseas, and that's what your U.S. Navy is all about, is giving you and our Nation's leaders that strategic deterrence reassurance, as well as being able to partnership at sea, control, and offer the security that we need worldwide, and then all the way down to the low end of humanitarian assistance and disaster relief, which I think our new maritime strategy adequately explains.

Senator LIEBERMAN. I agree, absolutely.

General, did you want to, because you have one foot in each side here of that question.

General TRAUTMAN. Exactly, Senator, and that's where the Marine Corps typically sits, one foot in each side.

I think that it would be foolhardy to think that just the Air Force or just the Navy could take on something larger than the opening stages of something like a major combat operation, and that's not what your colleague meant to say.

Senator LIEBERMAN. Right.

General TRAUTMAN. But America has to realize that we have to be prepared to respond across the full range of potential adversarial actions that our President may deem necessary. So it's vitally important that we keep not just the Air Force and the Navy ready and relevant, but also Marine aviation so we can make our contribution as well. So that's why we're here before you today and that's why we appreciate your interest in the kinds of things that we're talking about.

Senator LIEBERMAN. Well done.

General HOFFMAN. Mr. Chairman, if I could just add. I've heard that same comment and my response to that is there is no fight out there that's just waiting for any one Service to go solve. All our challenges and conflicts in the world are joint responses.

Senator LIEBERMAN. I appreciate that. That's something that I've certainly been involved in for quite a number of years on this committee, including setting up, being involved in the original creation with then Secretary Cohen and General Shelton of what is now the Joint Forces Command. So I appreciate that answer. That was part of my answer to my colleague.

I don't have any more questions. Senator Cornyn?

Senator CORNYN. I have two.

Senator LIEBERMAN. Please. Go right ahead.

Senator CORNYN. One last question about UAVs. In March 2007, General Moseley spelled out the case for the Air Force to become the executive agent for all medium- and high-altitude UAVs. It seems like with the proliferation of UAVs, whether it's for the Future Combat Systems by the Army, the different ways that the military Services use UAVs, this new capability, I'm a little concerned or at least would like your response to the question, are we continuing to operate and develop these capabilities with UAVs in a way that provides for their jointness?

I'm a little concerned that the various military Services are developing the UAVs they think they need for what they do. But I appreciate General Hoffman's reminder that no Service fights a fight alone, that this is going to be a joint fight.

I'd like a little bit of reassurance, I guess, that we haven't abandoned jointness when it comes to development of the UAVs needed by the various branches of our military Services.

Mr. BALDERSON. Senator, if I could. First, I think some of the tools of the trade that all Services use are optimized for their unique environment that they operate in. Where we came on board with that discussion on executive agency was for theater-wide assets that can quickly flex across the battlefield and theater. If you have weather in one-half of your theater, those assets can go to where the weather is good and contribute, not just wait for the unit, if they're tied to a unit. That was our logic behind theater-wide assets and why we thought there were efficiencies to be gained in centralized command and control, if you will, of those theater assets.

Senator CORNYN. Anybody else care to comment?

General TRAUTMAN. Senator, if I could add. OSD AT&L presently has a UAV task force that we and the other Services are contributing to and members of. We're working very closely with the United States Army in light of our latest warfighter talks to come up with a joint concept of operations which does optimize these aircraft. Both Training and Doctrine Command and Air Combat Command are working through that, and they're making good progress.

Senator CORNYN. I know Secretary Chertoff of the Department of Homeland Security is acquiring UAVs, so they're proliferating, it seems like, across the United States Government. I appreciate your answer.

The last thing I would like to ask about has to do with synthetic fuels. Since last fall the Air Force has been testing whether Air Force aircraft can fly on liquid fuels made from natural gas or coal. According to the Air Force, barring any unforeseen glitches the Air Force expects to certify the synthetic fuel for use in B-52 bombers this summer. Given the interest and publicity with which the Air Force has surrounded their synthetic fuels research program and given the energy crisis that our country faces generally speaking, how much funding is in the fiscal year 2008 budget request for this, and what level of capability does the Air Force's program provide for FYDP?

General HOFFMAN. Senator, I'll take that for the record on the amount that's in our program. But what we're doing is qualifying

our equipment to operate. There's a larger issue here and that is where is the infrastructure that's going to produce that fuel, what are the environmental consequences of producing that fuel, and what are the permission sets that allow us to buy fuel at—right now it's above market rate.

[The information referred to follows:]

Fiscal year 2008 Alternative Fuels program funding included \$12.5 million of research, development, test, and evaluation (RDT&E) for alternative fuels laboratory research efforts. The following provides the fiscal year 2009 President's budget Alternative Fuels laboratory research funding for the future years defense plans:

[In millions of dollars]

	Fiscal Year				
	2009	2010	2011	2012	2013
RDT&E	3.0	3.2	2.8	2.2	2.2

Additionally, fiscal year 2008 Alternative Fuels program funding included \$11.8 million of RDT&E and 0.8 million of operation and maintenance (O&M) for the aircraft and ground vehicle fleet alternative fuels certification effort. The following provides the fiscal year 2009 President's budget Alternative Fuels aircraft and ground vehicle fleet certification funding for the future years defense plans:

[In millions of dollars]

	Fiscal Year				
	2009	2010	2011	2012	2013
RDT&E	28.5	47.2	15.1	9.6	3.2
O&M	27.9	21.5	12.8	6.4	2.8
Total	56.4	68.7	27.9	16.0	6.0

This effort will provide Air Force aircraft and ground vehicles with the capability to operate using a 50/50 blend of standard jet fuel and a synthetic fuel derived from natural gas or coal. Certification of Air Force aircraft and ground vehicles is a necessary step toward the long-term goal of satisfying 50 percent of continental U.S. based aviation fuel requirements by purchasing synthetic fuel derived from domestic sources (gas or coal) and produced in the United States by 2016.

General HOFFMAN. The Secretary has a passion for this and it's not about the economy or the type of fuel we're using or the industrial base issues. It's about fuel assuredness, because he's not thinking 1 year or 2 years or 5 years or 10 years. He's thinking down the stream: Will this Nation be able to assure itself that it has enough fuel for its military purposes? So it takes years to go through the qualification process. It takes years to develop the infrastructure that will produce that type of fuel.

So as the largest consumer of aviation in the DOD, and DOD is one of the largest users of energy in the government, he's trying to take the lead and the initiative there to show that we can be good consumers of that fuel, and if we can certify our equipment, if you build it they will come. He thinks industry will respond. We do need some help with the permission sets that allow us to get this jump-started to where it does become an economical at least break point with standard-based petroleum.

Senator CORNYN. As gasoline approaches \$4 a gallon and with the price of oil way above \$100 a barrel, it strikes me this is a great and wise program and one that could have benefits across the economy, not only our military Services. So I'd be interested in what you're doing and would offer to work with you and try to fig-

ure ways we can facilitate it and enhance the program, because I think it's exactly headed in the right direction.

I thank you very much, Mr. Chairman.

Senator LIEBERMAN. Thank you very much, Senator Cornyn.

I thank the witnesses. It's been, I think, a very good hearing. Your answers to our questions have been responsive and thoughtful, certainly helpful to the subcommittee. The general impression—there's always good news and bad news. The good news is that we have a great Air Force, Navy, and Marine Corps, and the aviation components of each of those are just serving our country with extraordinary devotion and excellence. Technology is allowing you to sustain the lives of the aircraft more than had been previously so.

But each of the Services is facing now a daunting—I don't know whether you call it longer-term or mid-term—shortage in aircraft that we have to deal with. In Washington, we have a problem. Hopefully we can figure out a way to deal with it. Part of it obviously is, Mr. Secretary, that any time a program comes in over budget and late it just makes everything we're trying to do harder and harder.

So, bottom line, I assure you that Senator Cornyn and I and our subcommittee will do everything we can to try to stretch our resources as far as we can, to give you the support that you need and deserve in carrying out the responsibilities that you do every day on behalf of our country. So I thank you for that.

Senator Cornyn, do you want to add anything?

Senator CORNYN. I concur, Mr. Chairman, and thank the witnesses for your testimony. Thank you very much.

Senator LIEBERMAN. Thank you.

We'll leave the record of the hearing open for 10 days in case members of the subcommittee have questions they want to submit to you in writing or you want to add to any of the testimony that you've offered today.

With that, I thank you for your service and your testimony. The hearing is adjourned.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR JOSEPH I. LIEBERMAN

ENGINE COMPETITION

1. Senator LIEBERMAN. Secretary Balderson and Lieutenant General Hoffman, if Congress requires that the Department of Defense (DOD) develop and buy the GE/Rolls Royce F136 alternate engine for the F-35 Joint Strike Fighter (JSF), what will the Navy and Air Force Departments do to improve the quality and performance of the Pratt & Whitney F135 engine so that the competition is based more on cost or price, not on levels of technology?

Mr. BALDERSON and General HOFFMAN. The performance requirements in today's engine specifications are identical, and the intent is to enable engine interchangeability (F135 with F136) with no noticeable effect on aircraft performance. The program acquisition strategy envisioned a propulsion competition to address production and sustainment, based on factors related to affordability, supportability, and safety, to enable selection of "best value" production-sustainment combination offers.

ADVANCED CONCEPT EJECTION SEAT

2. Senator LIEBERMAN. Lieutenant General Hoffman, the Air Force has invested funding in incremental improvements to the Advanced Concept Ejection Seat (ACES), the common ejection seat on almost all Air Force combat aircraft. Can you

describe whether there would be cost savings, maintenance benefits, and any other advantages of using a modular ACES ejection seat in the B-2?

General HOFFMAN. The Air Force typically performs Programmed Depot Maintenance (PDM) and Intermediate Maintenance on three B-2 aircraft per year. The ACES modular seat design reduces this required maintenance time, which directly correlates to cost and operational efficiencies. The projected PDM savings is \$263,000/year and a reduction of 3,000 hours; as hatch removal/replacement is not required to perform ejection seat maintenance. In addition, the projected Intermediate Maintenance savings is estimated at \$177,000/year and an increase of 18 days of aircraft availability, gained at squadron level. Furthermore, modular seat design affords maintenance personnel the opportunity to accomplish foreign object damage inspections and time-change component replacement without removing the ejection seat while at home-station or at deployed locations.

3. Senator LIEBERMAN. Lieutenant General Darnell, I understand that the Future Years Defense Program (FYDP) includes funding in fiscal year 2011 to retrofit the ACES modular ejection seat into the B-2. However, I understand that the Air Force has not programmed the funds to qualify and test the seat. Would having a modular ejection seat in the B-2 aircraft improve the operational readiness and operational availability of the fleet due by reducing maintenance downtimes?

General DARNELL. Currently, there is no funding in the FYDP to retrofit the ACES modular ejection seat into the B-2. The Air Force is currently evaluating funding priorities for the fiscal year 2010 Program Objective Memorandum (POM). Having a qualified modular ejection seat would improve B-2 aircraft's operational availability for mission tasking. A modular seat design will enhance maintainability by substantially reducing hours required for PDM and local intermediate inspections, while increasing man-hour availability for other tasks. It allows personnel to perform on-equipment maintenance more safely, quickly, and effectively without the use of a mechanical lift or removal of any canopy, hatch or overhead enclosure, and eliminates canopy and seat rail damage. The result is improved aircraft availability and reliability.

QUESTIONS SUBMITTED BY SENATOR MARK PRYOR

COMBAT SEARCH AND RESCUE HELICOPTER PROGRAM

4. Senator PRYOR. Lieutenant General Hoffman, the Combat Search and Rescue (CSAR-X) helicopter program is designed to replace the aging HH-60G helicopter fleet with improved force protection, greater range, and increased payload capacity for specialized equipment and injured personnel. The CSAR-X contract, originally awarded to Boeing in November 2006 for its HH-47 variant, has been subject to two bid protests from the losing competitors, Sikorsky and Lockheed, which were sustained by the Government Accountability Office (GAO). These protests have delayed the CSAR-X program 2 years from what was originally planned. Last year Congress had to appropriate an additional \$99 million for modifications (upgrades) to the HH-60 in order to safely and effectively support search and rescue missions throughout the world. The CSAR-X has yet to become operational and taxpayers have had to subsidize this cost. Where is the Air Force in the source selection process?

General HOFFMAN. Amendment 6 to the CSAR-X request for proposal was released on April 22, 2008. Offeror submissions are due by May 27, 2008. The Air Force intends to complete the source selection activities and begin execution of a CSAR-X System Development and Demonstration contract in the fall of 2008.

5. Senator PRYOR. Lieutenant General Hoffman, what is the new timeline?

General HOFFMAN. The Air Force plans to conclude CSAR-X source selection activities and begin execution of a System Development and Demonstration contract in the fall of 2008.

6. Senator PRYOR. Lieutenant General Hoffman, will the American taxpayer have to once again pay the additional cost in the fiscal year 2009 budget to keep the HH-60 flying?

General HOFFMAN. The Air Force has programmed \$16.7 million for the sustainment of the HH-60Gs in fiscal year 2009. The Service continues to monitor the health of the HH-60G fleet and will plan for the required resources needed to sustain this critical weapon system until it is replaced by CSAR-X.

7. Senator PRYOR. Lieutenant General Hoffman, will we have to spend on the KC-135 to keep them operational while we wait for the protest on the KC-45 tanker?

General HOFFMAN. Regardless of the KC-45 tanker contract protest, the Air Force's tanker recapitalization plan will require decades to replace all of the KC-135 aircraft. For that reason, the Air Force has planned for modification programs designed to keep the aircraft operational until at least 2040. The fiscal year 2009 President's budget request contains \$134.2 million in Procurement and \$7.133 million in Research, Development, Test, and Evaluation funds for these planned modifications.

JOINT STRIKE FIGHTER

8. Senator PRYOR. Lieutenant General Darnell, for fiscal year 2008, all four congressional defense committees recommended an increase of \$480 million to the President's budget request to provide for the continued development of a competitive JSF engine. Despite this legislation, the DOD did not include funding for the development of a competitive JSF engine, and would instead prefer to rely only on the F135 engine being developed by Pratt & Whitney. \$495 million is required in fiscal year 2009 for F136 development (General Electric/Rolls Royce competitive second engine) and \$31 million would be needed for advance procurement of long-lead parts, for a total of \$526 million. To date, the Air Force has spent \$2.1 billion on the F136 second engine initiative and needs an additional \$1.3 billion to complete the program. The GAO has recently concluded that the cost of buying and operating the JSF for the U.S. military is nearing \$1 trillion, having found the program to be dogged by delays, manufacturing inefficiencies, and price increases. Given this conclusion, do you believe the Air Force can afford a competitive second engine program? What is your cost analysis and why?

General DARNELL. DOD decided to eliminate the alternate engine program during the fiscal year 2007 program and budget review. Like all requirements prioritized during DOD's planning, programming, budgeting, and execution system, the JSF alternate engine program was weighed against all other funding priorities. The Department decided the benefits of an alternate engine program were not commensurate with the increased cost. The Office of the Secretary of Defense (OSD) Office of Program Analysis and Evaluation (PA&E) led an analysis to support this decision. The Deputy Secretary of Defense provided this documentation to the committee February 2006.

9. Senator PRYOR. Lieutenant General Darnell, can you give me the Air Force perspective on the proposed termination of the JSF competitive engine program, including how such termination may affect procurement and life-cycle costs for the JSF?

General DARNELL. The Air Force agrees with the Department's position to not pursue a competitive engine for the F-35 JSF. The conclusions of all three 2007 congressionally-directed engine studies, while supportive of competition in general, support the Department's initial findings that the expected savings from competition do not outweigh the investment costs. Funding two engines vice one would increase F-35 total development cost. Splitting the production buys between two sources may actually increase total production costs due to learning curve effects, and maintaining two engines would increase sustainment costs.

10. Senator PRYOR. Lieutenant General Darnell, will the benefits of the competitive engine program outweigh the costs?

General DARNELL. No, the conclusions of all three 2007 congressionally-directed engine studies, while supportive of competition in general, support the Department's initial findings that the expected savings from competition do not outweigh the investment costs.

11. Senator PRYOR. Lieutenant General Darnell, how many other Air Force aircraft procurement programs have had a second engine competition as part of its development, past or present?

General DARNELL. Competition between Pratt & Whitney and General Electric to supply engines for the F-16 occurred in the mid-1980s; however, this was after the development of the F-16, which began in 1975. There was also an engine competition between Pratt & Whitney and General Electric to obtain improved engine durability and operability for the F-15; however, this occurred in 1984 after development of the F-15, which began in 1969. In the original purchase of the C-5A (1965), the Air Force issued contracts to both General Electric and Pratt & Whitney for design studies of new turbofan engines. General Electric Aircraft Engines (GEAE) won the

competition, and a contract was awarded for its TF39 engines. Other than those listed, no other Air Force aircraft procurement programs have had a second engine competition as part of the development phase.

QUESTIONS SUBMITTED BY SENATOR CLAIRE MCCASKILL

AIR FORCE TACTICAL AIRCRAFT

12. Senator MCCASKILL. Lieutenant General Darnell, during the Air Force's lengthy efforts to develop and procure advanced fifth generation tactical fighter aircraft (F-22s and F-35s) to replace its aging Cold-War era fighters, many believe the Air Force has under-invested in maintaining the readiness of its F-15 and F-16 fighter aircraft. Further, some theorize that the rapid aging of the F-15 and F-16 fleet is accentuated by a lack of investment in both aircraft's maintenance and readiness. The age and readiness levels of the F-15 and F-16 are among the core justification points utilized by the Air Force for needing to procure more F-22 and F-35 aircraft than the DOD budget currently permits. Many believe the Air Force is putting its overall readiness at risk by allocating too many resources needed for maintaining the readiness of the F-15 and F-16 fleet to F-22 and F-35 development and procurement. Please explain and justify the Air Force's decision not to execute a Service Life Extension Program (SLEP) for our F-15 fleet.

General DARNELL. There has not been a rapid decrease in F-15 and F-16 readiness. In fact, aircraft readiness slowly decreased across all weapon systems due to an environment of austere funding through the 1990s. The Air Force responded by investing heavily in aircraft spares and Air Force Smart Operations for the 21st Century (AFSO21) initiatives at the depot facilities and field units. As a result, aircraft readiness rebounded in 2001, especially for the F-15 and F-16, and has been holding the line ever since.

13. Senator MCCASKILL. Lieutenant General Darnell, has the lack of a SLEP for the F-15 contributed to recent maintenance problems in the F-15 fleet? If not, why?

General DARNELL. No. The recent longeron issue on the F-15 is the result of a problem with a single lifetime-designed component outlier, not of the broader structural system. Engineers at the Air Force's Aeronautical Systems Center (ASC) have determined that a service life extension to 12,000 hours and higher is possible without having to perform Service Life Extension Program (SLEP) modifications.

14. Senator MCCASKILL. Lieutenant General Darnell, can you assure me that the Air Force did not undertake a strategic effort to permit the rapid degrading of F-15 and F-16 readiness in order to facilitate a stronger argument for the procurement of F-22 and F-35 aircraft? Please explain.

General DARNELL. I can assure you the Air Force did not undertake an effort to degrade F-15 and F-16 readiness to facilitate a stronger argument for procurement of the F-22 and F-35. There has not been a rapid decrease in F-15 and F-16 readiness. In fact, aircraft readiness slowly decreased across all weapon systems due to an environment of austere funding through the 1990s. The Air Force responded by investing heavily in aircraft spares and Air Force Smart Operations for the 21st Century (AFSO21) initiatives at the depot facilities and field units. As a result, aircraft readiness rebounded in 2001, especially for the F-15 and F-16, and has been holding the line ever since.

15. Senator MCCASKILL. Lieutenant General Darnell, General Corley, Commander of Air Combat Command, recently publicly stated that even if the Air Force were given a blank check to replace its F-15s with new F-22s, the F-22 production line would not be able to deliver the required number in the given time needed. Nonetheless, he did not believe the Air Force wanted to go back to buying more F-15s to address tactical fighter shortfalls that may result from a reduction in the F-22 buy as well as delays in both F-22 and F-35 production. Given budget constraints, which will lead to smaller than planned/desired purchases of F-22 and F-35 aircraft, as well as delays in F-22 and F-35 production, shouldn't the Air Force be re-examining the option of procuring additional F-15s in order to bridge the gap created by delays in production as well as the gap created by a reduction in the overall number of fifth generation aircraft expected to be procured?

General DARNELL. The Air Force is committed to purchasing a complementary mix of fifth generation fighters to recapitalize its fighter fleet. Fifth generation fighters are required to achieve air dominance against current and emerging threats and to maintain the U.S. technological edge given recent foreign developments. Fourth

generation legacy aircraft, such as the F-15 and F-16, cannot be modified to match the capabilities of fifth generation fighters.

16. Senator MCCASKILL. Lieutenant General Darnell, we all want our airmen to have the best equipment to get the job done. Is there a place for F-15Es as a complement to F-22s and F-35s in future tactical aircraft operations?

General DARNELL. The F-15E will complement the F-22 and F-35 in all U.S. joint combat operations for the next 20+ years. Although the F-15E is not a stealth platform, and may not be employed in direct attack operations during the first stages of a high threat major operation, it is an essential component of our fighter force structure and is well-suited to numerous lesser threat scenarios from medium intensity combat operations to counter-insurgency and global war on terrorism operations. The Air Force is prioritizing modernization and sustainment investments to ensure the F-15E remains a highly capable and viable platform by upgrading its systems to include data links, secure beyond line-of-sight communications, and a modernized, active electronically scanned array (AESA) radar. These, and other, upgrades will ensure that the F-15E remains a key part of the Air Force inventory out into the 2020s.

17. Senator MCCASKILL. Lieutenant General Darnell, do we need all fifth generation fighters or can we have a mix of fighter aircraft to get the job done and maintain military readiness? For example, is there not a place for F-22 and F-35 aircraft in early combat operations, where the stealth of the aircraft will be crucial, while much cheaper but still highly capable F-15 aircraft could execute numerous tactical aircraft missions once air superiority is established?

General DARNELL. Fifth generation fighters are required to achieve air dominance against current and emerging threats and to maintain the U.S. technological edge given recent foreign developments. Fourth generation legacy aircraft, such as the F-15 and F-16, cannot be modified to match the capabilities of fifth generation fighters. Legacy aircraft (fifth generation) use is being constrained by rapid advances of enemy capabilities in fighters and integrated air defenses which require fifth generation capability to counter. Our use of legacy aircraft in a campaign is constrained until air-to-air and surface-to-air defenses have been neutralized and access assured. Thus, the mix of assets must be carefully managed. Over-reliance on legacy fighters both today and in the future puts all operations of war—land, sea, and air—at risk against capable threats.

18. Senator MCCASKILL. Lieutenant General Darnell, do we really need all fifth generation fighters to execute every phase of air combat operations, especially in light of the costs required to procure such a capability and the lack of resources currently available to enable such a strategy?

General DARNELL. No, we do not require F-22s and F-35s in every phase of combat operations. However, the fifth generation capabilities of these two platforms are absolutely critical to the initial phases of any major combat operation and to follow-on operations in contested airspace. Fifth generation aircraft provide the unique capability to operate in heavily defended airspace allowing them to detect and destroy key air and ground targets and share vital information they collect with other friendly legacy systems. These capabilities are essential to gaining and maintaining air superiority, and enable all follow-on joint air, land, and sea operations to be executed with acceptable risk.

19. Senator MCCASKILL. Lieutenant General Darnell, I believe we can all agree the F-15 production line has been one of the most productive lines for the Air Force producing a top rate aircraft that is still considered one of the most formidable fighter aircraft in the world. In addition, the F-15 line has been vital in foreign military sales of U.S. fighters to our closest allies. However, like all good things, soon the line faces its end. Do you think it is smart to allow the F-15 line to close with our current state of influx in trying to fill the shortfall in fighter aircraft?

General DARNELL. The F-15 production line is open until mid-2012 producing aircraft for foreign customers. Boeing is actively seeking additional foreign customers which could further extend the production line. The F-15 and other fourth generation fighters cannot be modified to equal the capabilities of the fifth generation aircraft. Fifth generation fighters are required to engage/destroy advanced enemy fighter and surface-to-air threats.

20. Senator MCCASKILL. Lieutenant General Darnell, do you think it wise to cut off a main production line of a fighter in this class that's heavily utilized by our allies?

General DARNELL. The F-15 production line is open until mid-2012 producing aircraft for foreign customers. Boeing is actively seeking additional foreign customers which could further extend the production line. The F-15 and other fourth generation fighters cannot be modified to equal the capabilities of the fifth generation aircraft. Fifth generation fighters are required to engage/destroy advanced enemy fighter and surface-to-air threats.

21. Senator MCCASKILL. Lieutenant General Darnell, what can the Air Force do to extend the F-15 line?

General DARNELL. The F-15 production line is open until mid-2012 producing aircraft for foreign customers. Boeing is actively seeking additional foreign customers which could further extend the production line. If directed to extend the production line, the Air Force could procure new F-15Es at a rate of one per quarter, or four per year. The current Air Force estimated fly-away cost for four F-15Es is \$448 million in fiscal year 2008 dollars, or \$112 million per aircraft. The length of the line extension depends on the quantity of aircraft ordered.

22. Senator MCCASKILL. Lieutenant General Darnell, the Air Force maintains that 2,250 fighter aircraft are required to meet National Military Strategy requirements. In your written testimony you state that 2,250 remains the required number. However, at the same you time you acknowledge the challenges that may prevent the Air Force from reaching 2,250 fighter aircraft. What alternatives are you looking at to address this shortfall in fighter aircraft?

General DARNELL. The 2006 Quadrennial Defense Review (QDR) established the requirement for the Air Force to maintain 86 Combat Wings in order for it to meet the requirements in the National Defense Strategy (NDS) and National Military Strategy (NMS). For tactical aircraft (TACAIR), that equates to 2,250 aircraft.

Today's force (fiscal year 2008) meets this requirement (2,347 total fighters). However, this force consists mostly of fourth generation fighters: A-10, F-15, F-15E, and F-16 aircraft. These aircraft were developed in the 1960s/1970s and are now reaching the end of their design lives. The average age of the U.S. Air Force TACAIR inventory is currently 20 years with some aircraft as old as 29 years. That average age is projected to climb to 25 years by 2015.

New aircraft, the F-22 and F-35, will replace our current inventory at a rate less than one for one under current fiscal constraints. Based on the current acquisition programs for the F-22 and F-35 and the service life retirements of our current fleet, the Air Force will drop below the required 2,250 total aircraft beginning in 2013 and continue to do so every year thereafter.

For this reason, the Air Force has sought to accelerate the rate at which F-35s enter the force by increasing production to 110 aircraft per year.

23. Senator MCCASKILL. Lieutenant General Darnell, is the Air Force fully considering the merit of extending the life of the newest F-15s in the fleet and purchasing new F-15s in order to address the tactical aircraft gap in the short run?

General DARNELL. The Air Force will continue to improve the F-15 to enable it to execute the evolving fourth generation mission. The F-15 and other fourth generation fighters cannot be modified to equal the capabilities of the fifth generation aircraft. The Air Force is taking the appropriate investment and risk mitigation steps to keep some of our aging F-15s flying until 2025.

24. Senator MCCASKILL. Lieutenant General Darnell, can you discuss the cost gap between the F-15 and F-22 and F-35, even acknowledging the capability gap?

General DARNELL. The cost gap, if measured by Unit Flyaway Cost (UFC), is highly dependent on the quantity of aircraft procured. The capability gap between fourth and fifth generation aircraft is a critical factor—fifth generation fighters maintain air dominance in anti-access environments whereas fourth generation fighters are less survivable against those advanced threats.

Under the current F-22 Multiyear Procurement (MYP) contract for Lots 7-9, the average UFC for 60 F-22s is \$142.6 million in then-year dollars. Accounting for inflation and loss of MYP savings, UFC for an additional Lot 10 of 20 aircraft would increase to \$154 million (BY09\$). The Air Force has analyzed three options for additional F-22 procurement (including tail-up costs, support equipment, initial spares, etc.). Those options are a single lot of 20 aircraft totaling \$4.3 billion, a single lot of 24 aircraft totaling \$4.8 billion, or a 4-year MYP of 24 aircraft per year totaling \$4.0 billion per year (savings realized via Economic Order Quantity (EOQ) parts buy). These options assume uninterrupted production after Lot 9 which requires a decision for Lot 10 production and funding for Advanced Procurement by November

2008. The additional F-22s would begin to roll off the production line in fiscal year 2012 after final Lot 9 aircraft delivery.

The unit flyaway cost for the F-35A conventional take-off and landing (CTOL) aircraft is \$62.3 million (BY09\$) based on 1,763 aircraft buy for the Air Force. Previous drills were run regarding the procurement of an additional 20 aircraft in fiscal year 2011 and we found that 20 additional CTOLs would cost \$1.988 billion total procurement. Those 20 additional aircraft brings Air Force total in fiscal year 2011 to 44 aircraft (24 programmed plus 20 additional aircraft). The Unit Recurring Flyaway (URF) cost for 44 aircraft is \$100.1 million (BY09\$). The Average Procurement Unit Cost (APUC) for 44 aircraft is \$133 million (BY09\$). To purchase an additional 20 F-35As, advanced procurement (long lead) is required in fiscal year 2010 and full funding is required in fiscal year 2011. Aircraft deliveries would begin in fiscal year 2013. The F-35 is early in production, with the LRIP Lot 2 contract awarded in May 2008, as well as advanced procurement for LRIP3. The LRIP Lot 1 aircraft are scheduled for delivery in January 2010.

The Boeing F-15 production line currently produces variants for direct commercial sales. The last Air Force variant was procured in 2001 as an attrition reserve purchase. A new F-15E procurement estimate is based on the Korean F-15K variant and would require approximately \$30 million to retool the production line to the U.S. configuration and approximately an additional \$50 million to qualify the new configuration (BY08\$). Assuming long lead funding is provided in fiscal year 2009 and a fully funded contract is awarded in fiscal year 2010, deliveries would begin no earlier than fiscal year 2012. The cost to procure six F-15Es would be approximately \$670 million, or approximately \$112 million UFC. Procuring more than six additional aircraft requires development and qualification of an electronic warfare suite due to limited government furnished equipment. The cost to procure 20 F-15Es would be approximately \$1,760 million, or approximately \$88 million UFC.

25. Senator MCCASKILL. Lieutenant General Darnell, how much risk do we assume by placing new F-15s on air base ramps where the Air Force wanted F-22s and F-35s? I believe it is limited if the right mix is sought, whereas the risk of having too few aircraft, regardless of them all being fifth generation fighters, is quite high. Please comment.

General DARNELL. The F-15 and other fourth generation fighters cannot be modified to equal the capabilities of the fourth generation aircraft. Fifth generation fighters are required to engage/destroy advanced enemy fighter and surface-to-air threats. Once enemy capability is significantly degraded, fourth generation fighters, such as the F-15, provide additional capabilities.

There are multiple risks associated with operating any aircraft for 40+ years, and we have never operated a fighter for that length of time before. Consistent recapitalization of our fleet is critical to maintain combat capability and avoid ballooning support cost and operational risks for aging system.

26. Senator MCCASKILL. Lieutenant General Darnell, in previous hearings, General Moseley indicated that the Air Force's long-term requirement for F-22s was 381, yet today the Air Force is aligned with DOD's procurement number of 183. The Joint Requirement Oversight Council believes the Air Force structure needs to include 240 assigned aircraft and 141 for testing, training, and back-up for a total of 381. The discrepancy between the two figures is very confusing. Is DOD's assigned procurement number of 183 enough to ensure the Air Force can answer the National Military Strategy requirements?

General DARNELL. While General Moseley was asked for his personal opinion, the Air Force supports the program of record and is very grateful the production line continues to remain open. We look forward to continued discussions regarding the requirement to achieve air dominance at acceptable risk levels.

27. Senator MCCASKILL. Lieutenant General Darnell, how are you planning to make up the difference between your original number of 381 and 183 F-22s?

General DARNELL. OSD rendered a decision of adding four more F-22s into the fiscal year 2009 supplemental request. The Air Force welcomes and is committed to further discussions regarding the requirement to achieve air dominance at acceptable risk levels.

NAVY TACTICAL AIRCRAFT

28. Senator MCCASKILL. Mr. Balderson and Rear Admiral Myers, during the Senate Armed Services Committee posture hearing on the fiscal year 2009 Navy budget,

I spoke with Admiral Roughead, Chief of Naval Operations, about my concerns with the Navy's tactical aircraft inventory shortfall. The Admiral agreed there was a strong possibility of a fighter shortfall around 70 aircraft. He believed the shortfall was something that needed to be addressed in order for the Navy to project power around the world using its carriers and air wings. Although the Navy tactical aircraft inventory models may only predict a 70 aircraft shortfall, I have also heard from other commentators that a shortfall in excess of 170 aircraft is more realistic. In my view, what we are talking about here is the possibility of multiple nuclear aircraft carriers being left without airpower. We already have the Carrier Air Wing 7 that is missing all of its tactical aircraft and is playing a shell game to cover responsibilities. Can you comment on the latest information you have on the shortfall and for your plans in fiscal year 2009 and beyond to address this shortfall?

Mr. BALDERSON and Admiral MYERS. Peak Department of the Navy Strike Fighter shortfall is projected at 125 aircraft in 2017 for the Navy and Marine Corps. The Navy shortfall predicted by the F/A-18 inventory model is 69 aircraft in 2017. Our air wings will be increasingly more capable as legacy Hornets are being replaced by the modern more capable JSF aircraft. However, delays in the JSF program, budget cuts reducing JSF and/or F/A-18E/F procurement, or early Hornet retirement will increase the projected Strike Fighter shortfall. The impact of procurement reduction would directly impact our ability to provide warfighting effects to the combatant commanders.

29. Senator MCCASKILL. Mr. Balderson and Rear Admiral Myers, GAO just released a report on the status of the F-35 JSF program. It states that the F-35 is over cost and behind schedule and is projected to increase in price by as much as \$38 billion. Based on the number of projected purchases of all three versions of the F-35, this is 45 percent above the original program estimate. It is apparent that the Navy's version, the F-35C, that will be last to be developed, will be delayed even further than previous estimates had indicated. Will the F-35C be operating in the Navy's fleet by the currently projected Initial Operating Capability (IOC) of 2015? If not, how does the Navy plan to fix the shortfall caused by the delay?

Mr. BALDERSON and Admiral MYERS. The Department of the Navy fully expects the F-35C to IOC in 2015. If the F-35C is delayed, the Navy will look at all possible alternatives to mitigate the increased shortfall. The Navy's strategic vision for tactical air is based on a mix of capabilities of both the JSF and the Block 2 F/A-18 E and F. Our air wings will be increasingly more capable as the older legacy Hornets are replaced by the modern, more capable JSF.

30. Senator MCCASKILL. Mr. Balderson, in regards to GAO's assessed shortfall in the tactical aviation force structure and the F/A-18 production line coming to an end in fiscal year 2012, with suppliers beginning to shut down long lead items in the fall of 2010, do you think it is wise to shut down the F/A-18 hot production line 3 years before the planned IOC of the Navy's version of the JSF?

Mr. BALDERSON. 2009 is the final procurement year for the second Super Hornet multi-year. Single year procurement in 2010, 2011, and 2012 are currently planned. If additional F/A-18 purchases were added, it would be cost effective to pursue a third multi-year. Multi-Year Procurement is an acquisition strategy that has resulted in substantial savings in the F/A-18 E/F program. Should additional F/A-18 E/F aircraft be procured in POM-10, Multi-Year Procurement will be considered by the Navy.

31. Senator MCCASKILL. Mr. Balderson, based on the cost, schedule, and performance challenges of the JSF program as outlined by the current GAO report, does it make sense and do you accept the national strategic risk of having a 3-year gap in Navy fighter production capability?

Mr. BALDERSON. The Department of the Navy fully expects the F-35C to IOC in 2015. If the F-35C is delayed, the Navy will look at all alternatives to mitigate the increased shortfall.

32. Senator MCCASKILL. Mr. Balderson and Rear Admiral Myers, with production delays in the F-35C and associated cost overruns, there is little dispute that the Navy will experience a tactical aircraft shortfall in the near term, as discussed above. It is my understanding that the Navy is very happy with the performance of the F/A-18 as well as with the value they have received from Boeing, who makes the aircraft, in F/A-18 production. It is also my understanding that the Navy, and thereby the American taxpayer, has benefited from significant cost savings associated with entering into Multi-Year Procurement (MYP) contracts with Boeing for F/A-18 production in the past. With the shortfall in tactical aircraft currently facing

the Navy and MYP-II coming to an end, it seems to me that the Navy needs to be rapidly considering and moving to enter into a new MYP for F/A-18s. To what extent have you conducted analyses of a potential third MYP contract of F/A-18 E/F/G Super Hornets to address the fighter gap that the Navy will experience during the transition to the JSF?

Mr. BALDERSON and Admiral MYERS. 2009 is the final procurement year for the second Super Hornet multi-year. Single year procurement in 2010, 2011, and 2012 are currently planned. If additional F/A-18 purchases were added, it would be cost effective to pursue a third multi-year. Multi-Year Procurement is an acquisition strategy that has resulted in substantial savings in the F/A-18 E/F program. Should additional F/A-18 E/F aircraft be procured in POM-10, Multi-Year Procurement will be considered by the Navy.

33. Senator MCCASKILL. Mr. Balderson and Rear Admiral Myers, what conditions would you require or wish to see met in order to create the proper business case for a third MYP?

Mr. BALDERSON and Admiral MYERS. The F/A-18 inventory model estimates a U.S. Navy Strike Fighter shortfall of 69 aircraft in 2017. Mitigation plans, including inventory optimization and possible additional aircraft procurement, are being addressed in POM-10. Reduction of F/A-18 E/F or JSF buy rates and/or shorter F/A-18 A-D service life will significantly increase the Strike Fighter shortfall. Multi-Year Procurement is an acquisition strategy that has resulted in substantial savings in the F/A-18 E/F program. Should additional F/A-18 E/F aircraft be procured in POM-10, resulting in a sufficient quantity to develop a business case, Multi-Year Procurement will be considered by the Navy.

34. Senator MCCASKILL. Mr. Balderson and Rear Admiral Myers, what are your overall views on a possible MYP III?

Mr. BALDERSON and Admiral MYERS. 2009 is the final procurement year for the second Super Hornet multi-year contract. Single year procurements in 2010, 2011, and 2012 are currently planned. Multi-Year Procurement is an acquisition strategy that has resulted in substantial savings in the F/A-18 E/F program. Should additional F/A-18 E/F aircraft be procured in POM-10, resulting in a sufficient quantity to develop a business case, Multi-Year Procurement will be considered by the Navy.

35. Senator MCCASKILL. Mr. Balderson, in regards to GAO's assessed shortfall in the tactical aviation force structure and the F/A-18 production line coming to an end in fiscal year 2012, with suppliers beginning to shutdown long lead items in the fall of 2010, do you think it is wise to shut down the F/A-18 hot production line 3 years before the planned IOC of the Navy's version of the JSF?

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QUESTIONS SUBMITTED BY SENATOR JOHN WARNER

F-35 ALTERNATIVE ENGINE

36. Senator WARNER. Mr. Balderson and Lieutenant General Hoffman, in your personal opinion, are you concerned that with a sole engine supplier, the lack of competition could hinder both innovation and efforts to decrease the cost of F-35 engine development?

Mr. BALDERSON. The conclusions of all three 2007 congressionally-directed engine studies are supportive of competition in general, but do not obviate the Department's initial findings that the expected savings from competition do not outweigh the investment costs. Funding two engines vice one would increase F-35 total development cost. Affordability is one of the cornerstones of the F-35 program, and prime contractors will be incentivized to become more efficient and decrease their costs where possible.

General HOFFMAN. The conclusions of all three 2007 congressionally-directed engine studies, while supportive of competition in general, support the Department's initial findings that the expected savings from competition do not outweigh the investment costs. Funding two engines vice one would increase F-35 total develop-

ment cost. Splitting the production buys between two sources may actually increase total production costs due to learning curve effects, and maintaining two engines would increase sustainment costs. Affordability is one of the cornerstones of the F-35 program, and prime contractors will be incentivized to become more efficient and decrease their costs where possible.

37. Senator WARNER. Mr. Balderson and Lieutenant General Hoffman, what level of funding would be necessary to continue development the F-35 alternate engine program for fiscal year 2009?

Mr. BALDERSON. To maintain schedule, F136 alternate engine development would require \$495 million (\$247 million per Service) in fiscal year 2009. In addition, \$31 million (\$15.5 million per Service) of advance procurement funding for the F136 would be required in fiscal year 2009.

General HOFFMAN. The F136 alternate engine development would require \$495 million (\$247.5 from the Departments of the Air Force and Navy) in fiscal year 2009. In addition, \$31 million (\$15.5 million from the Departments of the Air Force and Navy) of advance procurement funding for the F136 would be required in fiscal year 2009.

38. Senator WARNER. Mr. Balderson and Lieutenant General Hoffman, why has DOD not requested additional funding for the F-35 alternate engine when Congress expressly directed DOD to do so in the National Defense Authorization Act for Fiscal Year 2008?

Mr. BALDERSON. The conclusions of all three 2007 congressionally-directed engine studies are supportive of competition in general, but do not obviate the Department's initial findings that the expected savings from competition do not outweigh the investment costs. The Department assessed all aspects of the F-35 program in preparation for this year's budget submission and the Department continues to believe the risks associated with a single source engine program are manageable and do not outweigh the investment required to fund a competitive alternate engine.

General HOFFMAN. The conclusions of all three 2007 congressionally-directed engine studies, while supportive of competition in general, support the Department's initial findings that the expected savings from competition do not outweigh the investment costs. The Department assessed all aspects of the F-35 program in preparation for this year's budget submission, and the Department continues to believe the risks associated with a single source engine program are manageable and do not outweigh the investment required to fund a competitive alternate engine.

[Whereupon, at 3:40 p.m., the subcommittee adjourned.]

