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HEARING

ON

NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2008

AND

OVERSIGHT OF PREVIOUSLY AUTHORIZED PROGRAMS

BEFORE THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

ONE HUNDRED TENTH CONGRESS

FIRST SESSION

AIR AND LAND FORCES SUBCOMMITTEE HEARING

ON

BUDGET REQUEST ON ARMY GROUND FORCE ACQUISITION PROGRAMS

HEARING HELD
MARCH 27, 2007

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FISCAL YEAR 2008 NATIONAL DEFENSE AUTHORIZATION ACT—BUDGET REQUEST ON ARMY GROUND FORCE ACQUISITION PROGRAMS

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
AIR AND LAND FORCES SUBCOMMITTEE,
Washington, DC, Tuesday, March 27, 2007.

The subcommittee met, pursuant to call, at 10 a.m., in room 2118, Rayburn House Office Building, Hon. Neil Abercrombie (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. NEIL ABERCROMBIE, A REPRESENTATIVE FROM HAWAII, CHAIRMAN, AIR AND LAND FORCES SUBCOMMITTEE

Mr. ABERCROMBIE. Good morning. Aloha, everybody. Thank you very much for coming. Thanks to our panel.

I will give a brief opening statement, and Mr. Saxton will, and then we will go to summaries.

I will say at the beginning that all statements will be accepted in full. If we can go to summaries so we can get to questions and observations for members' purposes and for those in the audience, and also for the panel—you don't necessarily have to answer questions.

You might want to comment and make observations as well. Same for the members. That sometimes can be as illuminating or more illuminating than questions per se.

The Air and Land Forces Subcommittee meets today to receive testimony from the U.S. Army's 2008 procurement and research and development budget. The panel includes witnesses from the Office of the Secretary of Defense (OSD), the Department of the Army and the Government Accountability Office (GAO).

In terms of overall funding, the Army's requested investment budget for 2008 is $34.4 billion. This went up by $7 billion compared to the 2007 base budget level. That was the Army's requested budget as of the time we received it.

Now, you may want to modify that in testimony today.

The Army also received $10 billion more in procurement funds in the so-called bridge supplemental passed last fall and will likely receive another $15 billion in the supplemental appropriations bill passed by the House last week, if it goes forward.

I want to add parenthetically, Secretary Bolton, we are now seeing what the difficulties are when the military becomes dependent on supplemental budgets.

As I hope everyone knows, what our committee is going to try and do is move as much as should be in the regular defense author-

ization and subsequent appropriations bills as possible for 2008, try to avoid as much as possible, other than what is truly emergency and truly supplemental, going in such a bill, because I believe that the politics of the supplemental bill which we did pass last week is such that you are going to be fortunate if that bill appears before September or October.

And funding which may otherwise have been counted on then gets—it doesn't come forward. The politics of it now are difficult. There is now even talk of vetoes, and then it has to come back, and so on and so forth—and negotiations.

So I hope that you will agree, Mr. Secretary, and that by extension the armed forces and eventually the administration will agree, that it is best to try and work with the committees in regular order with the authorization bill as much as humanly possible, to address some of the pressing issues, particularly regarding readiness.

Despite all this additional funding, then, the Army has also presented an $11 billion list of unfunded requirements along with its 2008 budget. And if my understanding from our meeting yesterday was correct, there may be even more.

So therefore, the context of today's hearing is complex. It involves multiple budgets. It involves multiple considerations for funding.

The Army is currently fighting in two wars, both of uncertain duration and high cost. And the Nation is not mobilized from an economic or manufacturing or industrial base standpoint, and I might say from a psychological standpoint, too, at least in my judgment.

The American people as a whole have been asked to sacrifice very little to pay for these wars or to deal with these wars. I do not consider taking off your shoes in an airport a sacrifice. It is at best an inconvenience.

As far as I am concerned, the only sacrifice we have made since 9/11 has been postponing the Super Bowl one week in 2001. Instead, the military community of troops and their families are the ones being asked to carry this heavy burden for the rest of us. Everybody else is watching it on television.

The final and most important issue through which the 2008 budget must be considered is, as I have mentioned, the rapidly declining Army readiness. In order to equip the troops in Iraq and Afghanistan with the essentials, the rest of the Army has been stripped of equipment and funding, leaving the Nation with no strategic ground force reserve, for all intents and purposes.

In particular, the Army National Guard and the Army Reserve have serious readiness problems, much of which is due to lack of critical equipment. Fixing this serious readiness problem will be a major focus of the subcommittee's work.

I might add, again, parenthetically, when I say subcommittee's work, we speak of the whole subcommittee. We don't make divisions on party lines on this subcommittee, I can assure you.

We will focus on the 2008 authorization bill and exercise our best judgment which you will help us to make with your testimony and your commentary and observations not only today but in days to come, as we come to grips with it.

And I assure you we will be calling on you, and I hope you will not hesitate to give us the benefit of your judgment, opinions and perspective at any point as the notion strikes you.

We work in a bipartisan manner. We are going to do everything we can to improve the Army's future readiness. I know that is Mr. Saxton's commitment, certainly mine and all the subcommittee members.

Given this context, the major issue facing the subcommittee is not the relative merits of one program over another, as important as any one of them may be.

Instead, the major issue the subcommittee and the Congress must consider is how to ensure the Army as a whole remains ready to do the missions we assign it.

The exact nature of these future missions is unclear, but one thing is clear. Army units cannot be ready if they don't have the equipment they are required to have, if they don't have the training they are required to have, if they don't have the full complement of personnel they are required to have, commensurate with the various doctrines that the Army is pursuing.

It is this subcommittee's charter to ensure that the Army's soldiers do have what they need. Since funding is not unlimited, this will require many tough choices between improving the near-term readiness of the Army and working on the weapons systems of the future.

The witnesses have been asked to provide testimony on some of the Army's major procurement and development programs, including the Future Combat System (FCS), the Army Modular Force Initiative, upgrades to the Army's three major ground combats—the M1 tank, the M2 Bradley and the Stryker vehicle—and selected Army communications systems.

In addition, the hearing memorandum for members, if you haven't had a chance to go through it as yet, does include detailed information on the Army's various force protection equipment programs that our witnesses will also address in context.

And with that, I will go to my good friend and colleague, my mentor through many other committee assignments not only here but in the Readiness Subcommittee, Mr. Saxton.

STATEMENT OF HON. JIM SAXTON, A REPRESENTATIVE FROM NEW JERSEY, RANKING MEMBER, AIR AND LAND FORCES SUBCOMMITTEE

Mr. SAXTON. Mr. Chairman, thank you very much. I would just like to begin this morning by building on some of the things that you have correctly noted in your opening testimony.

I have a friend who is recently back from Iraq, and he calls me often and says we need to get our country on a war footing.

Now, that is, I believe, where you were headed in the opening part of your statement when you said that we are neither psychologically nor industrially mobilized to do the job that we need to do.

And I would go on further to point out that historically, when we find ourselves in dangerous international situations, we find it important enough to increase our percentage of military spending far beyond what it is today.

During World War II, we spent 34 percent of gross domestic product (GDP) on national security. During the Korean War, we were at about 10 percent. During the Reagan buildup, we built back up—after we had fallen very low, we built back up to 6 percent.

And today, after the decade of the 1990's when we went down to 3 percent, we are built back up to 3.8 percent.

And I would just make the point, Mr. Chairman, that after—by the way, I should have started by thanking the gentlemen at the table for spending so much time with you and me yesterday, because it was a very enlightening set of meetings that we had.

And subsequent to those meetings, understanding the potential for the subject that we are here to discuss this morning—that is, the Future Combat System—and the need to move as efficiently as possible in that direction, it might be good to look at this 3.8—our current situation, those elements that you noted, Mr. Chairman, the psychological and industrial preparedness of our country, and look at that 3.8 percent and see if we want to address that issue, of course, with the administration.

As the chairman also pointed out, our job here is to see that soldiers have what they need. That is important.

And in order to determine what it is our soldiers need, we need to know something about our enemy, which brings me to an article which I found on my chair this morning when I came in my office.

It was sent to me by our great friend and colleague, Mac Thornberry, who apparently found this article in the—it was written by a fellow by the name of Bruce Hoffman, and Hoffman says, "We can't win if we don't know the enemy."

And it says that—it starts out by quoting China's Sun Tzu. "If you know the enemy," he says, "and know yourself, you need not fear the results of 100 battles." But we have plenty to fear if we don't know the enemy.

"Military tactics are doomed," he goes on, "to failure when they are applied without sophisticated knowledge of the enemy being pursued, of how the enemy thinks, and therefore how he is likely to respond or adapt to tactics used against him."

So as we consider the potential of the Future Combat System, we need to keep clearly in mind that we need to know what it is that we are up against, the nature of our enemy, and how a future combat system will be employed in order to defeat that enemy. That is tricky business, but that is what we are here to discuss today.

I would just conclude with this. In 1990, the Secretary of Defense came here in this room before this committee and he said, "I have got good news and bad news." He said, "The good news is the Soviet Union is going to go away." He said, "The bad news is, "The threat isn't. It is just going to change."

I would say that in my time here, since 1990, we have watched that change as it has happened. We have not adequately seen that change and understand that change before it happened.

We need to learn a lesson from the last decade and look at the change that will happen in the next decade before it does happen. That is what Future Combat System is about. At least I believe that is what it is about, so that we have a combat system in the

future to meet the future threat. And therefore, we need to define what that threat is.

So with your help today, both in terms of where you have been, in terms of developing technologies, and your knowledge of the future threat, hopefully we will begin to walk down that road.

Thank you very much.

Mr. ABERCROMBIE. Thank you very much.

Mr. Saxton, would you like that article distributed to the members?

Mr. SAXTON. Yes, that would be most helpful.

[The information referred to can be found in the Appendix on page 99.]

Mr. ABERCROMBIE. We will take care of that.

We will move now to the panel's testimony and then go directly to members' questions in reverse order of seniority today.

First will be Dr. Finley, James Finley, the Deputy Under Secretary of Defense for Acquisition, Technology and Logistics (AT&L).

He will be followed by Mr. Bolton, Secretary Bolton, the Assistant Secretary of the Army for Acquisition, Technology and Logistics.

Then Mr. Francis, Paul Francis, the Director of Acquisition and Sourcing Management, the Government Accountability Office.

And will you be testifying, General Curran?

General CURRAN. Yes, sir, I will.

Mr. ABERCROMBIE. Okay. Then you will follow after Mr. Francis.

General CURRAN. Thank you, Mr. Chairman.

Mr. ABERCROMBIE. I wasn't sure whether you were going to be backing up or testifying—Deputy Commander of the U.S. Army Training and Doctrine Command.

As I indicated, without objection, all witnesses' testimony and statements will be included in the hearing record. So if we could get to summaries of what is there, we will then move on to the questions and commentary.

We will start with Dr. Finley.

Welcome and aloha, Dr. Finley. Thank you for coming.

STATEMENT OF DR. JAMES I. FINLEY, DEPUTY UNDER SECRETARY OF DEFENSE FOR ACQUISITION AND TECHNOLOGY

Dr. FINLEY. Thank you, Mr. Chairman. We are delighted to be here today.

And thank you again, Ranking Member Saxton, for having lunch with you yesterday. It was an extremely informative lunch for me personally.

Chairman Abercrombie, Ranking Member Saxton and members of the committee, thank you for the opportunity to discuss the Army's ground force programs requested in the President's fiscal year 2008 budget.

As you know, the Army is involved in a total transformation. It includes not only the structure of the force and personnel, but also the equipment and systems that are necessary to support our 21st century national security goals and missions.

A critical piece of this transformation effort is the Future Combat Systems. We are currently engaged with an enemy who is thinking and adapting to our every advance. We must counter with systems

and equipment that enhance our warfighters' capabilities in theater.

This allows the Army to modernize while bringing leading-edge technology to the battlefield. We fully support the President's request of $3.7 billion for FCS for research, development and testing and evaluation of this program. This is a program of vital importance to the Army and our warfighter.

We also continue to work collaboratively with the Army on Joint Network Node (JNN) Program and the Warfighter Information Network Tactical (WIN-T) Program. Today, I will provide an update for you of the progress made for the FCS JNN and WIN-T programs.

The fiscal year 2008 budget for FCS funds the acquisition and fielding of communications, force protection and mobility equipment needed to support current and future operations.

Investments balance both near-term and long-term modernization requirements. For the near term, the FCS program provides the technology to increase networking combat capability for current Army brigade combat teams through a spin-out approach.

That approach exploits new technologies as soon as possible to enhance current capabilities.

Currently, development of FCS for the brigade combat teams continues. The Army plans to replace 15 of the Army's heavy brigade combat teams with FCS.

The department is committed to balancing our investment in FCS by aligning operational requirements, technology readiness and affordability for both the near-term and long-term decision-making.

The affordability of the FCS program in conjunction with overall Army top-line priorities, continues to be an area of attention for the Army and the department.

The department also continues to work collaboratively with the Army on developing and delivering improved network capability to our warfighters.

Programs such as FCS, JNN and WIN-T are all vital contributors to increasing the survivability of those warfighters.

We continue to look for ways to identify, develop and deliver network capabilities sooner to the force. Flexibility and agility in our acquisition process is critical to expeditiously and cost-effectively equip our ground forces.

The Army's transformation effort, including our Army Modularity and the FCS program, requires a disciplined yet agile acquisition construct. The ability to track cost, schedule and performance is the centerpiece of the system-to-systems concept for acquisition.

The department has embarked on a number of initiatives to ensure disciplined yet agile acquisition of capability for our warfighters.

These initiatives include tri-chaired concept decision reviews, time to find acquisition and risk management tools.

In closing, I believe that the department and the Army are working together and making progress. These FCS and network communication capabilities are giving our warfighters the best systems and support in the world, to help them meet their operational goals and missions.

Through our advances in science and technology, we are also helping modernize the Army and develop the future of ground combat. We fully support the President's fiscal 2008 budget request for ground forces capabilities.

I thank the committee for their time today and their leadership in addressing the Army's operational needs. This committee has consistently provided our men and women in armed forces with the systems and support they need.

Thank you for your unwavering support to our warfighters. I will be happy to answer any questions.

[The prepared statement of Dr. Finley can be found in the Appendix on page 49.]

Mr. ABERCROMBIE. Thank you very much, Dr. Finley.

Secretary Bolton.

STATEMENT OF CLAUDE M. BOLTON, JR., ASSISTANT SECRETARY OF THE ARMY FOR ACQUISITION, LOGISTICS AND TECHNOLOGY, DEPARTMENT OF THE ARMY

Secretary BOLTON. Aloha and good morning, Chairman Abercrombie, Congressman Saxton, distinguished subcommittee members. Thank you for this opportunity to appear before you to discuss the Army's ground force programs.

With me today is Lieutenant General Mark Curran, the Deputy Commanding General—Futures, and Director of the Army's Capability Integration Center at the Training and Doctrine Command.

Mr. Chairman, the Army is transitioning continuously from the current to the future force through combined effects of transformation and modernization.

The main focus of transformation is modular conversion. The main focus of modernization is the Future Combat System, or FCS.

We are very proud of this program. FCS is the most complex weapons procurement ever managed by the Army, and I am pleased to report to you that the FCS program remains on contract cost, schedule and performing to plan.

Our success is not without sacrifice. The FCS program has sustained three significant and consecutive budget cuts. We recently made program adjustments informed by operation analysis and fiscal reality, so the Army will continue to have an affordable and executable FCS strategy.

With FCS, the Army takes advantage of technologies as they develop and quickly gets these technologies in the hands of soldiers.

With your continued support, our brigade combat teams (BCT) will regularly be enhanced by the insertion of FCS technologies.

Mr. Chairman, it is imperative that the FCS program receive full funding so we can stay on schedule to deliver spin-out one network systems to the Army's evaluation task force in 2008, along with the deliveries of the manned ground vehicle—early—non-line-of-sight (NLOS) cannon.

FCS and the Army recently and successfully—in fact, I would like to state very successfully—completed the first live fire soldier exercise, Experiment 1.1, involving FCS technologies and equipment, the combination of an eight-month demonstration that took place at Fort Bliss, Texas, the White Sands Missile Range, New Mexico and Huntington Beach, California.

This exercise was the first step in accelerating the delivery of key FCS capabilities to the current force. A platoon of 36 soldiers participated in this exercise. It involved a mock urban assault recently carried out in the real world by U.S. forces in Iraq.

The soldiers attacked the target and then cleared out several buildings that were infested with insurgents. However, unlike today's soldiers, the soldiers using the FCS equipment were empowered by the FCS network.

The soldiers participating in the exercise had a great advantage because they had a suite of new network capabilities that reduced soldier risk, increased soldier awareness and battlefield understanding, and enhanced the overall effectiveness of the mission.

The exercise was such a success that I brought with me one of the soldiers I met there to help you gain a better understanding of the capabilities the FCS brings to the battlefield.

With me today is Sergeant 1st Class Nicholas Barnes. Originally from Richmond, Virginia, Sergeant Barnes is a motor instructor in the 29th Training Brigade at Fort Benning, Georgia. He is a combat veteran who served two tours of duty in Afghanistan with the 3rd Battalion, 75th Ranger Regiment. He is one of America's finest.

And with your indulgence, Mr. Chairman, I would like to thank him publicly for his outstanding service to our Nation.

[Applause.]

Mr. ABERCROMBIE. Welcome. Aloha. Thank you for coming.

Secretary BOLTON. What I would like to show you now, with the help of Sergeant Barnes, is a few representations of the FCS so you can see firsthand how far this program has progressed.

First, let's start at the end of the table there with the small unmanned ground vehicle. And the Army has to have a lot of acronyms. That is a SUGV.

Mr. ABERCROMBIE. Yes. Mr. Bolton, with your permission, if you will say what everything is as opposed to just using the acronyms, that would be helpful for those not familiar with it all.

Secretary BOLTON. Yes, sir. Small unmanned ground vehicle.

Next is a Class 1 unmanned aerial vehicle. It is lightweight and carries a JTRS communication package with it.

Next to that are——

Mr. ABERCROMBIE. And the JTRS communication package would be?

Secretary BOLTON. The Joint Tactical Radio Systems radio, sir. Thank you.

Mr. ABERCROMBIE. Very good. You did that looking me right in the eye. Thank you. I appreciate it.

Secretary BOLTON. Next, we have the unattended ground sensors. There is a tactical sensor, and these are implanted in the ground.

And then next to that are the urban unattended ground sensors, and these are placed in buildings.

And finally, an early version of the Joint Tactical Radio System radios. All this equipment was used during the exercise. And much of this equipment, particularly the radios on the end, will be going in to our Abrams, our Bradley fighting vehicles and our Humvees.

Now, Sergeant Barnes will be here at the conclusion of this hearing if members would like to take a closer look at the equipment and discuss it a bit more.

In the words of our soldiers, and I think Sergeant Barnes would back me up on this, FCS network systems provided them with the capability they need today and in the future.

With full funding, we can capitalize on this positive momentum and bring this capability to the field rapidly.

Before I conclude my remarks, Mr. Chairman, I would like to highlight an issue of grave concern to me, and that is the declining number of people in the Army acquisition workforce and the knowledge that this workforce has that is literally walking out the door with each retirement.

Within the next three years, nearly half of the remaining civilian workforce will be eligible for retirement. And as the workforce declines, the workload increases.

I just wanted to bring that to your attention, Mr. Chairman, because it is an issue of some urgency, and we in the Army are doing what we can to mitigate the impacts to all of our programs, current and future.

That concludes my opening remarks, Mr. Chairman. I want to thank the committee again and Congressman Saxton for their outstanding support of the Army over the years and for the continuing wisdom, guidance and steadfast support.

I look forward to your questions.

[The joint prepared statement of Secretary Bolton and General Curran can be found in the Appendix on page 58.]

Mr. ABERCROMBIE. Thank you, Secretary Bolton.

Mr. Francis, you are next, and then General Curran.

STATEMENT OF PAUL L. FRANCIS, DIRECTOR, ACQUISITION AND SOURCING MANAGEMENT, GOVERNMENT ACCOUNTABILITY OFFICE

Mr. FRANCIS. Thank you, Mr. Chairman.

Good morning, Mr. Chairman, Mr. Saxton and members of the subcommittee. I am pleased to be here today to discuss the business case and business arrangements for FCS.

When FCS was approved in 2003, it was far from having a sound business case, especially given its unprecedented size and complexity.

Since then, there have been several improvements in the program. The schedule has been lengthened to allow for more demonstrations and to spin capabilities out to current forces.

Requirements are better understood, even at the system level. Technologies have gotten more mature, and cost estimates have grown substantially, which I think makes them more realistic.

Still, it is four years later, and progress should be expected. The Army, doing well by its own measures, is well behind business case measures. Requirements are still being defined. Technologies are years away from full maturity.

Key demonstrations of FCS performance will not be completed until after the production decision. And an independent cost estimate puts FCS costs between $203 billion and $234 billion, substantially higher than the Army's estimate.

Still, production funding for FCS starts in fiscal year 2008 and will reach about $3.3 billion by 2012, the year before the production decision. When you add in the production cost of the spin-outs, that total will be $5.2 billion in production funds before the production decision.

The 2009 go/no-go decision, which this subcommittee took the lead on, is a key juncture for which there should be enough demonstrated knowledge to make an informed decision about FCS' future.

In our March 2007 report, we stated that it was important for criteria, as quantifiable as possible and consistent with best practices, be established now to evaluate the sufficiency of knowledge.

We recommended specific criteria that should be included in DOD's evaluation. We also recommended DOD analyze alternatives should FCS be judged unable to deliver needed capabilities within reasonable costs and time frames.

To achieve its goals for FCS, the Army employed a lead system integrator, or LSI, to assist in defining, developing and integrating the FCS.

The Army's decision was framed by two factors—first, the ambitious goals of the program, and second, the Army's limited capacity to manage it.

The Army also sought to increase competition at lower supply levels and to create incentives for getting best effort during development. The Army's contract with the LSI defines a partner-like relationship and provides incentives for performance.

Our concerns about the business case aside, the contract and the relationship with the LSI are both consistent with the Army's vision for FCS and candid with respect to its workforce limitations.

In forging such a relationship with the LSI, the Army sought to gain managerial advantages such as real-time or agile decision-making.

One must also recognize the risks and limitations of the business arrangements. In practice, the Army is more involved with decisions a contractor might normally make, and the contractor is more involved with decisions the Army might normally make.

Requirements and specifications are being revised as the solution is being developed. Over time, the government can become increasingly vested in the results of shared decisions which, in light of the significance of the program, can pose risks for conducting oversight over the long term.

This is not to say that the level of collaboration is inherently improper, but rather that it may have unintended consequences.

The Army has structured the FCS contract consistent with its desire to incentivize development efforts by making it financially rewarding for the LSI to perform. Contracts have limits in that they cannot guarantee success. They are not insurance policies.

As with most cost reimbursable research and development contracts, the LSI is responsible for making its best effort to develop FCS.

If, given that effort, FCS falls short, the LSI is not necessarily responsible and is still entitled to have its costs reimbursed and may still earn full fee.

The FCS contract provides a relatively high level of compensation for the LSI, over 80 percent of which can be earned before key demonstrations of actual FCS systems take place.

Also, in evaluating the LSI's progress, the Army has to consider the extent to which its own performance affects the performance of the LSI. In other words, the Army bears much of the program's risks.

The foregoing underscores the important role of OSD, the Office of the Secretary of Defense, in providing oversight of the FCS program. While the Army works to manage the program, OSD must work to oversee the program.

To date, OSD has largely accepted the Army's approach to FCS, even though it runs counter to OSD's own policies and independent assessments.

In our view, the unique business arrangements in the FCS program are not a substitute for following a knowledge-based acquisition approach.

We believe OSD should hold the program accountable to high standards. The go/no-go decision in 2009 will be important in defining OSD's role in the program.

To be sure, the stakes are high. FCS must be as good as or better than the current force, which is the best force in the world. Yet success of FCS is not assured and the government must protect its ability to change course if necessary.

Finally, I believe that OSD should also look at FCS for insights into the defense-wide implications of both LSI and the system-to-systems approach to acquiring weapons.

At the very last, a proposal to use an LSI should be considered a risk at the outset, not because it is conceptually flawed but because it indicates the government may be pursuing a solution for which it does not have the capacity to manage. Such solutions ought not to be accepted as inevitable or unavoidable.

Mr. Chairman, that concludes my remarks, and I will be happy to answer any questions.

[The prepared statement of Mr. Francis can be found in the Appendix on page 79.]

Mr. ABERCROMBIE. Thank you very much.

General Curran, you will be cleanup.

STATEMENT OF LT. GEN. JOHN M. CURRAN, USA, DEPUTY COMMANDING GENERAL—FUTURES, AND DIRECTOR, ARMY CAPABILITIES INTEGRATION CENTER, U.S. ARMY TRAINING AND DOCTRINE COMMAND

General CURRAN. Thank you, Mr. Chairman.

Chairman Abercrombie and Mr. Saxton and distinguished members of the subcommittee, I am really pleased to be here today on behalf of General Wallace, the commander of Training and Doctrine Command, to discuss the Training and Doctrine Command's (TRADOC) involvement in the development of Future Combat Systems, our C–130 transportability requirements for Future Combat Systems, and the active protection requirements for the Future Combat Systems manned ground vehicles.

I welcome this opportunity, and I appreciate the outstanding support you have provided to the Army and to our soldiers engaged in this global war on terror.

The United States Army's Training and Doctrine Command, as a representative of the Army's user community, developed and documented the required operational capabilities for FCS.

TRADOC established requirements for the FCS family of systems to account for current and future capability gaps. Those gaps are in terms of responsiveness, deployability, agility, versatility, lethality, survivability, sustainability and training.

From the very beginning of the Future Combat Systems program, TRADOC has teamed with the acquisition community, with DARPA, with industry and academia to define the capabilities our soldiers and leaders need today and well into the future.

TRADOC will continue to play a key role in developing the core operational capability envisioned in FCS.

We are currently working refinements and assessing their impacts from the user's perspective across the domains of doctrine, organization, training, materiel and leader education. All those requirements are being considered, not just through the lens of materiel alone.

A key Future Combat Systems performance parameter requires the FCS systems be transportable worldwide by air, sea, highway and rail.

This key performance parameter (KPP) states the requirement for the FCS to be strategically deployable and capable of conducting operational maneuver to execute a full range of missions.

As we assess the latest FCS design work, we will balance the effect of platform size and weight with our requirements for survivability and lethality.

This assessment includes lessons from current operations. More importantly, we will continue to measure what is technically achievable within the context of our operational concepts.

At the same time, we are looking forward to seeing what future lift capabilities the Army will need.

The Army continues to increase the survivability of FCS platforms as we go through the various design stages. It is important to remember that survivability is no longer simply a passive approach to survive a direct hit, but rather we must use a combination of passive and active protection suites, network-provided situational awareness and network lethality.

To counter future threats, the Army has embarked on a holistic approach toward survivability, including leveraging the network for improved situational awareness, reducing signature management, improving ballistic protection, modifying operational tactics and pursing hit avoidance.

In the context of military ground combat vehicles, hit avoidance comprises technologies to enable defeat of the threat prior to impact with the vehicle.

The hit avoidance requirement for our future force is 360 degrees hemispherical bubble of protection to our combat platforms.

It is important to understand that on today and future battlefields, passive defense alone will not defeat all known or projected threats.

An Active Protection System (APS) within FCS offers the potential to move beyond merely armor protection and also to eventually address threats from top attack.

The Army will not procure and field FCS that is not effective and survivable under operational conditions. In short, survivability is not an area to trade off.

Doing otherwise would violate the trust given to us and our fundamental commitment to providing our soldiers with the best combat equipment possible.

Sir, as I close, fiscal year 2008 will be a pivotal year for Future Combat Systems. The resources provided to the Army to conduct operations while transforming and modernizing the force will determine the Army's ability to continue to accomplish its mission and to be postured to meet future commitments.

Your continued leadership and support in providing full, timely and sustained funding is critical to our success. We are facing the challenging task of winning the war on global terrorism while simultaneously having to transform and modernize our forces.

Sir, I look forward to your questions. Thank you.

[The joint prepared statement of General Curran and Secretary Bolton can be found in the Appendix on page 58.]

Mr. ABERCROMBIE. Thank you very much, General Curran.

We are going to go in reverse order of seniority at the sound of the gavel, and then we will go to those to ask questions by virtue of their arrival—obviously, a shameless attempt to get everybody to show up at the beginning, especially for the new members.

So with that in mind, I will forego my questions.

Mr. Saxton.

Okay. Then we will go in order. Mr. Johnson will be first. Ms. Miller will be second. Then Mr. Reyes will be next, then followed by Dr. Gingrey.

So, Mr. Johnson, if you will.

Mr. JOHNSON. Thank you, Mr. Chairman.

And thank you, gentlemen, for serving your country.

I note that the request for Single Channel Ground to Air Radio System (SINCGARS) radios for the fiscal year 2008 base is $137 million, and then $1.3 billion for the 2008 supplemental. Are those the radios that are currently in use today or do they represent the next generation of equipment?

Secretary BOLTON. The SINCGARS radio is one that has been used for a number of years. They are being used in the field today. And they are upgraded on a regular basis, so the radios that we will be procuring next year, even though it is a SINCGARS radio, will have more capability than those we purchased last year.

Mr. JOHNSON. And so in fiscal year 2007, the Army has been buying those radios for about $7,000 each, yet in the fiscal year 2008 budget the Army proposes to buy the same radios for about $10,000 each, a 30 percent increase.

This increase will take place despite the fact that the Army intends to buy more than 100,000 of these radios in fiscal year 2008. Why is the Army paying more for each radio when it is buying them on such a massive scale?

And shouldn't the Army be able to negotiate a discount or at least keep the price level?

Secretary BOLTON. As I mentioned earlier, Congressman, we have been buying the radios for a number of years. One of the major reasons for the increase is because of the increased capabilities we ask in that radio, to be able to transmit more data, more information and do it more effectively than previous radios.

Mr. JOHNSON. So kind of like a larger hard drive, if you will, inside.

Secretary BOLTON. Yes, sir. So if you are going to buy a computer that has more capability in it because you need it—buy, say, a 486 or something like that—that is essentially what we have done here, along with the increased quantities.

And I will assure you that we do take the time to get the best price we can on that, and where possible we will go out and compete where we can. But the main driver here is increased capability.

Mr. JOHNSON. How many suppliers are there for these radios?

Secretary BOLTON. One primary. I would have to go and check and see how many we have on that and get back to you on that. I will take that for the record.

[The information referred to can be found in the Appendix beginning on page 115.]

Mr. JOHNSON. Are these radios being acquired under an expedited urgent need process, or is it the normal procurement process?

Secretary BOLTON. No, the SINCGARS is already a product. There is no acquisition in terms of development or anything like that, so it is simply writing a contract and having the contractor provide us those radios. That is pretty fast.

Mr. JOHNSON. Does the Army need more bargaining power from Congress to get a better price on these fiscal year 2008 acquisitions?

Secretary BOLTON. I think we have all the tools that Congress has provided over the years not only for these radios but anything else.

The main thing that concerns me at a time of war are the number of sources I have and how quickly that source can produce. If we have the opportunity—and we may talk later about the JNN, where we have put that in the field.

There is one source, but right now this year we are going to try to compete that, so we will have several sources and drive the cost down on that.

But the urgency is the thing that drives this most, and normally I will go to one contractor. But even then, we are trying to get the best price we can on it. But the tools that Congress has provided are sufficient for the work that we have to do.

Mr. JOHNSON. Thank you.

What is the reason why only $137 million is being requested in the fiscal year 2008 base budget and the $1.3 billion is being asked for in the 2008 supplemental?

Secretary BOLTON. I don't know if I have a good answer. I would only speculate, because I did not build that. I simply provided those who do build that part what it would cost. But why it was put into the supplemental versus the base, other than we need it right now, I don't have a good answer for you.

Mr. JOHNSON. And of course, when will the fiscal year 2008 supplemental be heard? That will be some time after the 2008 budget is passed, isn't that correct?

Mr. ABERCROMBIE. We have the supplemental. I am not sure exactly how we are going to work that as yet.

Mr. JOHNSON. All right, thank you.

All right, and I guess that will be my last question. Thank you.

Mr. ABERCROMBIE. Thank you, sir.

Secretary Bolton, I want to make sure I understand your answer to Mr. Johnson. Are you saying that the increase in the cost is due to increased capacity of the radios, $3,000 worth?

Secretary BOLTON. Yes, sir. The bulk of it, that is true.

Mr. ABERCROMBIE. And if this passed—I want to, again, make sure I understand the answer. They are saying that if we pass the request, the dollar request, and they have that as a certainty for ordering, that they are actually going to increase the price rather than give us some kind of a negotiated price?

Is this a negotiated price, the $3,000?

Secretary BOLTON. Each one of these is a negotiated price. What I asked the contractors to do is to give me a lot more capability, and they were not willing to give that to me for free.

Mr. ABERCROMBIE. I didn't say for free.

Secretary BOLTON. No, sir.

Mr. ABERCROMBIE. Okay.

Ms. Miller, you are next.

Mrs. MILLER. Thank you, Mr. Chairman. I certainly want to commend you on being a very wise and fair chairman to recognize your junior members for a little bit of time. Here I appreciate it very much. Sometimes we wait throughout the entire subcommittee to have a chance. So I certainly appreciate that, and it will be an incentive to get here on time as well.

And to the witnesses, thank you, gentlemen, for your appearance here before the subcommittee today, and the information, particularly as it relates to the FCS, and your service to our Nation as well.

I would like to address my questions, I think, to the Army National Guard and Reserve and how you are incorporating all of that in your weaponry as well as far as readiness, training, from every measurement, from every standard.

As we see with the Total Force concept, in the 30th percentile of all of the troops in theater today are either Guard or Reserve.

Making sure that we have parity—and whether that is equipment or resources, or what have you—for the Guard and Reserve—I am just interested in knowing how the Army has planned to incorporate the Guard and Reserve in the training of the FCS.

And also, as a follow-up question, how that might relate—I understand that there is currently an initiative, perhaps, to increase Stryker brigades for Guard and Reserve units, understanding that Pennsylvania is the only Guard and Reserve unit, I believe, that has a, as a state—I guess that is part of my question—a Stryker unit.

If there is a—a brigade. If there is an initiative to do so, how many Stryker units would you see as optimal nationally?

And where do you think these units might be placed, if you think that perhaps a consortium of various states might be best to look forward to this, and whether or not you think—as I say, the Army is even receptive to such a concept, and how you are incorporating, again, in terms of readiness for training, the various systems because of the challenges that we are going to continue to face as a Nation and using a very high degree of the total force concept to the Guard and Reserve.

General CURRAN. Mrs. Miller, if I could perhaps address that for you, first of all, on our modernization strategy with Future Combat Systems, Future Combat Systems spin-outs will go to all of our brigade combat teams, no matter what component.

So our National Guard brigade combat teams, which as you know are going through modernization or modularization transformation as well, will also be in line to receive the spin-outs from Future Combat Systems.

So as we view the total force, we are looking at building the modernized capabilities into all the brigade combat teams, no matter whether they are Guard or active component.

As to your point about the decisions the department is wrestling with now, which is in growing the Army, what is that force structure to look like? We have some guidance from OSD about what that should be.

But there is some flexibility in that in terms of types of brigade combat teams, the amount of functional brigade support that would be required to support an additional number of maneuver brigades.

And that is in process right now. We are going through the force design work to determine what should be the right number and types of those brigade combat teams, to give us the capacity that we think we are going to need for the future operating environment.

So I think it is a work in progress, is what I would tell you. No decisions that I am aware of have been made specifically about what exactly the types of brigades would be, whether, you know, the mix between infantry, heavy brigade combat teams and Stryker, nor the decisions about the mix within the active and Reserve component right now.

Mrs. MILLER. Is that an issue that is actively being talked about with the Army and the Guard? And how is it working out in Pennsylvania? And are you looking for other states to—are you talking to the Adjutants General (A.G.s) in the various states about that issue?

General CURRAN. Yes, ma'am. As far as I understand, they are all participating in that effort. And again, it is a decision that first needs to be made about what is your proper mix.

And that goes into what your rotation strategy might be based upon your future projections of numbers of Stryker brigades you would need to keep the rotation base right.

And as you know, you have to mix—active component rotates on a different cycle than Guard and Reserve do, based upon their nature, and so you have to count that into the mix.

Mrs. MILLER. Thank you, Mr. Chairman.

Mr. ABERCROMBIE. Thanks very much, Ms. Miller.

Mr. Reyes.

Mr. REYES. Thank you, Mr. Chairman.

Gentlemen, thank you for being here.

And, Mr. Chairman, thank you for having this hearing, because this is, I think, one of the most important we may have this year in terms of validation by our actual troops that have recent combat experience in Afghanistan and in Iraq.

In fact, as I think was mentioned—and I apologize for having to have left for a few minutes, but I think it was mentioned that there was a recent test by soldiers in Fort Bliss—actually, Oro Grande Range at Fort Bliss, I believe in November. Is that correct?

Secretary BOLTON. Well, we just recently concluded the exercise the first part of February.

Mr. REYES. First part of February.

Secretary BOLTON. Yes, sir.

Mr. REYES. So according to the information that I have, Mr. Chairman, a platoon of 36 soldiers tested the FCS technology, some of which is here this morning——

Mr. ABERCROMBIE. Yes, sir.

Mr. REYES [continuing]. I am told. One comment that I wanted to enter into the record—and with your permission, Mr. Chairman, I would like to enter this article into the record as well.

Mr. ABERCROMBIE. Without objection.

[The information referred to was not available at the time of printing.]

Mr. REYES. Thank you.

It quotes Sergeant 1st Class Andreas Ruggerio, and it says the following, "The new technology we have is going to save a lot of lives." That is the thing we are most impressed with.

And having had a chance to see the and read the after action report—and also, by the way, there is a video that I would also like to enter into the record.

Mr. ABERCROMBIE. Without objection.

Mr. REYES. Thank you.

I think the best validators for a program are the actual soldiers themselves. And while this is mostly or all technology-driven, everything that I have read has factored in that our soldiers are very technology-oriented, with everything from Pac-Man to Nintendo, and—I think it is Xbox 360—whatever that thing is. So they had no problem——

Mr. ABERCROMBIE. You are showing your age.

Mr. REYES. Right. At my peril, Mr. Chairman.

Mr. ABERCROMBIE. You might want to go down a different path.

Mr. REYES. But the point is that they feel very comfortable with—the bottom line was they felt—in fact, a number of them said, "We need this equipment now. We need to take it back with us when we redeploy to Iraq or Afghanistan."

So I would like either you, Mr. Secretary, or General, if you can share some of the anecdotal information you got back from the soldiers, because again, that is the ultimate kind of validation for a program, is will our troops use it, do they think it makes a difference, and does it make sense, given the threat that we are facing, with Improvised Explosive Devices (IEDs), with clearing of buildings, urban warfare, all of those kinds of challenges that we are facing in today's combat zones in Iraq and Afghanistan.

Secretary BOLTON. Well, Congressman Reyes, I went out to take a look at that particular exercise. It was the first part of February.

You are correct, there were 36 soldiers in that platoon. Sergeant Barnes was one of those soldiers, who is a veteran of Afghanistan, two tours.

The equipment you see arrayed in front of you is some of the equipment that we actually used there. You are absolutely right. Getting the soldiers involved early is paramount in what we are doing.

For us in the Army, this is a new undertaking, to form a full brigade and evaluation task force which will be stationed at Bliss.

And their sole purpose is to take these spin-out technologies and develop everything else you need to go along with the technologies—the tactics, the techniques, the procedures, the doctrine, the organizational structure, the training—everything you need, just as we do today with the technologies we are inserting literally today as the troops rotate over. And that is what they are doing with this technology.

I will give you one anecdote. As we were watching the exercise and, most importantly, afterwards, when you listen—I think it was on the video you were referencing—you hear the comments of the soldiers.

You hear the commander out there. They could see what was going on. It was wonderful to see where you are, where the enemy might be or is going and have a plan to take care of that.

At the end, we had an after action report led by the commander to get feedback from the soldiers there. And then I asked a question. And I looked at the soldiers and I said, "Are we on the right path? Can you really use this?"

And before anybody answered, you should have seen the smiles on everybody's face, because a lot of the soldiers there are back from the war. And then one said, "We can use this now. We can use this now. I wish I had had this six months ago when I was over there."

So it validates for me we are on the right path. And with the help of the soldiers there, they will make it real in all of the other aspects, not just the materiel, for which I am responsible, but everything else you need to give it to soldiers in a couple years and get it over there.

General CURRAN. Thank you, sir. I might just add for you, Congressman Reyes, that this evaluation task force that we have——

Mr. ABERCROMBIE. We have 30 seconds, General. Thank you.

General CURRAN [continuing]. Established there will provide us an awful lot of insights, because if you put capabilities in the hands of soldiers, they are going to teach you something.

They found the equipment very useful. Just to give you one anecdote to close, normally when you are trying to clear a room, you stand outside the building to gain entry with a four-man team. You are stacked, protecting yourselves 360 degrees.

They were able to go in with a three-man team, and the fourth member of that team was that small unmanned ground vehicle that is right over there.

Mr. REYES. Thank you, Mr. Chairman.

Mr. ABERCROMBIE. Thank you, Mr. Reyes.

Next is Representative Gingrey.

Dr. GINGREY. Mr. Chairman, thank you.

Secretary Finley, Secretary Bolton, General Curran, Mr. Francis, we appreciate you being here on this all-important topic.

I am not a big movie buff but I go to an occasional movie, and do you remember The Raiders of the Lost Ark, Harrison Ford, I believe, and that scene where——

Mr. ABERCROMBIE. You are right there with Reyes.

Dr. GINGREY. I am right there. I am going down the same track as my good friend from Texas, that is right, Mr. Chairman.

But when Harrison Ford was in danger, and one of these really ominous looking bad guys jumped out in front of him about 50 yards away, and he had that sword that he was swinging all over the place, and of course Harrison Ford just pulled out his gun and shot him.

And it makes me think about—and, Sergeant Barnes, I know you are not a witness, but you might want to comment on this point I am trying to make—that here, we have spent—I think with this budget request we will have spent $15 billion on this Future Combat System.

And is it going to be appropriate for what we are faced with now in the Middle East, in Iraq and Afghanistan, and in the future? So I think that is the big question.

And of course, we know that we have gone back and cut out some things, and one of those was the Land Warrior program.

And it was found that when you try to put an additional 75 pounds onto the back of one of our great soldiers when they are already carrying 75 pounds on average into combat, that it just wasn't practical.

So I do have some concerns that we are preparing ourselves for the right war of the future in regard to the Future Combat System.

And that is why, of course, I would love to hear Sergeant Barnes's opinion on that in this exercise that was completed in—I think you said February.

The other thing that I want to ask you——

Mr. ABERCROMBIE. Excuse me, Dr. Gingrey.

Would you like to have him speak? It is okay with me if it is all right with you—if it is okay with Sergeant Barnes. We can take the time.

Dr. GINGREY. That would be fine. Thank you.

Mr. ABERCROMBIE. I won't count it against your time.

Dr. GINGREY. That would be great, Mr. Chairman. And I will go ahead and ask my last question.

Mr. ABERCROMBIE. Okay.

Dr. GINGREY. The other thing is that in the Mine-Resistant Ambush Protected Vehicle (MRAP) program, it is not part of the 2008 budget request, but it is a need.

The Army says it really needs $2.24 billion. The Marine Corps says it needs $2.8 billion. And it is on this unfunded priorities list, so that sets $5 billion for this Mine-Resistant Ambush Protected vehicle.

And you know, we need that now. I mean, most of our soldiers—most of those killed in action (KIAs) and the vast majority of the

severely wounded with amputations, et cetera, traumatic brain injury, are from these IEDs and mines.

And I just wonder why that is not actually part of the 2008 budget. It seems like that would be high priority in the realization of what is happening in theater.

And anyone, but particularly I would—Mr. Chairman, I thank you very much for allowing Sergeant Barnes to comment on this.

Mr. ABERCROMBIE. No, that is fine.

May I say for members' reference, page seven of our summary is what Dr. Gingrey is referring to. It will give you some reference point.

Why don't we go in reverse order here? Why don't we deal with the MRAP question, and then we will go to Sergeant Barnes?

Secretary BOLTON. With regards to the Mine-Resistant Ambush Protected Vehicle, or MRAP, led by my counterpart in the Marine Corps, or in the Navy, Dr. Etter, a request came from the field, operational urgent need. That is now a joint operational urgent need validated in the October time frame.

The Marines went ahead and put on contract a contract to deliver vehicles, and I believe those are being delivered now.

In the January time frame, we basically went with about eight or nine contractors, asked them to delivery light vehicles to our test facility. This is up at Aberdeen.

Mr. ABERCROMBIE. In the interest of time, Secretary Bolton, I appreciate the history, but that is not the answer to the question.

Secretary BOLTON. We are looking to procure just over 400 vehicles this year and put them in the field. I will tell you that the Army already has upwards of 1,000 similar vehicles in the field today. Those were purchased with previous supplementals.

By this time next year, we hope to be up closer to our complement. The Marines will have the rest of that. Follow-on requirements may take us up to 2,500 total.

Dr. GINGREY. So likely, Mr. Chairman and Mr. Secretary, that request would be in the 2008 emergency supplemental?

Secretary BOLTON. Yes, sir. As I understand, that is where it will be.

Mr. ABERCROMBIE. But the question was why isn't it in the DOD authorization. Is it because you can't spend it?

Secretary BOLTON. Well, from my point of view—and you will have to forgive me—where the money goes is not in my realm of responsibilities. I simply tell those who do that, "If you want me to meet this requirement, here is the amount of money I need."

Where they put it in the budget—I can't help you with that. And I don't know. But I would imagine, based on others, it was because we believe we needed the money right now, and we do, to put people on contract.

As soon as they finish the test at Aberdeen, I am putting people on contract, and I need money to execute those contracts this year, right now.

Mr. ABERCROMBIE. Are you happy with that, Dr. Gingrey? Okay. Next we will have Sergeant Barnes—well, I am not happy with it, but it is Sergeant Barnes's——

Secretary BOLTON. Mr. Chairman, I understand.

Mr. REYES. Mr. Chairman, as Sergeant Barnes goes up to the mike, can we stipulate that there is just a few years' difference between Sergeant Barnes and myself, to establish the technology thing? [Laughter.]

Mr. ABERCROMBIE. Yes, but you also have to remember saying doesn't make it so. [Laughter.]

Sergeant Barnes, thank you. Perhaps if you would let Dr. Gingrey speak to you again, he will be able to put you on point.

Sergeant BARNES. Yes, sir.

Dr. GINGREY. Sergeant Barnes, again, thank you so much for your service to our country and two tours of duty in theater and participation in this exercise.

And you think back to my original question in regard to the movie scene—I am sure you did see that movie. And really, what the effectiveness of this—and whether or not you were hindered by all of this equipment from some unconventional force that is happening right now in theater.

Sergeant BARNES. When I first showed up for the FCS experiments, I had my doubts as far as the equipment, because I am, I like to think, an old-school guy. Just, you know, give me my weapon and let me do my job.

But the big things that I pulled away from this was information. The amount of information that the FCS is giving us is unreal. We are getting information down to the lowest level. The lowest private in the squad is knowing exactly what is going on.

As a leader, that makes me make more informed decisions, and faster. I can pull information from anywhere on the battlefield with this system.

Another thing it is doing—it is eliminating uncertainty. The biggest problem we have on the battlefield, especially in an urban environment—and anywhere, for that matter, but most importantly an urban environment—is what is around the corner, you know, what is in this building I am going into, what is happening three buildings down the street that I can't see.

Well, in the experiment, what I used—the SUGV, the small unmanned ground vehicle—that was eliminating the uncertainty of the inside of the building, because before I have gone in the building, I can get a visual of what it looks like. That helps my squad already have a heads up of what is going on inside the building.

It also let me know at one point, because it was shot at, that there were enemy inside that vehicle. Well, that changes my whole idea of how I am going to take down that building.

Dr. GINGREY. And I am assuming, Sergeant Barnes, that this would cut down on blue on blue kinds of casualties.

Sergeant BARNES. Yes, sir. And what a lot of people don't realize—the UAV, the unmanned aerial vehicle—that is real-time reconnaissance.

So if my squad is in a building and all of a sudden we are about to get ambushed, and there is bad guys moving on us three windows away, well, my platoon sergeant sees that because our UAV operator is letting us know, "Hey, you have got enemy moving to your position."

That is more information that is going to keep me and my soldiers alive, because we can react to that before they—they don't even know that we see them.

Same thing with the unattended urban ground sensors—we left those in buildings behind us, so we are not worried about our flank as much, because we have got the technology behind us.

We are not leaving a man behind in my squad. I have got more guns in the fight, the direct fight right now, as opposed to having to leave some people behind to watch our rear.

Mr. ABERCROMBIE. Sergeant, I am going to have to end it at that. We are a little bit over. And we certainly appreciate it.

Is that okay?

Dr. GINGREY. Mr. Chairman, let me just also say thank you to Sergeant Barnes. He looked like a veteran witness here today, and I appreciate you letting him testify. Thank you.

Mr. ABERCROMBIE. Yes, Sergeant, thank you for a straight answer.

Mr. Ortiz, followed by Mr. Akin and then Ms. Castor.

Mr. ORTIZ. Thank you, Mr. Chairman.

Thank you so much for being with us today, and we appreciate all the fine work that you do.

You know, I have my concerns because I have been here now 25 years, and we go back and we see where we spent billions of dollars trying to get a helicopter to fly which never flew, and that was the Comanche. Do you remember that?

Now, we have spent $8 billion now on the Future Combat Systems, and going through Mr. Francis's statement, to date the FCS program has spent about $8 billion, despite having significantly less knowledge and less assurances of success than required by best practices of DOD policy.

You know, we are fighting this war for almost five years. But then it is going to take more time to put the systems to work. My question is now when will we know and what base mark do we have to say, "It is not going to work. It can't happen," after we pour billions of dollars into a program?

Now, when we go to war—and I understand that there are some assumptions made that some of this is equipment we assume is going to work. What if it doesn't work?

And this is my doubt that I have, maybe because I have been here too long, and I have seen a bunch of money just gone down the drain because equipment doesn't work.

So what assurances can you give us? And how much time does it take to get adequate information to put a program together to come up with equipment that will work?

This is the doubt that I have, and maybe you can assure me—do you know why we spent billions of dollars on the Comanche helicopter and other equipment that we put money—you know, and anybody—Mr. Francis, I was reading your testimony, and it was good testimony.

All of you had very good testimony. But even then, when I read all this testimony, I still have my doubts, because I have been burned before. So any of you who would like to jump in—and I am ready to listen to your——

Secretary BOLTON. Well, Congressman Ortiz, it is good seeing you again. And I share your concerns, and I share the concerns that were expressed by the GAO.

We have structured this program to address risks. We have risk mitigation plans. Some of that you see mitigated right here.

Unlike the program that Dr. Francis alluded to earlier, when we first set this program up, it was, no pun intended, a big bang approach—we will deliver all this technology at a certain time, we will have a unit of action, we are ready to go.

In 2004 we said that is not good enough. We need the technology as it matures in the hands of soldiers today. Let them determine whether or not it is good to go in a real world scenario.

That is what this evaluation task force is all about, to take a look at the concerns that you and other members have raised, and many, many more, to see will this actually work.

We run them through the same scenarios we run deploying troops through today. If you go up to Fort Lewis, for example, and watch the Stryker brigade, they have been going through a series of exercises.

We are running this equipment through similar exercises to guarantee to ourselves that it will work in combat. Now, I would like to sit here and say that all 14 technologies are going to prove out and we will be using that in the field. We may not.

But I don't want to get to the point that you are raising, and that is we get it to the field and it fails there. That is absolutely the wrong place for it to fail. That is why we are doing it at Bliss, to prove that out right now.

I think by structuring the program this way, where you bit it off in chunks and take a look, and give it to real soldiers, go through real scenarios—is the best way of assuring, first, the soldiers that we have technology that will work, and the taxpayers that we are spending the money wisely.

Mr. ORTIZ. You know, and this is good that we try to have a check and balance system. Thank you for having GAO with us.

Would you like to elaborate on your statement and the response?

Mr. FRANCIS. Certainly, Mr. Ortiz. As we had in our report—I mean, I believe it is in the Nation's best interest for FCS to work and for the program to go as planned. So I think we all want that to be successful.

But like you, I have some scar tissue built up over the years. I worked with the Comanche program back in 1982 and 1983 when we had similar optimism, if you will.

I think there is a couple of things about FCS that we have to be aware of. One is if you go back to Comanche, when that started, we did have a lot more prototyping. We had a lot more advanced development done before we said, "Hey, we think this is a program."

In Future Combat Systems, we have gone past that point and we are going to be developing the solution as we go, so less knowledge up front.

And we also have to be aware that this is a system of systems, so each individual component has to work. Then they have to work together to provide that leap ahead or synergistic capability.

On that note, it is not until after the production decision in 2013 are we actually going to get physical demonstrations of the system of systems.

So the scale is important here, because by that time we will have made about $30 billion investment, which would have bought Comanche over a few times.

So there is a fair amount of risk. These are good demonstrations. And they are indications that some things are working. But we really won't know until we are very well into the program that it is going to provide that aggregate system-of-systems capability.

Mr. ORTIZ. You know, for example, FCS—on the weapons that we were looking at—would they be adaptable to future mission requirements? Can we adapt when we are working on this equipment?

Secretary BOLTON. Oh, yes, sir. In fact, that is what this is all about. You are not going to have an FCS brigade out there in two years or three years. You are going to have the force we have today.

The radios sitting on your left, the Joint Tactical Radio Systems—those go into Humvees. They go into Abrams tanks. They go into Bradley fighting vehicles. Part of the network will be there to allow today's force to have some of that technology to do their missions better.

On the next go, we will have the Active Protection System that will be going out to some of the vehicles. So this technology is not being just demonstrated for the FCS program. It is being demonstrated to give to the current force on a two-year cycle.

We are not waiting for the big bang out there. Our troops deserve the very best technology we have today. We have been doing that for the last few years on other technologies that are basically off the shelf.

Now it is time to take this technology and put it into the field. But before it goes there, you have got to prove it. So this is going to the current force.

Mr. ORTIZ. I still see my green light still there, for just a moment.

But you know, I am not a scientist and I am not an engineer. We depend on your expertise. But we have been at war—in fact, we just observed the fourth anniversary of the war with Iraq.

Why does it take so much time to put something into the program so that we can put something together? I think that the range has a lot to do—the range, you know, in different scenarios of—we did not expect to fighting this kind of war that we are fighting today.

And I understand it is going to take at least two more years before we are finished testing some of this equipment. Am I correct?

Secretary BOLTON. It will take two years for Sergeant Barnes and the rest of the evaluation brigade to go through all of the testing it has to go through.

As I mentioned earlier, there are things in training we need to look at, the organizational structure, the tactics and techniques, procedures—all those things need to be looked at with this new equipment being put into the current force.

The other thing I will leave you with is we have trip wires, too. And I have put them on the various milestones, sub-milestones, in this program. Comanche had a trip wire, and I terminated that effort.

I have terminated 75 other programs and contracts since I have been in this position. And so far, this program has not tripped over any of those wires. If they did, we would have a show-cause on it.

Mr. ORTIZ. Thank you so much, and we appreciate the fine work that you gentlemen are doing. Thank you. Thank you so much.

Mr. ABERCROMBIE. Thank you. Thanks very much.

Next, Mr. Akin, and then Ms. Castor.

Mr. AKIN. Thank you very much, Mr. Chairman.

I had a couple different questions. I guess the first was the FCS program has sustained three significant and consecutive budget cuts in 2005, in 2006 and 2007.

How much more a reduction can we take in 2008?

Secretary BOLTON. In my opening remarks, I indicated that we have taken roughly $820-some-odd million in 3 consecutive cuts. We adjusted even more as we looked at the affordability issues in the Army and putting the 2008 together.

That is why we have adjusted the program from the 18 to the 14 that we have now in terms of technologies.

I think it is important for us to keep the funding where it is, as we have requested, so we can go ahead and get this technology on course to the troops, so that they can go ahead and do the work that they need over the next couple years.

Without keeping the funding where it is, I am troubled that we will be able to put this technology on.

Mr. AKIN. The cost is going to be that the time lines all shift, right?

Secretary BOLTON. Oh, yes, sir. We have already shifted—as a result of the cumulative effect of all those cuts, I have had to move milestones by five months to six months.

It doesn't sound like much, but to me, any slip is important, because that puts you on a trend that is not healthy.

Mr. AKIN. Now, from, Mr. Francis, your comments, it sounded to me a little bit like—from what I was hearing you saying, it sounded like you were a little bit of a worrywart.

And I think you are paid to be that. You are supposed to be just making sure we are doing things right.

Is part of what you are saying the nature of this program is more spiral in terms of its development than what we have done in the past, and inherently there is more risk in something that is spiral? Would that be a good summary of part of what you are saying you have got to watch for?

Mr. FRANCIS. Mr. Akin, I would say not so much the spirals, but the basic enabling or first-of-breed technologies that make the future spirals possible—I think those things are not yet known. And so that would be the concern I would raise.

Mr. AKIN. Wouldn't the people in the program acknowledge that? Isn't that the whole design of the program, that we have put stuff in that we don't know in order to try to compact the technology—before the technology is first invented and the time it gets to the field—we are trying to shorten that cycle, right?

So I mean, wouldn't the people that are running the program say, "Yeah, you are absolutely right, we know that there are things in there and we have spirals out. In case this doesn't come up, we are going to do it a different way?" Wouldn't they say that?

Mr. FRANCIS. I think they would. I think the Army has been up front about its risks and has been candid about them. I guess we would differ in our views that—I think the Army's view is they are not going to have the problems that other programs had.

When we have seen this strategy in the past, it has not worked out, because technologies have a way of misbehaving and not acting predictably.

Mr. AKIN. Right. Now, the other thing, though—it seems to me that—and anyone jump in on this. It seems to me that what you have got here—it is not like one product.

It is not a helicopter or a long-range cannon, or whatever it is. It is a whole system and a whole cluster of technologies. So I would assume there are going to be some of them where those technologies will not mature. We will have all kind of bugs and problems with them.

But because you are investing in so many different things, it still means a lot of them could succeed as well. Isn't that true? So it is not really like one program. It is a whole family of interconnected products.

Mr. FRANCIS. That is true, Mr. Akin. But all the technologies aren't equal, and there are cumulative effects.

I would just say one of the really important things about FCS is having that quality of service network, which has a lot of volume, a lot of reliability and very fast.

You have a lot of different technologies that contribute to making that happen, so it is very important to know when do you fall below critical mass, because that will affect the rest of the systems.

Mr. AKIN. The communications network itself is the most central piece, you are saying, that we—that really has to work to make everything empowered.

Mr. FRANCIS. Right. It is the information that makes the other changes possible.

Mr. AKIN. Secretary?

Secretary BOLTON. And I tend to agree with that. The network is extremely important. And it is a collection of systems that all have to work together. But it is not only materiel.

Remember, there are other things. That is why we have the brigade here. You have got to look at doctrine. You have got to look at organization. You have got to look at how you are going to train these things.

And if you look at this like a software program, because there are a lot of computers out there—some of us have been involved with the early testing of that as an end user.

I do a beta test which then informs the developer, and he actually changes and modifies the basic requirement based upon what I have. And that is what is going on here all over the board.

Mr. AKIN. Thank you. My time has run out.

Thank you, Mr. Chairman.

Dr. FINLEY. If I could, the way we see it is we are in a third generation of fighting—irregular warfare as described in the Quadren-

nial Defense Review (QDR) is like a third generation of warfare for us, in my day and age, if you will.

Platform-centric warfare started out tank on tank, ship on ship, aircraft on aircraft, very traditional warfare. Desert Storm—very much information-centric warfare. We had a decisive advantage because we could interoperate between our platforms and coordinate between the Army, the Air Force and the Navy.

Irregular warfare, which is the global war on terror, in a very long-term war is very, very different. The very kinds of systems, as Secretary Bolton has pointed out—that are demonstrated here provide you the insight that protects the soldier and gives him that comfort level that he is protected going into unknown territory.

You know, in urban warfare, in unrestricted ground rules, it is a different dimension than where we have traditionally been.

So what is so different about FCS, in my judgment, is that it is the network that makes the difference and the sensors and the technologies that go with it.

Mr. ABERCROMBIE. Thank you.

Next, Ms. Castor, followed by Mr. Saxton.

Ms. CASTOR. Thank you, Mr. Chairman.

Thank you, gentlemen, very much for your testimony and, Sergeant Barnes, for your service as well.

I would like to go back to the MRAP to get further clarification. These are the mine-resistant ambush protected vehicles, the ones that are supposed to replace the up-armored Humvees to better protect our brave men and women from the IED and mine blasts and their injuries and untold deaths there.

I understand based on the committee's summary here nine vendors have submitted proposals. They are undergoing tests. The vendors have various vehicles that are being tested. Ultimately, the Army has requested 2,500.

And, Dr. Finley, service-wide now, especially with special operations in the Air Force—their new request—it could be up to 8,000 vehicles.

That is why it is a little—it is confusing when it has been expressed to us that this is a top priority for the service—and it is certainly a top priority for us to ensure that our troops have the best protection in the theater—that the Army has included $2.24 billion on its unfunded requirements list for fiscal year 2008 and the Marine Corps, similarly, has stated $2.8 billion on its unfunded fiscal year 2008 list.

Could you clarify this? If it is a top priority, why is it on an unfunded list?

And then I would like—Mr. Francis, I know that your analysis was for the FCS, but are you able to comment on the acquisition and development strategy for the MRAP? And if not, is there another GAO analysis as well? Thank you.

Secretary BOLTON. With regard to why it is on an unfunded list, why someplace else—I will have to take that for the record, because as I mentioned to the chairman earlier, that is outside of my role.

However, with regards to the timing and the requirement, the requirement came in to us in the October–November time frame. There were other priorities that had already consumed what mon-

ies we had, so we actually took money from other places to get the contract going.

There were nine offers. I think we are down to eight on those. You are correct, they are delivering vehicles over to Aberdeen for testing.

The confirmed requirement right now is for 1,185. The Army will have roughly 400 of those. The rest will go to the Marine Corps. And then as we validate our requirement, it could go as high as 2,500 right now for the Army.

And that is where we are on that, and why it is on an unfunded list, why it is not taken from someplace else, that is really in someone else's lane, and I will get you an answer for that.

[The information referred to can be found in the Appendix beginning on page 117.]

Ms. CASTOR. Dr. Finley, do you have an explanation?

Dr. FINLEY. No, ma'am, I do not. I can take that question for the record as well. The program is currently an ACAT 2 program, MDAP ACAT 2. It is transitioning to an ACAT 1 program, which will come under OSD's oversight.

We are working with Secretary Etter and Secretary Bolton for a very seamless transition as we move from an ACAT 2 to an ACAT 1 program.

And in that respect, we are working the acquisition strategy so that we have a very seamless transition period, because we support that this is a very important vehicle for the battlefield and for the protection of our soldiers.

[The information referred to can be found in the Appendix beginning on page 117.]

Mr. FRANCIS. Ms. Castor, we are just starting to look at MRAP right now. One of the things is it is—these are existing vehicles that have been developed and used by other countries, which is why they can be bought, I think, so much more quickly. And there are three classes of them.

So we are just starting to look at them now. One of the things we have to look at is because it is being bought so quickly, you get a little bit concerned about we are having to buy a contract of logistic support, and we are also buying the configuration of the vehicles as the contractors have designed them.

So the government is going to be, I think, in a position of having to watch how it can support these vehicles in the future. So that is one thing.

Another thing—and this is a question, not a criticism—if the vehicles have been around, I don't know what it is about the requirements system—and maybe General Curran has some insight there—as why couldn't we have recognized that sooner and gotten them into the system sooner rather than kind of an emergency buy at this point.

Ms. CASTOR. You will have an answer for that question. That is a good question.

General CURRAN. Well, I can just comment that the required capabilities for a future light tactical vehicle are stated. There is a program that is proceeding on that, that we are doing collectively with the Marine Corps.

It is plan to delivery is further out in the out years, and the gap we are facing is very critical today. So that is why we are looking at what off-the-shelf capability could you fill in an interim, in this particular environment, that is kind of skewed toward the protection end, rather than a vehicle that is balanced between mobility, protection, and maintainability, sustainability, which is what you look for in a vehicle, a full production vehicle.

So we are looking for a gap filler—I think is what we are after.

Dr. FINLEY. I cannot answer that question, Ms. Congressman, directly. I would like to offer a couple more comments.

These contracts that have been set up are Indefinite Delivery/Indefinite Quantity (IDIQ) contracts. They are written in such a way they can be terminated, you know, if they do not perform. They have gone to so many contracts right away to try and get the rate production for what the needs are in the field, to be ramped up as fast as possible. And that is why they have gone to so many.

Our biggest concern, our biggest oversight input right now, is to address the challenge of logistic support. When you have so many different configurations of vehicles on the battlefield—and what we have seen is very rapid deployment programs is they sometimes do not have the sustainment legs, and when they break down there is just no maintenance parts available for them.

We believe all these issues are being proactively addressed by the Navy, by the Marine Corps and by the Army, and we just put that out there as a data point for us to be very cognizant of so that we spend the taxpayers' money very efficiently.

Mr. ABERCROMBIE. Thank you.

We will go to Mr. Saxton, and then I will go to Mr. Davis, and then I will finish up unless another member comes.

Mr. SAXTON. Mr. Chairman, thank you.

I would just like to return to a couple of very excellent points that I thought you made in your opening statement involving our collective ability to be prepared for future warfare.

Mr. Chairman, you mentioned the psychological need for our country to be prepared and the industrial need for our country to be prepared.

And what we are, I think, really here this morning discussing is how we identify what it is that we need to be prepared for. And therefore, the follow on, what will the Future Combat System look like in order to meet that threat?

Mr. Finley, you were talking just a few minutes ago about a relatively new kind of warfare known, as you described it, as irregular warfare.

Could you just describe that for just a moment?

Dr. FINLEY. Well, irregular warfare is not a new form of warfare, and it goes by many different names—unrestricted warfare, irregular warfare. Go back to Alexander the Great. You know, if you look at world history, go back to World War I.

The basis of irregular warfare is there is no rules. The basis of irregular warfare—you cannot identify the bad guy.

And several of you have pointed out here today, what is it going to be like when we cannot identify the bad guys, they look like us, they act like us, and all of a sudden, you know, they are a threat to us?

So that is the genesis and the basis of irregular warfare, and that is why what the FCS program is doing is so vitally important for the Department of Defense.

Mr. SAXTON. Okay, thank you.

General Curran, yesterday when the chairman and I were with you, General Cody described for the chairman and I the process through which you are currently evaluating warfare, irregular warfare, and looking to the future at the same time to try to determine what warfare will look like based on what we see and observe today, what we think may exist tomorrow.

And you are in the process, through a kind of a formula, are you not, of making determinations about what it might look like, as best we can tell without a crystal ball, 10 years from now?

General CURRAN. Sir, we are. And we work this very closely with the joint force, with the other services, with Joint Forces Command, and with the Defense Intelligence Agency. Annually we review it.

It is called the Joint Operating Environment. It describes what we envision, our best estimate of what the future operating environment will be for the joint force.

And from that, then, we then have to determine, based upon that, what our concept for operating in that environment would be, and from that, then derive what our required capabilities across not only materiel but, of course, doctrinal changes, organizational changes, training, leader development would need to be to operate in that future operating environment.

And FCS is fits exactly what——

Mr. SAXTON. Okay. But before we get to the system, tell us what you are seeing based on that process.

General CURRAN. Sir, what we are seeing is—in short, what we see today but worse. We expect to continue to deal with asymmetric threats, with individuals who—potential adversaries who do not operate on the same moral plane that we do, who have clearly different interests and truly don't agree with many of the ideals that we have.

We are looking at environmental factors that include now being based primarily in the continental United States, extended distances to have to deploy the force to, extended borders and, in some cases, ungoverned regions that we may have to operate in, across the full spectrum of environments, desert to jungle to other complex terrains, more urbanization—which, of course, is complex in itself.

Mr. SAXTON. Non-state actors.

General CURRAN. We will have both cases of non-state actors, state-sponsored terrorism, as well as the traditional nation state potential adversaries out there who will seek out on the open markets niche capabilities to at least be on par, or better in some cases, in particular niche capabilities to our own capabilities.

So it is really very much what we see today, but even more exacerbated. The final point I will make is——

Mr. SAXTON. With some different technologies involved.

General CURRAN. And that was the final point. There are some disruptive technologies out there that we anticipate would come about.

And one of the reasons that you try to anticipate what those disruptive technologies could be is so that you can stay ahead of them.

Mr. SAXTON. And so moving to the Future Combat System, which is, as I understand it at least, a number of concepts—the first concept, it is a long-term program which won't be fully deployed, at best, until when?

General CURRAN. Sir, the first spin-outs will occur in 2010. But the first full brigade combat team will begin to be built in 2014, and it will be delivered in 2017——

Mr. SAXTON. 2014. That is seven years from now.

General CURRAN. Yes, sir.

Mr. SAXTON. And become operational when?

General CURRAN. 2017, sir.

Mr. SAXTON. 2017, so that is 10 years from now.

General CURRAN. Yes, sir.

Mr. SAXTON. And so the second concept is the evolution to get there, and that evolution to get us there gets us technologies for our soldiers to use short-term.

General CURRAN. It is, sir, and that is really the purpose of the spin-outs. As the capabilities mature, we spin them out so that we can start to proliferate Future Combat System capabilities into more of the brigades at an earlier time.

Mr. SAXTON. Thank you.

Mr. Chairman, let me just conclude with this. This FCS is really a planning process that moves to a Future Combat System through an evolutionary process that gives us capabilities along the way to fight this irregular war that we are involved in.

And I appreciate very much the great effort that has gone into looking ahead to see what it is that we are going to face next year and the year after that and 2017 as well, and I look forward to working with you along the way to make sure that this evolutionary system comes about.

And I also want to say to GAO, we are glad you are there. You are the traffic cop. We are glad you are there, because we don't want to waste money. And we are glad that you are part of this process as well.

Thank you, Mr. Chairman.

Mr. FRANCIS. Traffic cop sounds a little better than worrywart. [Laughter.]

Mr. ABERCROMBIE. Mr. Davis.

Mr. DAVIS. Thank you, Mr. Chairman.

You know, the one thing I would preface the—I walked in when my colleague was commenting on the MRAP. I think systems like that are noble when they are developed.

The challenge that is faced institutionally, though, is that treats a symptom, not a cause.

I am very concerned in particular about the downstream impact on maintenance, training, doctrine, consuming resources that would go to something that may or may not actually be effective, you know, against devices like explosively formed penetrators and things like that.

And though it sounds good politically for us to be talking about systems like that, I would like to step back for a moment—particularly the idea of, you know, the change that we have seen.

When I enlisted in the Army 30 years ago, looking backwards, and particularly when I graduated from Ranger school, I would have to say I might as well have been in the Army during the second world war or in the 1950's for the changes that have taken place since, particularly with technology, the ability to process information.

And I guess the environment that I grew up in saw the procurement of tools come down to first focusing on people; second, ideas; a real assessment of the array of threats that we could face; developing a doctrine for that; and then saying, "Okay, what is the equipment that is going to be necessary, you know, to accomplish our objectives to equip the troops?"

And you know, to me the key for success in asymmetric warfare is the ability to have access to information, to disseminate it quickly. That is the one combat multiplier there and in business.

And I get the sense that there is a concern—I personally believe we need to increase the defense budget and particularly separate from other operating budgets for programs like FCS.

But some of the spin-out technologies that are there I believe are very valuable to us right now. The military general approach to procurement is very different than the commercial world.

Toyota completely redesigns every vehicle bumper to bumper every three years and can continue to adapt in the marketplace.

My concern, having worked in manufacturing, having served in the Army and seen a huge amount of transition in that time as well, is that we may be missing some opportunities here, you know, focusing on the short term, when to my understanding nothing I have seen on FCS is even new, it is just new integrations, a way of putting a lot of existing technologies together.

There will be new tools that are coming that will be designed, but by and large, much of what we are dealing with are proven forms of technology either in the commercial world, you know, other areas.

And I guess my question really is for Mr. Bolton here. The program is well into its fourth year right now.

Secretary BOLTON. Yes, sir.

Mr. DAVIS. I know it underwent a recent program adjustment and the fiscal year 2008 and out year budgets were reduced significantly from what was projected last year.

You know, do these actions—the adjustment and reduced funding levels—signal problems with the program from your level, or is the FCS being sacrificed to pay for near-term operational and reset needs?

Secretary BOLTON. I guess I go toward the latter. I wouldn't quite characterize it that way. We obviously had some fiscal challenges, and we adjusted the program to allow the Army to meet those fiscal realities.

The program itself, management-wise, technology-wise, is performing the way we want it to perform. We made those changes in the program because of fiscal realities.

Mr. DAVIS. How do you plan to get these priorities changed in order to keep the system on track? I have now become very concerned, dealing with an adaptive enemy, that—you know, I think

one of the programs that promises great fruit to have a very adaptive tool for at least a generation is, let's say, being sold out short.

Secretary BOLTON. One way—and you have already touched upon this—are the spin-outs. Rather than waiting for all the technologies to come together 10 years from now, as the technologies mature, put them in the field right now and put that across the entire Army rather than waiting.

And I think once it gets into the hands of the soldiers, and they show us what they can do with it, then there is a strong motivator for all of us to support that, not just me, but everyone else, and the resourcing part of this and so forth.

So I think the move, which started in 2004, to set this approach up is the one that has put the program, I think, in pretty good stead.

It also gives you the flexibility to make some of those changes that are going to happen, because reality is reality, whether it is fiscal or technology. If we had had just one big program trying to absorb and make some changes, then it would have been very, very difficult over the last six months.

So having the spin-outs and having those prioritized as they are I think are very helpful. And the more we prove to ourselves, to the soldiers, the more I think those who control the resources will allow us to have the monies we need to go the whole nine yards here.

Mr. DAVIS. The one thing I will leave you with, a thought, there will be new ideas that will be developed as the spin-outs go into the field, new applications, ways to make things more efficient.

My feeling would be not to let budget constraints get in the way, as if there is more money to make an investment. I think a near-term investment in something like this would produce a vastly greater downstream impact than programs like MRAP and others.

I yield back, Mr. Chairman.

Mr. ABERCROMBIE. Thank you, sir.

Thank you. Thank you, Mr. Davis.

Mr. Bolton and Dr. Finley, in the wake of all of these questions, I want to ask the following question. Even though you have already indicated in other answers about budget priorities, I would still like to have this for the record.

The Army has an $11 billion list of items that went unfunded in the fiscal 2008 budget. That has been mentioned several times in different contexts today.

And Army leaders have testified that the Army will continue to need $13 billion or more—I expect the answer actually is more; from the time I put this question together, it was $13 billion, and I think it is probably closer to $15 billion or more now—per year for the foreseeable future to reset Army equipment worn out during the war in Iraq.

This has to do with the question of replacement on an ongoing basis. And this past January, the President asked Congress to expand the Army by 65,000 soldiers over the next 5 years. That will require billions of dollars in funding per year.

Given these conditions, what assurances can you make that we will be able to afford the Future Combat System program on top of these Army priorities?

The reason I ask the question in that manner—in some respects, verbally, it is easy to move in a horizontal framework, to go across the page and list in categories, perpendicular categories, and then go across the page, each program and how much it is, and you add it up at the bottom, and over on the right side or at the bottom over on the right you put the total cost.

But that is not the way we put these budgets together here, and that is not the way the bill actually comes together for authorization preceding appropriation.

So the question is what assurances can you make that we will be able to afford the Future Combat Systems, and not afford it in terms of desirability but rather on top of these other priorities, because they come in a hierarchy.

And I ask you to answer that question in this context. If the war in Iraq continues at least through the end of this President's term and beyond, and whoever becomes the President—so we are talking about at least two years—if it does, how would that cost impact the affordability of the Future Combat System?

In other words, I don't think—you understand why I am asking the question and how I am asking it. I don't want us to suddenly stop October 1st, 2008 and say, "Well, we will deal with the next thing. We will deal with the rest of it later."

I think I have to, in order to be responsible to the members of this subcommittee and subsequently to the Congress, take into account what the budget proposals are now and what the replacement costs are estimated to be now, regardless of whether in supplementals or in regular DOD authorization or whether they are post-supplemental supplementals, et cetera, and then put that into a context of what we can reasonably expect to happen over the next few months, at least to the end of this President's term.

Secretary BOLTON. Let me try to answer—it is a difficult question, but let me try to answer it this way, Mr. Chairman. For at least the last two years or three years, the Army leadership has said that if the war ended today, we would need monies, supplemental monies, just to recap and refit the worn-out equipment as it came back, because we brought it back to this country.

From my foxhole, the way I look at it for what I am responsible for, what I have asked our folks to do is take a look at all of our programs, not just the Future Combat System, and asked the same question. If we walked in tomorrow and the budget was significantly reduced, what would we do?

The first thing we need to do is to work with our requirements community, with the programming community, and prioritize. What capability does the United States Army need to do what it is supposed to be doing over the next five years?

Programs then are related to that, and then I would adjust those programs accordingly. Within programs—the FCS is a good example—where is your flexibility? What can you get out to the field right now? That is what the spin-outs are all about.

So if we ended two years from now, we would know that we had the first part of that technology going to the field.

Other techniques—how do you do the business of acquiring better? And that gets to the people part of this, to make sure they have got the best tools available.

I would tell you today that the Future Combat System is managed very, very well. It is very effective. And the results show that. However, is it efficient? That is a question we are trying to answer now with different tools to allow them to do the job perhaps even faster.

The other two I mentioned earlier, and that is you look at programs——

Mr. ABERCROMBIE. Are you speaking of efficiency in terms of affordability in the context that I have outlined?

Secretary BOLTON. Yes, sir. If I can reduce the time on the program, I am reducing the amount of money I am spending on the program. And that should make it more affordable to the Army.

The other is look at programs early and determine whether or not you can do the programs.

And I appeared here last year when we talked about another program, and we terminated the contract within the first year when it became very, very obvious we could not do this program. There is no need to spend the money if you can't get the program done.

So those are tools that we are trying to and are bringing together that allow us to keep the cost of procurement and acquisition down, along with, in the long run, how you reduce the life cycle costs of——

Mr. ABERCROMBIE. Can I summarize what you are saying?

Secretary BOLTON. Yes, sir.

Mr. ABERCROMBIE. You are saying we can afford it on top of these other priorities.

Secretary BOLTON. We can afford up to a limit——

Mr. ABERCROMBIE. Immediate readiness.

Secretary BOLTON. We can take it up to a limit, and I am just trying to find every tool I can for my part of it to keep it as low as possible.

Mr. ABERCROMBIE. Thank you.

Dr. Finley, do you have an opinion or a judgment in that context that I have outlined?

Dr. FINLEY. I believe that we are and have been in an era of strategic choices. And the threats, the way we are doing business are constantly in need of being evaluated.

And we look at converging what those requirements are, what the resources are needed to meet those requirements, and what the technology maturity and readiness is to enable the fielding of those requirements.

I completely agree with Secretary Bolton to find ways to accelerate the implementation of these products to the warfighter in a faster, more efficient way. That means less money, more effectiveness.

And one way that we are addressing that in the Pentagon is to—what we call bounded solutions. Many times we find that the requirements that are being levied on our warfighters and our procurement people is we need everything, and we need it now.

The reality is you can't have everything and you can't have it now. What you need, deal with now, and we can incrementally implement that in a strategic way to evaluate that.

To a large extent, that to me is the vision of FCS. It is an incremental implementation of a evolutionary product that is evolving and being driven by technology.

We completely subscribe to that, with the proper oversight, with the checks and balances, and the transparency and insight into that information.

And that is the direction we are headed in the DOD with OSD.

Mr. ABERCROMBIE. Nice try. Thank you.

I just want to say the problem with this is it gets discouraging, when you ask a question about radios, and we are increasing the spending for it, and then you tell me the cost is going to go up by $3,000. And that is just for the radios.

And we are getting a lot more sophisticated with some of this other—and I am concerned that the costs that are being presented to is, in the context of the other priorities we have to face, is going to be difficult to work out, because we are getting numbers that—I mean, we are getting—not appropriations—allocations given to us, funding allocations, that we are supposed to stay within the boundaries of.

I suggest to you, in the context of my response to you on your answers, the administration has got to start thinking about how it is going to get more money.

I mean, it is great to stand up and give a speech and say, "No new taxes," or "No new fees," or whatever. "We can have everything all around—we are going to cut taxes, and at the same time we are going to spend more money." I am not quite sure how that works.

But right now, I am having trouble reconciling the President's request, the numbers that he is requesting through the Pentagon, and what is actually being required as these numbers begin to evolve as we get to the decision making here.

Speaking of spin-out, it is spinning past what the President's budget numbers are. The 2008 budget that has been presented to us for authorization no longer represents the number that we are being told we have to have to meet the minimal requirements that you are presenting to us.

And so that is why I am asking the question. I am not trying to pit the Future Combat System against MRAPs or something like that. I am not trying to do that. I am trying to figure out how the hell we reconcile all of these budget requests that seem to keep adding up.

Okay. That is my difficulty. You have got to help me with that. That means you may have to go back in, take a look at FCS itself and prioritize. Help us.

I am going to go to Mr. Sestak, and I have a couple more questions. I am going to defer them and ask Representative Sestak to—and then we will try and finish. I wanted to get finished by noon if we could. We will be a couple minutes after.

Mr. SESTAK. Thank you, Mr. Chairman. I apologize I am late.

Mr. ABERCROMBIE. No need for that.

Mr. SESTAK. All right.

I hope these questions haven't been asked, but I would like to know the following. We had had some intentions a few months ago

of going from 14 down to 5 or 6 brigade combat teams in Iraq by December.

My understanding is that the reset program for the Army of about $13 billion a year is based upon the planning factor of having gone down to 5 or 6 brigade combat teams by then.

The President seems intent upon maintaining the amount of troops that we have there, including the additional ones we have sent. What is that additional cost in order to reset the Army then? It goes from $13 billion to what if the intentions of our commander in chief continue?

General, is that your area?

General CURRAN. Sir, I am afraid not.

Secretary BOLTON. Nor mine directly, but we will take it up for the record, sir.

[The information referred to can be found in the Appendix beginning on page 116.]

Mr. SESTAK. The question I have then is is the money for everything of the six new infantry brigade combat teams in the budget. And if so, how much?

Secretary BOLTON. Once again, I don't know the answer to that.

Mr. SESTAK. How about for the equipment in the ground programs to man these six new brigade combat teams?

Secretary BOLTON. Well, I have not been given a requirement, so I don't know—I have not costed——

Mr. SESTAK. So the money is not yet in the budget, then, for the plus-up that we are about to undertake.

Secretary BOLTON. That is outside my area, unfortunately, and I would not hesitate to give you an answer. But I will take it for the record to make sure you get an answer on that, sir.

Mr. ABERCROMBIE. Well, Mr. Sestak——

Mr. SESTAK. I apologize, yes.

Mr. ABERCROMBIE. No, no, not a bit.

For purposes of clarification, there is, on the equipment, $3.8 billion in the 2008 budget as presented, correct?

Secretary BOLTON. That is true.

Mr. ABERCROMBIE. What Representative Sestak is asking is if that number needs to be modified, and if so, what.

Secretary BOLTON. That I don't know. I can tell you $3.8 billion and how much the FCS has and so forth, just on equipment.

But in terms of what does the plus-up mean in terms of 65,000 soldiers and how that—I don't have that, because in that number is not only equipment, it is the training, it is the recruiting, it is the keeping of all——

Mr. SESTAK. I was primarily—and again, I may be asking the wrong people—ground forces procurement—and I knew there were several billion dollars in there, but I have heard estimates to equip with ground programs these 6 brigades—and I have heard 2 different estimates, $10 billion, $70 billion.

And I don't know where this additional funding—what level is really is at. But you don't have that.

Secretary BOLTON. I think in order to give you a good answer, I would have to take that for the record.

Mr. SESTAK. The reason I am asking these questions—I thought it was a great discussion on what you said, sir, priorities. And as

you take the next step, the Army has 17 percent less new recruit contracts this year than last year in its recruitment effort.

We have taken into the Army 11 percent less above average—those who were graded above average in mental category, the above average, 11 percent less than we did before.

And those who are coming in in category four have gone from .5 percent to 4.4 percent, which is the maximum you can let in. And I think we also have, as I remember—I don't know if I jotted it down before I came—an 11 percent drop in those coming in who have high school diplomas.

And this is all within the last—since 2004. Where are you going to get—and this isn't really yours, but the reason I ask the next question—where are the commissioned and non-commissioned officers going to come from to man it, if we are having this challenge to get the wealth of recruits we want?

Mr. ABERCROMBIE. Representative Sestak, I hate to interrupt you, but I don't think these witnesses can be responsive to that question. It is a good question, but I don't think they can be responsive to it.

Mr. SESTAK. All right. But I meant it more as a context of this prioritization that you are taking up, as additional stuff that I think, you know, this war has, unfortunately tragically, taken us away from the real transformation that the Army was undertaking with modularity and FCS and all.

And I guess my only other question is—if you could answer it, is when you do your procurement for these infantry brigade combat teams, will you have to do procurement for other units that support them?

Secretary BOLTON. Yes.

Mr. SESTAK. That is not yet in the budget either, correct? We will have to construct—when you say six new brigade combat teams and have to procure their equipment, you will have other units that will have to be stood up to support them, and their equipment, and their personnel, correct?

Secretary BOLTON. Right.

Mr. SESTAK. And that will be even more people, correct?

Mr. ABERCROMBIE. I am going to take those nods as affirmative. And that will have to be the last answer. I am sorry.

Mr. SESTAK. Thank you very much.

Mr. ABERCROMBIE. But the answer to the questions was yes.

Secretary BOLTON. Yes, sir. Now, I think we need to take back for the record what is in which bin of the budget and how much has been covered yet.

[The information referred to can be found in the Appendix beginning on page 116.]

Mr. ABERCROMBIE. If you can do that within the next week, I would be appreciative.

General CURRAN. Yes, sir.

Mr. ABERCROMBIE. All of these questions. Thank you.

Mr. SESTAK. Thank you very much.

Mr. ABERCROMBIE. Representative Saxton had a question.

Mr. SAXTON. I would just like to conclude my part of today by, first of all, thanking you for being here and for all the good work that you have done on FCS and getting us ready to meet the future

threat that I have talked about several times today, and just conclude with this thought.

The chairman just a few minutes ago brought up a subject which I think is extremely important, and that is that while we need to continue with your program, we also have other demands upon the resources that we are partly in charge of managing.

And of course, last year General Schoomaker came here and told us he needed almost $20 billion for reset, and the chairman of the full committee at the time, Mr. Hunter, took care to give him every dime.

And as we move forward with other warfighting costs that are a requirement for us to make sure that our soldiers, others who are deployed military, have the resources that they need, it has an effect on what we are going to be able to do going forward to prepare for the future.

And so I guess the conclusion that I kind of draw from that is that we need to decide what your priorities are. Make sure the focus is razor-sharp so that we can find a way to support those things upon which you focus in this really important program for the future.

Thank you very much.

Secretary BOLTON. Thank you.

Dr. FINLEY. Thank you.

Mr. ABERCROMBIE. I think that is more an observation than a question. Fair enough? Okay, good. So you need not comment on that, unless you really, really want to. Okay. Thank you.

Then I have two more questions, some of which you—or answers to which you don't necessarily have to elaborate on right now, but I would appreciate it if you could send something in writing if you think it warrants further elaboration.

You maybe heard in other contexts my concern about proper testing and evaluation, which I think the Pentagon has a very good department for. This had to do with the Presidential helicopter.

I am concerned about the Army deploying 27 Stryker mobile gun system variants to Iraq, because my information is that the standard operation in live fire testing has not necessarily been completed. I don't know if that is the case or not.

What I want to know is what steps have been taken to ensure that U.S. troops using this version of the Stryker understand the limitations of these vehicles.

Secretary BOLTON. Well, first of all——

Mr. ABERCROMBIE. Am I correct that they have been——

Secretary BOLTON [continuing]. The full-up OT&E test has not taken place. We have had the Army Test and Evaluation Command on board to provide testing for us, but the Department of Test and Evaluation (DOT&E) requirement has not been met.

Mr. ABERCROMBIE. Why have they been sent, then? Have they been sent?

Secretary BOLTON. What we did was to provide the deploying brigade commander the use of these vehicles to see whether or not they were better than what he would have when he got to Iraq and whether or not they were safe to do the mission.

Mr. ABERCROMBIE. How is he going to know that if they haven't been tested? He is going to do the testing?

Secretary BOLTON. We did our testing. The Army did its testing to make sure they were safe for this particular deployment. And our evaluation of that was yes, they are safe for this deployment.

I have limited the capability of that to block zero, to only what the commander says he wants.

And he has told us—his commander, as well as the commander who will be commanding the brigade, the division commander, the vice chief of staff had the chief of staff have all conferred to say this is better than what we have, and it is at least as safe as what we currently have.

Mr. ABERCROMBIE. Well, why is it then——

Secretary BOLTON. Because in order to do that full-up test for DOT&E, I need a full brigade that is not deploying. It has got to be in place to run every part of the test.

Mr. ABERCROMBIE. Well, is this going to be standard way of doing it in the future?

Secretary BOLTON. I am working with the DOT&E director right now, because I have had to postpone other testing because when I got to the place to do the testing, that brigade was deployed and I couldn't do the test.

And so we are trying to find a way—how can we do the——

Mr. ABERCROMBIE. Is the tempo of the deployments pushing you?

Secretary BOLTON. Yes, sir.

Mr. ABERCROMBIE. Okay. You understand my——

Secretary BOLTON. But not pushing us to the place where we are deploying anything——

Mr. ABERCROMBIE. I am not going to dispute your answer. I think that under the circumstances what you answered me makes operational sense.

Secretary BOLTON. Yes, sir.

Mr. ABERCROMBIE. But it is still not the way we would prefer to do this according to the Pentagon's own standards. Is that a fair statement?

Secretary BOLTON. Yes, sir. That is true. That is very fair. That is very fair.

Mr. ABERCROMBIE. The reason I am asking—I hope this doesn't get to be the way we are going to start doing things, because sooner or later—maybe with this particular vehicle and this particular configuration, you can do that.

But we can't be deployment-driven in terms of testing. Wouldn't you agree, on the whole? Maybe in this circumstance——

Secretary BOLTON. We have had a number of circumstances where we have done that. JNN is another example of that.

Mr. ABERCROMBIE. Okay.

Secretary BOLTON. And what we are trying to do—because I started in this business as a tester 30 years ago, and what I have asked my——

Mr. ABERCROMBIE. I remember that.

Secretary BOLTON [continuing]. During time of war, we have got to figure out how to do the testing you want while we are still deploying, and change some of our processes to make that happen.

But your comments are exactly right on.

Mr. ABERCROMBIE. Yes, but that is going to have to be circumstance-specific.

Secretary BOLTON. Yes, sir. I agree.

Mr. ABERCROMBIE. Like I would not say that that was acceptable if we were dealing with the helicopters. That is not the way it is going to work, and perhaps in other instances. But this is another example. Okay.

You understand my reason for me asking the question.

Secretary BOLTON. Yes, sir.

Mr. ABERCROMBIE. I don't want it on my record that I was aware of something that hadn't gone through the standard testing and said, "Well, that is okay." I need to ask and find out.

Secretary BOLTON. Absolutely.

Mr. ABERCROMBIE. So you take responsibility for that.

Secretary BOLTON. Yes, sir.

Mr. ABERCROMBIE. All right.

General Curran, do you understand that?

General CURRAN. Sir, I do understand it, and we have participated in the process fully——

Mr. ABERCROMBIE. Okay.

General CURRAN [continuing]. As a user's rep.

Mr. ABERCROMBIE. Do you understand the reason for my question?

General CURRAN. Absolutely. And I am very confident of what the Army has done to test those vehicles for safety of the soldier within the bounds of what that platform is going to be asked to do in this environment.

Mr. ABERCROMBIE. Okay. Then the last thing I have—this goes to air transport and vehicle weight. The original proposal for Future Combat System manned ground vehicles—my information, if I remember correctly, was about 19 tons, maybe less.

This goes way back several years now. I remember the arguments—not so much the arguments, but the questions about even sizes of vehicles, let alone weight, with regard to the C–130.

But my understanding is that the latest estimate of the vehicle average weight is as much as 27 tons, considerably more than 19. I am not quite sure of the dimensions, how that works. I simply don't have that information in front of me.

But on the weight question, there is a couple of things, then. Is it the Army's goal now for the weight of fully equipped FCS ground vehicles at this stage around 27 tons?

And how will this weight compare to Stryker combat vehicles in service today? I don't remember what that—that is heavier, I believe, and considerably.

General CURRAN. Yes, sir.

Mr. ABERCROMBIE. And if that is the case, in terms of air mobility, what additional capability will the Future Combat System brigades give the Army that are not resonant in the Stryker brigades in operation today that are designed for the C–130 transport?

In other words, the C–130 transport can be used today for the existing vehicles, correct?

Secretary BOLTON. It could be. It hasn't been.

Mr. ABERCROMBIE. Well, but it could be.

Secretary BOLTON. It could be.

Mr. ABERCROMBIE. Yes, because I am trying to think of—we were told this in the beginning that there is going to be an air—in other

words, that the Air Force and the Army would be working together to the degree that the FCS, Future Combat System, vehicles and Air Force capabilities could be compatible.

In other words, the mission for the FCS—the mission for the Stryker—and the Air Force capabilities could be compatible. That was going to be attempted.

And now what I am asking is given where you are now with the Future Combat System, the Strykers and air combat, is it still compatible? And if not, what do you propose to do?

Secretary BOLTON. There is a KPP on transportability that does not address the 130. There is a requirement underneath that that has a threshold or an objective of 130.

We cannot meet the 130. We do not have a waiver from the Air Force on that for the Future Combat System. As you have already pointed out, it is too heavy. We have maintained a box size of the 130 to size the vehicle, but the vehicle itself is heavier.

But we are putting three of these on a C–17.

Mr. ABERCROMBIE. Okay.

Secretary BOLTON. So we could transport them that way.

Mr. ABERCROMBIE. Does that have a fiscal effect budgeting? And how is it taken into account in the DOD authorization bill for this year, if it is?

Secretary BOLTON. I couldn't answer the last question. On transportability, the other aircraft—for example, the 17s or 130s—I don't have that information.

Mr. ABERCROMBIE. The question I am asking is does this have a fiscal impact, the fact that the weight no longer is going to be—I mean, is going to create a different set of logistical problems vis-a-vis the C–130 and then the C–17.

Secretary BOLTON. I don't see a fiscal impact there because this vehicle is heavy. Because we have no C–130 key performance parameter in the FCS, all the others are tradeable if you can't do that.

With the KPPs, if you don't make one of those, that is cause for——

Mr. ABERCROMBIE. Do you have enough C–17s?

Secretary BOLTON. Three of them on the 17.

Mr. ABERCROMBIE. I beg your pardon?

Secretary BOLTON. Three of them can be put on the C–17.

Mr. ABERCROMBIE. Yes, but I am saying did you take into account, then, that the likelihood of transportation will have to be with C–17s? The C–17s, no doubt, have been put into service with certain missions involved.

That has been taken into account, is what I am driving at. Do we need more of them? Or with the deployment—General Curran, you understand that I am driving at?

General CURRAN. Yes, sir. In fact, I participated with the Air Force before this committee a couple of weeks ago where we flew through this.

And those studies are ongoing between the Air Force and the Army and the U.S. Transportation Command (TRANSCOM) about, you know, what is the right lift size requirement that the Air Force needs to pursue based upon its support to not only FCS but then in also a potentially larger Army and Marine Corps.

And so they tested——

Mr. ABERCROMBIE. Yes, and if they are required for a deployment, right, then they have to—the air transport has to be available.

General CURRAN. It does. And I might add, too, that we are now working with TRANSCOM in a study on what future air lift is being developed that will also support FCS.

Mr. ABERCROMBIE. Could you say that for me again?

General CURRAN. We are working with TRANSCOM about what future air lift requirements may be—in terms of platforms—to support FCS and the joint forces operational concept for the future.

Mr. ABERCROMBIE. Is this a formal contact, or is this informal?

General CURRAN. No, this is formal.

Mr. ABERCROMBIE. Okay.

General CURRAN. Sir, it is a Tactical Airborne Controller Aircraft (TACA) study.

Mr. ABERCROMBIE. Do you have a time frame?

General CURRAN. When they will deliver that—it is in process, sir. I will get that for you for the record when that will be delivered.

Mr. ABERCROMBIE. The report.

General CURRAN. The report to TRANSCOM commander, yes, sir.

Mr. ABERCROMBIE. Okay.

Mr. FRANCIS. Mr. Chairman, may I make a couple traffic cop-type comments?

Mr. ABERCROMBIE. Sure. And then we will conclude with that, if it is okay with everybody.

Mr. FRANCIS. Yes, I know you are out of time. But I just want to make sure our understanding is not too ductile about what FCS is about here. It is a revolutionary system. The spin-outs have an evolutionary character, but I would consider them to be harvesting of low-hanging fruit. They aren't the heart and soul of FCS.

So they are going to give us some capabilities, but FCS is going to be a revolutionary capability, and we are not going to see that until after 2013. So I don't want us to misunderstand that.

And I want to come back to—one of the first comments Mr. Johnson made was the question about SINCGARS. One of the reasons we are buying SINCGARS is because the JTRS radio is late.

We were optimistic about what it could do. It has taken longer. So we are having to buy more legacy radios. So while JTRS is here in partial form, we were optimistic about it.

Another question came up about the JNN, the Joint Network Node, which we are buying kind of as an emergency buy.

One of the reasons we are buying that is the Warfighter Information Network we were also optimistic about and haven't been able to deliver it. So now we are buying more off-the-shelf type of equipment to make up for that.

I only offer that up as a little bit of sobering perspective about—there is often a difference between what we think we can do and what we can actually do.

Mr. SESTAK. Mr. Chairman, may I ask one question of Mr. Francis?

Mr. ABERCROMBIE. Sure.

Mr. SESTAK. Mr. Francis, you know, you mentioned the SINCGARS, JTRS, the joint network and the various systems, and watching them come on and whether you are going to be able to talk to JTRS and F–18s or whether you are going to be able to do it among various units.

Is there a different procurement or acquisition, excuse me, approach we should be taken where you centralize the funding in Joint Staff or OSD, in what is really the transformational aspect of the future, particularly when you look at what FCS is really about, to take all that from the services and place it in Joint Staff?

Every system seems to overlap, and you are buying legacies to fit this as you go forward.

Mr. FRANCIS. Yes. I don't know that we could eliminate that completely, and I think we have tried joint acquisitions, which I haven't given up on, but they have tended to be additive, so we would—let's take Joint Strike Fighter. We will have three variants of that to try to meet everyone's need.

I think the greatest efficiency—and I will defer to my colleagues here—comes from joint requirements. It may be that solutions have to be tailored to individual needs.

But if we can get the requirements conceived jointly up front with the military strategy, then I think there is less occasion to have isolated and overlapping acquisitions.

Mr. ABERCROMBIE. We intend to follow up on this area of how we do, maybe, you know, operational funding and capital funding and asset acquisition and so on, in another context, in another hearing. It is a good point.

I am going to have to conclude things at this juncture. This has been a good hearing. We had good briefings ahead of time. I am very appreciative.

And speaking on behalf of all the members of the subcommittee, thank you for all of the efforts that have been made to this point. We would appreciate the follow up on for-the-record indications coming as soon as possible.

And if you can get to the individual members, too, to whom it was made as well as to myself and Mr. Saxton, I would be grateful.

Anything else at this juncture?

With that, I will say aloha and thank you. Aloha.

[Whereupon, at 12:22 p.m., the subcommittee was adjourned.]

A P P E N D I X

March 27, 2007

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

MARCH 27, 2007

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HOUSE COMMITTEE
ON ARMED SERVICES

TESTIMONY OF

THE HONORABLE DR. JAMES I. FINLEY

DEPUTY UNDER SECRETARY OF DEFENSE

(ACQUISITION AND TECHNOLOGY)

BEFORE THE UNITED STATES HOUSE

COMMITTEE ON ARMED SERVICES

AIR AND LAND FORCES SUBCOMMITTEE

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STATEMENT BY
DR. JAMES FINLEY
DEPUTY UNDER SECRETARY OF DEFENSE
(ACQUISITION AND TECHNOLOGY)

BEFORE THE
SUBCOMMITTEE ON AIR AND LAND FORCES
HOUSE ARMED SERVICE COMMITTEE
UNITED STATES HOUSE OF REPRESENTATIVES
MARCH 27, 2007

INTRODUCTION

Chairman Abercrombie, Ranking Member Saxton and Members of the Committee, thank you for the opportunity to discuss the Army's ground force programs requested in the President's fiscal year 2008 budget. As you know the Army is involved in a total transformation. It includes not only the structure of the force and personnel, but also of the equipment and systems that are necessary to support our 21st century national security goals and missions. A critical piece to this transformation effort is the Future Combat Systems (FCS).

We are currently engaged with an enemy who is thinking and adapting to our every advance. We must counter with systems and equipment that enhance our warfighters' capabilities in theater. This allows the Army to modernize, while bringing leading edge technology to the battlefield. We fully support the President's request of $ 3.7 billion for research, development, testing & evaluation of this program. It is a program of vital importance to the Army and our warfighter.

We also continue to work collaboratively with the Army on Joint Network Node Program (JNN) and the Warfighter Information Network-Tactical Program (WIN-T). Today, I will provide an update for you of the progress made for the FCS, JNN, and the WIN-T programs.

ARMY'S FUTURE COMBAT SYSTEMS ACQUISITION

The Army's FCS acquisition is a key element of future ground combat. The Fiscal Year 2008 budget for FCS funds the acquisition and fielding of communications, force protection, and mobility equipment needed to support current and future operations. Investments balance both near-term and long-term modernization requirements. For the near term, the FCS program provides the technology to increase networking and combat capability for current Army brigade combat teams through a "spin-out approach" that exploits new technologies as soon as possible to enhance current capabilities. Concurrently, development of FCS for the Brigade Combat Teams continues. They plan to replace 15 of the Army's heavy brigade combat teams.

The affordability of the FCS program in conjunction with overall Army top-line priorities continues to be an area of continued attention. The Army's transformation effort, including Army modularity and the FCS program, requires a disciplined, yet agile, acquisition construct. The ability to track cost, schedule and performance is the centerpiece of the system-of-systems concept for acquisition. The Department will continue to evaluate FCS acquisition for compliant earned value management systems in concert with Department investment priorities and program progress.

Today, I will provide an assessment of the FCS technology development progress, cost estimate, schedule, and test plans. I will also describe our plans to comply with Sec 214 of the 2007 Authorization Act and provide an assessment of the effectiveness of the FCS program's Lead Systems Integrator management model in protecting the interests of the government in the FCS development process.

TECHNOLOGY DEVELOPMENT PROGRESS

The FCS program continues to mature the critical technologies associated with acquiring a FCS brigade combat team. The network technologies, including quality of service, mobile tactical networks, and network security continue to be attention areas for the Department. The FCS program continues to be a forcing function in addressing the transition to mobile, reliable network technology to provide timely, accurate, and appropriate situational awareness and understanding to all levels of command.

The 2006 Technology Readiness Assessment looked specifically at the technology maturity needed to support Spin-Out 1. A comprehensive Technology Readiness Assessment on all of the FCS threshold program critical technologies will be conducted prior to the 2009 review. All critical technologies are planned to have attained technology readiness levels of 6 or greater at that time.

We've also taken action with the 2008 President's Budget to address technology risks associated with the large unmanned ground vehicle, the Armed Reconnaissance Vehicle (ARV). This year's budget moves the ARV system back into the technology base and adjusted the FCS brigades appropriately. As that technology matures, incorporating that capability into both the current force and FCS brigades will be addressed.

PROGRAM COST ESTIMATES

The 2006 Cost Analysis Improvement Group (CAIG) estimates the costs to develop 15 FCS-equipped brigade combat teams to be between $31.8-44.0 billion with an estimated cost to procure of $118.7 billion dollars. The CAIG identified three areas of cost risk: 1) potential underestimating engineering staffing requirements in late Systems Development and Demonstration, 2) uncertainties with respect to requirements for software development, and 3) timing for delivery of the complementary Joint Tactical Radio System (JTRS), which is planned to provide the FCS network transportation layer.

Currently ongoing is an independent analysis of FCS cost risks, undertaken by the Institute for Defense Analysis (IDA), a Federally Funded Research and Development Center, as required by Sec 216 of 2007 NDAA. While differing in methodology, the overall magnitude of IDA's preliminary cost estimate is consistent with the CAIG's estimate.

Deleted: [Comment: The discussion here may need to be expanded to articulate this difference. The IDA cost estimate may need to be included as well]

The Department is committed to balancing our investment in FCS by aligning operational requirements, technology readiness, and affordability for both the near-term and long-term decision-making. The 2008 President's Budget takes a step in this direction by modifying the FCS program – removing two classes of unmanned air systems, the Intelligent Munitions Systems, and the unmanned Armed Reconnaissance Vehicle from the FCS brigade combat team structure.

The affordability of the FCS program in conjunction with overall Army top-line priorities continues to be an area of continued attention for the Army and the Department

PROGRAM SCHEDULE

The FCS program schedule targets early 2009 for a preliminary design review for the FCS System of Systems and 2013 for the Brigade Low-Rate Initial Production decision. The FCS program incorporates the "Spin Out" of FCS capability into the current force brigade combat teams. Spin-Out 1 systems capability includes an initial instantiation of the FCS network, the unattended ground sensors, and the Non-Line of Sight Launch System. The Spin-Out 1 Milestone C decision is planned for early 2009.

PROGRAM TEST PLANS

The FCS Test and Evaluation Master Plan (TEMP) scopes the developmental, operational, and live fire testing for the FCS program. The FCS testing plans include system testing and system-of-systems testing for brigade level effectiveness. The Department approved the FCS test plan in 2006. While a complete TEMP update is not required until August 2008, the test planning efforts are being modified to reflect the program restructure in January 2007. The TEMP will continue to mature as the program progresses through the System Development and Demonstration phase to insure test plans lead to delivering an operationally effective, suitable, and survivable FCS brigade.

OVERSIGHT AND REVIEWS (SEC 214 COMPLIANCE)

The scope and complexity of the FCS acquisition needs regular decision reviews of the FCS acquisition by the Undersecretary of Defense for Acquisition Technology and Logistics with the Defense Acquisition Board (DAB). The DAB review subsequent to the FCS preliminary design review in 2009, while not a milestone review, is a critical program decision point and will address the Section 214 requirements. The program assessments address the FCS acquisition in the

context of strategic direction, investment priorities, budget constraints and technology readiness assessments.

Expectations for the 2009 DAB were established during the 2006 review, and will be further refined when we review the program this year. The 2009 FCS acquisition decision point, and the DAB, will be informed by a number of assessments to aid in acquisition decisions that align Department policy and investment priorities. These assessments include a Technology Readiness Assessment by the Director, Defense Research and Engineering, an updated program Independent Cost Estimate by the Department's Cost Analysis Improvement Group, a system engineering and software review by the Director, System and Software Engineering, an affordability assessment by the Director, Program Analysis and Evaluation, and a requirements review conducted by the Joint Requirements Oversight Council.

LEAD SYSTEMS INTEGRATOR MANAGEMENT MODEL

The Army's FCS contract is a Federal Acquisition Regulation (FAR Part 15) based contract with Boeing as the prime contractor. The Army's use of a Lead Systems Integrator management model in the FCS contract provides for a collaborative environment between the government and the contractor organizations in developing the FCS capabilities. With the scope and complexity of a Systems of Systems development effort, such as FCS, a collaborative environment which provides agility and disciplined interaction is useful. Of critical importance is protecting the interests of the government and insuring inherently governmental functions remain with the government. The oversight of such a relationship utilizes trust and integrity as imperatives with open and transparent communication.

Programmatic decisions, such as the early spin-out of FCS capability and the rescoping of unmanned air systems in the FCS brigades, have been

accomplished. These types of decisions reflect a collaborative environment being developed using a lead-system integrator management model while performing inherently governmental functions and protecting the interests of the government.

JOINT NETWORK NODE (JNN) PROGRAM

The Joint Network Node (JNN), which originated in response to an urgent operational requirement for high-capacity, high-speed (Internet Protocol based) networking and communications for the Army in Afghanistan and Iraq, has met that need and provided a foundation for broad band tactical communications. Because of its success, the Army plans to field JNN capability to the rest of the Army, synchronized with troops rotating into Iraq. JNN is based upon commercial networking, communications and computing technology, configured for military use. The Defense Acquisition Board will be meeting on the next procurement lot of JNN.

WARFIGHTER INFORMATION NETWORK-TACTICAL (WIN-T) PROGRAM

On March 5th, the Secretary of the Army notified Congress that the WIN-T program had exceeded its approved program baseline by more than 25% and was reported as a Nunn-McCurdy Breach. As delegated by the Secretary of Defense, the USD (AT&L) must certify to Congress that 1) the program is essential to national security, 2) there is no alternative which will provide equal or greater capability, 3) the new unit cost estimates are reasonable, and 4) the management structure is adequate to control unit costs.

Integrated Product Teams have been formed to address each of the above four questions with representation provided from the Services and OSD. A complete review of the answers to the four questions will be presented to the

Defense Acquisition Executive, the Honorable Kenneth Krieg (USD(AT&L)) for a decision by June 5, 2007.

CONCLUSION

In closing, I believe that the Department and the Army are working together and making progress. These FCS and Network Communications capabilities are giving our warfighters the best systems and support in the world to help them meet their operational goals and missions. Through our advances in science and technology, we are also helping modernize the Army and develop the future of ground combat. We fully support the President's FY 2008 budget request for ground forces capabilities.

I thank the committee for their time today, and their leadership in addressing the Army's operational needs. This committee has consistently provided our men and women in the Armed Forces with the systems and support they need. Thank you for your unwavering support to our warfighters, and I would happy to take any questions.

RECORD VERSION

STATEMENT BY
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U.S. ARMY TRAINING AND DOCTRINE COMMAND

BEFORE THE
SUBCOMMITTEE ON AIR AND LAND FORCES
COMMITTEE ON ARMED SERVICES
U.S. HOUSE OF REPRESENTATIVES

ON
ARMY GROUND FORCE PROGRAMS

FIRST SESSION, 110TH CONGRESS

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Introduction

Mr. Chairman and Members of the Subcommittee: thank you for this opportunity to report to you on Army ground force programs. It is our privilege to represent the Army leadership, the military and civilian members of the Army acquisition and capabilities development workforce, and the Soldiers who rely on us to provide them with world-class weapon systems and equipment to enable mission success and a safe return home.

While fighting the Global War on Terror (GWOT) and sustaining our global commitments, we are accelerating our efforts to transform and to modernize. We are building a modular force in which brigades – not divisions – can "plug into" joint and coalition task forces in expeditionary and campaign settings. We are improving readiness to deal with traditional, irregular, catastrophic, and disruptive challenges by providing Soldiers with capabilities to be dominant across the full range of military operations. And, we are ensuring that every investment in our current force benefits our future force.

Our task would be impossible without the tremendous support the Army receives from you, the Members of the House Committee on Armed Services. We are constantly working to better equip and better support our Soldiers. Your wisdom, sound advice, and strong support are keys to our success.

Modular Force

The Army is transitioning continuously from the current to the future force through the combined effects of transformation and modernization. The main focus of transformation is modular conversion. To sustain a steadily increasing demand for military forces, we are building a modular force centered on Brigade Combat Teams (BCT) as the basic building block of our fighting capability. Our modular conversion of active and reserve components is designed, as mentioned at the outset, to create brigade based modules able to "plug into" joint and

coalition task forces in expeditionary and campaign settings. These forces will be better organized to accept advanced new capabilities and technology in order to meet the demands of the current war, sustain other global commitments, establish the organizational structure needed to accelerate modernization, and support a new global basing posture that will rely more heavily on rotational presence.

With respect to the total acquisition cost, the Army no longer tracks the costs of modularity separately from other equipping costs because our modularity requirements mirror the equipping requirements for the Army as a whole. Whether we buy a truck, for example, using funds in the base budget in order to fill a modularity requirement or a modernization shortfall, or using funds in the GWOT supplemental budget to replenish a battle loss or mitigate a wartime capability gap – in the end, a truck is a truck. Our ability to precisely track funds targeted specifically for modularity requirements versus other requirements has been lost, and what was originally known as "modularity" has permeated across the Army's equipping accounts, thus making it a distinction without a difference with respect to equipping the Army as a whole. In short, the budget that the President submitted to Congress in February together with the GWOT Supplemental requests that the Congress has generously funded, reflect the equipping requirements for the total Army through the Future Years Defense Program, modularity or otherwise.

Future Combat Systems

The 21st Century necessitates a highly versatile Army that can handle a diverse array of operations and missions. The principle effort of our modernization program is the Army's Future Combat Systems (FCS), which will provide much needed capabilities to our Soldiers and will greatly strengthen America's national defense. The Army, as an institution, learns and grows, and Army modernization through FCS is continuously informed by lessons learned in combat operations and further improved by the study of threats we are likely to face in the future.

The FCS program has sustained three significant and consecutive budget cuts and will need full funding as we begin early production efforts for the Spin Out 1 networked systems and the Manned Ground Vehicle (MGV) early Non-Line of Sight-Cannon (NLOS-C) deliveries in 2008. We recently made several adjustments to the program – informed by operational analysis and bounded by the fiscal reality of the current environment. With these adjustments, the Army continues to have an affordable and executable FCS strategy to better ensure program success and the delivery of essential capabilities to our Soldiers.

The Army took a hard look at the status of technology development a year into the program in 2004, and invested over $1.5 billion to ensure that technologies would develop along the timeline required to meet program objectives. FCS technology maturation is being executed exceptionally well – 75% of the program's critical technologies are at Technology Readiness Level 6 or higher and the others are progressing according to plan. The Army continuously reviews the status of the FCS Program technology maturation and will do so in detail with the Defense Acquisition Board prior to the Preliminary Design Review in 2009.

With FCS, the Army takes advantage of technologies as they are developed and expeditiously puts them into the hands of Soldiers. Our BCT will be regularly enhanced by the insertion of FCS technologies. While the total integrated development of FCS proceeds, we are inserting capability into the current force as soon as it is ready.

The FCS program is on schedule to deliver Spin-Out 1 technologies to the Army's Evaluation Task Force (AETF) in 2008. Spin Out 1 networked systems will be resident on current force Abrams, Bradley Fighting Vehicles, and High Mobility Multipurpose Wheeled Vehicles. Spin-Out 1 technologies include: the Unattended Ground Sensors (UGS) – Tactical and Urban, the Non-Line of Sight Launch System (NLOS-LS), Joint Tactical Radio System (JTRS), and an early version of the FCS Networked Battle Command. Soldiers, testers, and material developers mature and improve the whole FCS package in a "One Team"

environment over time. In parallel, the FCS program is on track to deliver the early MGV NLOS-C prototypes in 2008.

FCS modernization costs are reasonable and affordable because they are budgeted incrementally over a two-decade period. The FCS program is 42 months into System Development and Design (SDD) and is on contract cost, schedule, and performance. FCS is an Army run and Army administered program. The Lead Systems Integrator (LSI) was competitively selected to help the Army manage high-risk complexity; however, the Army has complete control of overall program management and development efforts and specific authority over program requirements, designs, and specifications.

The Army also oversees subcontracting and make-or-buy decisions and is responsible for LSI performance. Army personnel, moreover, are actively engaged in daily program operations; they oversee LSI functional and engineering activities. Comprehensive Army oversight is facilitated by the co-location of the Army and LSI program leadership in the same office in St. Louis, Missouri.

The Army's LSI management approach was devised to tackle today's program complexity and integration challenges; it is imperative for the creation of a joint networked force. Program complexity is reduced and made manageable by the high degree of commonality in systems and subsystems design. The LSI provides integrated program management, which makes large-scale systems integration achievable. Furthermore, the Army has successfully converted the FCS SDD Program from an Other Transaction Agreement (OTA) to a Federal Acquisition Regulation (FAR) based contract. This conversion further ensures the Government interest through clauses such as the Procurement Integrity Act, the Truth in Negotiations Act and Cost Accounting Standards and includes a very strict Organizational Conflict of Interest Clause that prohibits the LSI – specifically Boeing and SAIC – from competing for any SDD development work at any tier.

FCS performance to date confirms program management success. FCS is the most complex weapons procurement ever managed by the Army; yet the program is on contract cost, on schedule, and performing to plan. FCS

Operation and Support (O&S) Cost Avoidance benefits will have a significant multi-billion dollar impact on the force. Substantially increased reliability and commonality of parts, subsystems and systems coupled with significant reductions to personnel and fuel consumption will drastically reduce life cycle costs for FCS equipped BCTs.

FCS Requirements Development

The U.S. Army's Training and Doctrine Command (TRADOC), as the representative of the Army's user community, developed and documented required operational capabilities for FCS. These requirements describe the attributes and qualities of systems within the family of systems. These requirements are codified in the FCS Operational Requirements Document (ORD) and subsequent revisions of the ORD. The Joint Readiness Oversight Council approved the first FCS ORD in April 2003 with change two in April 2006. In parallel with the FCS requirements document, TRADOC also developed the FCS BCT Operational and Organizational Plan (O&O) approved by the Army in July 2002 with the most recent change in December 2005. TRADOC published the initial draft Field Manual for FCS BCT Operations, FM 3-9.9, August 2006.

The intellectual and analytical foundations for FCS can be traced back to the conceptual work from the TRADOC led Louisiana Maneuvers, Force XXI, Strike Force, and the Army After Next initiatives in the 1990s. Additional underpinnings were provided from 1999 to the present with TRADOC's Futures Technology Seminars, Defense Advanced Research Projects Agency's (DARPA) Multi-Mission Combat System project, Joint Forces Command's Joint Operational Environment documents, and the classified System Threat Assessment Reports for FCS developed by TRADOC and validated by the Defense Intelligence Agency. These efforts produced an extensive body of work to project the future operating environment and the threats our nation would face.

From these assessments, we anticipated that future threats include military forces made up of light and motorized infantry, armored / mechanized, and Special Operations Forces; and paramilitary elements to include special police,

terrorists, militia, and civilians. We saw adversaries that would employ conventional and unconventional methods along with asymmetric and adaptive tactics. The operational environment projected for FCS includes urban as well as all other complex terrain where adversaries attempt to deceive and shield via combatant / non-combatant mix. This projected environment involves extreme dispersion with enemies attempting to use fire and maneuver at a time and place of their choosing with hit and run via ambushes at the tactical level. These adversaries will also seek operational level advantages by denying the U.S. entry through improved air and sea ports at the operational level. Our evaluation indicated that the threats would appear across the entire spectrum of conflict from small scale contingencies, including stability and support operations, to major combat operations. This assessment was a driving factor in the development of the FCS BCT Concept in 2000.

TRADOC developed requirements for the FCS family of systems account for current and future capability gaps in terms of responsiveness, deployability, agility, versatility, lethality, survivability, sustainability, and training. Based upon the FCS BCT Concept, TRADOC and the TRADOC Analysis Center completed the Mission Area Analysis in July 2001 that identified capability deficiencies. They then completed a Mission Needs Analysis in August 2001 to evaluate deficiencies using a task to need methodology to identify mission needs. FCS was one of the critical needs derived from this analysis. TRADOC developed the FCS Mission Need Statement (MNS) approved by the JROC in November 2001. The FCS MNS states:

> "The requirement for a Future Combat System of Systems (FCS) is driven by the evolving operating environment and capabilities-based threats, combined with the need for a full spectrum dominant force as described in the DPG, JV 2020, and the Army Vision. Clearly, the Army must be capable of effective response against both modernized conventional and unconventional forces employed in asymmetric strategies and tactics. The FCS mission need has application throughout the range of conflict from peacekeeping missions to major theater war (MTW)."

The TRADOC Analysis Center also conducted the FCS Analysis of Alternatives and subsequent annual updates. As the operational environment changes and our adversaries adapt, TRADOC continues to adjust concepts and doctrine to account for lessons learned from the current operating environment and refines capabilities development for future Army needs. The FCS program is a key element in this campaign of learning.

From the very beginning of the FCS program, TRADOC teamed with the acquisition community, DARPA, industry, and academia to define the capabilities our Soldiers, leaders, and the Army needs today and well into the future. The FCS requirements document reflects 551 individual requirements that provide the attributes and qualities needed by land forces in future BCTs. These requirements have been relatively stable since they were first documented, but, as part of our ongoing refinement process, we have made prudent adjustments. Working within the context of the FCS "One Team," comprising the Program Manager (PM), LSI, and TRADOC, we have clarified, refined and adjusted our requirements through a disciplined process. TRADOC has been actively engaged and continues to leverage the creative energy and innovative thinking of our schools and centers, battle labs, deployed forces, analytic community, industry, and other Services. This disciplined approach allows the Army to balance survivability, lethality, size, weight, and affordability to mitigate risk.

TRADOC established the Unit of Action Maneuver Battle Lab (UAMBL) under the leadership of Commandant of the United States Armor Center to support and synchronize developments activities during the FCS Concept Development and Technology Demonstration phase. UAMBL served as the "hub" to harness the full efforts of the other TRADOC centers and schools "spokes" to support the FCS program. TRADOC commandants along with PM FCS (BCT) gather quarterly in a Requirements Integrated Concept Team to help manage and exploit this collaboration network to continuously refine requirements. UAMBL hosted quarterly Joint Interoperability Senior Advisory Group of retired joint flag officers to assist in ensuring joint integration. Additionally, TRADOC established the UA Experimental Element at UAMBL to support recurring experimentation

efforts during the FCS SDD phase and beyond. The TRADOC Capability Manager (TCM) FCS was placed at UAMBL with personnel assigned and located both at UAMBL and PM FCS (BCT) / Boeing facilities to provide direct User support to FCS developments and refinements in real time. TRADOC has User representatives in each of the 14 Integrated Product Teams (IPT) that manage cost, schedule, and performance day to day. These IPTs range from System of System level integration to specific system level IPTs (e.g. manned ground vehicles, C4ISR).

The Army Capabilities Integration Center (ARCIC) within TRADOC Headquarters holds a quarterly Futures Review that assesses the FCS program and examines requirements. This review provides the basis for quarterly Army Review Councils with the Secretary of the Army and the Army Chief of Staff. TRADOC continues to provide unprecedented support to the development of FCS in order to permit the PM FCS (BCT) and LSI the ability to share advanced capabilities with direct User representatives. TRADOC is with them every step of the way to execute prudent trade or adjust requirements as the designs mature. By making this commitment, TRADOC enables the PM to mitigate risk in pursuing technologies.

This support is increasing with the establishment of the Future Force Integration Directorate and the Army Evaluation Task Force (AETF), both at Fort Bliss, Texas. These entities were created to ensure the User is actively involved as the Army evaluates and refines FCS prototypes for spin out to the current force and for further development of the main program. AETF is receiving Soldiers and equipment today and has begun training as a brigade task force. AETF will undergo New Equipment Training on FCS spin out systems in preparation for mandatory testing. The AETF will support evaluation and testing of the FCS BCT organization designs, operational concepts, warfighting capabilities, training, and equipment to produce enhancements in lethality, survivability, tempo, sustainability, deployability, and Joint force linkages. It will

also assist in assessing performance of FCS spin outs and core program systems.

TRADOC will continue to play a key role in developing the core operational capability envisioned for FCS. TRADOC is currently working refinements and assessing their impacts in the context of the User's perspective across the domains of Doctrine, Organization, Training, Material, and Leader (DOTML) requirements (i.e., not through the lens of Material alone). It is this ability, combined with a major level of support to the PM FCS (BCT) that allows the program the ability to adjust along the DOTML lines as it matures.

FCS Transportability Requirement

One Key Performance Parameter (KPP) requires that FCS systems be transportable worldwide by air, sea, highway, and rail. This KPP states the requirement for the FCS to be strategically deployable and capable of conducting operational maneuver to execute a full range of missions. C-130 transport, although an important metric, is not part of the KPP. Nonetheless, the C-130 metric has served us well and has its roots in our operational concept. TRADOC and PM FCS (BCT) have worked closely to ensure the sizing constraint of the C-130 "box" does not negatively affect our survivability, lethality, or other requirements.

The benefits of the C-130 metric include:

- The capability to insert Army forces into austere points of entry to maximize force flow and counter enemy anti-access strategy.
- The C-130 size make the FCS BCTs compatible with Theater Support Vessel to land at less predictable locations in theater and ensure FCS BCTs will fit more easily on current and future strategic sealift.
- The C-130 form and fit greatly enhances mobility in austere environments with low bridge weight classifications, and ability to negotiate narrow streets in compartmented or urban terrains.

- The options available to combatant commander increase for entering forces into theater. He can combine available C-130 and C-17s to maximize force flow using multiple entry points to bring in combat configured units. During entry or decisive operations the FCS BCT can be transported by a wide range of air, land or sea modes and leverage options for entry points.
- The Joint Task Force Commander is enabled by FCS units in executing operational maneuver by combining vertical and inherent horizontal maneuver. FCS BCTs can quickly reposition to positions of advantage over great distances.

C-130 transportability is a challenge. As we assess the latest FCS design work, we will balance the effect of platform size and weight with our requirements for survivability and lethality. This assessment includes lessons from current operations. More importantly, we will continue to measure what is technically achievable within the context of our operational concepts. At the same time, we are looking forward to see what future lift capabilities the Army will need. Certainly, our FCS requirements and concepts will be the driving force in selecting what types of air platforms we need in the future.

Active Protection System Requirements

Analysis of FCS platform design concepts show that, except for heavily armored current platforms receiving frontal impacts (M1 and M2/M3 with reactive armor in frontal engagements), FCS MGV project provides similar, or in many cases, improved levels of personnel protection compared to their current force counterparts.

The Army will continue to work to increase the survivability of the FCS platforms as we go through the various design stages. It is important to remember that survivability is no longer simply a passive approach to survive a direct hit, but a combination of passive and active protection suites, network provided situational awareness, and networked lethality.

The Army will not procure and field a FCS that is not effective and survivable under operational conditions. In short, survivability is not an area to trade off. Doing otherwise would violate the trust given to us and our fundamental commitment to providing our Soldiers with the best combat equipment possible.

To counter future threats, the Army has embarked on a holistic approach towards survivability, including leveraging the network for improved situational awareness, reducing signature management, improving ballistic protection, modifying operational tactics, and pursuing hit avoidance. In the context of military ground combat vehicles, hit avoidance comprises technologies that enable defeat of the threat prior to its impact with the vehicle. The hit avoidance requirement for our future force is a 360-degree hemispherical "bubble" of protection to our combat platforms. Currently, the FCS program is developing a full-spectrum solution to counter short- and long-range threats, which include a wide range of ballistic projectiles: RPGs, mortars, antitank guided missiles, tank-KE/HEAT, top attack/precision guided missiles, and large caliber cannon.

The FCS BCT will operate as a system of systems to provide the needed protection to ensure survivability across the full range of military operations. Current designs for FCS MGVs provide a suite of protection capabilities that generally project similar, or in most cases, improved levels of personnel protection compared to their current force counterparts.

It is important to understand that on today's and future battlefields, passive defense alone will not defeat all known or projected threats. For example, M1 tanks are vulnerable now as evidenced by combat losses in Operation Iraqi Freedom (OIF). Survivability is no longer simply a passive approach or platform centric for sustaining a hit, but a combination of passive and active protection suites, network provided situational awareness, and networked lethality.

Current systems lack the active protection suites, network provided situational awareness, and networked lethality of FCS-equipped units. FCS requirements are for survivability with an active protection system and APS is a part of the proposed solution to meet our requirements. APS within FCS offers the potential

to move beyond merely armor protection and also to eventually address threats from top attack.

All FCS variants with Active Protection Systems (APS) provide *more* personnel protection against Rocket-Propelled Grenades (RPG) and Anti-Tank Guided Missiles than current counterparts. APS is an explosive ballistic countermeasure capability that will serve as one element of the overall hit-avoidance solution. The current developmental approach is diligently working parallel paths in order to address current force system needs for defeating short-range RPG attacks, as well as FCS MGV requirements for a full-spectrum hit avoidance subsystem that is robust enough to defeat the complete array of anticipated threats, including top attack. We view APS as common across the force (FCS MGVs and Current Force – Stryker, Bradley, and Abrams). APS also needs to be capable of receiving upgrades over time to meet the evolving threat.

In conclusion, TRADOC is absolutely committed to providing our Soldiers with the best force protection and active protection available. We will not endorse procurement and fielding of any system that is not proven, tested, and validated to be operationally ready and safe and can meet our KPP for Survivability/Force Protection. Again, to do otherwise would cause the Army to breach its implied contract with its Soldiers and families.

Other Priority Programs

WIN-T

Warfighter Information Network - Tactical (WIN-T) is the Army's future, robust, multi-layered secure joint network that gives the commander a fully mobile network. This is a mobile infrastructure that passes relevant information – voice, video, and data – effectively and efficiently for combined arms capabilities in all required terrain and environmental conditions. WIN-T is leveraging commercial capabilities as well. The WIN-T architecture utilizes terrestrial, air, and space components that deliver continuous networking capability for both fixed assets and assets on the move.

Though the WIN-T program will begin fielding to the entire Army in 2014, the focus of the WIN-T Research, Development, Test and Evaluation funding line is on supporting the FCS. In that light, WIN-T is synchronized to deliver Engineering Design Modules to FCS by FY2009, which meet all size, weight, and power specifications for the required WIN-T Points of Presence on the FCS platforms. The program is, however, considering ways that portions of the developing WIN-T technology could be made available for use in the Force much earlier. Plans are for such technologies to be introduced as early as 2011.

The Army made a decision in 2006 to field to a larger operational force. Previously WIN-T was originally planned for fielding to approximately 66% of the Army. This resulted in a cost growth necessitating a Nunn McCurdy breach requiring certification. The process of certification is ongoing with an expected report to Congress no later than June 5, 2007. A new Capabilities Developments Document for WIN-T was approved in November 2006. We are confident that WIN-T is keeping pace with the urgent and resultant challenges to the program, and we fully need the network capabilities that it will provide. In short, the WIN-T program is essential to meeting the challenges of the asymmetric operational environment.

JTRS

The Joint Tactical Radio System (JTRS) is an essential component of Army modernization and plays an integral role in the success of the FCS Program. JTRS program execution is closely aligned with FCS and requires continued full resourcing to ensure fully integrated networked performance.

JNN-N

The Joint Network Node-Network (JNN-N) program is a state-of the-art Commercial Off The Shelf/Government Off The Shelf communications network that enables the exchange of voice, video, and data throughout the tactical Division and into the Sustaining Base. It leverages commercial satellite

technology to provide beyond line of site capabilities and commercial internet networking technology to increase functionality and efficiency while reducing size, weight, and power. JNN Network components reside at Echelons above division, brigade, and battalion levels and provide interfaces to lower level systems including on the move and Solider platforms.

JNN-N is in the process of becoming a formal program of record. The Army is working with the Office of the Secretary of Defense to finalize all required documentation. The program is fully funded in the Army's FY 2008-FY2013 Program Objective Memorandum and is preparing for a Milestone C decision. At the same time, the program office recently released a Request for Proposal to industry and expects to competitively award a contract for future JNN-N procurements.

Abrams/Bradley Multiyear Procurement

The Army's is seeking multiyear procurement authority for M1A2 Abrams Tank and M2A3 Bradley Fighting Vehicle programs. With reference to the FY2007 National Defense Authorization Act (HASC Report H.R. 5122, section 109-452, page 31b), on March 5, 2007, the Army provided the response to Congress as to the feasibility and rationale for both an Abrams Tank and a Bradley Fighting Vehicle (BFVS) multiyear procurement (MYP). In that letter, we stated that the Army could enter into a MYP for both programs as early as FY2008 contingent upon the anticipated FY2007 and FY2008 Supplemental budgets plus each platform's base program funding for FY2008 to FY2012. If the anticipated Supplemental funding did not come to fruition, the Army could still enter into a MYP for both programs, but the MYP would not begin until FY2009. Again, irrespective of any future Supplemental request, the Army would most likely request MYP authority for both the Abrams and BFVS programs in the FY2009 President's Budget based solely on the funding available in the Abrams and BFVS base budgets. Again, in our recent letter, we stated that upon a complete review of the available funding in FY2008 through FY2012 for the

Abrams and BFVS, we determined that it was feasible to proceed with a MYP strategy for both combat platforms.

In regard to how the Army would award a MYP beginning in FY2008, the Army could award a MYP for the M1A2 SEP tank beginning in 3rd Quarter of FY2008 for a period of 5-years with a total estimated savings of $178 million or approximately 10 percent ($300,000 per vehicle) and a MYP contract for the BFVS/BFIST beginning in 3rd Quarter of FY2008 for a period of 4-years with a total estimated savings of $131 million or approximately five percent ($135,000 per vehicle). The M1A2 SEP tank MYP will buy approximately 577 tanks and the BFVS/BFIST MYP will buy approximately 965 vehicles. These quantities achieve Modularity end-state for all Heavy Brigade Combat Team formations.

The benefits of any MYP is not limited to cost savings, rather there are significant benefits to the industrial base and their inherent capabilities. Government Depots and the Defense original equipment manufacturing facilities are not only our business partners, but they also represent the unity and strength emulated by the combat systems they produce. The significant benefits for the Abrams and BFVS MYP procurement serves to further stabilize work load at Anniston Army Depot, Anniston Alabama; the Joint Service Manufacturing Center in Lima, Ohio, operated by General Dynamics Land Systems; and the Department of Energy armor production facility, Idaho Falls Idaho. For the BFVS/BFIST, the MYP provides stabilized work load at Red River Army Depot in Texarkana, Texas, and British Aerospace in York, Pennsylvania.

STRYKER MGS

A review of the Stryker Mobile Gun System (MGS) vehicle program's status, operational considerations for employment of this capability, continued product improvements, results of initial unit training, and the successful collective training and mission rehearsal exercise in preparation for the unit's deployment, led to the conclusion that this unique capability should be integrated and deployed with the 4/2 Stryker Brigade Combat Team (SBCT) in summer 2007.

The Army Test and Evaluation Command (ATEC) will test all proposed corrective actions prior to retrofit to 4/2 vehicles, and will publish a safety confirmation for MGS with those corrective actions applied, prior to entering combat. The process for validating proposed corrective actions includes performance and durability testing and a safety assessment. The validation report will provide an assessment of fixes to address the critical issues, and an updated Capabilities and Limitations report will assess the MGS with fixes applied. Several proposed fixes are in test now, and some are already demonstrating improved performance. Others are scheduled to be in test over the next several months. ATEC will confirm that all validated corrective actions are applied to 4/2 vehicles prior to publishing a safety confirmation.

The concerns listed within the Director, Operational Test and Evaluation's memorandum of initial assessment are receiving aggressive action from the PM to ensure that approved fixes are either applied prior to the unit movement into theater, or, that approved mitigating actions have been accomplished prior to the vehicles entering into any type of combat situation. To date, the PM is on track to meet the agreed schedule coordinated with the unit.

The Army's process to identify, assess, prioritize, correct, and validate issues is rigorous and independent. It will ensure the SBCTs commanders and Soldiers have the best product available to accomplish their mission. The process is based on providing safe, effective, survivable, suitable, and supportable equipment to Soldiers. The process includes identifying the MGS' strengths and weaknesses and informing the leaders and Soldiers on how best to employ the system based on its inherent capabilities and limitations. This independent assessment is based on test data from Production Verification Test, Live Fire Test, additional developmental testing for OIF-specific items, and operational data gained from the unit's Mission Rehearsal Exercise. The Army's process also includes a Materiel Release review which further assesses the system's safety aspects, supportability plans, training, and leader awareness and acceptance of any system limitations prior to employment.

Army Global Commitments

The Army has nearly 600,000 Soldiers on active duty today, including 46,000 members of the Army National Guard who serve with great distinction. We are resourcing the Army National Guard (ARNG), in reference to equipment, consistent with its roles as both an operational military force and as the first responder for homeland defense and civil support at the state level. Indeed, our ultimate goal is to equip the ARNG to full active component-like structure. This would be accomplished both through the procurement of new equipment from the industrial base and by providing current on-hand equipment from the active inventory. We have made significant progress towards this goal since 2005, particularly in the areas of aviation, armor, and transportation. But we still have a long way to go, and we will need the Congress's continued support in the future if we hope to remain on track.

There are two issues of great importance in terms of the total acquisition cost of equipment for the ARNG. First, as a result of our most recent Army Equipping and Reuse Conference in the first quarter of FY2007, we have identified approximately $10.6 billion of equipment for distribution to the ARNG between 2007 and the first quarter of FY2009. The intent is to help ensure that every ARNG unit deploying to Iraq or Afghanistan has the best equipment available, and that those remaining at home will be adequately equipped to respond to homeland defense and security missions as necessary.

Secondly, the Army has programmed—in total—$36.8 billion for new equipment procurement for the ARNG from FY2005 to FY2013. An additional $10.6 billion is programmed to the Army Reserve over the same period. While we acknowledge that this will still leave equipping holes to fill across the Army beyond FY2013, we think this approach strikes the best balance between the competing needs of the Army as a whole and the total funding available. It also brings the ARNG to an equipping level that allows it to better manage risk in terms of cross-leveling equipment to deploying units while still maintaining the capability to mobilize, train, and respond to homeland defense and security missions.

Acquisition Workforce

The Army Acquisition Corps is dedicated to supporting the warfighter with world-class capabilities. We provide professional development and unsurpassed education, training, and acquisition experiences to our acquisition, logistics and technology workforce who support the fight, improve the force, and build the future. Army Acquisition is transforming to get products to the Soldier faster, to make good products even better, to minimize life cycle cost, and to enhance the synergy and effectiveness of the Army Acquisition, Logistics and Technology (AL&T) communities. The push towards a more integrated, holistic approach to product development and sustainment is driving changes in acquisition training and education to better prepare our future acquisition leaders for the challenges they will face.

There is great concern that the Army Acquisition workforce is declining too rapidly while the workload continues to increase. From a high of 140,000 people at the end of the Cold War, we're now at roughly 43,500 civilians and 1,450 military members. And in the next three years, including the potential of early retirements, almost one-half of all AL&T civilians will be *eligible* to retire. Of all the issues that I deal with on a daily basis, aside from those that impact our Soldiers who are fighting today, the most critical one to me is the declining workforce and the vast knowledge that is walking out the door. Without a well-trained and educated workforce, all other things necessary will not happen.

Our most important asset is our people. Our workforce focus is to develop flexible Acquisition officers and civilian leaders who possess a diverse and well-rounded background, can effectively support all phases of acquisition, and are prepared to lead any complex, multifunctional acquisition command, agency, organization or team. Our workforce is well credentialed – almost 75 percent of the Army AL&T workforce possess at least a Baccalaureate degree. This education is balanced by their participation in acquisition specific and leadership learning events offered by the Army Acquisition Corps. The Defense Acquisition University (DAU) is responsible for conducting acquisition specific training in

each of the 12 acquisition disciplines in which the Army participates. Army compliance with this requirement is laudable, in FY2006, for example, there were 10,733 Army graduates from DAU classroom training. It is mandatory for the Defense Acquisition workforce to complete at least 40 hours per year of Continuous Learning activities and many Army workforce members achieve this standard by selecting from the over 160 on-line Continuous Learning Modules offered by DAU.

The Army AL&T community at all levels is offered additional opportunities to augment the minimum education, training and experience standards established for mandatory acquisition certification purposes. The U.S. Army Acquisition Support Center, through its Acquisition Education, Training and Experience program and Regional Customer Support Offices, continues to provide avenues for leadership development at all levels. As an example, the Competitive Development Group/Army Acquisition Fellowship Program provides diverse experiential opportunities over its three year program span and creates a leadership career track that includes both staff and line positions both within and outside the Washington, D.C. area. A new civilian Training with Industry Program has been launched to provide civilian acquisition professionals direct exposure to best practices within the defense industry so that they may become more proficient and effective in their Acquisition positions when they return after a one year assignment.

The Army is using its human capital strategic planning process to define the current acquisition workforce, the required future acquisition workforce, and identify the actions that we need to take to make sure we have the right acquisition professionals where and when we need them in the future. Such planning will allow us to look at how many people we need with various technical skills and allow the leadership to prioritize needs based on our fiscal constraints. We have implemented process improvements that enhance productivity and facilitate transformation efforts and we continue to pursue acquisition excellence in order to make further productivity gains.

Conclusion

America remains at war. This is one of the most dangerous times in our history. It is imperative that we provide our Soldiers with the best possible equipment to enable their mission success and safe return home. We thank you for your continued wisdom, sound advice, and strong support.

United States Government Accountability Office

GAO

Testimony before the Subcommittee on Air and Land Forces, Committee on Armed Services, House of Representatives

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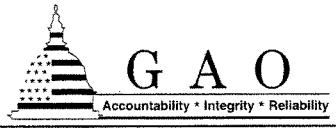
DEFENSE ACQUISITIONS

Future Combat System Risks Underscore the Importance of Oversight

Statement of Paul L. Francis, Director
Acquisition and Sourcing Management



GAO-07-672T

March 2007

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Highlights

Highlights of GAO-07-672T, a testimony before the Subcommittee on Air and Land Forces, Committee on Armed Services, House of Representatives

DEFENSE ACQUISITIONS

Future Combat System Risks Underscore the Importance of Oversight

Why GAO Did This Study

The Army's Future Combat System (FCS) is a program characterized by bold goals and innovative concepts—transformational capabilities, system-of-systems approach, new technologies, a first-of-a-kind information network, and a total investment cost of more than $200 billion. As such, the FCS program is considered high risk and in need of special oversight and review.

Today's testimony is based on work conducted over the past year in response to (1) the National Defense Authorization Act for Fiscal Year 2006, which requires GAO to report annually on the FCS acquisition; and (2) the John Warner National Defense Authorization Act for Fiscal Year 2007, which requires GAO to report on the role of the lead systems integrator in the Army's FCS program. Accordingly, this statement discusses (1) the business case for FCS to be successful and (2) the business arrangements for the FCS program.

What GAO Recommends

GAO has recently recommended that the Secretary of Defense (1) establish specific criteria for evaluating the FCS program at a key 2009 decision and (2) analyze alternative courses of action in the event FCS is unlikely to deliver needed capabilities. DOD concurred with GAO's recommendations.

www.gao.gov/cgi-bin/getrpt?GAO-07-672T.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Paul L. Francis at (202) 512-4841 or francisp@gao.gov.

What GAO Found

The Army has far less knowledge about FCS and its potential for success than is needed to fulfill the basic elements of a business case. Those elements are not new to the Army, nor to the Department of Defense (DOD), which addresses such criteria in its weapon system acquisition policy. The Army has made improvements to the program, such as lengthening time frames for demonstrating capabilities and for providing capabilities to current forces. While the Army has also made progress, what it still lacks in knowledge raises doubts about the soundness of the FCS business case. The Army has yet to fully define FCS requirements; FCS technologies that should have been matured in 2003, when the program started, are still immature; key testing to demonstrate FCS performance will not be completed and maturity of design and product will not be demonstrated until after production starts in 2013; and an independent cost estimate from the Office of the Secretary of Defense is between $203 billion and $234 billion, a far higher figure than the Army's cost estimate.

To achieve its goals for the FCS program, the Army decided to employ a lead systems integrator (LSI) to assist in defining, developing, and integrating the FCS. This decision reflected the fact that not only were FCS goals ambitious, but also that the Army had limited capacity to manage the undertaking. Boeing Corporation is the LSI. Its relationship with the Army on FCS breaks new ground for collaboration between the government and a contractor. The close working relationship has advantages and disadvantages. An advantage is that such a relationship allows flexibility in responding to shifting priorities. A disadvantage is an increase in risks to the Army's ability to provide oversight over the long term. The contract itself is structured in such a way as to enable the LSI to be paid over 80 percent of its costs and fees by completion of the critical design review in 2011—a point after which programs typically experience most of their cost growth. This is consistent with the Army's desire to provide incentives for the development effort. On the other hand, this contract, as with many cost-reimbursable research and development contracts, makes the contractor responsible for providing its best efforts, but does not assure a successful FCS.

The foregoing underscores the important role of the Office of the Secretary of Defense in providing oversight on the FCS program. To date, the Office of the Secretary of Defense has largely accepted the Army's approach to FCS, even though it runs counter to DOD's policy for weapon system acquisition. GAO believes the Office of the Secretary of Defense needs to hold the FCS program accountable to high standards at the congressionally directed decision in 2009 on whether to proceed with FCS. Financial commitments to production will grow rapidly after that point. The Office of the Secretary of Defense should also be mindful of the department-wide implications of the future use of LSIs as well as the system-of-systems approach to developing weapon acquisitions.

Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to discuss the Department of the Army's Future Combat System (FCS), a networked family of weapons and other integrated systems. FCS is in the forefront of efforts to help the Army transform itself into a lighter, more agile, and more capable combat force by using a new concept of operations, new technologies, and a new information network linking whole brigades together. This is an extraordinary undertaking that will involve a total investment cost on the order of $200 billion over the next few decades.

My statement today is based on the work that we have conducted over the past year in response to (1) the National Defense Authorization Act for Fiscal Year 2006, which requires GAO to report annually on the product development phase of the FCS acquisition;[1] and (2) the John Warner National Defense Authorization Act for Fiscal Year 2007, which requires GAO to report on the role of the lead systems integrator in the Army's FCS program.[2] Accordingly, I will focus my statement on the business case and the business arrangements for the FCS program.

Summary

We look at a business case as comprising those elements that are key to making an acquisition likely to result in a product that performs as required for the time and money promised. A sound business case includes firm requirements; mature technologies; an acquisition strategy that demonstrates design and production maturity; and adequate funding to cover a realistic cost estimate. When FCS was approved to begin in May 2003, it was far from having a sound business case, especially given its unprecedented size and complexity. Specifically, requirements were not well defined; technologies were very immature; the acquisition strategy was aggressive and did not allow for demonstrating design and production maturity until after the production decision; and despite the insufficient basis for good cost estimates, providing the resources at the estimated costs was a great challenge. Since then, there have been a number of improvements in the program. The schedule was doubled to allow for more demonstrations and to spin capabilities out to the current forces; requirements are better understood, even to the system level; technologies have gotten more mature; cost estimates have grown substantially, making

[1] Pub. L. No. 109-163 §211

[2] Pub. L. No. 109-163 §115

them more realistic. Still, it is 4 years later, and progress should be expected. The Army, doing well by its own measures, is well behind business case measures. Requirements are still being defined; technologies are years away from needed maturity levels; key demonstrations of design and production will still come after the production decision; and independent cost estimates are significantly higher than the Army's.

To achieve its goals for the FCS program, in 2003 the Army decided to employ a lead systems integrator (LSI) to assist in defining, developing, and integrating the FCS. The Army's decision to employ a lead systems integrator for the FCS program was framed by two factors: (1) the ambitious goals of the FCS program and (2) the Army's limited capacity to manage it. In the case of the FCS, the Army has structured a contract with Boeing as the LSI to define a partner-like relationship and provide incentives for performance. Evaluating the use of an LSI on FCS involves consideration of several interwined factors, such as the system-of-systems scope and the technical challenges. Our concerns about the executability of the program aside, the contract provisions and relationship with the LSI are both consistent with the Army's vision for FCS and candid with respect to its workforce limitations. On the other hand, the limits and risks of the contractual arrangements must also be recognized. The Army has forged a partner-like relationship with the LSI which at the same time involves the Army more with decisions the LSI makes and involves the LSI more with decisions the Army makes. When coupled with the scope and significance of the program, this situation poses risks for the Army's ability to provide oversight over the long term. The current FCS contract provides for a relatively high level of compensation for the LSI, over 80 percent of which can be earned by completion of the critical design review. This is significant because most key demonstrations occur after this review and, historically, most cost growth also occurs after the review. Because of the technical and other uncertainties, as a research and development contract, it is possible for the LSI to perform satisfactorily and earn its fees even if the FCS is unable to deliver the required performance.

The foregoing underscores the important role the Office of the Secretary of Defense (OSD) can play in providing oversight on the FCS program. While the Army works to manage the program, OSD must work to oversee the program. To date, OSD has largely accepted the Army's proposals for approving, planning, and restructuring FCS, even when they run counter to OSD's own policies and independent assessments. For a program with the unique arrangements, risks, and significance of the FCS, OSD's role in overseeing FCS requires more than milestone decisions at the beginning

and end of development, with annual reviews in between. OSD needs to hold the FCS program accountable to high standards, which are not necessarily the standards the Army adheres to. The go/no-go decision OSD will hold in 2009 will be important to defining its role in the program. We believe the use of an LSI on FCS is more significant than a contracting arrangement for a single program. It breaks new ground in collaborative relationships and increasing contractor responsibilities. Accordingly, we also believe OSD should put itself not only in a position to oversee the progress of the FCS program, but to evaluate the DOD-wide implications of the LSI and system-of-systems approach to developing weapons.

Background

The FCS concept is designed to be part of the Army's Future Force, which is intended to transform the Army into a more rapidly deployable and responsive force—one that differs substantially from the large division-centric structure of the past. The Army is reorganizing its current forces into modular brigade combat teams, each of which is expected to be highly survivable and the most lethal brigade-sized unit the Army has ever fielded. The Army expects FCS-equipped brigade combat teams to provide significant warfighting capabilities to DOD's overall joint military operations.

Fundamentally, the FCS concept is to replace mass with superior information—that is, to see and hit the enemy first rather than to rely on heavy armor to withstand a hit. This solution attempts to address a mismatch that has posed a dilemma to the Army for decades: the Army's heavy forces had the necessary firepower needed to win but required extensive support and too much time to deploy while its light forces could deploy rapidly but lacked firepower. If the Future Force becomes a reality, then the Army would be better organized, staffed, equipped, and trained for prompt and sustained land combat, qualities intended to ensure that the Army would dominate over evolving, sophisticated threats. The Future Force is to be offensively oriented and will employ revolutionary concepts of operations, enabled by new technology. The Army envisions a new way of fighting that depends on networking the force, which involves linking people, platforms, weapons, and sensors seamlessly together in a system-of-systems.

In 2006, Congress mandated that the Secretary of Defense conduct a milestone review for the FCS program, following the preliminary design

review scheduled for early 2009.[3] Congress stated that the review should include an assessment of (1) whether the requirements are valid and can be best met with the FCS program, (2) whether the FCS program can be developed and produced within existing resources, and (3) whether the program should continue as currently structured, be restructured, or be terminated. The Congress required the Secretary of Defense to review specific aspects of the program, including the maturity of critical technologies, program risks, demonstrations of the FCS concept and software, and a new cost estimate and affordability assessment and to submit a report of the findings and conclusions of the review to Congress.

Congressional defense committees have asked GAO on numerous occasions to report and testify on FCS activities. This statement is based on work which was conducted between March 2006 and March 2007 and in accordance with generally accepted government auditing standards.

Status of FCS Business Case

In our March 2007 report,[4] we found that despite the investment of $8 billion already made in the FCS program, it still has significantly less knowledge—and less assurance of success—than required by best practices or DOD policy. By early 2009, enough knowledge should be available about the key elements of the FCS business case to make a well-informed decision on whether and how to proceed with the program. If significant doubts remain regarding the program's executability, DOD will have to consider alternatives to proceeding with the program as planned. Central to the go/no-go decision will be demonstrable soundness of the FCS business case in the areas of requirements, technology, acquisition strategy, and finances. Our specific findings in the areas of requirements, technologies, acquisition strategy, and finances are summarized below.

Requirements Definition

The Army has made considerable progress in defining system-of-systems level requirements and allocating those requirements to the individual FCS systems. This progress has necessitated significant trade-offs to reconcile requirements and technical feasibility. A key example of this has been the decision to allow a significant increase in manned ground vehicle weight

[3]John Warner National Defense Authorization Act for Fiscal Year 2007, Pub. L. No. 109-364 §214 (2006).

[4]GAO, *Defense Acquisitions: Key Decisions to be Made on Future Combat System*, GAO-07-376 (Washington, D.C.: Mar. 15, 2007).

to meet survivability requirements that in turn has forced trade-offs in transportability requirements. The feasibility of FCS requirements still depends on key assumptions about immature technologies, costs, and other performance characteristics like the reliability of the network and other systems. As current assumptions in these areas are replaced with demonstrated performance, more trade-offs are likely. At this point, the Army has identified about 70 high-level risks to be resolved to assure the technical feasibility of requirements. A challenge for the Army in making these trades—which are practical necessities—is determining the cumulative effect of an individual decision on overall requirements. For example, a decision to discontinue a munition technology could result in less lethality, possibly less survivability if our vehicles have to shoot more than once to defeat an enemy, and less responsiveness due to the weight added by carrying more ammunition and fuel.

As it proceeds to the preliminary design review and the subsequent go/no-go milestone, the Army faces considerable challenges in completing the definition of technically achievable and affordable system-level requirements, an essential element of a sound business case. The Army will have to complete definition of all system-level requirements and the network as well as the preliminary designs for all systems and subsystems. By the time of the review, it should be able to demonstrate that the FCS will satisfy key performance parameters and the Army's user community with a program that is as good as or better than what is available with current forces. To do this, the Army will have to mitigate FCS technical risks to significantly lower levels and make demonstrable progress toward meeting key FCS goals including weight reduction, reliability improvement, and average unit production cost reduction.

Maturity of Technology

The Army has made progress in the areas of critical technologies, complementary programs, and software development, but it will take several more years to reach the level of maturity needed in 2003. Program officials report that the number of critical technologies they consider as mature has doubled in the past year. While this is good progress by any measure, FCS technologies are far less mature at this point in the program than they should be, and they still have a long way to go to reach full maturity. The Army only sees the need to reach a technology readiness

level that requires demonstration of capabilities in a relevant environment[5] by 2011. This does not assure that these capabilities will actually perform as needed in a realistic environment, as required by best practices for a sound business case. We also note that last year, technology maturity levels had been the result of an independent assessment, while the current levels have been determined by the FCS program office. The Army has made some difficult decisions to improve the acquisition strategies for some key complementary programs, such as Joint Tactical Radio System and Warfighter Information Network-Tactical, but they still face significant technological and funding hurdles. Finally, the Army and the LSI are attempting to utilize many software-development best practices and have delivered the initial increments of software on schedule. On the other hand, most of the software development effort lies ahead, and the amount of software code to be written—already an unprecedented undertaking—continues to grow as the demands of the FCS design becomes better understood. The Army and the LSI have recognized several high-risk aspects of that effort and mitigation efforts are underway.

As it approaches the preliminary design review and the subsequent go/no-go milestone review, the Army should have made additional progress in developing technologies and software as well as aligning the development of complementary programs with the FCS. The Army faces many challenges, such as demonstrating that critical technologies are mature and having this maturity independently validated. The Army will need to mitigate the recognized technical risks and integrate the technologies with other systems. It will also need to address cost, schedule, and performance risks related to software and mitigate those risks to acceptable levels. Finally, the Army must settle on the set of complementary programs that are essential for FCS success, ensure adequate funding for these systems, and align their schedules with the FCS schedule.

Knowledge-Based Acquisition Strategy

The FCS acquisition strategy and testing schedule has become more complex as plans have been made to spin out capabilities to current Army forces. The strategy acquires knowledge later than called for by best practices and DOD policy, although the elongated schedule of about 10 years provides a more realistic assessment of when capabilities can be

[5]Technology readiness levels (TRL) are measures pioneered by the National Aeronautics and Space Administration and adopted by DOD to determine whether technologies were sufficiently mature to be incorporated into a weapon system.

delivered. Knowledge deficits for requirements and technologies have created enormous challenges for devising an acquisition strategy that can demonstrate the maturity of design and production processes. Even if setting requirements and maturing technologies proceed without incident, FCS design and production maturity are not likely to be demonstrated until after the production decision is made. The critical design review will be held much later on FCS than other programs, and the Army will not be building production-representative prototypes to test before production. The first major test of the network and FCS together with a majority of prototypes will not take place until 2012. Much of the testing up to the 2013 production decision will involve simulations, technology demonstrations, experiments, and single-system testing. Only after that point, however, will substantial testing of the complete brigade combat team and the FCS concept of operations occur. However, production is the most expensive phase in which to resolve design or other problems found during testing. Spin-outs, which are intended to accelerate delivery of FCS capabilities to the current force, also complicate the acquisition strategy by absorbing considerable testing resources.

As the Army proceeds to the preliminary design review in 2009, it faces a number of key challenges in the remaining portions of the acquisition strategy. It must complete requirements definition and technology maturity. The spin-out capabilities must be demonstrated before committing to production. System integration must be completed and the Army should be preparing to have released at least 90 percent of the engineering drawings by the time of the critical design review, a best practice. Finally, the program schedule must allocate sufficient time, as needed, to test, fix and retest throughout the FCS test program. Each FCS system, the information network, and the FCS concept should be thoroughly tested and demonstrated before committing to low rate initial production in 2013.

Program Costs and Funding

In 2006, we reported that FCS program acquisition costs had increased to $160.7 billion—76 percent—since the Army's original estimate of $91.4 billion (figures adjusted for inflation). While the Army's current estimate of $163.7 billion is essentially the same, an independent estimate from the Office of the Secretary of Defense puts the acquisition cost of FCS between $203 billion and $234 billion. The comparatively low level of technology and design knowledge at this point in the program portends future cost increases. Our work on a broad base of DOD weapon system programs shows that most developmental cost increases occur after the critical design review, which will be in 2011 for the FCS. Yet, by that point

in time, the Army will have spent about 80 percent of the FCS's development funds. Further, the Army has not yet fully estimated the cost of essential complementary programs and the procurement of spin-out items to the current force. The Army is cognizant of these resource tensions and has adopted measures in an attempt to control FCS costs. However, some of these measures do involve reducing program scope in the form of lower requirements and capabilities, which will have to be reassessed against the user's demands. Symptomatic of the continuing resource tension, the Army recently announced that it was restructuring several aspects of the FCS program, including reducing the scope of the program and its planned annual production rates to lower annual funding demands.

I do want to point out the significance of the financial commitments the Army will make in the next few years. The fiscal year 2008 request includes $99.6 million in FCS procurement funds. Those funds are to procure long lead items for production of (1) non-line-of-sight cannon and other manned ground vehicles, and (2) the initial set of FCS spin-out kits. The fiscal year 2008 request will also fund plant facilitization to support FCS production beginning in fiscal year 2009. Procurement funds rise quickly thereafter, growing from $328.6 million to $1.27 billion to $6.8 billion in fiscal years 2009, 2011, and 2013, respectively.

By the time of the preliminary design review and the congressionally mandated go/no-go milestone in 2009, the Army should have more of the knowledge needed to build a better cost estimate for the FCS program. The Army should also have more clarity about the level of funding that may be available to it within the long-term budget projections to fully develop and procure the FCS program of record. Also, by that time, the Army will need to have developed an official Army cost position that reconciles the gap between the Army's estimates and the independent cost estimate. In the cost estimate, the Army should clearly establish if it includes the complete set and quantities of FCS equipment needed to meet established requirements. Based on this estimate, the Army must ensure that adequate funding exists in its current budget and future years to fully fund the FCS program of record including the development of the complementary systems deemed necessary for the FCS as well as to procure the FCS capabilities planned to be spun out to the current forces.

Actions Recommended in Our March 2007 Report

In our March 2007 report, we noted that it was important that specific criteria—as quantifiable as possible and consistent with best practices—be established now to evaluate the sufficiency of program knowledge. We

recommended specific criteria that should be included in the Secretary of Defense's evaluation of the FCS program as part of the go/no-go decision following the preliminary design review in 2009. DOD agreed with this recommendation and noted that the decision will be informed by a number of critical assessments and analyses, but was unspecific as to criteria. We agree that while it is necessary that good information—such as that included in DOD's response—be presented at the decision, it is also necessary that quantitative criteria that reflect best practices be used to evaluate the information.

We also noted that in view of the great technical challenges facing the program, the possibility that FCS may not deliver the right capability must be acknowledged and anticipated. We therefore recommended that the Secretary of Defense analyze alternative courses of action DOD can take to provide the Army with sufficient capabilities, should the FCS be judged as unlikely to deliver needed capabilities in reasonable time frames and within expected funding levels. DOD agreed with this recommendation as well, citing it would rely on ongoing analyses of alternatives. We believe that it is important to keep in mind that it is not necessary to find a rival solution to FCS, but rather the next best solution should the program be judged unable to deliver needed capabilities.

FCS Program Recently Restructured

The Army recently made a number of key changes to FCS to keep program costs within available funding levels. Core program development and production costs were reduced by deleting or deferring four of the original systems, but these savings were offset by adding funding for spin-outs and ammunition, which had previously not been funded. The program's cost estimate reflecting the adjustment is now $161.2 billion, a slight decrease from $163.7 billion that we previously reported. Highlights include:

- Four systems deleted or deferred: the Class II and III unmanned aerial vehicles, the intelligent munitions system, and the armed robotic vehicle. The munitions system will continue outside of FCS, while the robotic vehicle will continue in the science and technology environment.

- Quantity changes: Class I unmanned aerial vehicle quantities will be cut in half. Quantities of non-line-of-sight launch systems and precision attack missiles were also reduced. The Army will buy eight additional Class IV unmanned aerial vehicles for each brigade combat team.

- Production rate reduction: Annual FCS production will be reduced from 1.5 to 1 brigade combat team. This change will extend FCS production by about 5 years to 2030.

- Consolidation of spin-outs: Spin-outs will be reduced from four to three and the content of the spin-outs have changed. The Army has now funded procurement of the spin-outs that had previously been unfunded.

- Schedule extension: Initial FCS production has been delayed 5 months to February 2013 and initial and full operational capabilities dates have been delayed 6 months to June 2015 and June 2017, respectively.

According to Army officials, the Army's initial assessment found little difference between 14 and 18 systems on the capabilities of the FCS brigade combat team. When the program was approved in 2003, it also had 14 systems. In 2004, when it was restructured, 4 systems were added back in, bringing the total to 18, plus the network. It is not clear how the overall performance of the system can be insensitive to the changes in the composition of the FCS systems. Similarly, we do not yet have an understanding on why FCS production costs have not increased because of the lower production rates and consequent additional years of production. Generally, slowing down the production rate increases costs as the fixed costs of production facilities must be incurred for more years.

FCS Business Arrangements

To achieve the Army's goals for the FCS program, in 2003 the Army decided to employ a lead systems integrator (LSI) to assist in defining, developing, and integrating FCS. In the past few years, DOD and other agencies have applied the LSI concept in a variety of ways. In the case of the FCS program, the LSI shares program management responsibilities with the Army, including defining the FCS solution (refining requirements), selecting and managing subcontractors, and managing testing. Evaluating the use of the LSI on FCS involves consideration of several intertwined factors, which collectively make the LSI arrangement in the FCS context unique. Some, like the best efforts nature of a cost reimbursable research and development contract, are not unique to the LSI or to FCS. Other factors differ not so much in nature, but in degree from other programs. For example, FCS is not the first system-of-systems program DOD has proposed, but it is arguably the most complex. FCS is not the first program to proceed with immature technologies, but it has more immature technologies than other programs. FCS is not the first program to employ an LSI, but the extent of the partner-like relationship between the Army and the LSI breaks new ground.

Army Use of an LSI Framed by Scope of Program and Workforce Limitations

The Army's decision to employ a lead systems integrator for the FCS program was framed by two factors: (1) the ambitious goals of the FCS program and (2) the Army's capacity to manage it. As envisioned in 2003 when the program started, FCS presented a daunting technical and management challenge: the concurrent development of multiple weapon systems whose capabilities would be dependent on an information network also to be developed. All of this was to take place in about 5 ½ years—much faster than a single weapon system typically takes. Army leaders believed the Army did not have the workforce or flexibility to manage development of FCS on its own within desired timelines. The Army saw its limitations in meeting this challenge as (1) cultural: difficulty in crossing traditional organizational lines; (2) capability: shortage of skills in key areas, such as managing the development of a large information network; and (3) capacity: insufficient resources to staff, manage, and synchronize several separate programs. In addition to the complexity and workforce implications of FCS, the Army saw an opportunity with an LSI to create more incentives for a contractor to give its best effort in development and to create more competition at lower supplier levels. Thus, they employed a contractor—a lead systems integrator–with significant program management responsibilities to help it define and develop FCS and reach across traditional Army mission areas. In May 2003, the Army hired the Boeing Corporation to serve as the LSI for the FCS system development and demonstration phase. Boeing subcontracted with Science Applications International Corporation, another defense contractor, to assist in performing the LSI functions.

Close Working Relationship Increases the Burden of Oversight

The relationship between the Army and the LSI is complicated. On the one hand, the LSI plays the traditional role of developing a product for its customer, the Army, and on the other hand the LSI acts like a partner to the Army in ensuring the design, development, and prototype implementation of the FCS network and family of systems. In forging a partner-like relationship with the LSI, the Army sought to gain managerial advantages such as maintaining flexibility to deal with shifting priorities. A partner-like relationship also poses long-term risks for the government. Depending on the closeness of the working relationship, the government's ability to provide oversight can be reduced compared with an arms-length relationship; more specifically, the government can become increasingly vested in the results of shared decisions and runs the risk of being less able to provide oversight compared with an arms-length relationship, especially when the government is disadvantaged in terms of workforce and skills. In the case of FCS, these risks are present. The Army is more

involved in the selection of subcontractors than we have seen on other programs, involvement that can, over time, make the Army somewhat responsible for the LSI's subcontracting network. On the other hand, the LSI is more involved with influencing the requirements, defining the solution, and testing that solution than we have seen on other programs. This is not to say that the level of involvement or collaboration between the Army and the LSI is inherently improper, but that it may have unintended consequences over the long term.

OSD is in a position to provide this oversight, but thus far has largely accepted the program and its changes as defined by the Army, even when they are at wide variance from the best practices embodied in OSD's own acquisition policies. In 2003, OSD approved the FCS for system development and demonstration prematurely despite the program's combination of immature technologies and short schedule and then declined to follow through on plans to make a better informed decision 18 months later. OSD has allowed the Army to use its cost estimates rather than OSD's own independent—and significantly higher—cost estimates and has agreed with the Army's determination that the bulk of cost increases since 2003 are the result of scope changes and thus do not trigger congressional reporting requirements. In the fiscal year 2007 National Defense Authorization Act, Congress mandated that DOD hold a formal go/no-go decision meeting on the FCS in 2009. DOD has since proposed a serious approach to making that decision, a step that is encouraging from an oversight perspective.

Contract Provides Incentives for Best Effort but Cannot Assure Success

The Army has structured the FCS contract consistent with its desire to incentivize development efforts and make it financially rewarding for the LSI to make such efforts. In that regard, the FCS contract pays well. According to an independent estimate from the Office of the Secretary of Defense, the fee payable to the LSI is relatively high based on the value of work it actually performs, and its average employee assigned to the program costs more than a federal executive. The business arrangement between the Army and LSI has been converted from an other transaction agreement to a Federal Acquisition Regulation-based contract. Yet, there remain substantive risks on whether the contract can result in a successful program outcome. As with many cost-reimbursable research and development contracts, the contractor is responsible for putting forth its best effort to ensure a successful FCS. However, if that system fails to meet expectations or requirements despite that effort, the LSI is not responsible.

The Army provides incentive payments through nine program events called out in the current contract, for which the LSI must demonstrate progress in setting up and implementing various program processes. By the time the FCS critical design review is completed in 2011, the Army will have paid out over 80 percent of the costs of the LSI contract and the LSI will have had the opportunity to earn more than 80 percent of its total fee. While the Army rationally notes that it is important to use fees to encourage good performance early, the experiences of previous weapon systems shows that most cost growth occurs after the critical design review. Key demonstrations of the actual capabilities of FCS systems will take place after this point. The Army shares responsibility with the LSI for making key decisions and to some extent the Army's performance affects the performance of the LSI. For example, some of the technologies critical to the FCS are being developed by the Army, not the LSI. If the technologies do not perform as planned, the LSI may not be responsible for the consequent trade-offs in performance. Furthermore, the Army is responsible for all program changes and therefore can adjust its expectations of the LSI according to those changes and the LSI may still earn its full fee.

Mr. Chairman, this concludes my prepared statement. I would be happy to answer any questions you or members of the subcommittee may have.

Contacts & Staff Acknowledgments

For future questions about this statement, please contact me at (202) 512-4841 or francisp@gao.gov. Individuals making key contributions to this statement include William R. Graveline, William C. Allbritton, Noah B. Bleicher, Lily J. Chin, Brendan S. Culley, Marcus C. Ferguson, Michael D. O'Neill, Kenneth E. Patton, Thomas P. Twambly, Adam Vodraska, and Carrie R. Wilson.

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DOCUMENTS SUBMITTED FOR THE RECORD

MARCH 27, 2007

We Can't Win If We Don't Know the Enemy

By Bruce Hoffman
Sunday, March 25, 2007; B05

From the moment that President Bush declared a "war on terrorism" and then led the country to war in Iraq, the United States has utterly failed to fulfill the timeless admonition to "know your enemy." This failure helps explain why we are so far from winning in Iraq or more broadly against al-Qaeda and its allies.

"If you know the enemy and know yourself," China's Sun Tzu famously advised in the 6th century B.C., "you need not fear the results of a hundred battles." But we have plenty to fear, because five and a half years into this struggle we lack a thorough understanding of our enemies: their motivation and mind-set, their decision-making processes and command-and-control relationships, their organizational dynamics and their ideological appeal.

Military tactics are doomed to failure when they are applied without a sophisticated knowledge of the enemy being pursued -- of how that enemy thinks, and therefore how he is likely to respond or adapt to the tactics being used against him. Without knowing our enemies we cannot successfully penetrate their cells; we cannot sow discord and dissension in their ranks to weaken them from within; we cannot think like them to anticipate how they may act in a variety of situations. This means that we cannot conduct an effective counterterrorist strategy by preventing or deterring terrorist attacks, or an effective counterinsurgency strategy by winning the support of the population and then dismantling the insurgent infrastructure.

Until we really know our enemies, America will remain on the defensive, inherently reactive rather than proactive. We will continually be surprised by our enemies' tactics and maneuvers. We will not prevail.

If we knew our enemy, we might not have been surprised by al-Qaeda's resurrection in Pakistan -- literally under the noses of our forces right across the border in Afghanistan. We might also have detected the warning signs of the Taliban resurgence long before the spring offensive now believed to be imminent. And we might have better understood why last year's killing of Abu Musab al-Zarqawi had only an ephemeral effect on al-Qaeda in Iraq's capacity for continued violence and bloodshed.

This is not the first time the United States has faced an enigmatic, unseen enemy motivated by a powerful ideology that used terrorism and insurgency to advance its cause and rally popular support. That was also our situation in the Vietnam War. Though we lost in Vietnam, we did make a serious attempt to understand the enemy. Intelligence agencies used interviews with captured Vietcong soldiers and defectors, plus communist documents that were found or captured, first to figure out who the enemy was and how they operated, then to try to devise political, social and economic programs that would

undermine the Vietcong and strengthen the South Vietnamese government that the United States supported. Studying the enemy was big business.

It wasn't enough, because then, as now, our conventional military commanders remained impatiently fixated on strategies of attrition and decapitation. They dismissed tactics that were based more on guile than firepower, hoping for quick results and avoiding tactics that would have taken time to work but in the long run might have been effective.

The United States is making no comparable effort today to study and understand either the terrorists affiliated with al-Qaeda or the insurgents in Iraq. Our counterterrorism and counterinsurgency strategies appear weighted toward a "kill or capture" approach targeting individual bad guys. This reflects the conventional military's commitment to "enemy centric" warfare. Killing bad guys is easy compared with the "population centric" approach so important to effectively countering terrorism and insurgency. But our tactics are ineffectual, because they are based on the erroneous assumption that al-Qaeda and its allies or the insurgents in Iraq are organized, centralized armed forces that will respond to traditional definitions of victory and defeat. Our tactics presume that killing or capturing enough bad guys will end global terrorism and the Iraqi insurgency.

So the U.S. military and our intelligence community are focused on hunting down militant leaders, killing terrorists and insurgents, and protecting U.S. forces -- all laudable goals, but inadequate ones. Decapitation strategies have rarely worked against terrorist or insurgent campaigns. Occupations such as ours in Iraq that anger the local populace are similarly ineffective. Our fundamental problem is that al-Qaeda and the Iraqi insurgents appear to have little difficulty attracting new recruits to continue their fights against us.

The Pentagon has made a conceptual breakthrough by recognizing recently that we are engaged in "a long war" likely to continue for a decade or more. This acknowledgement provides a signal opportunity finally to begin to collect and analyze the information needed to truly know our enemy. We have to get serious about this right now, given the changes we see in the behavior and operations of our adversaries, who are much too elusive and complicated to be vanquished by mere decapitation.

Successfully countering terrorism and insurgency cannot be an exclusively military endeavor. It requires parallel political, social, economic and ideological activities. All of these need to be integrated in a systematic approach that is operationally dynamic -- able to quickly identify changes in our enemies' tactics, targeting and recruitment patterns and to respond effectively to them. We need to be able to exploit networks, the constellations of individual relationships that define terrorism and insurgency today, with the ease and facility that our enemies routinely do. We must master "soft" skills such as negotiations, psychology, social and cultural anthropology, foreign area studies, complexity theory and systems management. All are essential to operating effectively in the ambiguous and dynamic environment in which irregular adversaries circulate.

We cannot prevail without breaking the cycle of terrorist and insurgent recruitment and replenishment that have sustained both al-Qaeda's continued campaign and the ongoing

conflict in Iraq. So psychological operations that seek to persuade insurgents and terrorists to surrender are particularly important. These proven, cost-effective measures can pay vast intelligence dividends if pursued with shrewdness and persistence. If, as the rule of thumb says, it requires 10 soldiers to successfully neutralize every terrorist or guerrilla, then one defector can reduce by 10 the number of Americans needed on a particular protracted mission. Yes, such efforts require time to succeed, but once launched they can have side benefits. In Vietnam, the suspicion and mistrust that we managed to create within the Vietcong forced our enemies to expend more time and energy watching their backs and monitoring their comrades. If we can do that now, insurgents and terrorists will have less time and energy to plan attacks against us.

The key to success will be to combine the most utilitarian aspects of our formidable military forces with smart, sophisticated political and psychological efforts to know our enemy much better than we do today. We won't succeed unless we can think and plan ahead to address the threats likely to be posed by the terrorist and insurgent generation beyond the current one. And we cannot do that until we have figured out who these enemies are, what makes them tick, and what their strengths and vulnerabilities are. When we know those things, we can build a strategy and tactics based on empirical knowledge and analysis rather than on conjecture or wishful thinking. And we can win.

Bruce Hoffman is a professor at Georgetown University's School of Foreign Service and

a senior fellow at the U.S. Military Academy's Combating Terrorism Center. He is the author of "Inside Terrorism" (Columbia University Press).

QUESTIONS AND ANSWERS SUBMITTED FOR THE RECORD

MARCH 27, 2007

QUESTIONS SUBMITTED BY MR. ABERCROMBIE

Mr. ABERCROMBIE. For the FCS program, at the time of budget submission for each of the fiscal years FY04 to FY08, please provide (1) the structure of the overall FCS program assumed, in terms of the number of programs, e.g., "18+1," (2) the estimated acquisition cost of FCS in TYS, (3) the estimated IOC, (4) the estimated BCT fielding rate/year by FY, and (5) the estimated FCS BCT completed fielding date.

Secretary BOLTON and General CURRAN. [See table below.]

	FY04 Budget	FY05 Budget	FY06 Budget	FY07 Budget	FY08 Budget
Program Structure	Systems: 13+1	13+1	18+1	18+1	14+1
Est Acq Cost TY$	$92.2B Milestone B	$92.7B Dec 03 SAR	$161.4B ARMY POM	$164.6B Dec 05 SAR	$161.9 Dec 06 SAR
Est IOC	Dec 2010	Dec 2010	Dec 2014	Dec 2014	Jun 2015
Est BCT fielded/per	2/yr	2/yr	1.5/yr	1.5/yr	1/yr
Est FOC	Dec 2012	Dec 2012	Dec 2016	Dec 2016	Jun 2017
Spin-outs being developed:	NA	NA	4	4	3

Mr. ABERCROMBIE. For the FCS program, at the time of budget submission for each of the fiscal years FY04 to FY08, please provide (1) the structure of the overall FCS program assumed, in terms of the number of programs, e.g., "18+1," (2) the estimated acquisition cost of FCS in TYS, (3) the estimated IOC, (4) the estimated BCT fielding rate/year by FY, and (5) the estimated FCS BCT completed fielding date.

Dr. FINLEY. The Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology, The Army Staff and the Army Training and Doctrine Command have identified the number of FCS programs to be fielded by year, estimated acquisition costs and the FCS fielding plan in the attached matrix. The Office of the Under Secretary of Defense for Acquisition, Technology and Logistics concurs with the Army answer.

Mr. ABERCROMBIE. Will the ground station envisioned for FCS UAVs be compatible with and able to receive all data from non-FCS Army UAVs, including Warrior, I-GNAT, Hunter, and Shadow?

Secretary BOLTON and General CURRAN. The FCS and modular force Unmanned Aircraft System (UAS) datalink and network architectures are markedly different and could not interoperate if left on their current acquisition trajectories. However, the Army Aviation Warfighting Center (USAAWC) recently determined that Army Aviation will robustly interoperate with the FCS network and battle command as they emerge in the next decade. Requirements definition is under way within Army Training and Doctrine Command (TRADOC) to "bridge the gap."

The Army Aviation UAS Programs of Record, Extended-Range Multi-Purpose UAS (Warrior Block 1) and Shadow, will have additional requirements for FCS interoperability. The Army will divest Hunter, I-GNAT, and Warrior Alpha as the Warrior Block 1 systems are fielded. As FCS interoperability technical solutions are developed, the Army will upgrade the current Warrior Block 0 fleet to Warrior Program of Record configuration.

PM UAS and PEO Aviation will work with TRADOC, USAAWC, FCS, and Army leadership to plan and execute programs to incorporate these emerging requirements and determine the resources required in the FY10–15 POM.

Mr. ABERCROMBIE. Will the ground station envisioned for FCS UAVs be compatible with and able to receive all data from non-FCS Army UAVs, including Warrior, I-GNAT, Hunter, and Shadow?

Dr. FINLEY. The Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology, The Army Staff and the Army Training and Doctrine Command have addressed the interoperability of Future Combat Systems and modular force Unmanned Aircraft Systems in the attached document. The Office of the Under Secretary of Defense for Acquisition, Technology and Logistics concurs with the Army answer.

Mr. ABERCROMBIE. What are the complementary FCS R&D programs and projects (by name, PE, and amount) in the FY 2008 budget request?

Dr. FINLEY. The Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology, The Army Staff and the Army Training and Doctrine Command have addressed the complementary Future Combat Systems programs and projects in the attached document. The Office of the Under Secretary of Defense for Acquisition, Technology and Logistics concurs with the Army answer.

Mr. ABERCROMBIE. What are the complementary FCS R&D programs and projects (by name, PE, and amount) in the FY 2008 budget request?

Secretary BOLTON and General CURRAN. The following programs are FCS complementary programs with funding in the FY 2008 budget request. Complementary programs are defined as programs of record that are distinct from the core FCS family of systems, but essential to the FCS family of systems in meeting its key performance parameters as outlined in the operational requirements document.

Program Name	Appropriation	Program Element	PB08 Funding ($K)
Airborne Standoff Minefield Detection System (ASTAMIDS)	RDTE OPA	0604808A 415 S11500	25,487 11,708
Army Training Information Architecture (ATIA)	OMA	324731	1,000
Battle Command Sustainment Support System (BCS3)	RDTE OPA	643805091 W34600000	19,054 32,935
Common Training Instrumentation Architecture	RDTE	0604715A 214	7,731
Precision Guidance Kit (PGK)	RDTE	654802S36	20,606
Distributed Common Ground System - Army (DCGS-A)	RDTE OPA	375208D07 375208D06 375208D08 37508956 BZ7316000	34,632 24,515 10,826 10,941 114,842
CL IV Electro-Optical/ Infrared/Laser Designator (EO/IR/LD)	RDTE OPA	375204 11A B00302	40,500 38,400
Excalibur (XM982)	RDTE AMMO	0604814A E80103	63,039 28,781
FCS platform to non-FCS Platform Combat ID	RDTE OPA	0604817A 482 BA0510	11,450 4,228
Fire Finder Radar AN/TPQ-36/37	RDTE OPA	654823L88 BZ7325	69,342 41,500
Forward Area Air Defense Command, Control, and Intelligence System (FAAD C2I)	RDTE OPA	0604741A AD5050000	1,340 9,000
Global Combat Support System - Army (GCSS-A)	RDTE OPA	0303141A W00800	89,263 14,864
Ground Standoff Minefield Detection System (GSTAMIDS)	RDTE	64808A	21,625
Joint Biological Point Detection System (JBPDS)	OPA	028384BP	77,800
Joint Chemical Agent Detector (JCAD)	RDTE OPA	0604384BP 028384BP	11,800 33,900
Net-Enabled Command	RDTE	373158/714	10,400

Program Name	Appropriation	Program Element	PB08 Funding ($K)
Capability (NECC)			
Joint Service Lightweight Stand-Off Chemical Agent Detector (JSLSCAD)	OPA	028384BP	16,400
Joint Tactical Radio Systems Ground Mobile Radios (JTRS GMR)	RDTE	0604805N: 3074	236,400
Joint Tactical Radio Systems Handheld, Manpack & Small Form Fit (JTRS HMS)	RDTE	0604805N: 3075	106,300
Joint Warning and Reporting Network (JWARN)	RDTE OPA	0604384BP 028384BP	23,900 6,700
	RDTE OPA	654823L86 B05201000	7,926 43,893
Lightweight Counter Mortar Radar (LCMR)			
Lightweight Laser Designator Range Finder (LLDR)	RDTE OPA	654710L76 K31100000	1,500 93,986
Lightweight Water Purifier (LWP)	RDTE OPA	0603804A L41 0603804A K41 R67000	700 8,477
Load Handling System Water Tank Rack (Hippo)	OPA	R38100000	4,420
Medical Communications for Combat Casualty Care (MC4)	RDTE OPA	655013193 MA8046000	7,802 19,525
Meteorological Measuring Set - Profiler (MMS-P)	OPA	K27900	8,000
Mid Range Munition (MRM)	RDTE	63639A	44,578
One Semi-Automated Forces (OneSAF)	RDTE OMA	0604760A C78 121014000	12,909 5,177
One Tactical Engagement Simulation System (OneTESS)	RDTE	0604715A 241	23,198
Sentinel Phased Array Radar (AN/MPQ-64)	RDTE OPA	654820/E10 WK5057	7,067 20,885
Synthetic Aperture Radar/Ground Moving Target Indicator (SAR/GMTI) Payload	RDTE OPA	375204 11A B00302	See EO/IR/LD Line. Both technology efforts are in a basket line
Synthetic Environment Core (SE-Core)	RDTE	0604780A 582	23,745
Unit Water Pod System (Camel)	RDTE OPA	0604804A L41 R38101	1,500 5,100
Warfighter Information Network - Tactical (WIN-T)	RDTE	643782355	222,296

Mr. ABERCROMBIE. What are the technical differences between the FY07 actual and FY08 projected buys of SINCGARs radios? What other contractual differences are envisioned in those procurements, and what are the comparable unit costs of the FY07 and FY08 procurements?

Dr. FINLEY. The Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology, The Army Staff and the Army Training and Doctrine Command have addressed the perceived differences in the SINCGARS radio in the attached document. The Office of the Under Secretary of Defense for Acquisition, Technology and Logistics concurs with the Army answer.

Mr. ABERCROMBIE. What are the technical differences between the FY07 actual and FY08 projected buys of SINCGARs radios? What other contractual differences are envisioned in those procurements, and what are the comparable unit costs of the FY07 and FY08 procurements?

Secretary BOLTON and General CURRAN. There are no technical differences in SINCGARS radios (i.e. Receiver-Transmitters) procured in FY07 and FY08. Unit costs of $7 thousand then year dollars in fiscal year 2007 and $10 thousand then year dollars in FY08 and FY09 are due to the varying configurations of the radio being procured. The unit costs include the cost of the Receiver Transmitter (RT) Vehicular Amplifier Adapter (VAA) and Power Amplifier (PA). More capable configurations of SINCGARS (i.e. Dual R/T, PA and VAA) result in a more expensive radio. The Army is procuring more "high end" configurations in FY08–09.

Mr. ABERCROMBIE. How many JTRS radios and of what type are fielded in operational units at the present time?

Secretary BOLTON and General CURRAN. There are currently no JTRS radios fielded to operational units. The Army projects initial fielding in FY11. The Army delivered approximately 50 pre-Engineering Development Models (EDM) to the FCS program for use in the Limited User Test (LUT).

Mr. ABERCROMBIE. How many JTRS radios and of what type are fielded in operational units at the present time?

Dr. FINLEY. As of March 27, 2007, at the time of your request, there were no JTRS radios fielded in operational units in the Army, Navy, Air Force or the Marine Corps.

Mr. ABERCROMBIE. What percent of the Army's FY08 supplemental procurement request was rejected by the Office of the Secretary of Defense (OSD)? In addition please provide this amount in dollars?

Secretary BOLTON. The Army worked with OSD to develop FY 2007 and FY 2008 GWOT Requests that met the most critical priorities of the Army and that were executable.

Mr. ABERCROMBIE. What affect will this have on the Army's ability to prosecute ongoing operations throughout the world?

Secretary BOLTON. The Army is resourced with budget and wartime supplemental funding to execute the current OIF/OEF fight. Resources continue to fall short of the level the Army believes is necessary to implement the full strategy outlined in the 2005 QDR. The Army outlined specific areas of risk in the recent Chairman's Risk Assessment submitted with the President's Budget in February 2007.

Mr. ABERCROMBIE. Did OSD provide a rationale to the Army for these program funding rejections?

Secretary BOLTON. The FY 2008 GWOT request was an estimate at a point in time and the Army and OSD will continue to work together to address any potential additional FY 2008 requirements. Given the large numbers of programs included in Army budget submissions, OSD does not generally provide line item rationale for every funding decision in which it is involved.

Mr. ABERCROMBIE. How much funding is programmed for Reserve Component (RC) equipment reset across the Future Years Defense Program (FYDP)? Could the Army obligate and execute on additional funds?

Secretary BOLTON. Reset funding is not programmed across the FYDP but based on equipment that was actually destroyed, damaged, stressed, or worn out during operations and requested as part of the Global War on Terrorism appropriations. The Fiscal Year 2007 (FY07) Appropriations Act provided $3.5 billion to the Reserve Component for Reset to include replacing Homeland Defense and Homeland Security items such as trucks, radios, engineering equipment, trailers and generators that were left in Theater to support deploying forces.

At pre-surge levels our estimated overall future Reset requirements were $13–14 billion a year (plus 2–3 years each year beyond the cessation of the current conflict). The increasing requirements for Army units in Iraq and Afghanistan will increase Reset requirements, which we currently estimate to be an additional $2.5 billion to $3.5 billion a year.

The Army strives to strike the best balance between the competing needs of the Army as a whole and the total funding available. The Army has programmed $36.8 billion for new equipment procurement for the Army National Guard from FY05 to FY13 and $10.67 billion for the Army Reserve. While we acknowledge that this will still leave equipping holes to fill across the Army beyond 2013, it brings the RC to an equipping level that allows it to better manage risk in terms of cross-leveling equipment to deploying units while still maintaining the capability to mobilize, train, and respond to homeland defense and security missions.

Mr. ABERCROMBIE. What is the current small arms acquisition strategy for the Army? Please discuss handguns, carbines, rifles, and machine guns.

Secretary BOLTON. The current strategy for handguns, carbines, rifles and machine guns is to continue to procure, overhaul, and support the current fleet of weapons in the field. These weapons are combat proven to be effective and reliable when employed and maintained properly. The Army is about to field a new 40mm grenade launcher, a new under-barrel shotgun and a new 7.62 sniper rifle. Additionally, the U.S. Army Infantry Center (USAIC) is conducting a Small Arms Capability Based Assessment (CBA) with the goal of completing the work this summer. The CBA may identify capability gaps that can only be addressed through materiel solutions. The approved CBA will provide the analytical underpinning for all potential new small arms requirement documents. The CBA will also support USAIC development of the Army's updated Small Arms Strategy.

Mr. ABERCROMBIE. Does the Army plan to revisit its carbine requirement and review new systems for use such as the Heckler & Koch (H&K) 416 model?

Secretary BOLTON. The Army does not plan to review new systems unless the results of an ongoing capabilities based assessment (CBA) identifies an associated capability gap that can only be addressed by a new materiel solution. The M4 Carbine is a reliable weapon design that meets or exceeds its requirements and has the confidence of an overwhelming majority of Soldiers according to recent post deployment interviews and surveys. According to a Center of Naval Analysis survey of 917 Soldiers that had recently carried the M4 in combat, 89 percent reported overall satisfaction with the weapon and only 1 percent recommended the M4 be replaced. The M4 has consistently been the individual weapon of choice among Soldiers. The U.S. Army Infantry Center at Fort Benning, the Army's proponent for small arms, is conducting the CBA to determine small arms capability gaps and to provide the analysis supporting necessary small arms weapons requirement documents. This CBA covers all individual and crew served weapons capabilities.

Mr. ABERCROMBIE. What is the current unit cost of an M4 Carbine? How does this unit cost compare to the H&K 416 carbine currently being procured and distributed to the Special Operations Forces community?

Secretary BOLTON. The current contract negotiated cost of an M4 Carbine is $1169.48, which includes several accessories that were not included prior to 2003. A recent verbal quote from H&K USA for a comparable version of the H&K 416 Carbine was $1175.00.

The M4 Carbine has always come with a technical manual, sling, one magazine and a blank firing adapter. Since 2003, the M4 accessories issued have also included an additional six magazines, a rifle cover, a magazine cover, and a muzzle cap. Starting in 2006, the Auxiliary Rail System (ARS) and the Back-Up Iron Sight (BUIS) have been included in the negotiated price for the system. The H&K 416 already includes the ARS and the BUIS, but additional magazines and covers would have to be negotiated with the vendor.

Mr. ABERCROMBIE. What is the Army doing with respect to developing flame retardant clothing? The Marine Corps is fielding a flame retardant clothing system called FROGs. Does the Army have a similar program?

Secretary BOLTON. Currently, the Army is fielding Flame Resistant (FR) Army Combat Uniforms, FR gloves, and FR balaclavas to Soldiers in Afghanistan and Iraq. Additionally, the Army collaborated with the U.S. Marine Corps (USMC) in the development of the Flame Resistant Operational Gear (FROG) system. The Army has established a Flame Resistant Environmental Ensemble (FREE) program that incorporates lessons learned from the USMC FROG system. The FREE provides a multi-layered ensemble of FR and environmental protection providing head-to-toe coverage for the Soldier.

Mr. ABERCROMBIE. Is the Army experiencing a high rate of weapon jamming because of the particular gun lubricant being issued by the service?

Secretary BOLTON. There are no significant weapons jamming problems in Iraq or Afghanistan. Commanders and Senior Non Commissioned Officers there now or with past experience have been queried by Army Materiel Command Field Support Brigade personnel, Research Development and Engineering Command (RDECOM) Senior representatives deployed to Multi-National Force-Iraq (MNF-I), and RDECOM's CSM, who has visited units in theater. Weapons cleanliness is highlighted as the major item of concern, not the poor performance of cleaner, lubricant, and preservatives (CLP). As recently as 18 March 2007, BG Steve Anderson, MNF-I DCS Resources & Sustainment, wrote that "There is no systemic weapon jamming problem in this theater."

Mr. ABERCROMBIE. Why did the Army choose to terminate its Precision Guided Mortar Munition (PGMM) program?

Secretary BOLTON. The Army had to make difficult budget decisions in its fiscal years 2008 to 2013 program process in order to fund higher priority programs at essential levels of effort. As a result, the Army made the decision to terminate the

PGMM program. The Army supports the Joint Requirements Oversight Council-approved PGMM program; however, it does not have the resources at present to proceed further.

Mr. ABERCROMBIE. Why did the Army choose to terminate its Land Warrior program when there is an urgent operational need for this capability in the War in Iraq?

Secretary BOLTON. The Land Warrior program is being terminated as a result of competing fiscal priorities during the development of the Fiscal year 2008 President' Budget. The Land Warrior connects the Dismounted Soldier to the current Army Battle Command System. The Army Battle Command System network is changing to a new different network transport layer architecture and the decision was to invest scarce resources in Dismounted Soldier System that uses the new transport layer architecture rather than the current architecture as Land Warrior does. All lessons learned from Land Warrior will be rolled over into the new program, Ground Soldier System.

The Operational Needs Statement (ONS) is for one battalion of Land Warrior capability. The Army is meeting the ONS requirement with the 4th Battalion, 9th Infantry (4–9 IN BN) currently deployed to Operation Iraqi Freedom (OIF) with Land Warrior. The Army is committed to supporting Land Warrior with the 4–9 IN BN while deployed.

The Army is conducting a Milestone C decision to acknowledge the maturity of Land Warrior Program and that it met all of its requirements and passed its tests. This Milestone C will complete the Land Warrior System Development and Demonstration and prepare the system for production and fielding should field commanders request this capability at a later date, but the system will not proceed into production.

QUESTIONS SUBMITTED BY MR. SAXTON

Mr. SAXTON. The Army user community has been adamant in its desire to have an FCS force that is rapidly transportable by aircraft. Has the user community reconciled this desire with the resulting tradeoffs in manned ground vehicle survivability? Also, will there ever be an adequate supply of airlift capability to make the air transport of FCS vehicles in other than extraordinary circumstances?

General CURRAN. The Army fights as an integrated unit, not as a platform. FCS involves fielding a holistic Brigade Combat Team (BCT) capability, not a solitary platform capability. The manned ground vehicles (MGVs) are full-spectrum vehicles, neither heavy not light in the conventional sense. The Army has to be able to go anywhere on a moment's notice; so we cannot continue to just weigh down our vehicles with more and heavier armor. Additionally survivability is more than just about armor, and is significantly enhanced when, via FCS, Soldiers in platforms share a common operational picture of their surroundings. Increased awareness of enemy and environment increases Soldier survivability and lethality. Protection of Soldiers, ease of transport, reduced sustainment, reduced costs and overall survivability are primary considerations in development of balanced MGV designs.

The MGV will provide improved levels of personal protection compared to current systems and will approach protection levels normally afforded to significantly heavier armored systems. The use of armor "kits" at less mass and weight allows for armor upgrades that will exploit new technological advances and thus allow for more efficient ballistic protection. This armor approach coupled with such things as a multifunction counter measures and the active protection system, will provide a very effective, weight efficient 360 hemispheric degree coverage against incoming munitions. The resulting all-around protection of the MGV will be equal to or greater than that of an Abrams tank or the Bradley Fighting Vehicle.

Air lift force structure is an issue for US TRANSCOM. It was out of concern for the adequacy of airlift that we made FCS Transportability a Key Performance Parameter. MGVs are designed to support multi-nodal transportability. MGV designs allow variants to be tailored for a number of air, ground and sea modes of transport. Bottom Line: FCS is designed to exploit the entire range of transport to provide the commander the greatest degree of flexibility. The FCS Family of Systems will be transportable worldwide by air, sea, highway, and rail modes to support inter-theater strategic deployment and intra-theater operational maneuver.

In conclusion, MGVs will be very deployable and able to use air, sea, highway, and rail transport. The user community is satisfied with the current configuration of the manned ground vehicle. Current designs for FCS MGVs provide a suite of protection capabilities greater than current force manned ground systems. The user community and the materiel developer have and will continue to work together to

increase the survivability of these platforms while balancing transportability as we go through the various design stages. Survivability is no longer simply a passive approach or platform centric for sustaining a hit but a combination of passive and active protection suites, network provided situational awareness, and networked lethality. The Future Combat Systems Manned Ground Vehicle family will provide our Soldiers with a very deployable combat vehicle that meets the needs of our Soldiers (operating in current and future conflicts) wherever they need to go, so they can effectively and safely accomplish the mission, and return home.

Mr. SAXTON. CBO testified last year before this committee that the FCS would not be much more transportable by sea and air than the current force? Do you agree with this analysis? If so, what are we trying to achieve with FCS?

General CURRAN. The Army does not agree with the CBO assessment.

The FCS Transportability Key Performance Parameter (KPP) states: "The FCS Family of Systems must be transportable worldwide by air, sea, highway, and rail modes to support inter-theater strategic deployment and intra-theater operational maneuver."

FCS Family of Systems transportability provides inter-theater options for strategic deployment and intra-theater options for operational maneuver in order to execute a range of missions within a campaign.

Force Effectiveness Analysis results have shown significant enhancement in FCS BCT transportability compared to the current Heavy Brigade Combat Team:

- Operational Maneuver by air in OIF scenario, FCS BCT flows in more than twice as fast as a Heavy Brigade Combat Team
- Operational Maneuver by sea in Asia scenario, the FCS BCT closes 43 percent faster than an HBCT and uses 21 percent fewer Joint High Speed Vessels (JHSV) and 10 percent fewer Landing Craft Utility (LCU) than an HBCT

This capability provides flexibility for entry operations (permissive and non-permissive) to counter threat anti-access strategies by using multiple air, land, and sea entry points to bring in combat configured units. Within the context of theater campaigns, operational maneuver by multiple modes facilitates the execution of Joint land operations. The multimodal transportability metric is a range greater than 250NM at threshold and to a range greater than 500NM at objective.

The Army will develop FCS that meets the transportability KPP. The Army FCS One Team is working transportability and other issues, and are confident that as the systems mature, FCS will be a capable, viable, survivable and responsive family of systems that will ensure the Army's victory in future conflicts.

Mr. SAXTON. In light of the Army's recent restructure of the FCS program, has the Army user community been able to determine yet if the new program of record—14 versus 18 systems—will be adequate to meet the Army's needs? Will the FCS program be able to deliver a capability that is as good as or better than the current Army force capabilities?

General CURRAN. As a result of operational analysis and bounded by the fiscal reality of the current environment, we recently made several adjustments to the program, which resulted in 14+1 FCS program. We will continue to develop the core operational capability envisioned for FCS, yet will do so with 14 instead of 18 interconnected systems. The Army continues to have an affordable and executable FCS strategy to better ensure program success and the delivery of essential capabilities to our Soldiers.

FCS will deliver a capability better than current Army force capabilities:

- The FCS BCT is a combined-arms unit of modular organizational design. As part of this design, the FCS BCT is built as an integrated, networked System-of-Systems whose cornerstone is the Soldier.
- The FCS BCT is designed to be self-sufficient for 72 hours of high-intensity combat operations, or up to seven days in a low- to mid-intensity environment.
- The FCS BCT uses advanced network architecture to enable levels of Joint connectivity, situational awareness, and synchronized operations capabilities previously unachievable. It is designed to interact with and enhance the Army's most valuable asset—the Soldier. When fully operational, FCS will provide the Army and Joint force with unprecedented visibility and capability to see, engage on our terms and defeat the enemy.
- The FCS BCT is much more strategically deployable than today's heavy forces, and is specifically designed to deploy from operational and strategic distances via ground, sea, and air assets not dependent on improved ports or airfields. This is especially significant in humanitarian relief operations and

rapid contingency operations, where the capability to arrive quickly can mean the difference between success and failure.

- FCS capabilities allow Soldiers significant tactical and operational advantages by providing constant awareness of friendly and enemy situations, reducing casualties by expanding the ability to operate across larger areas with fewer Soldiers, and enhancing the ability to defeat IEDs, anti-tank weapons, and small arms.

The net effect of these design considerations is a BCT with exceptional versatility and operational capability and a reduced footprint.

FCS enhances the Current Force as well; early insertions (Spin Outs) of advanced FCS capabilities to the Current Force platforms provide Soldiers with equipment that reduces operational risk.

Mr. SAXTON. While there are surely technology questions remaining to be addressed in the development of the Active Protection System, has the Army user community developed the needed concept of operations to take advantage of future MS capabilities? Can an APS system be safely used when dismounted soldiers are in the vicinity?

General CURRAN. The Army places force protection as paramount importance, and as such, continues to do everything prudent to provide safe and effective capability to our Soldiers and address survivability shortfalls. The Army's APS technology development work specifically focuses on conducting the analysis, engineering, modeling and simulation, and testing necessary to field an effective solution that is well suited (operationally suitable and acceptable) for its operational environment.

In concert with the APS development, integration, and test effort, the Army will develop appropriate tactics, techniques and procedures that will optimize the employment of the APS system, taking into account a variety of operational/tactical situations that may involve dismounted troops and/or non-combatants. The APS system is designed to increase the survivability of the vehicle crew. The FCS APS vertical launch architecture is designed to minimize collateral damage to any dismounts in the direct vicinity of an APS intercept. Additionally, the APS system will have a designed-in feature to provide the vehicle commander with the ability to choose (based on prudent risk assessment), to "turn off" selectable quadrants or sectors of coverage (akin to how one adjusts the coverage of a lawn sprinkler) around the MGV where dismounted soldiers are operating.

The FCS BCT employs a holistic approach towards survivability, including leveraging the network for improved situational awareness, reducing signature management, improving ballistic protection, modifying operational tactics that include operations with dismounted supported by mounted, and pursuing hit avoidance. Also, the Army is standing up the Army Evaluation Task Force (AETF) at Fort Bliss. Supported by TRADOC and PM Modeling and Simulations, the AETF will play a principal role in the development and refinement of doctrine and the TTPs for employment of dismounted soldiers in the vicinity of the MGVs equipped with APS. This effort is already underway, and we believe the synergy of smart APS design along with appropriate TTPs will enable our dismounted soldiers to operate very effectively and safely as a team with their APS enhanced MGVs. In conclusion, the Army takes very seriously its responsibility to ensure that any system (APS included) that what we provide the warfighter is safe, effective, suitable and supportable.

Mr. SAXTON. In the Fiscal year 2007 defense authorization, the Congress mandated that DOD prepare an independent cost estimate for FCS to include the cost of complementary programs. Who is preparing that estimate and when will it be delivered to the Congress?

Dr. FINLEY. The Institute for Defense Analysis is preparing the report on Future Combat System (FCS) costs. It is anticipated the report will be delivered in May.

Mr. SAXTON. FCS has been widely recognized as a prime example of a program started prematurely in terms of immature critical technologies and other issues. With the clear history of cost and schedule problems with programs that start without mature technologies, why was FCS permitted to start in 2003?

Dr. FINLEY. The Future Combat System (FCS) program was permitted to start in 2003, with a Milestone B decision, in order to address the Army's need to invest in the development of advanced, integrated ground combat capability. At that time it was noted that the FCS program, while schedule challenged, was not schedule bound. When authorizing the transition into SDD, the Department indicated the program must be flexible and open to accommodate trades in the system architecture and in the individual systems' design, with the ultimate objective of providing an effective, affordable, producible, and supportable increment of military capability. Due to the complexity of the program, the Department applies a disciplined, yet

agile, management oversight and review process to accommodate emerging Department priorities, to surface and resolve issues, and to ensure synchronization of complementary systems. Changes have been made to the program since 2003, such as spinning out maturing FCS capabilities to the current force, to address risk areas and target increments of capability for delivery.

To date, the maturing of technologies has not been a schedule driver for FCS, although network technologies continue to be a watch area for the Department. The Department has conducted two Technology Readiness Assessments since the 2003 review and is planning another to support a Department program review scheduled subsequent to the FCS Preliminary Design Review.

Mr. SAXTON. If FCS program costs have increased over 70 percent since it started in 2003, why hasn't the DOD reported to Congress under the provisions of the Nunn-McCurdy legislation?

Dr. FINLEY. Section 802 of the National Defense Authorization Act (NDAA) for Fiscal Year 2006, Public Law 109–163, changed the Nunn-McCurdy reporting provisions, requiring reporting against the original baseline, as well as against the current baseline. This change in the law included a one-time provision that required each major defense acquisition program that had exceeded its original baseline estimate by more than 50 percent as of the date of enactment (January 6, 2006) to deem its current baseline as the original baseline. As a result, the Future Combat System (FCS) program's 2005 revised baseline became the original baseline as of January 6, 2006. No reportable or certifiable breaches under section 2433 of title 10, United States Code have occurred against this baseline.

Mr. SAXTON. GAO points out that most of the fee will be paid out before the real details on FCS performance and cost becomes evident. What is the Army's rationale for front-loading the incentive fee structure for the FCS lead system integrator?

Secretary BOLTON. The System of Systems (SoS) Critical Design Review (CDR) occurs 65% of the way through the FCS Systems Development and Demonstration (SDD) contract performance. The successful completion of the CDR is a critical milestone during the SDD phase. The completion of successful CDR signals that detailed design satisfies the performance and engineering requirements of the development specification and establishes the detailed design compatibility across the multiple platforms. Due to the complexity of the FCS program and the numerous challenges associated with integrating the FCS SoS, the Program Manager determined that it was necessary and prudent to incentivize the upfront SoS engineering activities that lead to a robust and successful CDR. Failure to conduct a successful CDR could lead to cost increases and schedule delays of the program.

To ensure successful SoS CDR, the incentive fee events are based on significant activities and accomplishment criteria that demonstrate progress through the development lifecycle. Each Program Event (PE) is decomposed and vertically integrated into Significant Accomplishments (SA). Each SA is further decomposed into many Accomplishment Criteria (AC), and each AC is further decomposed to Completion Criteria (CC). The rationale for breaking down the outcomes to this level was to incentivize the establishment of a disciplined structure for performing the tasks necessary to develop a fully integrated System of Systems and rewarding the implementation and progress by measuring successful completion of subcomponent outcomes of the ACs. By virtue of following a proven process to build the foundation for FCS, quality is built into the program upfront and will result in a successful final outcome.

Mr. SAXTON. In its budget request for fiscal 2008, the Army is requesting the first procurement funds for FCS. Those funds are to be used to buy long lead items for the NLOS-C and FCS spin out items. Will the Army be contracting for those items through the lead system integrator (Boeing)? Will that be a sole-source contract? Other than in providing the early version of SOSCOE to be used, will Boeing have any hands-on role in the production phase?

Secretary BOLTON. The Army anticipates, as reflected in the current Acquisition Strategy Report (ASR), awarding sole-source contracts to the FCS LSI (Boeing) for Spin Outs 1, 2, and 3 LRIP efforts and the Manned Ground Vehicle Initial Platform, the NLOS-C. Beginning in FY2008, procurement-funded long lead items will be acquired for the NLOS-C effort and for the FCS Spin Out 1 LRIP effort.

The Army anticipates that during the Full-Rate Production phase of the FCS program, the LSI's role will principally be as SoS integrator and will be responsible and accountable for system performance in each case. Apart from SoSCOE/C4ISR Integration, Boeing will not have a significant role in hands-on production in the efforts.

Mr. SAXTON. If FCS program costs have increased over 70 percent since it started in 2003, why hasn't the Army reported to Congress under the provisions of the Nunn-McCurdy legislation?

Secretary BOLTON. For reporting purposes, FCS program costs have not increased by over 70 percent since 2003. The 70 percent figure is based upon a selective use of cost data provided to various organizations, such as the GAO. In particular, the 70 percent value is based upon a comparison of then year dollars, which reflect the impact of inflation. Over time, the Army has reduced the number of FCS Brigade Combat Teams (FBCTs) procured per year, while retaining the same total of 15 FBCTs. This has the effect of pushing procurements into later years. While there is some cost growth associated with later procurements (due mainly to it taking more years to buy the same quantities), the largest proportion of the cost increase is due to inflation impacts. As these impacts are beyond the control of the program management team, costs are always reported in base year (also known as constant year) dollars. Cost deviation criteria exist only for costs reported in base year dollars.

Based on the above, base year acquisition (RDT&E plus Procurement) costs related to FCS have grown by about 45 percent since 2003. However, previous reports to Congress have shown that increases in cost due to true "growth" have been about 11 percent. The remainder of the cost increase is attributed to programmatic adjustments (such as individual platform quantity adjustments and capability enhancements). Based on Department of Defense guidelines, these adjustments have historically not factored into Nunn-McCurdy determinations. While recent legislation has changed the criteria for Nunn-McCurdy determinations, the cost increases referenced above occurred during the program's FY2005 restructure (prior to the revised legislation).

Mr. SAXTON. When will the Army be making its determination of where FCS manned ground vehicles will be produced? How much will those facilities cost to build and when will production start?

Secretary BOLTON. In then year dollars, total facilitization costs are estimated at $1,895M. Of this amount, $1,179M supports MGV facilities. MGV production will be determined once the PM obtains approval on the LRIP acquisition strategy. Since it is anticipated that most of the production activities will occur in existing MGV facilities, majority of facilities costs will be tooling and infrastructure.

Mr. SAXTON. Does the Army agree with GAO's position that Boeing is accountable for best efforts but not for successful outcomes?

Secretary BOLTON. No. The Army holds the LSI accountable and responsible for the total program integration across multiple lower-tier platforms and subcontracts. While successful outcome may not be guaranteed in every contract, under the FCS SDD contract, Boeing's entitlement to incentive fee is dependent on its ability to successfully meet/complete program events and milestones. Boeing is not automatically entitled to any incentive fee under the SDD contract, but must earn the incentive fee through successful execution of performance. The relevant "best effort" language is found in FAR 52.232–22, Limitation of Funds clause included in the FCS SDD contract. Subsection (a) states in part, "The Contractor agrees to use its best efforts to perform the work specified in the Schedule and all obligations under this contract within the estimated cost." This clause is intended to limit the government's cost obligation and to ensure Boeing maintains sufficient cost controls to avoid cost overruns.

Further, Boeing is subject to default termination if it fails to make sufficient progress under the FCS SDD contract.

Mr. SAXTON. Is the FCS program developing a unique UAV control station separate from the control station that the Army and Marine Corps have already adopted? If so, why?

Secretary BOLTON. Yes, FCS Concept of Operation (CONOPS) requirements and technology for Unmanned Aircraft System (UAS) control are significantly different from those adopted by the Army and the Marine Corps today. In the FCS construct, any terminal can interface with any FCS element through a single network; there are no weapon-system-unique control stations. Additionally, the networked FCS terminals must be capable of operating "on the move" while still conforming to greatly reduced space, weight, and power constraints.

In contrast, the One System Ground Control Station (OSGCS) for current Army and Marine Corps UASs is dedicated to UAS weapon system specific control, thus size, weight, and power constraints are less severe. The OSGCS uses Current Force non-networked communication equipment for both video and command and control.

Although the OSGCS is mobile, it is stationary in operation. The OSGCS is highly capable for command and control of today's UASs, particularly when coupled with One System Video Receiver Terminals (OSRVTs). OSRVT is a laptop unit that receives video and telemetry data in real time on a moving map, providing enhanced situational awareness to current non-UAS equipped units.

FCS CONOPS requires network control and "on the move" operations that are not required of the modular force. FCS does not make the current OSGCS obsolete, as "modular force" systems will continue to provide most of the Army capability well beyond the point of full FCS fielding.

QUESTIONS SUBMITTED BY MR. JOHNSON

Mr. JOHNSON. How many suppliers are there for these radios?

Secretary BOLTON. There are three vendors which have the capability to produce SINCGARS interoperable radios: ITT, Harris and Thales. The current SINCGARS Indefinite Delivery, Indefinite Quantity contract, W15P7T–05–D–J1O1, was awarded competitively in November 2004 to ITT. It was a full and open competition; there was only one respondent—ITT.

In Calendar Year (CY) 2005, the U.S. Army had an urgent operational requirement to increase production of SINCGARS interoperable radios to 6,000 radios per month in support of Operation Iraqi Freedom/Operation Enduring Freedom. At that time, ITT indicated it would take at least 12 months to reach 3,000 radios per month and at least 18–24 months to reach the 6,000 radio level of production. To meet this initial urgent requirement the U.S. Army was willing to use commercial-off-the-shelf (COTS) interoperable radios (i.e. Thales and Harris VRC–1 10/111 radios) to meet the SINCGARS communications requirement. Approximately 32,000 COTS radios were procured from Thales and Harris (split 60/40 respectively). ITT subsequently implemented actions to increase production in excess of 6,000 radios per month. The subsequent SINCGARS requirements have been met using the ITT contract and the increased production capacity has not required the U.S. Army to use COTS radios to meet our operational requirements.

The U.S. Army released a Sources Sought to Industry March 16, 2007, to determine if vendors other than ITT (current vendor) could meet SINCGARS capability requirements in accordance with the SINCGARS Operational Requirements Document. The Sources Sought closed on April 16, 2007. There were three respondents to the sources sought: ITT, Harris and Thales. The U.S. Army is currently evaluating the responses to determine if the respondents can meet the Government's requirement in the timeframe required.

QUESTIONS SUBMITTED BY MR. BISHOP

Mr. BISHOP. Isn't the Future Combat System (FCS) the only real major modernization effort at present for the Army? If FCS is not fully funded in FY08, won't a consequence be a delay of fielding near-term technology to the Army ("spin-outs") such as unmanned robots for Afghanistan and Iraq, as well as long-term efforts for future engagements such as new, lighter, but more-survivable manned ground vehicles and unmanned systems?

Dr. FINLEY. The Future Combat System (FCS) program is the Army's major ground modernization program. The Army is involved in a transformation. It includes not only the structure of the force and personnel, but also of the equipment and systems that are necessary to support our 21st century national security goals and missions. A critical piece to this transformation effort is the Future Combat Systems (FCS). The FCS program is a centerpiece of the department's effort to develop a joint warfighting capability to counter the wide range of evolving and future threats.

One consequence of less than full funding in FY08 will be a delay in the fielding of the Spin-Out 1 capabilities which include unattended ground sensors, the Non-Line of Sight Launch system, and an initial network link to those systems into the current force architecture. Additionally, development of the FCS brigade components, including unmanned air and ground systems, manned ground vehicles, and the network will be delayed.

Continued reductions in funding in the Department's major acquisition programs during development seriously jeopardize the ability to plan and manage to the program baseline, impacting program cost and schedule performance.

Mr. BISHOP. Please describe what you believe to be the most likely serious consequences of delays precipitated by less than full-funding for the FCS in FY08.

Dr. FINLEY. Less than full-funding of the Future Combat System (FCS) in FY08 will impact (1) development and testing of the Spin-Out 1 technologies to increase networking and combat capability for current Army brigade combat teams; (2) initial production of the Non-Line of Sight cannon prototypes and (3) development and critical experimentation for the FCS network, unmanned air and ground systems, and manned ground vehicles.

The FCS program allows the Army to modernize, while bringing leading edge technology to the battlefield. The President's FY08 request of $3.7 billion for FCS funds research, development, testing & evaluation of communications, force protection, and mobility equipment needed to support current and future operations. FY08 investments balance both near-term and long-term modernization requirements.

Continued reductions in funding in the Department's major acquisition programs during development seriously jeopardize the ability to plan and manage to the program baseline, impacting program cost and schedule performance.

QUESTIONS SUBMITTED BY MR. SESTAK

Mr. SESTAK. Is the money to equip these six new brigade combat teams with ground programs already in the budget?

Secretary BOLTON. The Army has been given $68.9 billion from fiscal year 2008–2013 (FY08–FY13) for growth of the Army. In the FY08 President's budget, the Army requested $7.7 billion to begin to man, equip and train the growth of six infantry brigades and supporting forces.

Mr. SESTAK. When you say six new brigade combat teams, you will have other units that will have to be stood up to support them, and their equipment, and their personnel, correct?

Secretary BOLTON. The Army will increase its end strength by 74.2 K across all components by 2013. The growth of six brigade combat team (BCT) increases the BCT pool to a total of 76 with associated enabling support capabilities. The growth will occur over time with the start of the first BCT in fiscal year 2008 and the remaining five between fiscal year 2009–2012. The Army will also grow multi-functional and functional support brigades increasing to approximately 225 support brigades across the force. The growth will allow the Army to increase its strategic and rotational depth, increase high demand/low density unit capability, mitigate combat support and combat service support shortfalls and improve unit dwell periods for all components. Growth of the BCTs and support formations will require personnel and equipment above the Army's current levels to build these units.

QUESTIONS SUBMITTED BY MR. MEEK

Mr. MEEK. The JNN is the industry's response to a 2004 "urgent needs" statement from U.S. CentCom to provide communications capabilities better than the current MSE in Army units today. The requirement was met with commercial off-the-shelf-based equipment using a sole source contract. During briefings for the fiscal year 2007 Army budget request, the Army indicated that they had met the urgent needs requirements and intended to open up the remainder of the JNN contract to competition. Yet, later in the year, the Army acquired the next lot (lot 9) of the JNN purchase through another sole source contract. This means that more than $1.3B worth of JNN has been acquired through sole source contracts. There are concerns that the Army will continue to use a sole source contract to acquire commercial technology when, in fad, a competitive contract will result in a less costly, more technologically advanced product. Why does the Army continue to procure the JNN platform through a sole source arrangement when the JNN is not a program of record and can be acquired from multiple vendors?

Secretary BOLTON. To date the Army has acquired the Joint Network Node-Network (JNN-N) under urgent and compelling circumstances under 10 U.S.C. § 2304(c)(2) and FAR 6.302–2. Only one source has been able to meet the production line and delivery requirements of deploying units. The JNN-N program is currently in the process of becoming a formal program of record. The Army is working with the Office of the Secretary of Defense Staff to finalize all required documentation. The program is fully funded in the Army's 2008–2013 Program Objective Memorandum and is scheduled for the Defense Acquisition Board on May 14, 2007, for a Milestone C decision. The program office released a competitive Request for Proposal on 16 March 2007, proposal receipt date of 16 April has past and the program office is currently evaluating responses for an anticipated August 2007 award.

Mr. MEEK. What is the Army's rationale for the sole source justification and approval documentation?

Secretary BOLTON. The Joint Network Node-Network (JNN-N) has been acquired pursuant to unusual and compelling urgency under 10 U.S.C. § 2304(c)(2) and FAR 6.302–2. Only one source has been able to meet the production and delivery requirements of deploying units. The excerpt below is taken directly from one of the justification and approval documents which explains the unusual and compelling circumstances.

"d. Unusual and Compelling Urgency: On 28 July 2006, the Deputy Chief of Staff of the Army G–3/5/7, identified an urgent requirement for JNN Network Lot 9 to meet classical unit deployments in support of OIF and the GWOT. JNN Network Lot 9 is designated as the equipment needed to support the following units: 40th Integrated Theater Signal Battalion (ITSB), 44th ITSB, 1st Infantry Division (ID), 12th Combat Aviation Brigade (CAB) and 214th Fire Brigade (FB), 392nd ITSB, 327th ITSB, 72nd ITSB, 504th ITSB, 1st Corps Support Battalion (CSB) Mission Essential (ME), 34th CAB, 504th Battlefield Surveillance Brigade (BfSB), 1st Armored Division (AD) HQ, 17th FB, 18th FB, 16th Sustainment Brigade (SB), 2/1 Brigade Combat Team (BCT), 2ID HQ, 1/2 BCT, 210 FB, 501st SB, 2ID CAB, 501st BfSB and 304th ITSB. The deploying units must be fully trained on this communications equipment to ensure their ability to effectively employ it in combat conditions. Consequently, delivery of this equipment must commence by September 2006 in order to be available to provide necessary training time during October 2006. Failure to acquire this equipment and associated support will reduce Warfighter voice, data, and video networking capabilities. These reduced capabilities will impact the ability of Field Grade Commanders to provide critically required C4ISR. Failure to provide this equipment and support services will significantly impact the ability to support OIF and the GWOT, thereby jeopardizing successful mission accomplishment. This would increase the risk of serious injury or loss of life to Warfighters."

Mr. MEEK. Competing the JNN platform will likely lead to the submission of proposals for JNN solutions that exceed the current capability and technical requirements for JNN. In fact it is quite likely that a JNN competition could result platforms with WIN-T-like capabilities. Does the Army view a JNN competition as a threat to the current WIN-T program? Won't the Army realize considerable savings from a competition?

Secretary BOLTON. While we do not know what Joint Network Node-Network (JNN-N) solutions will be proposed as a result of the ongoing competition, we do not believe this will threaten the WIN-T program. JNN-N is a product we are fielding to meet today's requirements with mostly commercial-off-the-shelf equipment. It does not, and will not, provide the required capabilities of WIN-T. At this time we do not know if there will be a cost savings due to the competition.

QUESTIONS SUBMITTED BY MS. CASTOR

Ms. CASTOR. If MRAP is a top priority, why is it on the Unfunded Requirement (UFR) list?

Secretary BOLTON and Dr. FINLEY. There were many competing priorities in the FY08 budget. At the time of the budget submission, the Mine Resistant Ambush Protection (MRAP) vehicle quantities, department wide, were still maturing. The Department continues to take actions to adjust the MRAP acquisition plans to provide this enhanced crew protection capability to our troops as rapidly as possible. Subsequent to the date of the hearing the Secretary of Defense identified MRAP as the highest priority Department of Defense acquisition program and established an MRAP Task Force with Mr. John Young as its Chair. The Task Force is identifying and implementing options to accelerate the production and fielding of this capability to the theater. The Department has reprogrammed $1.2 billion of FY07 funds to procure additional MRAP vehicles and plans amendments to the FY08 Supplemental budget request to accommodate additional MRAP requirements.

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