[H.A.S.C. No. 110–54]

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 UNMANNED AERIAL VEHICLES (UAV) AND INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (ISR) CAPABILITIES

HEARING HELD
APRIL 19, 2007

U.S. GOVERNMENT PRINTING OFFICE

43–667 WASHINGTON : 2009

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2104 Mail: Stop IDCC, Washington, DC 20402–0001

AIR AND LAND FORCES SUBCOMMITTEE

NEIL ABERCROMBIE, Hawaii, *Chairman*

JOHN SPRATT, South Carolina
SOLOMON P. ORTIZ, Texas
SILVESTRE REYES, Texas
ADAM SMITH, Washington
MIKE McINTYRE, North Carolina
ELLEN O. TAUSCHER, California
ROBERT A. BRADY, Pennsylvania
JIM MARSHALL, Georgia
DAN BOREN, Oklahoma
HANK JOHNSON, Georgia
JOE SESTAK, Pennsylvania
GABRIELLE GIFFORDS, Arizona
KENDRICK B. MEEK, Florida
KATHY CASTOR, Florida

JIM SAXTON, New Jersey
HOWARD P. "BUCK" McKEON, California
JEFF MILLER, Florida
JOE WILSON, South Carolina
FRANK A. LoBIONDO, New Jersey
TOM COLE, Oklahoma
ROB BISHOP, Utah
MICHAEL TURNER, Ohio
PHIL GINGREY, Georgia
CATHY McMORRIS RODGERS, Washington
GEOFF DAVIS, Kentucky
W. TODD AKIN, Missouri
DOUG LAMBORN, Colorado

DOUG ROACH, *Professional Staff Member*
LYNN WILLIAMS, *Professional Staff Member*
BEN KOHR, *Staff Assistant*

CONTENTS

CHRONOLOGICAL LIST OF HEARINGS

2007

Page

HEARING:

Thursday, April 19, 2007, Fiscal Year 2008 National Defense Authorization Act—Budget Request on Unmanned Aerial Vehicles (UAV) and Intelligence, Surveillance, and Reconnaissance (ISR) Capabilities 1

APPENDIX:

Thursday, April 19, 2007 43

THURSDAY, APRIL 19, 2007

FISCAL YEAR 2008 NATIONAL DEFENSE AUTHORIZATION ACT—BUDGET REQUEST ON UNMANNED AERIAL VEHICLES (UAV) AND INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (ISR) CAPABILITIES

STATEMENTS PRESENTED BY MEMBERS OF CONGRESS

Abercrombie, Hon. Neil, a Representative from Hawaii, Chairman, Air and Land Forces Subcommittee 1

Saxton, Hon. Jim, a Representative from New Jersey, Ranking Member, Air and Land Forces Subcommittee 3

WITNESSES

Alles, Brig. Gen. Randolph D., Commanding General, Marine Corps Warfighting Lab, U.S. Marine Corps 27

Clingan, Rear Adm. Bruce W., Deputy Chief of Naval Operations, Deputy Director, Air Warfare, U.S. Navy 26

D'Agostino, Davi M., Director, Defense Capabilities and Management Issues, Government Accountability Office; Sharon L. Pickup, Director, Defense Capabilities and Management Issues, Government Accountability Office; and Michael J. Sullivan, Director, Acquisition and Sourcing Management Issues, Government Accountability Office 4

Davis, Brig. Gen. Walt, Commander, Joint Unmanned Aircraft Systems Center of Excellence, U.S. Army 24

Deptula, Lt. Gen. David A., Deputy Chief of Staff for Intelligence, Surveillance, and Reconnaissance, U.S. Air Force 24

Landon, John R., Deputy Assistant Secretary of Defense for Command, Control, Communication, Intelligence, Surveillance, Reconnaissance and Information Technology Acquisition (C3ISR & IT Acquisition), Office of the Secretary of Defense 23

Sorenson, Maj. Gen. Jeffrey A., Deputy for Acquisition and Systems Management, Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology, U.S. Army 25

APPENDIX

PREPARED STATEMENTS:

Alles, Brig. Gen. Randolph D. 135

Page

PREPARED STATEMENTS—Continued

Clingan, Rear Adm. Bruce W. 125
D'Agostino, Davi M., joint with Sharon L. Pickup and Michael J. Sullivan 47
Davis, Brig. Gen. Walt 83
Deptula, Lt. Gen. David A. 90
Landon, John R. 74
Sorenson, Maj. Gen. Jeffrey A. 108

DOCUMENTS SUBMITTED FOR THE RECORD:

[There were no Documents submitted.]

QUESTIONS AND ANSWERS SUBMITTED FOR THE RECORD:

Mr. Abercrombie 145

FISCAL YEAR 2008 NATIONAL DEFENSE AUTHORIZATION ACT—BUDGET REQUEST ON UNMANNED AERIAL VEHICLES (UAV) AND INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (ISR) CAPABILITIES

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
AIR AND LAND FORCES SUBCOMMITTEE,
Washington, DC, Thursday, April 19, 2007.

The subcommittee met, pursuant to call, at 10:03 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. Aloha. Good morning, everyone. Thanks for being here today.

We have some pretty extensive testimony. Two panels, so we will get right to it.

I would like to make an opening statement and then defer to my good friend and compatriot here on the subcommittee, Mr. Saxton, Jim Saxton, from New Jersey.

The Air and Land Forces Subcommittee meets today to receive testimony from the Government Accountability Office (GAO) and the Department of Defense (DOD) witnesses regarding intelligence, surveillance and reconnaissance programs and policies, ISR, intelligence, surveillance and reconnaissance programs.

They include the spectrum of manned and unmanned vehicles, from very small unmanned vehicles that weigh less than a pound, to a variety of Unmanned Aerial Vehicles (UAVs) and manned aircraft programs, to multi-billion-dollar, highly classified, satellites. Some ISR programs, like the satellite programs and the U–2 aircraft, fall within the jurisdiction of other subcommittees.

ISR program systems incorporate various sensor payloads, including electro-optical, radar, electronic and infrared, as well as ground stations, data links and users that include the immediate needs of the warfighter to intelligence analysts.

Let me say parenthetically, it is not that I believe that the panel members don't know most of these things, but this is a public meeting for the record and I want to make sure that everyone, including the panelists, at least have the same basic foundation for a start and also, of course, to inform the public.

Please don't think I am patronizing you in any way by this opening statement. I don't know about Mr. Saxton, but that is not my intent.

Further, ISR policies and acquisition programs involve major involvement by a variety of organizations, including all the military services, the combatant commands and the intelligence agencies, all 5 million of them, the Defense Advanced Research Projects Agency (DARPA), and more recently, the Joint Improvised Explosive Device Defeat Organization (JIEDDO).

There is concern as to whether an organization exists within the Department of Defense with sufficient information across the spectrum of ISR programs with the authority to properly direct resources and avoid wasteful, uncoordinated expenditure of resources. That is probably a key element in all of this.

Parenthetically here, we have been going over all of the various programs just dealing with improvised explosive devices (IEDs), for example. I think we stopped at 130, one hundred and thirty, last night. Programs, approaches, suggestions, methodologies and so on. And that is just within one particular bailiwick of the 5 million intelligence agencies.

So it is not so much that it gets complicated. It is overwhelming and detailed to the point that you lose the perspective about where you are going and why. And most clearly, at least to me, is the question of who is in charge, where is the authority, who can make decisions in an expeditious way, that we can manifest in our deliberations here in the Congress.

A U.S. Strategic Command senior study group tasked to review ISR programs recently concluded that there is no authoritative ISR baseline to determine requirements. The GAO indicates that the Department of Defense's ISR roadmap, required by Congress in 2004 and published in 2005 and again in early 2007, does not identify future requirements, does not identify funding priorities and lacks a means of measuring progress in meeting requirements.

Again, parenthetically, as you know, if that happens, then the Congress is going to step in, and you know how insightful that is going to be.

While DOD has made some progress in coordinating the acquisition of some ISR systems, significant progress needs to be made as ISR programs continue to proliferate.

As examples: the Joint Improvised Explosive Device Defeat Organization alone includes a budget request of $4.5 billion for 130 ISR projects that I just mentioned; the Army has 18 UAV ISR science and technology projects, including 3 projects investigating flapping-wing UAVs; the Army and Navy, less than 2 years ago canceled a $900 million development program for joint Aerial Common Sensor (ACS) aircraft and sensors because of an estimated doubling of cost and an estimated 2-year slip. That program has now been slipped five years, and the Navy and Army intend to each acquire their own system.

The Air Force believes that there is an unnecessary duplication of UAV program acquisition offices, training operations, logistics and maintenance operations and intelligence support facilities.

Even though Central Command and all of the other combatant commands have their own joint intelligence center, the Joint Improvised Explosive Defeat Organization has created its own with 600 people and 200 contractor personnel. The Subcommittee's challenge is to attempt to understand this vast variety of programs and

projects across the spectrum of the Department and to deal with it. And I assure you, we will deal with it in this Congress from this subcommittee. Recommendations will be forthcoming.

So we look forward to hearing from all our witnesses on these and other important issues.

With that, I will conclude my statement. And as I said at the beginning, defer to my good friend and colleague and I might say my mentor on this subcommittee, the Honorable Jim Saxton.

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

Mr. SAXTON. Mr. Chairman, thank you, Mr. Chairman.

I would like to associate myself with the words of your opening statement. And let me just say very, very briefly, we have had the opportunity to view ISR capability that has emerged as a result of the new threats that exist today. As we move from the Cold War era and the threat that we faced there into the new era of asymmetric threat, it was necessary for us to develop some new capabilities. And without being specific about those new capabilities in this setting, we have done that.

The question today is whether our new capabilities are organized in a way that give us the best bang for the buck. Or is there a way that they should be organized that does enhance our capabilities in two ways. One, to use the assets that exist today and, second, to be sure that we are in a position to best develop capabilities for the future.

So that is what to me this hearing is about today and I look forward to hearing from both panels.

And, Mr. Chairman, with that I will yield back the balance of my time.

Mr. ABERCROMBIE. Thank you very much, Jim.

Let us go forward then with the GAO panel, panel number one. I am going to read in order, and if you could speak in the order that I read it, I think it would be most useful for us.

Ms. Davi D'Agostino, who is the Director of Defense Capabilities and Management issues; Ms. Sharon Pickup, Director of Defense Capabilities and Management issues; Mr. Michael Sullivan, Director of Acquisition and Sourcing Management issues.

Without objection, all the witnesses' prepared testimony will be included in the hearing record. If you could summarize—I know you have heard this before, but if you could, it would be useful so that we can get into the meat of the hearing. We do have the testimony. We have gone over the testimony, and I think you will find questions and observations from the members will reflect that they are familiar with the material.

Ms. D'Agostino, please.

STATEMENT OF DAVI M. D'AGOSTINO, DIRECTOR, DEFENSE CAPABILITIES AND MANAGEMENT ISSUES, GOVERNMENT ACCOUNTABILITY OFFICE; SHARON L. PICKUP, DIRECTOR, DEFENSE CAPABILITIES AND MANAGEMENT ISSUES, GOVERNMENT ACCOUNTABILITY OFFICE; AND MICHAEL J. SULLIVAN, DIRECTOR, ACQUISITION AND SOURCING MANAGEMENT ISSUES, GOVERNMENT ACCOUNTABILITY OFFICE

STATEMENT OF DAVI M. D'AGOSTINO

Ms. D'AGOSTINO. Thank you. We do have one combined statement to provide orally for the record.

Mr. ABERCROMBIE. Thank you.

Ms. D'AGOSTINO. Thank you.

Mr. Chairman and members of the subcommittee, we are pleased to be here before you this morning to discuss GAO's work for this subcommittee on the Department of Defense's management and acquisition of ISR assets, including unmanned aircraft systems.

As you know, the demand for all types of ISR assets, including manned and unmanned, airborne and space capabilities, has increased significantly as battlefield commanders at all levels have found them an important tool in conducting many types of military operations.

In a fiscally constrained environment, DOD plans substantial investments in ISR assets in the future to enable it to better meet requirements for expanded or new capabilities which makes it imperative that DOD have a sound approach.

We testified before this subcommittee last year on one component of DOD's ISR enterprise, unmanned aircraft systems. Both before and since then, DOD has taken some steps intended to enable it to take a more integrated approach to assessing future ISR requirements and established a new organization to help integrate and better allocate existing assets to improve support to combat operations.

We are currently doing work for the subcommittee on a number of issues related to DOD's plans for assessing ISR requirements for future systems, managing the ISR assets it already has and acquiring ISR systems, and we plan to issue reports to you later on this year.

Because our work is not complete at this time, today we will offer our preliminary observations on these matters to you.

Specifically, we will discuss our work to date on, one, the status of DOD initiatives aimed at improving the management and integration of ISR requirements and challenges the department faces in implementing the initiative; two, DOD's approach to managing existing ISR assets to support ongoing military operations; and, three, the status of selected ISR programs and development and the potential for synergies between them.

First, in reviewing DOD's efforts to look at its ISR assets across the enterprise, we noted that DOD has taken some actions intended to improve the assessment of ISR requirements for future systems across the department. These efforts, if implemented properly, could enable DOD to meet more of the growing demand for ISR capabilities more efficiently.

For example, in response to the statutory requirement, as you mentioned, Mr. Chairman, DOD has developed and is updating an ISR integration roadmap. The roadmap is noteworthy in that it sets out some strategic goals and objectives for DOD's ISR enterprise and it does catalog all systems in development.

Also, as you noted in your opening statement, Mr. Chairman, our preliminary work shows that the roadmap does not yet identify future requirements, identify funding priorities or have ways to measure progress toward strategic goals for the ISR enterprise. Also, importantly, the roadmap does not yet define requirements for global persistent surveillance, clarify what ISR requirements are already filled or possibly saturated or specific gaps or otherwise represent an architecture of what the ISR enterprise is to be.

In another recent initiative, DOD designated ISR as a test case for its joint capability portfolio management concept. The test case is to explore whether managing groups of ISR capabilities across DOD versus on a service or individual system basis will enable interoperability of future systems and reduce redundancies and gaps. The concept is only about one year old, so it is too early to tell how successfully it will be implemented.

Currently, the portfolio managers are in an advisory role and can comment on the military services ISR plans but cannot direct changes. The Department has not yet assessed the test cases and come to a position on whether the managers need more authority to direct service plans.

Turning to our review of DOD's approach of managing its existing ISR assets, including unmanned aircraft systems, our ongoing work indicates DOD lacks adequate visibility to optimize the use of those assets and metrics to evaluate their performance. Specifically, greater visibility is needed in both allocating existing assets to combatant commanders and tasking these assets during ongoing operations.

With regard to allocation, the U.S. Strategic Command is charged with recommending to the Secretary of Defense how best to allocate on an annual basis DOD ISR assets to combatant commanders. However, our work suggests that Strategic Command does not have all the information it needs to insure it is leveraging all available ISR capability in making its allocation decisions. While it has visibility into about 80 or 90 percent of DOD's assets, it does not have complete information on national-level and allied assets. As a result, its allocation decisions consider only a portion of the available capabilities.

To its credit, Strategic Command is working to take steps to gain greater visibility.

With regard to tasking or assigning ISR assets to specific missions during ongoing operations, DOD's current approach again does not provide sufficient information and, therefore, visibility on how ISR assets at all levels are being used. Specifically, while the commander responsible for planning, coordinating and monitoring joint air operations has information on how the ISR assets supporting theater-level requirements are being used, the commander does not currently have information on how tactical ISR assets or those embedded in individual units are being used, nor do indi-

vidual units have information on how theater-level assets and tactical assets in other units are being used.

As a result, DOD is limited in its ability to fully leverage and optimize the capabilities of all available ISR assets in a way that assures operational needs are addressed in the most efficient and effective manner.

Our work also indicates DOD lacks metrics and feedback for systematically tracking the effectiveness of its ISR missions. DOD currently assesses its ISR missions with limited quantitative metrics, such as the number of targets plans versus the number collected, but it has made only limited progress in developing qualitative metrics that would help the department better understand the intelligence collected and how it helps accomplish the mission. Also, it does not have a fully developed mechanism for getting feedback directly from the supported units.

Without better visibility and performance evaluation, DOD cannot evaluate the true demand for ISR assets, determine whether it is allocating and tasking them in the most effective manner or insure that it is acquiring new systems that best support the warfighting needs.

Finally, turning to our review of 13 ISR systems currently in development, we assessed the potential for synergies between them and identified some programs where program managers and services are working together to gain efficiencies. We also identified cases where less collaborative efforts could lead to more costly and redundant stovepipe solutions. For example, we found additional opportunities for synergies in cases such as Global Hawk and Broad Area Maritime Surveillance.

Also, of the 13 airborne ISR programs we reviewed, most have encountered either cost growth or schedule delays. These problems are typically the result of not following a knowledge-based approach as called for in Defense policy. In some cases, the resultant delay in delivering new capability to the warfighter has led to unplanned investments to keep legacy systems relevant and operational until the new capability is finally delivered.

DOD recognized in its quadrennial defense review it needs to develop a more flexible and responsive set of ISR capabilities to support the joint warfight across the department. Steps taken thus far to integrate requirements are positive developments, but they are new and there are some limitations. In the future, we hope that DOD will continue to focus on developing a more comprehensive, integrated approach to identifying future requirements and managing currently available assets as well as taking advantage of synergies to be gained in developing new or expanded systems.

This concludes our oral statement. And we are happy to answer any questions you may have.

[The joint prepared statement of Ms. D'Agostino, Ms. Pickup and Mr. Sullivan can be found in the Appendix on page 47.]

Mr. ABERCROMBIE. Thank you. That was really an excellent summary. Not a word wasted in it. Thank you very much.

Mr. Sullivan, you don't lack for work, do you? I see you all the time in here.

Mr. SULLIVAN. Support role today, sir.

Mr. ABERCROMBIE. Okay, very good. Do you ever get to go home?

Mr. SULLIVAN. Sometimes.

Mr. ABERCROMBIE. Okay. Good for you. We appreciate it. Thank you very much.

Mr. SULLIVAN. Thank you.

Mr. ABERCROMBIE. I will go to Mr. Saxton for questions. I will defer mine and go to Mr. Saxton as ranking member, and then we will take it in order, alternating by seniority today.

Mr. SAXTON. Thank you, Mr. Chairman.

Ms. D'Agostino, the majority, I would say, of experience that we have had with UAVs has obviously been in Iraq. And I am told that you have been there to view for yourself—yes?—to view for yourself——

Ms. D'AGOSTINO. Ms. Pickup's team has been there.

Mr. SAXTON. Okay.

So I guess my question is this: What have we learned from our experience in Iraq about the use of UAVs? How successfully have we been able to gather information using UAVs? And in your opinion, have the changes that have been made in how we are organized to use them been helpful?

Ms. PICKUP. Well, sir, appreciate your question.

We haven't actually been to Iraq, but my team has more importantly been to the combined Air Operations Center in Qatar, which, you know, from which the commander responsible for planning and coordinating the air operations resides.

And so, you know, we were actually able to talk to the knowledgeable folks and actually witness the planning, management and execution of ISR support to the ground. And while they were there, they were also able to talk to some operational commanders in Iraq and Afghanistan.

And as you mentioned, I don't think anyone can dispute the operational success of the unmanned systems. And, you know, there is anecdote after anecdote in terms of how well they are being used, and I think that is also evidenced in the increasing demand by our respective combatant commands. And you see that in the funding requests that the chairman mentioned.

In terms of our view on management, we do think some improvements are needed and as Ms. D'Agostino mentioned in the oral summary, it is all about the visibility and how much information the air component commander has in terms of the actual ISR capabilities that reside in theater.

And while the air component commander has very good information at theater level for assets such as the Predator, in terms of where they are, how they are operating, what they have been tasked against and what the specific mission that they have been assigned to perform is, the commander doesn't have the same level of fidelity for assets that are embedded into individual units, for example the Army's Hunter.

That is not to say from an airspace integration and air traffic control perspective that the air component commander doesn't know where the assets are or the zones in which they are operating, but it is more in terms of the missions that they have been assigned to and how well they are performing and, you know, while some level of duplication is necessary, we have heard some anec-

dotes of some inefficiencies where perhaps, you know, a unit was in contact.

They were able to procure a Hunter to come on the scene to help them collect intelligence. At the same time, they were trying to secure the use of Predator, and when the Predator arrived on the scene, the Hunter was there. So it just raised questions about efficiencies and employment of the capabilities.

Mr. SAXTON. My limited experience—well, first of all, we have seen all the briefings here, or many briefings here relative to capability the various platforms provide, but my one experience, of course, in Iraq led to a change in the way our capabilities were organized.

Whenever any of us go overseas and talk to military folks who are in an operational theater, one of the questions we say is, "What can we do to help you?"

And on one occasion, as we were associated with some special operations command people, commanders in a certain location in Iraq, we asked that question. And the commander said, "We need to have control of Predator. It is not working well for us to have to coordinate and depend on the current system," which as I understood it at the time was what I called the big Air Force controlling Predator, Special Operations Command (SOCOM) needed to control their own Predators.

Today that change has been made and I understand that SOCOM does control their own Predators and at a briefing as recent as about an hour and a half ago, they told us, that is SOCOM told us, that it is now working much better.

So I am wondering what that experience tells us in terms of how we should proceed to go forward.

Ms. PICKUP. Well, I think in terms of the actual management piece, you are exactly right. I mean, the special operations command is probably a special case in terms of the types of missions they perform and their own funding line and in the case of what I just spoke to, the air component commander doesn't always have full visibility on what the special operations command assets are doing, because of the nature of their mission. But from an airspace integration standpoint, they have a general sense of where the assets are operating.

In terms of the issue of operational control, you know, I think that regardless of whether they are controlled by a special operations unit, they are controlled by the air component commander or they are controlled by an individual army unit per se, what we think is important is that the DOD has a mechanism whereby everybody is aware of what capabilities exist so that if you do want to do some dynamic tasking in a realtime situation, that you can do that.

Mr. SAXTON. Thank you.

Let me just ask you one other quick question, because I don't want to overextend my welcome here in terms of the chairman's latitude with time.

Going forward, I understand there are some issues that had to do with bandwidth problems in the employment of UAV assets, particularly in Iraq. Would you speak to that, just briefly?

Ms. PICKUP. Well, I think this is not, obviously, a new problem. It has been the case for a long time. And I think that the growing numbers of assets in theater is adding to the congestion.

I mean, I think one of the things that we have noticed in our work is the criticality of advances coordination. And one of the things that we have found is that while Central Command (CENTCOM) has some procedures for advanced coordination, that there is some, you know limited awareness on the part of the services. So we have seen some cases where assets might get into theater and then you have to deal with where do we base them or, you know, the frequency congestion issue.

So our thought is there needs to probably be some more done in the way of guidance and communication strategy. That is not to say that things—that the instances we have seen showed up sight unseen, but there could have been some more advanced coordination.

Mr. SAXTON. Have we reached a saturation point in theater, where this has become a real problem?

Ms. PICKUP. I can't definitively say that we have reached a saturation point, but I would say that from the anecdotes that we have heard, that we are getting pretty close. And that, you know, from the standpoint of, you know, it is really important to maximize the capabilities that you have and to make sure that you have good information and you are getting a good return on investment in the way that you employ them, but I can't specifically say that we have reached the saturation point. But I think that there needs to be a hard look at how the capabilities are being used.

Mr. SAXTON. Thank you very much.

Mr. Chairman, I yield back the—whatever.

Mr. ABERCROMBIE. Thank you.

Before I go to Mr. Reyes, I inadvertently neglected in my opening statement to pay tribute and give thanks, my personal thanks, to my predecessor as chairman of this subcommittee, Mr. Weldon, Curt Weldon.

I personally would not even remotely have the background and such information irrespective as I do had it not been for the efforts of Mr. Weldon when he was chairman to pursue this, all of the issues associated with the hearing today, and to recognize, I think, almost before anybody else, what the possibilities were for unmanned aerial vehicles were, both in terms of variety, of mission capability and what would be involved logistically in accomplishing it and, more importantly for us, legislatively. And I think he did form a foundation for the committee, the legacy of which is going to be well-served, I hope, by the decisions this subcommittee makes.

Mr. Reyes.

Mr. REYES. Thank you, Mr. Chairman.

Thank you all for being here this morning.

I was curious in following up Congressman Saxton's line of questioning. In the context of, when you mention metrics and the ability to be able to have a good accounting of the effectiveness of ISR, what is the difficulty in doing that? What has DOD said about their ability to provide that kind of information? Or is that kind of, I guess, accountability?

Ms. PICKUP. I think this is probably true in the case of any type of, you know, metric that you are trying to develop. It is always easier to develop the quantitative metrics, you know, the number of missions flown, number of targets, those kinds of things. With unmanned systems and from an intel perspective, you know, what is really important is the more qualitative type of metrics that actually tells you how well the mission performed by the ISR assets achieved the commander's objective, so to speak. And how the intelligence collected helped accomplish the mission.

And while I think the department is further ahead on the quantitative piece, it is the qualitative piece that the strategic commands and the services and the combatant commanders are wrestling with right now. But it is exactly how to measure the impact on unmanned systems and other ISR assets.

Mr. REYES. Are you in a position, or did you offer any recommendations or solutions as to how we could do that or how they could do that?

Ms. PICKUP. As Ms. D'Agostino mentioned, we are in the process of, you know, compiling our preliminary observations and we are, you know, very much continuing to evaluate what progress has been made to date.

Mr. REYES. So your answer——

Ms. PICKUP. In terms of us recommending specific metrics, no, we have not recommended specific metrics.

Mr. REYES. Will you? You know, it is well and good to point out that there is a problem, but I think all of us on the committee would appreciate having the benefit of the research that you have done and the study that you have completed, what some potential recommendations might be. Will you be making those recommendations?

Ms. PICKUP. I think we could be in a position to describe, you know, some examples of the types of qualitative information you might need.

Mr. REYES. Is it that this issue, because of its complexity or maybe the technicality of benefit to utilization or whatever the formula is that you have looked at, is it one that is difficult to do or impossible to do? Where does it fit in that range?

Ms. PICKUP. I would say it is difficult. It is difficult to do because you don't always know the specific impact of a particular asset. And that you have a lot of capabilities brought to bear in terms of, you know, specific missions. So isolating the exact contribution of an individual asset can be difficult because you can't look at it in a vacuum.

Mr. REYES. I have had the opportunity to be in Iraq 7 times and Afghanistan 15 or so times. In fact, a couple of weeks ago I was in Afghanistan and actually got to see one of the operations by the Predator and carried out by special operations people. So I think a number of us have seen that and know and understand just how effective it is. That is why I find it difficult to understand why we can't provide a way of measuring the effectiveness.

Ms. PICKUP. Right. I mean, I think that what we have seen in our travels, so to speak, is a lot of anecdotes and, you know, some very specific examples of how the units felt that the Predator, for example, helped. But in terms of, you know, getting a broader

trend analysis and those kinds of things, I just don't think that the department is there yet in terms of compiling on a more comprehensive basis some of that anecdotal information.

Mr. REYES. The only other question I was going to ask, because we are concerned with the numbers, is does the Air Force have sufficient Predators based on what you have seen to date.

Ms. PICKUP. We have not evaluated the specific, you know, basis for the Air Force's request. What I will say, and I will bring it back to the chairman's opening statement, is that we feel that there needs to be some more transparency in terms of all the services' funding requests in terms of how it relates to an investment strategy and strategic plan.

And in terms of the supply-demand issue, which I think is what you are alluding to, is that we have seen information that suggests that the combatant commanders would like more assets, including Predator, to meet their needs, but I think we feel until they have a good mechanism for evaluating the performance, they can also show how all these different programs interrelate and, you know, including how they derive the numbers and, as I am sure Mr. Sullivan could talk about, how they have tried to get some synergy in their acquisition strategies. I think it is difficult to know exactly what the needs are.

Mr. ABERCROMBIE. Thank you.

Ms. Pickup, before I go to Mr. Turner, I want to follow up a little bit on this. I appreciate what you are saying, and I appreciate your rectitude and I would say your usefully conservative attitude on this, particularly given the number of programs and all of the contingencies, if you will, associated with it.

But we have to make decisions, and my request to you would be—this committee will be working—by the end of the month we have to make decisions, this subcommittee. The full committee will be making decisions the first full week in May. I would appreciate it if you will—I am not expecting you to do our thinking for us. That is not the issue. But if you could maybe put some midnight oil together, not that you don't probably already, but I am talking in terms of a request.

Because, as you know, I and I think most members, if not all the members, of our committee, have great respect for your organization institutionally and great respect for the individuals that work in it.

I think in response to my reaction to Mr. Reyes' questions, we need to have such recommendations as you think you can usefully make, because otherwise I guarantee you I am going to make recommendations, and I understand the difference legislatively speaking between arbitrary and capricious. We will not make capricious recommendations, but we will make arbitrary ones. That is to say, we will make decisions based on what we think somebody can show us or a benchmark we think needs to be met, and if it gets met—that is what supplementary budgets are for.

If people can show that they can do something, then we can always add something in later, but we are going to make decisions here. The first lesson I learned as a legislator was people have wants and they have needs. I know what people want, but we are going to have to make decisions on what we think they need, and

that is what is going to come out of this subcommittee, what we think people need.

So if you could help us with that, I am not saying we are going to slavishly follow what you put forward, but if you can help give us a perspective as we move toward these arbitrary but necessary dates for ourselves, legislative dates that need to be met, we would be grateful.

Mr. Turner, I took in your time, so I am going to be generous with it. I appreciate it.

Mr. TURNER. Thank you, Mr. Chairman. I appreciate you holding this hearing and your interest and sincerity on this topic. Clearly there is a tremendous amount of work that can be done.

I want to thank the panel for the insight that they bring.

In reading the GAO report, it is a great 101 lesson on dividing up the issues that we face here. You do a great job in describing the use, data, the gap, how are these things working. We need to get beyond just anecdotal evidence and that can be used not only for determining how they are deployed and how they are managed, but for developing legacy systems or even additional systems. Do we really know that what we have is doing what we believe it is and where are the gaps.

Second, the topic that certainly Mr. Saxton spoke of, which is the management of these assets. Well, what happens—you know, who is in charge of them.

And the third is the one that really interests me, is the issue of development of these assets. And I read on Page 17, as part of your report, which is a fascinating description of the development of the Warrior with the Predator being a legacy system. And I have a few questions that are not stated in this report and maybe the answers aren't as clear, so if you can't assist me in answers, I understand.

But starting on Page 17, basically it states that the Air Force has the legacy system of the Predator, which has been operational since 1995; that the Army, in 2001, began to develop the Warrior system. And it states right here, "The Army did not explore potential synergies and efficiencies with the Air Force program," which had been in existence before.

The Army declared it an urgent need of the battlefield and they awarded a separate contract to the same contractor producing the Predator.

Now, the Quadrennial Defense Review (QDR) indicates that we should consider all working together. And obviously this is a huge illustration or where we missed an opportunity to leverage our knowledge if we have people who are not working together, communicating together.

And this footnote that you have here, "The Army asserted that its need was urgent and it could not get sufficient report from Predator because of the systems limited assets."

And, jeez, it just seems odd to have a system, to declare that it has limited assets, then there be an urgent need, and for the answer be let us start from square one instead of start from square Predator, working with those who have knowledge and expertise in it.

So I want to know, if you know, because it is not in the report, how did this come about? How is it that one branch of the military

can just declare something as an urgent need and undertake its own program? Because I would liken it to, if we were sitting here in this hearing and we were looking at, you know, tanks or armed vehicles, and the Air Force declares that the Army's vehicles are not suitable for protecting its planes on the ramp and therefore they immediately undertook the development of their own tank system or armed vehicle system separate from any of the systems that the Air Force has.

Can you explain to me, organizationally, how does that work?

Mr. SULLIVAN. Yes, sir.

In this situation, where we have—actually the Air Force has the Predator and then they have something else, kind of a variation on the Predator, called the Reaper as well, which is a bigger, stronger kind of a Predator.

The Army identified needs, I think some needs that fit well with what the Predator could do, but they had obviously some unique needs to the Army, and began just as you stated and as we have in our statement, they began a separate program.

Now I think currently that is still being arbitrated and eventually the Department of Defense and the acquisition technology and the logistics and Joint Staff and a bunch of other people have to weigh in on this.

Right now, there is pressure on both the Air Force and the Army to look for synergies and combine that program to the extent that they can, and they are working on that. The progress with that has not been very good.

Mr. TURNER. Let me get back to the—is it because UAVs are relatively new that there is not a clear statement of who has responsibility and how these are to be managed?

Because I would think that if we were sitting here talking about a tank, for example, and the Air Force suddenly decided to develop its own tank, we would have all expected the issue to be a little more clear.

Is that the issue? Or is this something that each of the branches, regardless of the system, if they can justify, can move forward?

Mr. SULLIVAN. I would say that this is a longstanding problem in the acquisition process that we have. It is not unique at all to UAVs.

In fact, if there is a need for a tank, there might be another division within the Army that would say armor could do it or helicopters could do it, or that need or that threat could be met by many different things and those programs often times start up separately, all defeating the same threat. So I don't think it is unique to UAVs at all. It is the stovepipe nature of our services, I think. The parochialism, if you will.

They all have their own tactics and doctrine for fighting wars and their own material needs. That is why a lot of the things—we touch on it in this written statement, but we have said it elsewhere. And in fact, the Department of Defense, in fact, in a report that they have recently issued, in February, I think, in response to Section 804 of last year's Authorization Act, they have a lot of initiatives going on right now to try to pull these types of problems that you just stated, where there are two different programs basically meeting the same need, up out of the stovepipes, if you will,

look at it in a more functional, capability-based way, you know, that is what the requirements process is now supposed to do.

That has been defined on paper, anyway, as joint capabilities, functional capability boards, looking at these things as opposed to the services. And then making decisions on what they call the big A, you know, big acquisition decisions, where you develop a portfolio of programs that are going to be the proper mix, so you are not building redundant programs.

That should be done, I believe, by the Under Secretary of Defense for Acquisition and Technology getting together with the Joint Chiefs and the Comptroller, for that matter, so you can constrain it with resources as well, at a corporate level, if you will, so that the warfighters are not making these kind of parochial decisions.

They are tying to do that right now with, you know, the Warrior-Predator situation is in flux. There is a lot of friction there now to try to get that to be more of a joint program, to try to get the synergies that, as you state, they should be able to get from something like that. But there is resistance.

Mr. TURNER. Mr. Chairman, I want to thank you, and them, because on Page 17 that distribution really does show how we have lost opportunities and lost hours.

Mr. SULLIVAN. Yes, sir, I agree with you.

Mr. TURNER. So thank you for the manner in which you presented that.

Mr. ABERCROMBIE. Thank you, Mr. Turner.

Representative Sestak.

Mr. SESTAK. Thank you.

I just wanted to ask a question about the comment you made about stovepiping and how this is not unique. I mean, I think the services have wonderful ways they grow their officers in not a parochial way but a service-oriented way, or else you wouldn't get a great officer like Dave Deptula coming up through the services.

On the other hand, I have been quite taken by the need to define requirements, understand what the right funding priorities are, and then to have the mechanism by which you can expect what you inspect, so to speak, and follow up.

The challenge, it seems to me, is that we have moved into a word of jointness and the Joint Staff has set up a requirements mechanism. They do it in J8.

But is it time we took it to the next step, the funding, which is the power in the joint world, for a truly a joint warfare area, global persistent surveillance—more the networks that permit that picture to be viewed by everyone?

Mr. SULLIVAN. Yes, sir. In fact, we recently did a study looking at the commercial world to see how big enterprises, vast enterprises, far flung assets and resources, do their strategic planning, meet their needs, and what points and how well they constrain their needs by funding.

And what we found is at the very beginning, way sooner than what we see in the Department of Defense, the funding and the requirement-setting processes, if you will, are integrated, and they are integrated at a very high level. There is usually a point of au-

thority above the product lines or whatever eventually is going to execute the plan.

We call that a best practice. We went to a number of companies and saw that.

I would repeat that the Department of Defense understands that as well and is working on that. They have many initiatives. There really has been no results of this, but it is obvious that the department understands that in order to defeat the problems that they have had with the unhealthy competition that they get in programs that are under way, you know, because requirements—a program has to have environments better than the next one. The cost estimates are usually not very well-informed.

Mr. SESTAK. So, would you disagree that almost a Goldwater-Nichols II is needed in the acquisitions, in the budget world, in certain programs?

Mr. SULLIVAN. I think, in fact there is a report that the department has looked at closely in order to help in its transformation called beyond Goldwater-Nichols that was done by the Center for Strategic and International Studies (CSIS), I think, which has a lot of the ideas.

Something that would take a look at those kinds of ideas and maybe go forward with them in terms of organizing our requirements and funding processes better, yes, sir.

Mr. SESTAK. My only question is, I think we have heard of this issue for years.

Mr. SULLIVAN. Yes.

Mr. SESTAK. And it seems to me that the only thing that eventually resolves it is changing the process and the control of the dollars. So do you have any comments, either of you?

Ms. D'AGOSTINO. I think, following up on what Mr. Sullivan said, in terms of the ISR capability portfolio management test case that DOD has under way right now, this relatively new undertaking that they are doing that just began in September, they actually do have some experience with the fiscal year 2008 budget, where they did look across services et cetera and the portfolio managers in this case was the ISR Integration Council led by Under Secretary of Defense for Intelligence, that basically they did recommend some rebalancing in the portfolio.

And, again, while they weren't facing cuts and having to make very, very difficult recommendations, still we noted they had to elevate the disagreements with the services to the deputy secretary level because they do not have the authority to direct changes in the service plans, as I mentioned in the statement earlier.

But it does show a step in the right direction and DOD still hasn't assessed, you know, where they stand on the test cases yet, and they may consider giving more authority to the portfolio managers down the road. But this is an example of them trying to get a handle on this, and I think they are seriously trying to do so.

Mr. ABERCROMBIE. Thank you.

Ms. Miller.

Mrs. MILLER OF MICHIGAN. Thank you, Mr. Chairman.

I want to thank you for calling this hearing today. I just find the whole concept of the UAVs and everything such a fascinating thing and I think as technology is progressing, our ability to integrate it

into weaponry will make our military much stronger and lethal and I think it will keep our troops much safer.

In fact, my husband was a fighter pilot in another life, and I have had this conversation with him, telling him that the glory days of the fighter jocks are over with all of this new technology.

In fact, one of the aircraft that he flew in Iceland is now on display at the Dayton Air Museum, not to date him. But that is what is going to happen with some of these different aircrafts.

Mr. ABERCROMBIE. Was his argument back to you that at least in those days he knew who was in charge? [Laughter.]

Mrs. MILLER OF MICHIGAN. Like the astronauts, right? [Laughter.]

At any rate, I think as we utilize the UAVs in theater, it is unfortunate that we are missing an opportunity not to have the proper measurements of some of the different things that are happening. I think your report is very, very interesting, sort of pointing out some of the disconnect, I suppose, of the different services and not sharing information perhaps as they could.

But let me ask this question, and perhaps it is more appropriate for the next panel, but let me ask anyway. I think that UAVs have a huge role to play as off-the-shelf hardware, so to speak, in the Department of Homeland Security (DHS), for border security, both northern border security and southern border security. I mean, there has been a lot of talk in this Congress and some votes about putting a fence up in different places, and obviously we are not going to do that all around our country, nor do we want to.

But having the UAVs integrated into the Department of Homeland Security as well is something I think is coming. And I am just wondering whether or not the GAO has done any studies about perhaps you be a conduit to make sure there is not a disconnect as the DHS begins to utilize those and integrate them into most probably the National Guard around the two borders.

Do you have any comment on that?

Ms. PICKUP. Well, we do have some work looking at national airspace integration issues in terms of unmanned systems and, you know, obviously what you are alluding to, in a Katrina-like situation, there was a lot of discussion about whether we could use unmanned systems in the initial stages to get a good sense as to what, you know, what the situation was and the extent of the damage.

And I can get you some specific information on the ongoing efforts that we have. But clearly it is——

Mrs. MILLER OF MICHIGAN. Well, I guess I just raised that point. We don't want the Department of Homeland Security to determine that they are going to go off on their own with something. We already, as I say, have off-the-shelf hardware that can be utilized for that.

I mean, you can go across Death Valley and know that you have got to have a UAV if you are really going to patrol that as optimally as we would like to. Or you can go along the northern border, or even where I am, up in Michigan with a very long, liquid border, et cetera.

I just think that the technology has huge applications for us from the Department of Homeland Security standpoint and maybe it is the next future add-on mission.

Mr. SULLIVAN. I think in terms of acquisitions, I know that the Department of Homeland Security, specifically the Coast Guard, is tapped in pretty well to what the Department of Defense programs have to offer now and, you know, the Coast Guard's Deepwater project, for example, I think borrows as much as possible in terms of commercial items and off-the-shelf-type things.

Ms. D'AGOSTINO. One of the issues that comes up in the use of UAVs domestically is air-worthiness issues. And the Federal Aviation Administration (FAA) has, you know, raised some concerns, as well as I think there are a lot of seams that are still to be worked out in the airspace and air domain from a homeland perspective. And there is an air domain strategy being worked, I think, by the administration, to try to hammer out. There is a huge Homeland Security Presidential Directive (HSPD), that directs an air domain strategy, among other things.

And I think that some of these problems and issues are being hashed out in that process.

Mrs. MILLER OF MICHIGAN. Thank you, Mr. Chairman.

Mr. ABERCROMBIE. Thank you very much.

Ms. Castor is next. Then she will be followed by Mr. Wilson, Mr. Marshall and then Mr. Bishop.

Ms. CASTOR. Thank you, Mr. Chairman.

Thank you to the panel very much.

In your report, you detail the trouble that the DOD has had with identifying future capabilities. They seem to be so focused on what is happening now and the technological development, that it has been difficult for them to focus on where to go from here.

Tell me, would you summarize what is happening, however, with identifying future capabilities? And where is that expressed? Is that an expressed authorization that has ever come from the Congress? Is it something that has been identified at the Joint Chiefs? Is there something in writing that makes that direction?

Ms. D'AGOSTINO. We talk a little bit about the ISR integration roadmap, where I think the Congress was trying to get to a common picture for the end-state envisioned for the ISR enterprise on the part of DOD.

And I think the folks in DOD that we have met with are aware that that would be the desirable thing to have, so that when new requirements or new proposals come in for new systems, there is something to assess them against, to see to what extent they fit in, are they filling a gap or are they proposing a system in a capabilities area that we already have plenty of coverage in.

And I think right now, without having that vision of end-state and with some technological parameters tied to it, DOD doesn't have a very good strong basis to see how new proposals are going to fit into the vision of the future.

I don't know if that helps you.

Ms. CASTOR. Where did that express direction to develop the ISR roadmap originate?

Ms. D'AGOSTINO. It was the Congress in the National Defense Authorization Act of 2004.

Ms. CASTOR. 2004. And no updating since that time?

Ms. D'AGOSTINO. They have updated the roadmap in January 2007, and it was updated more to reflect the latest in the Quadrennial Defense Review and some additional updates. I would not say it takes a major leap from the previous version.

Ms. CASTOR. And for updating of that roadmap, how do they seek the input of the combatant commands and the different services?

Ms. D'AGOSTINO. This roadmap actually catalogs all the systems in development and it is probably the only single place where you will find a handle, I would say a good handle, on all of the ISR capabilities, both existing and in development, as well as consideration toward the backend processing needs, which I think was expressed in some conference language in that same year by the committee's report.

Ms. CASTOR. And, for example, you detail some of the input Central Command and ISR—could you explain to me how, for example, the Central Command has input into the ISR roadmap?

Ms. PICKUP. Into the roadmap? I mean, in terms of the allocation of existing assets, all the combatant commands, on a yearly basis put in what they think their needs are for the existing assets.

In terms of the roadmap, it is done through the Joint Staff. It is also similar to, there is an unmanned systems roadmap and, you know, like a lot of things over at the department, it is a collective effort, so there are mechanisms set up to get the combatant commanders input, the services, the defense agencies, et cetera.

Mr. SULLIVAN. I might add that under JSIDS, the requirements generation process, if you will, I think the combatant commanders, they have what they call the Integrated Priority List, that I believe is kind of an ongoing list of priorities that combatant commanders are seeing to counter threats that they encounter in the field. And that gets cranked into the requirement setting process, these functional capability boards.

For example, battle space awareness as a functional capability board would be looking at those priorities coming in, sorting through them and trying to make a sensible, planned investment strategy for delivering those back to the combatant commanders. That is all done by the Joint Chiefs.

Ms. CASTOR. Your comment is that they are so focused on the current capabilities and sorting out what is happening in the global environment today, it has been difficult for them to look ahead and make those kinds of strategic recommendations.

Mr. SULLIVAN. The combatant commanders are focused—I may be speaking a little bit more than I know, however they are concerned with more the immediate threats. But the services have—Air Combat Command, for example, is a service component that can look at more future things and kind of step back and take a look at those global things. So they do have components that do that as well.

Ms. CASTOR. Thank you very much.

Mr. MARSHALL [presiding]. Thank you.

The gentleman from South Carolina, Mr. Wilson.

Mr. WILSON. Thank you, Mr. Chairman.

And, actually, in lieu of a question, I just want to thank you for promoting UAVs and GAO, in working with the colleagues behind you, too.

I have the perspective of being the parent of a son who served in Iraq. And I previously, thanks to Congressman Abercrombie and Congressman Curt Weldon, have been introduced to the capabilities of UAVs, and I had seen them in actual usage. And I know for my wife and I, we just felt like—because I told her all about it—that it was reassuring to know that overhead there was the extraordinary capabilities of reconnaissance and surveillance to protect our troops who are in harm's way.

And I think it is particularly significant that in the overview we were provided—and I would like for the enemy to know this—the DOD indicates that the 3,400 small and 500 tactical and theater-level UAVs accumulated over 160,000 flying hours in 2006 in Iraq and Afghanistan. This is up from 60,000 hours in 2004. I want them to know that we have got very capable people who are monitoring their activities.

Again, I just see this as protecting American troops, coalition troops, and I share the enthusiasm of Congresswoman Miller, that whatever we can do, and I indeed take seriously the comments by Chairman Abercrombie, that we want your input on what can be best done to promote UAV systems to protect American troops and additionally, obviously, for Homeland Security too.

But, again, thank you for what you are doing. And that is the perspective of a very, very grateful parent. Thank you.

I yield back to the chairman.

Mr. ABERCROMBIE [presiding]. Thank you very much, Mr. Wilson.

Mr. Marshall.

Mr. MARSHALL. Thank you, Mr. Chairman.

I am going to move away from the Goldwater-Nichols II level of examining this issue and ask some questions more down in the weeds at the moment, sort of recognizing the realities of the circumstance that we seem to have facing us at the moment, though we would wish that we weren't where we are as far as jointness is concerned.

There is a difference of opinion, between Air Force and Army, principally, concerning who ought to control what assets. And what I understand is that the language is also different. Army will talk about strategic versus tactical, tactical should be with individual divisions, those sorts of things, those capabilities. They should be inherent within the division, they should move with the division. The tactical capabilities should be with the division, when it is in the states, when it is getting ready to be deployed, when it is actually deployed.

Air Force says that at the strategic level, Army doesn't necessarily have to have the asset imbedded within particular divisions.

Air Force talks in terms of different altitudes. Below a certain altitude, 3,500 rings a bell with me, Army should go ahead and have its individual assets. At above 3,500, the medium- to high-altitude assets should all be in a joint command, probably Air Force. And what Air Force says is that this, the terms tactical and strategic really aren't very helpful, that these assets have capabilities and

we ought to be focusing on what capabilities those assets can provide. And to say that one asset is a tactical asset versus a strategic asset just doesn't tell you anything.

Could you help me with that difference of opinion between the Air Force and the Army and then offer your own individual opinions concerning whether we should, in a setting like Iraq, have a joint command or division-specific command of these aerial assets?

Ms. PICKUP. Well, I am not sure that I can help you sort out the different perspective of the services in terms of operational control, because I think you hit, you know, one of the things that is under discussion right now.

From our perspective, sir, I think that regardless of who controls it, it is important that the air component commander has total visibility into the capabilities that are in theater, because under the auspices of the Joint Forces Commander, the air component commander, the ensign responsible for running the air operations, does in fact have the ability and the authority to kind of reach out and tap into those capabilities, regardless of whether they are embedded.

Mr. MARSHALL. Ms. Pickup, earlier in your testimony you made reference to a division needing a particular asset and getting a Hunter or a Warrior on-sight, calling for a Predator and the Predator shows up. The air command commander doesn't really know how these assets are being used, and so there is duplication that is unnecessary and, consequently, perhaps a loss for us as far as efficiency is concerned.

Let us assume that Army didn't have—let us assume that Air Force's vision of this is what is imposed and that Army has UAV assets that it employs below 3,500 feet that are specifically embedded in divisions, brigades, what have you. And Air Force, or some other joint command, is providing the other assets. How does the Army get hurt by that?

The Army would say it won't work because they just won't listen to us about where we need things when we need them or what capabilities these things must have in order to meet our needs or there would be an interoperability problem?

Ms. PICKUP. There is a process by which it is determined how the Predator, for example, will be tasked during an ongoing operation, and an asset like that, that has kind of a theater-level capability, its allocation, tasking, is based on the CENTCOM combatant command's priorities, for example, and those priorities, you know, in the case of a theater-level, might be a high-value target, high-value individual, where a unit may have, you know, troops in contact, clearing a building, may have a different priority.

Mr. MARSHALL. So if I understand you correctly, the question here is whether or not the division commander should have the asset and be in charge of the asset with regard to an immediate tactical need or CENTCOM should be in a position to say no, sorry, we are going to continue to use this asset for a high-value target over here, and we understand that you want to have an asset, this need, but we are in charge and we are just going to have to use it for this other purpose.

Is that really the dispute here?

Ms. PICKUP. I think it is. I think that demands, you know, often exceed supplies and there is a prioritization process that occurs, and it is not so much kind of Air Force versus Army but it is the broader issue of what the Joint Force commander on the ground and the theater commander from a combatant commander perspective thinks the priorities are.

Mr. MARSHALL. Thank you.

My time has expired. Mr. Chairman, thank you.

Mr. ABERCROMBIE. You still have some time. Do you want to follow up? I think you are doing an excellent job.

Mr. MARSHALL. Actually, I find this very helpful for me. I didn't have the benefit of Curt Weldon's tutelage over all these years. I did, actually, in full committee listen to Curt time and again on different subjects, but not this particular subject. So it is helpful to me to hear your sense of this. And your sense of this is it is a who is in charge, and it is understandable.

Shoot, if I were the division commander or brigade commander or what have you, I am going to want to have me in control of all the assets I think are useful to me in the event this happens or that happens, whereas CENTCOM might, say, understand that, hear that, but there are limited assets available and somebody else needs to be prioritizing how these assets are used than the guy who's stuck, in the weeds with a particular tactical problem. There needs to be a bigger vision here.

And you see that as being the principal difference of opinion?

Ms. PICKUP. Right. And I think it also brings up the issue of what are the full range of capabilities, you know, what is the right asset to put on the problem, so to speak, and how do you optimize, you know, what exists over there, and how is that integrated, because——

Mr. MARSHALL. Do you see any reason why Army can't work with Air Force or whoever else to come up with a requirements-based process of acquisition and just have one acquisition, one sustainment, one support, all the efficiencies associated with just doing this through one agency as opposed to having two different agencies stovepiped, as we tend to be. Is there some reason why that cannot occur?

And, consequently, Army is not going to get what it really needs if that is the process that is ultimately settled on.

Mr. Sullivan? Ms. Pickup is looking at you. Help me out here.

Mr. ABERCROMBIE. Mr. Sullivan, your answer will be the last answer for this panel.

Mr. SULLIVAN. Okay. I think we have examples of where we—this is like the executive agent idea, I think, that the Air Force has floated that very idea and now with UAV. And it is something—I don't think we are ready to take a position on whether that is a good way to do it.

You know, the work that we have done, and I think what the Department of Defense sees as a better way to do that, is to manage from requirements through to acquisition, you know, disciplining the process a little bit more. To be able to do that in a joint manner and to do it above the product lines, if you will, you know, do it for the warfighter. The services should execute a balanced portfolio of products that are decided upon by someone higher.

That is kind of where—but I wouldn't—the proposals that are out right now on executive agents, I just don't know enough about.

Mr. MARSHALL. Mr. Chairman, can I just make a quick short—just to help Mr. Sullivan continue his response.

What you just described, you know, getting at least at the joint level, whether it is this executive agent idea that I don't really know much about is the way to go or at a joint level, it is intended to accomplish the same objective here. Did it work where Warrior is concerned? Where immediate needs, little dispute I guess between Air Force and Army whether or not those needs can be met.

And then as Mr. Turner was suggesting, Army just went off and got—what Air Force would view as comparable to Air Force going off and getting a tank, what is your view of that?

Mr. SULLIVAN. Well, it doesn't work very well right now. It is a very sloppy process and there is a lot of underlying causes for that that would probably take a long time to kind of go through.

They have it on paper, they understand it, but there is a lot of reasons why it is not working well now, though.

Mr. MARSHALL. Thank you, Mr. Chairman.

Mr. ABERCROMBIE. Thanks, Mr. Marshall. That was really excellent.

And I want to thank you folks. And, again, if it is possible for you to come up with some recommendations in this other context, that would be very, very helpful.

The policy issue here is a separate one, and I take your word, Mr. Sullivan, in this last remark, as being a summary of the position of the other two as well. Is that correct?

Ms. D'AGOSTINO. Yes, sir.

Mr. ABERCROMBIE. Very good.

And I thank you very, very much.

Ms. D'AGOSTINO. Thank you.

Mr. SULLIVAN. Thank you, Mr. Chairman.

Mr. ABERCROMBIE. We will go right to our next panel. And while that panel is coming up—Mr. Landon, General Davis, General Deptula, General Sorenson, Admiral Clingan and General Alles—obviously that is six people. It is unwieldy, but we had to do it this way rather than split it on half.

So how about you zero in on—it would take a half hour, if we stuck strictly to five minutes, just to get through opening statements, and I don't think that is useful to anybody.

Some of the issues involved here are well-known to everybody on the panel, and I think you can see by the questions and the observations coming from the members it is well-known to them.

So why don't we just take two minutes each and if you will zero in on your principal points. You don't need to explicate them. But if you think of the audience, if you will, that doesn't have a clue as to all the inside baseball involved here, all the antecedents.

And I realize you are all involved in the military and are therefore unused to politics, I realize there are no politics in each of these services. But take my admonition as an old-time politician, when you are explaining, you are losing. People have to understand what it is you are talking about. They don't have to know all the details, they don't have to have a deep background in it, but they

have to understand what it is you are talking about, what you are trying to get at.

So can I ask each of you to summarize in two minutes? Speak not to me. Speak to the average American out there who wants to know, okay, what is it that you are talking about, why is it important, what do you propose to do.

Fair enough?

Mr. LANDON. It is a great start, sir.

Mr. ABERCROMBIE. Okay. I want to start with you, Mr. Landon.

STATEMENT OF JOHN R. LANDON, DEPUTY ASSISTANT SECRETARY OF DEFENSE FOR COMMAND, CONTROL, COMMUNICATION, INTELLIGENCE, SURVEILLANCE, RECONNAISSANCE AND INFORMATION TECHNOLOGY ACQUISITION (C3ISR & IT ACQUISITION), OFFICE OF THE SECRETARY OF DEFENSE

Mr. LANDON. Thank you, sir.

Good morning, Chairman Abercrombie and distinguished members of the subcommittee. I really want to thank you for this opportunity to testify before the Subcommittee on Air and Land Forces to address the Department of Defense's ISR programs and investments, particularly on unmanned vehicles.

I have provided a written statement, and I have addressed the questions we received earlier.

Mr. ABERCROMBIE. All of the statements have been observed and are being analyzed and will be accepted for the record.

Mr. LANDON. Thank you, sir.

My name is John Landon. I am the Deputy Assistant Secretary of Defense for Command, Control, Communications, Intelligence, Surveillance, Reconnaissance and Information Technology.

Mr. ABERCROMBIE. Your time is almost up already. [Laughter.]

Mr. LANDON. It is a long title.

I wanted you to know I am here today representing Mr. Ken Krieg, who is the Under Secretary of Defense for Acquisition, Technology and Logistics.

In my position, I provide acquisition oversight for the Office of Secretary of Defense (OSD) for major defense acquisition programs and major automated information system programs. I also support the undersecretary of defense for intelligence regarding the acquisition of ISR programs.

You have already recognized the other witnesses today, so I will dispense with that.

If I might briefly add, ISR systems are playing a major combat and support role in both Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF). These systems perform an ever-increasing role in a wide range of DOD——

Mr. ABERCROMBIE. Excuse me, Mr. Landon. I know that. Let's summarize what it is that you want me to know.

Mr. LANDON. Sir, let me make one point, and that is that these unmanned systems have essentially proven their value in combat, and they have effectively moved from what were largely concept and demonstration programs into an integral part of the department's force structure.

We are making that transition as we go, and so that is really a key point as we move forward.

And with that, sir, I am happy to take any of your questions and address anything you need.

Mr. ABERCROMBIE. Okay. I will give you another 20 seconds to tell us, do you have your command and control hierarchy established or not?

Mr. LANDON. Sir, I do believe so.

Mr. ABERCROMBIE. Okay. Thanks.

Mr. LANDON. We do, and we are working to improve it.

[The prepared statement of Mr. Landon can be found in the Appendix on page 74.]

Mr. ABERCROMBIE. General Davis.

STATEMENT OF BRIG. GEN. WALT DAVIS, COMMANDER, JOINT UNMANNED AIRCRAFT SYSTEMS CENTER OF EXCELLENCE, U.S. ARMY

General DAVIS. Good morning, Mr. Chairman. It is an honor to be here to represent the chairman of the Joint Chiefs of Staff and all those members.

Mr. ABERCROMBIE. Thank you.

General DAVIS. And I appreciate the opportunity.

I am the commander of the Joint Unmanned Aircraft Center of Excellence at Creech Air Force Base, which is an organization that was formed by the Joint Requirements Oversight Council direction in the summer of 2005. Along with the rechartering of an integrated process team, which became a material review board chaired by Brigadier General Steve Mundt, we work operational issues on behalf of the Joint Force and the joint staff. They review material issues on behalf of the Joint Force.

Since that time, in the past 18 months we have grown our capacity, and you must know, I think I can best speak from an information-related to the most recent piece on executive agency will be the training aid for the joint staff and the Joint Requirements Oversight Council as we bring that issue forward for discussion for the joint staff, Joint Requirements Oversight Council and potentially the service chiefs in the tank.

Again, sir, it is a privilege to be here.

[The prepared statement of General Davis can be found in the Appendix on page 83.]

Mr. ABERCROMBIE. Thank you. I appreciate the way you are doing that, because we may also get hit with votes coming sooner than I thought, so we will want to move along as quickly as we can.

General.

STATEMENT OF LT. GEN. DAVID A. DEPTULA, DEPUTY CHIEF OF STAFF FOR INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE, U.S. AIR FORCE

General DEPTULA. Mr. Chairman, distinguished members of the committee, it really is an honor to be here as the Air Force's first Deputy Chief of Staff for Intelligence, Surveillance, and Reconnaissance.

The Air Force is acutely aware of the significance of ISR to America's sons and daughters in the battle space as the Air Force has been engaged in combat and ISR combat support continuously for more than 16 years in Southwest Asia. At the same time, during that time, fighting and winning in Bosnia and Kosovo.

Since September 11, 2001, we have been conducting ISR operations at an unprecedented pace. We have doubled your Air Force fleet of medium-altitude Predator Unmanned Aerial Vehicles from a planned program of record of 6 patrols in 2001 to 12 combat patrols simultaneously today, and we will increase this capacity to 21 by 2010. That is a 350 percent increase in capability.

Your Air Force high-altitude ISR aircraft, consisting of the manned U2 and the unmanned Global Hawk, are currently flying more than 90 missions a month in CENTCOM alone.

For our RC135 rivet-joint aircraft, we continue investments in a proven baseline modernization strategy that provides recurring upgrades to stay ahead of advances in adversary communications.

Now, the Air Force has continued its investment in network-centric technologies that multiply these capabilities. A real success story is our distributed common grounds system, perhaps more descriptively called ISR exploitation centers. They are used to exploit data collected by our airborne sensors at locations in Hawaii, California, Virginia, Korea and Germany. Such reachback allows us to keep the bulk of our footprint at home while delivering effects and capabilities to anywhere on the globe. In other words, this system allows us to project capability without projecting vulnerability.

As your expert in providing dominance of airspace and cyberspace, the Air Force is deeply committed to delivering premier air and space ISR capabilities in accordance with the priorities of the Joint Force Commanders. In that regard, the intent of the Air Force Chief of Staff's recent memo to the Deputy Secretary of Defense on medium- and high-altitude UAVs falls in three major categories.

First, to seek to deliver the greatest possible UAV ISR to our soldiers, sailors, airmen and marines by optimizing medium- and high-altitude UAV use.

Second, it aims to achieve efficiencies by unifying acquisition of these vehicles through an executive agent.

And, third, it champions interoperability by synchronizing architectures, data links and radios for all UAVs operating above the coordinating altitude.

[The prepared statement of General Deptula can be found in the Appendix on page 90.]

Mr. ABERCROMBIE. Thank you.

General.

STATEMENT OF MAJ. GEN. JEFFREY A. SORENSON, DEPUTY FOR ACQUISITION AND SYSTEMS MANAGEMENT, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY FOR ACQUISITION, LOGISTICS AND TECHNOLOGY, U.S. ARMY

General SORENSON. Good morning. Thank you, Chairman Abercrombie, Congressman Saxton and distinguished members of the Air and Land Forces Subcommittee.

The United States Army, with nearly 280,000 soldiers on active duty in 80 countries is meeting the demands of the global war on terror, fulfilling other worldwide commitments and transforming to meet the challenges of an uncertain future.

Army unmanned aerial systems are multimission systems whose primary purpose is to integrate, respond and support the tactical warfight at the division, brigade and battalion levels of employment. Currently, our unmanned airborne systems are Raven, Shadow and the extended-range multipurpose aircraft system.

Unmanned aircraft system air tempo and op tempo has increased dramatically since 2001. In fact, we experienced a 10-fold increase in usage and we have accelerated the fielding of the unmanned aerial systems to every brigade combat team who has now an organic Shadow platoon and we continue to rotate our Hunter systems while Warrior Alpha integrates with manned assets to provide lethal effects against IED placement and other particular targets.

The hundreds of thousands of hours flown by these systems alleviate the demand for more expensive high-value platforms used at the theater and strategic levels.

Our current manned airborne ISR systems include the Guardrail Common Sensor and Airborne Reconnaissance Low. This aging fleet is doing a superb job, however there are limitations that come with age and Air Low Common Sensor will replace these two workhorses beginning with the intelligence transformation of the 21st-century battle space.

The Air Force recently requested executive agency for medium- and high-altitude aircraft unmanned systems. The Army, however, recommends that the Office of the Secretary of Defense uphold the 2005 JROC decision to use the Joint Unmanned Aircraft System Material Review Board and the Joint Unmanned Aerial Systems Center of Excellence in lieu of a single-service executive agent.

Our airborne ISR goals remain unchanged, to provide our warfighters with the right sensor at the right place and the right time so they can conduct decisive operations on terms not the enemy's.

Mr. ABERCROMBIE. Thank you.

General SORENSON. And again, I want to thank you for your support, and I look forward to your questions.

[The prepared statement of General Sorenson can be found in the Appendix on page 108.]

Mr. ABERCROMBIE. Thank you.

Those last two were excellent summaries. Thank you.

Admiral.

STATEMENT OF REAR ADM. BRUCE W. CLINGAN, DEPUTY CHIEF OF NAVAL OPERATIONS, DEPUTY DIRECTOR, AIR WARFARE, U.S. NAVY

Admiral CLINGAN. Mr. Chairman, Congressman Saxton, distinguished members of the subcommittee, it is a pleasure to be here to testify with my colleagues.

The Navy's unmanned aerial system initiatives are in four categories: small tactical, tactical, broad area and low observable penetrating systems that fill maritime capability gaps.

I will forego any further comments to leave time for questions in this regard.

[The prepared statement of Admiral Clingan can be found in the Appendix on page 125.]

Mr. ABERCROMBIE. Thank you.

General.

STATEMENT OF BRIG. GEN. RANDOLPH D. ALLES, COMMANDING GENERAL, MARINE CORPS WARFIGHTING LAB, U.S. MARINE CORPS

General ALLES. Thank you, sir.

Chairman Abercrombie, Representative Saxton and distinguished members of the subcommittee, on behalf of our Marines forward deployed around the globe, thank you for the opportunity to appear here and discuss the Marine Corps intelligence, surveillance and reconnaissance enterprise.

I would just like to emphasize, our ability to prevail in an often chaotic and unpredictable battlefield requires an increasing reliance on ISR capabilities. The ability of commanders to paint an accurate picture of the enemy is of the utmost importance. It drives battlefield decisions tempered by experience and training on how and when to employ marines, fires logistics and information.

If leaders can orient themselves faster than the enemy, their decisions can be enacted in an offensive versus defensive manner, driving the campaign versus being driven. And our vision is to provide this kind of information down to the tactical level.

I will just briefly mention, we organize our UAVs in a three-tiered system. Our Tier 1 systems are basically man-packable, used at the company and sometimes battalion level. We are currently using the Dragon Eye unmanned system, transitioning to the Raven B, which is in use by the Army.

Tier 2 systems is a coming program for us, used at divisions, regiments and battalion levels. And then Tier 3s are used at our force level. We are currently using the Pioneer UAV, transitioning to the Army's Shadow system in fiscal year 2007.

I think it is important to emphasize that for commanders to prevail, particularly in a counterinsurgency environment, he needs ISR and unmanned vehicle assets he can task and employ down to the squad level. Because of the need for this decentralized execution, the Marine Corps opposes the idea that any one service should control the procurement or employment of these valuable assets.

That concludes my remarks, sir.

[The prepared statement of General Alles can be found in the Appendix on page 135.]

Mr. ABERCROMBIE. Thank you very much.

Mr. Saxton.

Mr. SAXTON. General Deptula and General Sorenson, I would like to move right to the heart of the matter and just ask you, we understand that there are some differences of opinion as to how we should move forward organizationally, and I thank you both for coming to my office in the last couple of days to discuss those matters, as I am sure you have with other members, including the chairman.

But this morning, what I would like to ask you to do, would you both explain your position with regard to differences as to how you think we should move forward? And in conjunction with that, what do you see as the best path for us to take—not us, necessarily, here on this committee, but for our government to make a decision about how to best organize ourselves?

General Deptula, would you like to begin?

General DEPTULA. Yes, sir. First, thanks very much for the opportunity to address this issue.

I think it would be instructive for all involved in the process to briefly review the American way of warfare, which summarized briefly, essentially boils down to this. Each of the individual services do not fight our wars. We have our combatant commands, headed up by a Joint Force commander, who takes the capabilities that each one of the services are responsible for developing and then uses them in an appropriate mix and fashion to accomplish his or her objectives, given a particular contingency.

So each one of the services are unique and have expertise in their core competencies. That is the subject of roles and missions. And it works very well when the Joint Force commander can reach out and combine those capabilities to achieve a particular outcome.

On this particular subject, with respect to medium- and high-altitude UAVs, there are a couple of pieces. There is the efficiency piece that involves combining, as was mentioned earlier by one of the members, the numerous efforts that go on to procure and develop a system and address how we can achieve efficiencies by combining that multiple duplication of effort.

The issue of operational employment is one that I believe can best be described not by using terms associating aircraft as tactical, operational or strategic, but looking at how they are used. Operational, strategic and tactical are terms that I believe describe effect. An airplane is an airplane, an aircraft is an aircraft.

In the case of medium- and high-altitude UAVs, those are assets that can move around the theater, and what we would like to do is see them employed to their best extent possible to maximize that ISR delivery of information to users on the ground by putting them wherever they are needed most in accordance with the Joint Force commander's priorities, and not tying them to a local position associated with a particular unit.

We believe that UAVs that have a local effect and can operate and provide information to units on the ground within tens of miles and operate below coordination altitude in the theater should be the purview of individual units and organically operated.

So there are two principle elements here, an efficiencies argument with respect to procurement of these vehicles and an operations and employment argument, where we are seeking to maximize their utility. There are no Air Force targets in combatant command. They are Joint Force targets. And what we want to do is optimize the ability of the Joint Force commander to use the capability of these resources, and in the medium-to-high-altitude environment, they are low-density assets, so we need to prioritize them.

I think in closing our description, it is useful to consider an analogy. Consider a city block, a city consisting of 50 blocks. The mayor

owns five fire trucks. The difference in perspective here is one where those who believe in organic assignment, would assign each of those five fire trucks to a city block. The perspective in using the assets in accordance with the Joint Force commander's priorities across the entire theater would allocate those five fire trucks to the mayor, and the mayor would distribute them to whatever block needed them the most.

Thanks very much, sir.

Mr. SAXTON. General Sorenson.

General SORENSON. Yes, Congressman Saxton.

I guess in some cases I would agree with my counterpart, General Deptula, here, with respect to it is the Joint Force that is essentially—we are supporting the Joint Force in providing these assets.

However, at the tactical level this becomes a matter of risk, time and consequence for those that are currently in harm's way. I think in many cases the issue becomes, and I think we have videos to kind of come back and express this in more detail, it is an issue with respect to being able to respond quickly and decisively at the tactical level to in many cases support the tactical commander.

Now, the tactical commander, in many cases, has the command and control and is responsible for integrating these assets as well as to do the teaming of the man and unmanned systems in order to essentially respond on quick high-value targets that, quite frankly, just manifest themselves in moments of time.

I think in many cases as we talk to how we do this, as I mentioned in my oral statement, I do believe we ought to go back to have the JROC essentially evaluate this. This is the only position. Quite frankly, we do find that the Material Review Board as well as the Center of Excellence is doing a good job with responding to what types of assets meet those requirements and what should be those acquisition strategies.

I would also point out that even in today's environment, at the brigade level, we are right now flying about 530 hours provided to a brigade combat team on a daily basis. At the division level, we have got about another 64 hours provided by our Shadow and ERMP. And then you get to the Predator level, we get about 10 or 20 hours.

So for that commander on the division level, he is essentially getting the majority of his ISR requirements filled by tactical assets that are available to him when he needs it to supply the required capability.

And, last, I would also like to say with respect to efficiencies, though it was discussed earlier, when we basically awarded the Warrior ERMP capability in fiscal year 2005, it was a competitive award based upon a joint requirement. And in making that competitive award, we were able to bring down from the standpoint of the Predator the price by about 10 percent and increase performance by about 40 percent because it had about 20 percent more endurance and 50 percent more increased capability in terms of payload.

So the competitive forces are being used and I think we are trying to work again with the Air Force to do this more efficiently.

Mr. SAXTON. Thank you very much.

Mr. ABERCROMBIE. Thank you.

Ms. Giffords hasn't had a chance to ask a question yet, so I am going to go to her next. And then we will go back on schedule. Is that okay with everybody?

Ms. GIFFORDS. Thank you, Mr. Chairman.

My question is for Secretary Landon.

We have already heard the discussion that the Air Force is proposing to take control as executive agent for all DOD UAVs above 3,500 feet. The Air Force asserts this would generate cost savings. At the same time, the Army believes that there is tactical risk associated with severing the direct connection between the ground commander and tactical ISR assets at altitudes above 3,500 feet.

Has there been an independent analysis demonstrating there would be a cost savings or evaluating whether savings, if any, would justify the additional tactical risks to deploying Army forces that would result?

Mr. LANDON. Let me see if I can take that on. There are a couple of questions there.

One is the issue of the analysis that will go on. The Chief of Staff of the Air Force essentially made this proposal to the Deputy Secretary. The Deputy received that. Subsequently, the Vice Chairman of the Joint Chiefs has responded to the Deputy Secretary, on the 4th of April as a matter of fact, and said he would like to take this issue to the JROC, the Joint Requirements Oversight Committee, to address the issue and to flesh it out.

As you know, we reviewed this same issue and proposal in 2005. A decision was made and that resulted in, frankly, the Joint Unmanned Center of Excellence. That was stood up and is now led by General Davis.

This is a significant issue and I think in order to get to the analysis that we need in order to make an informed decision, we are going to take a little time here to go through that. And so I can tell you this: the Deputy Secretary is aware of this issue. The Chairman of the Joint Chiefs is aware of this issue, if you have seen his comment in the paper this morning. And so this issue is going to be brought forward rapidly and debated. But we need to ensure that we have all of those.

Now, as far as the risk——

Mr. ABERCROMBIE. Excuse me, Mr. Secretary. For clarity's sake, because the question is a good one, aren't you reinventing the wheel again? General Davis is sitting right next to you. Isn't his organization the result of—you have already considered this, the JROC. Do you mean you are going to do it all over again?

You know, this didn't come up April 4th.

Mr. LANDON. Yes, sir.

Mr. ABERCROMBIE. I mean, General Davis, do I have that right? I mean, organizationally, you are the result of what this previous round of consideration was. Now we are going to do it all over again?

General DAVIS. Sir, if I could, again, you are right. I think the one difference, though, now is that quite frankly, in the spring of 2005, when the issue was raised for single-service executive agency, a joint team was put together composed of all of the services and other elements of the joint staff.

I don't suspect, at least from my view, coming in in August of 2005, to have to go back to the Vice Chairman to recommend an initial operational capability date and organizational structure, that kind of thing, how much money we needed, I don't think as much analysis was put into actually determining what executive agency really meant.

And so as I stated in my brief opening comments, sir, that is our job now, as a joint staff entity. I work for the Joint Staff J8, Vice Admiral Stanley. Our organization is equipped to lay out this issue with respect to really defining per the Air Force's—what their intent is on executive agency, teeing that up for discussion and making sure that we do it deliberately and we have the input of the combatant commanders and the services so the discussion can take place at different levels in the system.

So while, yes, we were created as well as a rechartering of a material-focused board, again, that will be our job in this case.

General DEPTULA. Mr. Chairman, could I make a comment on that?

Mr. ABERCROMBIE. Yes, then we will go back to Ms. Giffords. I hope you don't mind me interrupting, but I didn't want you to get misled that this is something that is just getting started now. It has already been ongoing.

If you would direct to Ms. Giffords, and then we will go back to her.

General DEPTULA. Just with respect to the Joint UAS Center of Excellence and the Joint UAS Material Review Board, it might be instructive to hear what the GAO has to say about those two organizations in their recent report on unmanned aircraft systems, when it stated, "None of the entities are chartered with the authority to direct military services to adopt any of their suggestions."

Mr. ABERCROMBIE. I understand that. It has been a year and a half now, and this has got to get done.

General DEPTULA. Yes, sir.

Ms. GIFFORDS. Mr. Chairman, just a follow-up question for Secretary Landon.

Is the DOD prepared to make the Air Force the executive agency for UAVs flying above 3,500 feet in the absence of really having the analysis both from the cost standpoint and the tactical standpoint?

Mr. LANDON. Yes, ma'am. I don't think the department is ready to make a recommendation at this time, until we understand what the pertinent facts are that are brought forward by all of the services and the combatant commanders.

And I think that is absolutely critical to this discussion. We need to understand the dynamics, the items that have changed since the previous decision, and all of the consequences that will result as part of this decision. It is a very large decision.

Ms. GIFFORDS. Thank you, Mr. Chairman.

Mr. ABERCROMBIE. Is that okay? All right, good.

Mr. Turner, thank you for your patience.

Mr. TURNER. Thank you, Mr. Chairman.

Mr. ABERCROMBIE. We are trying to run this as a co-op here.

Mr. TURNER. With the last questions that were asked, I just want to make sure that there is not any confusion, with Ms. Giffords' statements.

The GAO and the information that we have from the first panel made an excellent delineation of the different categories we are talking about. You know, the management of these as an asset in theater versus the issue of development, research and development, and also looking at this from their perspective of how that is divided, it is very different than trying to mesh it altogether and say who is—if you look at research and development and give us someone that you are losing control on the combat level, those are completely different concepts, and it is very clear in the GAO report.

On Page 17 of the GAO report, and I said this when we had the first panel, it is very disturbing when you read it, because it clearly says that the Air Force has the Predator, they are working with other branches, and then the Army comes along and decides that they want to have Warrior. They don't work with the Air Force, they undertake development of it. They don't look to the potential synergies and efficiencies in the Air Force program, even though the Warrior is a legacy system to the Predator. They don't leverage the knowledge that is inherent in our DOD. And then they turn and award a contract, which is a separate development contract, to the same contractor producing the Predator. And now, January 2006, we are having a recommendation to consider the Army and the Air Force work together.

During the first panel, obviously, my suggestion was, gee, how would the Army feel if the Air Force undertook development of a tank, because we are not talking about that you guys woke up one day and said I think it would be good for us to have something completely different than what is currently there. You started with the Predator. And according to the GAO report, you didn't talk to the Air Force. Apparently, you currently still aren't talking to the Air Force in any meaningful way.

What do we lose? Do we lose a parochial battle between the Air Force and the Army? No. We lose technology. We lost efficiency. And we lose effectiveness at DOD that we are all paying for and we are all working for.

And Page 17 of the GAO report clearly sets it out that that is how we get in this situation that we are in, of people perhaps not playing well together.

And I have got to ask you, in looking at this plan, my first thoughts are, General Sorenson, when General Moseley was here, he testified that approximately 7,500 airmen are currently performing Army missions. These airmen are very willing to assist the Army and are proud to serve alongside their fellow servicemen. They are airmen that are performing Army jobs.

Can you tell me how many people and assets the Army currently has in development of UAVs?

General SORENSON. How many people we have in development? Or how many systems we have in our inventory?

Mr. TURNER. How many people do you have in development of UAVs?

General SORENSON. I am not sure I can tell you exactly how many people we have working in the development. I can tell you right now the Army has about 300 Ravens, we have 19 different Shadow systems and 5, at this point in time, Warriors fielded.

With respect to the people that are working on——

Mr. TURNER. General, excuse me. My interest in my question was on development, correlating it to the fact that we currently have the Air Force being drawn upon to fill Army positions that the Army is not able to fill. And we have the issue of UAV development and a GAO report that clearly says the Army undertook development of the UAV when the Air Force had a current and legacy system and is not, according to the GAO report—it is not my conclusion, but theirs, having reviewed the situation, that the Army is not working with the Air Force on this.

General SORENSON. Okay. I can summarize this in about 20 seconds.

First of all, the Predator was an ACTD. It was awarded. It was awarded some years ago. The Army went back and looked at the requirements that it needed in terms of combat operations. It went through the JROC process. The JROC approved the requirement in 2005. The Army then did a competitive award, as I mentioned before. The competitive award is now awarded a capability that is 10 percent cost—costs 10 percent less than the Predator and is 40 percent more capable.

It provides additional 20 percent endurance and 50 percent more in payload. So I think the competitive process works and, quite frankly, Army got a better deal.

Mr. TURNER. General, is there anything that the Air Force knows about UAVs that the Army doesn't that would have been helpful or would be helpful in the future as the Army looks to its UAVs?

General SORENSON. Absolutely.

Mr. TURNER. Well, I think the GAO report clearly says that what needs to happen, and I appreciate the chairman's focus on this, what we now know is we are not having the type of collaboration and cooperation that is needed. Would you agree to that?

General SORENSON. Not necessarily, no.

Mr. TURNER. Well, so you disagree with the GAO report that says—and I must say it is hard to read this report and not conclude that it is the Army that is not working with everyone else. So you would disagree with this report's conclusion that there is not the type of cooperation that is needed in order to maximize our assets and resources?

General SORENSON. I would say there is cooperation and I would say I would disagree with that report.

Mr. TURNER. Mr. Chairman, I think that is very interesting.

I am glad, General, that you concluded that for us.

Mr. ABERCROMBIE. Are you satisfied, not necessarily with the answer, but satisfied that you have pursued it in the direction you wanted to go? Because I am happy with the way this is going.

Mr. TURNER. Well, then, if you would provide me with just some additional time.

Mr. ABERCROMBIE. I will.

I am going to go to Mr. Marshall—Ms. Castor passes, so we will go to Mr. Marshall and how about Mr. Wilson and Mr. Bishop? Would you like to go back to Mr. Turner, then?

Mr. Bishop?

Okay. We will go to Mr. Marshall and then come back to Mr. Turner.

Mr. MARSHALL. I am going to pick up where Mr. Turner left off and continue with the same line of questioning.

Again, I am going to sort of stay in the weeds so that I can better understand where this dispute actually lies.

But on the substantive level as opposed to just the parochial we want to be in charge kind of stuff, and I have already heard the Army and Marines say that they oppose this executive agency concept. Is Navy against it?

Admiral CLINGAN. We are strongly opposed to the executive agency.

Mr. MARSHALL. And I take it that the reason you are opposed to the executive agency concept is that Air Force as proposed now would be the executive agent and you are worried that somehow substantively you are not going to get what you need. So real quickly, what is it under that concept that substantively you won't get that you need because of—and quickly, what reason, why is it that you won't get what you need? And if all three of you could go ahead and just tell us that.

Admiral CLINGAN. Quickly and to your very specific point, Congressman.

The integration of unmanned aerial vehicles into combat operations today underpins the effectiveness of the maneuver units and the risk associated with accomplishing their assigned effects.

To the point, it would be like a ship requesting, "May I have a radar system tomorrow to accomplish my mission? May I have a set of binoculars tomorrow to accomplish my mission?" And hoping that it was allocated to you.

Mr. MARSHALL. If Air Force were the executive agent and agreed that that substantive—well, let us say DOD generally agrees that substantive problem exists, if these assets just need to be delivered with regard to the need of a particular ship. And Air Force couldn't provide Navy with that day-to-day capability? Like, okay, it is on the ship and you have got it, it is yours.

Admiral CLINGAN. It is so integral to mission accomplishment, that it would be habitually associated.

Mr. MARSHALL. So, when you have got those kinds of things that you need to have habitually associated with the particular asset, what you are suggesting is that that should just be—the Navy should just figure that out, right? And then as part of that asset, you acquire that capability and it stays with that asset.

Admiral CLINGAN. Not exactly, sir.

In the acquisition process that we use, the Joint Requirement Oversights Council and its associated processes, when a service comes forward with a required capability, it is vetted thoroughly to make sure that it isn't available in another service. When there is an identified capability gap, the service goes forward to acquire it.

Mr. MARSHALL. Okay.

General Deptula, you are familiar with all of these arguments, as I am not. You have just heard the Navy, and I assume that Army and Marines, you guys agree that that is one principle problem associated with the executive agent concept.

So, General Deptula, how do you respond, for our benefit?

General DEPTULA. Yes, sir.

I believe my good colleague is confusing the economic efficiencies that would accrue to the standup of an executive agent to assure that we unify acquisition of systems and the execution of operational capability, which is resident in our joint way of warfare.

So what the Air Force is suggesting the Department of Defense do is stand up an EA to achieve efficiencies in terms of consolidating different acquisition authorities and everything that goes along with procuring systems.

Mr. MARSHALL. I don't mean to interrupt. Navy says it needs this requirement met with regard to this particular asset. You are suggesting that Navy should go to Air Force, or to this executive agent, which would be the Air Force, and say this is ISR kind of stuff, UAV stuff, and what we need is this. Will you get it for us and give it to us?

General DEPTULA. No, sir.

If the Navy elects, for example, the decision has not been made, but if they elect to procure or select Global Hawk to satisfy their requirement, the Air Force is already procuring Global Hawks, and instead of the Navy going out and acquiring those systems and the Air Force going out and acquiring those systems is that we do it in a unified fashion. Now, clearly there are going to be different requirements. And the Joint UAV Center of Excellence, the Joint Material Board, would be those boards to——

Mr. MARSHALL. General Deptula's vision, Admiral, won't work for what reason?

Admiral CLINGAN. In specific, he brings up a great example. Through the JROC process, we have the capability gap that wasn't met by Global Hawk. We embarked on a competitive program. Interestingly, Global Hawk, Predator and Gulf Stream 550, for example, are among the likely competitors for this.

As we look to achieve initial operating capability in 2014 for that system, we wanted to make sure that as soon as those UAVs arrived, that they would be immediately effective. So we have a maritime demonstration program, a Global Hawk maritime demonstration program, to develop concepts of operations, tactics, techniques and procedures and the integration and taking process we will use. And in employing the Global Hawk in that role, we identified that it in fact did not meet our requirements.

So we took the Global Hawk solution, it is being used as a risk reduction, but we have identified clearly that it does not meet our requirements. As an example——

Mr. MARSHALL. Mr. Chairman, if you would let me continue just for a second, or do you want to—and all I want to do is go back to General Deptula.

You have heard the response from Navy. It would help me if you are in a position to say, wait a minute, in fact Air Force could have solved this issue for Navy. With Air Force acting as executive agents, would there be some seamless result here, that it would be as if the Air Force were a part of the Navy trying to figure out this problem in an appropriate way.

General DEPTULA. Yes, sir. That is the intent.

Now, I would tell you that we want to work together with the other services to define how these efficiencies would be gained in

determining just what the roles and responsibilities of the executive agent would be.

There is a lot of consternation with the use of the term. You can call it cheese as far as I am concerned. The issue is trying to get to savings by avoiding duplication of program offices, duplication in independent training ops, duplication of logistics and maintenance ops, duplication of independent intelligence support facilities and multiple procurement offices. That is the intent.

Mr. MARSHALL. What I hear is the other branches saying that all sounds fine, and it is desirable, but the effect substantively for us will be we won't get what we need when we need it.

General DEPTULA. That, sir, is a issue——

Mr. MARSHALL. That is the way the system works. We won't get from the Air Force what we need when we need it.

General DEPTULA. But, sir, that is not an Air Force issue. That is an issue of the Joint Force Commander determining the priorities of the theater assets that are assigned to that command.

General SORENSON. Mr. Marshall, if I could, just as one response.

You know, we talk about this, but quite frankly the systems that we have currently operating, the Raven, the Shadow, these already are joint systems that are used by my counterparts over here right now. So we do have consolidation. We are looking at this in a joint manner.

And I would say as well, where the Army has gone—it is interesting to have the air platform flying around. It is more important to have a common ground station. Right now, the common ground station works with the Shadow, works with the Hunter, works with all these other systems, so I don't have a duplicative, if you will, delivery of terminals at the bottom end in terms of where the warfighters are, such that I would have to have constant streams.

These guys sit in one terminal and it is just like watching NFL football. I can get that screen, that screen and that screen. That is what they want, a common terminal at the end, not all these systems flying around with independent satellite video responses that they have to look at. So, quite frankly, that is what we are hearing from the unified commanders and the battle commanders out in the field.

Mr. MARSHALL. Thank you, Mr. Chairman.

Mr. ABERCROMBIE. Mr. Turner? We have a 15-minute in 5, so we have probably 10 minutes.

Mr. TURNER. I will be quick.

Mr. ABERCROMBIE. That is all right.

Mr. TURNER. I don't want to end with Mr. Marshall's statement, no matter how much I admire Mr. Marshall.

The conclusion that he stated is not exactly the conclusion that I think is inevitable from what we have heard from the Army and the Navy. It is not, oh, you just can't get it from the Air Force or you can't get it fast enough.

What I hear is an organization, the Air Force, that has ingenuity and has inventiveness and has delivered a product, and I see two other military branches that, upon looking at that, said, well, you know, it is something that there should be a legacy to, that we can grow upon, and then instead of working with the inventor and the people, because we are not just talking about an organization itself,

we are talking about people also who have the knowledge, the inventiveness, the ingenuity, said, "Well, you know what, I think I want something different, maybe more, maybe less, maybe something different than what I have got. And instead of going to the people who brought me the first, I am going to go start my own" and use, as an example, the fact that it is old.

It is like me going to a car dealer and saying, "Okay, I bought a car from you five years ago, but now this car doesn't have all the bells and whistles that I want. Instead of talking to you about what else you might have and what you think might be an improvement on this car, I will go develop my own."

And if we encourage that type of development, the Air Force is going to have tanks. This is not the type of cooperation that we need.

And the thing that bothers me the most about it, because on the issue of research and development and technology, what bothers me the most is that you miss the opportunity for those who have worked on these systems before to develop the next generation of what is important and what they have seen.

We know that almost every weapons system that is delivered, you could probably ask the person on the day it was delivered, who was shepherding it through, what do you know that this doesn't do and what would be the next thing that you would have this do? Well, if you don't involve those people, you miss that. And if you start all over again, we have a missed opportunity and over-investment.

And General Sorenson, I ask you, and I would like you to provide to me since you don't know right now, the total number of the individuals that the Army has and, Admiral, I would like it from you also, on the Navy, on development and research on UAVs, because I am going to get back to the fact that I know that when the Army was falling short on being able to man its own missions, it turned to the Air Force. And the Air Force, as General Moseley said, delivered 7,500 people.

Meanwhile, we are missing the opportunity for cost savings.

Now, here is the next question that I have for you, gentlemen, and I would like all three of you to answer. And I am going to start with General Deptula.

If we did look to the efficiencies—I do believe we have duplication of effort. Is it possible that the duplication of effort that is occurring could be utilized for us to be able to acquire more of these resources? Every one of you say that we need more of these resources, and it sounds like the resources that we are spending more on is development and research.

General Deptula, is it possible that we could actually acquire more of these if we got rid of—had some efficiencies?

Mr. ABERCROMBIE. General, before you answer, the question is asked to the three of you, and I would like also General Alles to answer as well, I would like you to put it in writing. You can give a verbal answer now, a couple of sentences, but I would like the question on duplication of effort to put in writing, addressed to me and I will distribute it. Is that all right?

[The information referred to can be found in the Appendix beginning on page 145.]

Mr. TURNER. Thank you, Mr. Chairman. I greatly appreciate it.

Mr. ABERCROMBIE. General, your view on duplication of effort. You can summarize it now, but I would like your full answer in writing to the committee.

General DEPTULA. Yes, sir. Rapid answer is yes. We believe that there are significant efficiencies that can be gained by the consolidation and reducing the duplication of effort that goes into multiple services acquiring medium- and high-altitude UAVs.

What is done with that savings is above my pay grade. I mean, that would be determined by the department. But savings could accrue, and one of the options would be the procurement of additional UAV systems.

Mr. ABERCROMBIE. Thank you.

General SORENSON. Yes, Mr. Chairman and Congressman, I would go back to what I said before. We did look at the Predator when the Army came back with its needs. However, the needs which we the Army had could not be met by——

Mr. TURNER. General, you know that is not the question. The question is——

General SORENSON. I am getting to the duplication. I am getting to the duplication.

We did look at it. It could not meet the requirements. As a result, we went on a competitive procurement. That competitive procurement resulted in something that was——

Mr. TURNER [continuing]. General, I understand what you followed. What you didn't do is get up and go ask the Air Force.

What I asked you was, is the duplication—are there duplications between the three of you that could result, if they were eliminated, in efficiencies that could deliver more product for DOD?

General SORENSON. There could be, yes.

Mr. TURNER. Thank you.

Admiral.

Admiral CLINGAN. Congressman, the collaboration and sharing that actually occurs beyond the Center of Excellence and the Acquisition Board or Material Board process extends the technology maturation and a variety of other efforts so that duplication is perhaps not as substantial as might have been conveyed to this point.

There is always room for efficiencies. I might build on the example previous, where if in fact the material solution, the contract is awarded to Global Hawk, or if the selection is Global Hawk, it is likely, as we have done in helicopters and other systems, that we would use the Air Force contract as an example of reduced duplication.

Mr. TURNER. Admiral, are you saying that you don't believe there are efficiencies that could be achieved that could result in purchasing more product? You either agree or disagree with that statement, that if we looked between the three of you and found efficiencies, of which I believe there is duplication—I mean, if you don't believe there is duplication, say there is not duplication. But my question is, do you believe there is duplication that, once eliminated, could result in delivering more product?

Admiral CLINGAN. There is undoubtedly duplication to a limited extent. And, therefore, more product could be bought of some type.

But whether it is unhealthy or extraordinary is an issue that ought to be quantified.

Admiral CLINGAN. Thank you, sir. I appreciate your answer.

Mr. ABERCROMBIE. General, you are going to have the final word, I am sorry, because we are going to bring the hearing to a conclusion with our thanks.

General ALLES. Thank you, sir.

My reply would be this, sir, the Marine Corps routinely buys the other services systems. So from the standpoint of duplication, I don't see that as a huge issue for our service. I mean, you have seen that with both our Tier 1 and our Tier 3 UAVs by the Army or the joint solution.

But I would just mention that efficiency does not imply effectiveness, and I think that is what you ask the military forces to do, is to be effective. If we are not effective, then all of the money spent on us is a waste. So I think we have to look at it in those terms and whether in fact we are achieving the effectiveness we want, given that we attain some efficiency.

Mr. MARSHALL. Mr. Chairman, would the gentleman yield for just a second? I am sorry.

Or Mr. Turner, I am not familiar with all this yielding stuff, would the gentleman yield?

Mr. TURNER. Sure, Mr. Marshall. Absolutely.

Mr. MARSHALL. Thank you.

Gentlemen, I think it would be very helpful to me, and I think the panel, and if you would like to do it as an addendum to what the chairman has asked you put in writing, your responses, a lengthier response on this; it is my sense that Army, Marines, Navy are convinced that if this executive agency thing is put in place with Air Force in charge, that somehow you substantively won't get what you want. In other words, you will be less effective. It is exactly what you just said, General Alles.

Could you, in your response, detail how that would necessarily occur? It is going to have to be something along the lines of Air Force just isn't going to pay attention to what you want as your people, under your control, paid by you, subject to your orders, would pay attention to what you want. It is going to have to be something along those lines, I assume.

But we need to see that, because there are clearly efficiencies that can be obtained here. This is a joint world. Goldwater-Nichols II, Mr. Sestak made reference to that, it may be that we simply have to order more integration here because for some reason DOD can't get it done and the services won't get it done, or it may be that we should back off and acknowledge that if we try to do that, we are going to make ourselves less effective and be a penny wise, pound foolish.

Mr. ABERCROMBIE. That will get addressed in the—thank you. That will get addressed in the response.

And Mr. Bishop—I know, General, I know how important it is, but Mr. Bishop has not had an opportunity yet and wants to conclude.

Mr. BISHOP. General, I will let you actually answer this question anyway, and because we are running to a vote, I am not going to

be cute and ask questions. Let me just run through what I want to say.

Mr. ABERCROMBIE. Sure.

Mr. BISHOP. Chairman Abercrombie, I appreciate you holding this hearing. It is extremely important. It is also very troubling.

The things we have heard today from all of you reminds me as if I am reading a textbook history about 60 years ago when we were deciding whether to have an Air Force in the first place. It is basically the same argument, more compound sentences being produced and different technology, but it is the same basic arguments that are going through there.

I want to take it one step further, as I assume we are probably going to not come back after the vote, Mr. Chairman?

Mr. ABERCROMBIE. Yes. We will conclude now, but the subcommittee will meet. I will call a meeting of the members.

Mr. BISHOP. I am sure you will. We always get those meetings.

But let me just take it one step further. And I am assuming, General Deptula, that as we envision the future of the Air Force, fighter commands or fighter squadrons will consist of manned missions, manned fighters, in conjunction with unmanned aircraft at the same time. And I would just say this for my colleagues on the staff, if we do not produce the F35 in sufficient quantities, we do not have the technology to combine those in the future, and 15 years from now we are going to be in a less secure situation if we don't have that technology going with this technology.

I am going to put that pitch in for the 35 and the 22 as essential aircraft to combine with the unmanned aircraft that we have that——

Mr. ABERCROMBIE. And to think I was inches from a clean getaway.

Mr. BISHOP. I am clean. I am done.

Mr. ABERCROMBIE. Go ahead, General. You get the last word.

General DEPTULA. Thank you very much, Mr. Chairman.

Mr. ABERCROMBIE. I want to take that anxious look off your face.

General DEPTULA. I just wanted to reflect on Congressman Marshall's remarks in articulating that the objective of the Air Force here is to get medium- and high-altitude UAV ISR distribution to be as transparent and joint as the GPS signal is to all the services. GPS is 100 percent owned and operated by the Air Force, yet its effect has become so ubiquitous, it is depended upon by all the services without any concern. We can do that with medium- and high-attitude UAVs.

Mr. ABERCROMBIE. Thank you.

General DEPTULA. And I would request to have my complete oral statement be entered into the record.

Mr. ABERCROMBIE. Yes, of course. Of course you can.

And again, all of you, take the opportunity of Mr. Turner's question to write your definitive statement on this and we will take it from there. I am very——

Mr. TURNER. Mr. Chairman, can I ask for one more thing? When they are doing that written statement, I would really like for each of them to also comment on whether or not they disagree with the GAO report, as General Sorenson said that he did.

Mr. ABERCROMBIE. Okay. Sure.

Mr. TURNER. Because saying that we won't get what we want and the GAO report saying, well, you know you haven't asked, is probably a pretty good conclusion.

Mr. ABERCROMBIE. We will do that.

We are very grateful to you, very, very much indeed. And we will try to bring this to a quick resolution.

Hearing is closed.

[Whereupon, at 12:15 p.m., the subcommittee was adjourned.]

A P P E N D I X

April 19, 2007

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

APRIL 19, 2007

United States Government Accountability Office

GAO

Testimony

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

For Release on Delivery
Expected at 10:00 a.m. EDT
Thursday, April 19, 2007

INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE

Preliminary Observations on DOD's Approach to Managing Requirements for New Systems, Existing Assets, and Systems Development

Statement of Davi M. D'Agostino
Director, Defense Capabilities and Management Issues
Sharon L. Pickup
Director, Defense Capabilities and Management Issues
Michael J. Sullivan
Director, Acquisition and Sourcing Management Issues

G A O
Accountability • Integrity • Reliability

GAO-07-596T

April 19, 2007

GAO
Accountability·Integrity·Reliability
Highlights

Highlights of GAO-07-596T, testimony before the Subcommittee on Air and Land Forces, Committee on Armed Services, House of Representatives

INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE

Preliminary Observations on DOD's Approach to Managing Requirements for New Systems, Existing Assets, and Systems Development

Why GAO Did This Study

As operations overseas continue, DOD is experiencing a growing demand for intelligence, surveillance, and reconnaissance (ISR) assets to provide valuable information in support of military operations. While the 2006 Quadrennial Review emphasized the need for the ISR community to improve the integration and management of ISR assets, DOD plans to make significant investments in ISR capabilities for the future. Congress has been interested in DOD's approach for managing and integrating existing assets while acquiring new systems.

This testimony addresses preliminary observations based on GAO's ongoing work regarding (1) the status of DOD initiatives intended to improve the management and integration of ISR requirements and challenges DOD faces in implementing its initiatives, (2) DOD's approach to managing current ISR assets to support military operations, and (3) the status of selected ISR programs in development and the potential for synergies between them.

GAO's ongoing work included document review, interviews with officials at relevant organizations, observations of some U.S. Central Command operations, and review of 13 airborne ISR development programs.

www.gao gov/cgi-bin/getrpt?GAO-07-596T

To view the full product, including the scope and methodology, click on the link above For more information, contact Davi D'Agostino at (202) 512-5431 or dagostinod@gao.gov, Sharon Pickup at (202) 512-9619 or pickups@gao.gov, or Michael Sullivan at (202) 512-4841 or sullivanm@gao gov

What GAO Found

DOD's important first steps to formulate a strategy for improving the integration of future ISR requirements include developing an ISR Integration Roadmap and designating ISR as a test case for its joint capability portfolio management concept. DOD developed a statutorily required ISR Roadmap that catalogues current ISR capabilities. GAO's preliminary work, however, has shown that the Roadmap does not (1) identify future requirements, (2) identify funding priorities, or (3) measure progress. Also, the Roadmap does not yet clarify what ISR requirements are already filled or possibly saturated, identify critical gaps for future focus, or define requirements for meeting the goal of global persistent surveillance. DOD's second initiative to improve the integration of the services' ISR programs is assigning management of ISR issues as a test case of its joint capability portfolio management concept. The intent of the test case is to explore whether managing groups of ISR capabilities across DOD will enable interoperability of future capabilities and reduce redundancies and gaps. Although in its early stages, GAO identified challenges, such as the extent to which the services will adopt suggestions from portfolio managers.

DOD's approach to managing its current ISR assets limits its ability to optimize its use of these assets. U. S. Strategic Command is charged with making recommendations to the Secretary of Defense on how best to allocate to combatant commanders theater-level assets used to support operational requirements. While it has visibility into the major ISR programs supporting theater-level requirements, it does not currently have visibility into all ISR assets. Also, the commander responsible for ongoing joint air operations does not currently have visibility over how tactical assets are being tasked. Nor do tactical units have visibility into how theater-level and ISR assets embedded in other units are being tasked. Further, DOD lacks metrics and feedback to evaluate its ISR missions. Without better visibility and performance evaluation, DOD does not have all the information it needs to validate the demand for ISR assets, to optimize the capability offered by these assets, to achieve a joint approach to employing its ISR assets, and to acquire new systems that best support warfighting needs.

Opportunities exist for different services to collaborate on the development of similar weapon systems as a means for creating a more efficient and affordable way of providing new capabilities to the warfighter. We have identified development programs where program managers and services are working together to gain these efficiencies and where less collaborative efforts could lead to more costly stovepiped solutions. Additionally, most of the 13 airborne ISR development programs that we reviewed had either cost growth or schedule delays. These problems resulted from not following a knowledge-based approach to weapon system development as provided for in Defense policy. In some cases, delay in delivering new systems to the warfighter led to unplanned investments to keep legacy systems relevant.

Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to discuss GAO's work for this Subcommittee on the Department of Defense's (DOD) management and acquisition of intelligence, surveillance, and reconnaissance assets, including unmanned aircraft systems. As you know, intelligence, surveillance, and reconnaissance (ISR) activities are central to ongoing military operations. Effective ISR can provide early warning of enemy threats and precision targeting, as well as enable U.S. military forces to increase effectiveness, coordination, and lethality. Battlefield commanders rank the need for ISR systems and the information they produce as high on their priority lists, a fact that is reflected in DOD's planned investment in ISR. The demand for ISR assets at every level of command is growing, and DOD is making investments in a number of ISR systems, including unmanned aircraft systems, manned platforms, and space-borne, maritime, and terrestrial systems. Although the United States has significant ISR capabilities, their effectiveness has been hampered by gaps in capabilities, growing competition for assets, unavailability when needed, and systems that do not fully complement one another. The 2001 and 2006 Quadrennial Defense Reviews emphasized the increasingly important role intelligence capabilities—including manned and unmanned airborne and space capabilities—play in supporting military operations and acknowledged that the ISR community as a whole must move toward a collaborative enterprise to achieve more responsive support for civilian decision makers and commanders engaged in planning and executing operations. The 2006 Quadrennial Defense Review also called for a shift from military service-focused acquisition systems and concepts of operation to a more joint approach to acquiring and employing defense assets. Further, as GAO has emphasized, resources for investments in ISR capabilities are likely to be constrained by the fiscal challenges of the federal budget.

Since we testified before this Subcommittee last year on one component of DOD's ISR enterprise—unmanned aircraft systems—demand for ISR support has continued to grow, and DOD is planning to invest in new systems with expanded and new capabilities. Meanwhile, growing out of the 2006 Quadrennial Defense Review's recommendations, DOD has undertaken a number of studies designed to determine future ISR requirements and established a new organization to help integrate current assets to improve its processes for supporting combat operations. In addition, DOD has updated its ISR Integration Roadmap. Today, you asked us to discuss our preliminary observations on DOD's management of ISR requirements, distribution of current assets, and planned acquisitions based on ongoing work we are conducting for this Subcommittee.

Specifically, we will highlight (1) the status of DOD initiatives aimed at improving the management and integration of ISR requirements and challenges the department faces in implementing the initiatives, (2) DOD's approach to managing current ISR assets to support military operations, and (3) the status of selected ISR programs in development and the potential for synergies between them. We will be continuing our work on the management of ISR requirements, the support of ISR assets for combat operations, and the acquisition of ISR capabilities, and we plan to issue reports based on this work later this year.

To understand the status of initiatives within DOD to improve the management and integration of ISR requirements, we analyzed DOD's ISR Integration Roadmap and updates. We also reviewed documentation on ISR requirements generation and validation that we obtained from DOD's Joint Capabilities Integration and Development System as well as previous studies related to DOD's management of ISR assets. In addition, we discussed DOD's ISR capabilities management initiatives and challenges with senior officials from the Office of the Under Secretary of Defense for Intelligence; the Joint Staff; the Battlespace Awareness Functional Capabilities Board; the National Security Space Office; the Air Force; the Army; the Navy; the U.S. Strategic Command's Joint Functional Component Command for Intelligence, Surveillance, and Reconnaissance; the U.S. Central Command; the U.S. Special Operations Command; and the Defense Intelligence Agency.

To assess the effectiveness of DOD's approach to managing current ISR assets in support of ongoing combat operations, we interviewed officials and reviewed documentation from the Unmanned Aircraft Systems Planning Task Force within the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics; the Joint Staff; each of the military services; U.S. Central Command and associated Army and Air Force component commands; the Joint Functional Component Command for Intelligence, Surveillance, and Reconnaissance; and other organizations. We also reviewed documentation and interviewed officials at U.S. Central Command, Central Command Air Forces, and the Combined Air Operations Center to better understand how ISR assets are assigned to specific missions. To understand how requests for ISR support are generated and satisfied at the tactical level, we spoke with units who recently returned from, or are currently supporting, ongoing operations in Iraq and Afghanistan as well as units within the services such as the Marine Corps' Tactical Fusion Center that are involved in determining if tactical assets are available to satisfy those requests or if the requests need to be forwarded for theater-level support. To

understand DOD's ongoing efforts to study its process for tasking ISR assets, we reviewed documentation and interviewed an official from the Battlespace Awareness Functional Capabilities Board. Additionally, we discussed the use of unmanned aircraft systems in military operations with U.S. Central Command officials and units who recently returned or are currently supporting operations in Iraq and Afghanistan.

To assess the status of selected ISR programs and the potential for synergies between them, we obtained and analyzed programmatic and budget documents for each of the systems we reviewed. We also discussed the status of each program with officials at the program office level and with officials from the Army, Navy, and Air Force. In addition, we discussed the potential for synergies among programs with officials from the Joint Chief of Staff for Intelligence.

We conducted our ongoing work from June 2006 to April 2007 in accordance with generally accepted government auditing standards.

Summary

DOD has taken some important first steps to formulate a strategy for improving the integration of future ISR requirements—the development of its ISR Integration Roadmap and the inclusion of ISR systems across DOD in a test case for the joint capability portfolio management concept. In response to a statutory requirement, DOD developed the ISR Integration Roadmap to guide the development and integration of DOD ISR capabilities. Our preliminary work has shown, however, that while DOD's ISR Integration Roadmap sets out some strategic objectives, such as attaining global persistent surveillance, it does not clearly (1) identify future ISR requirements and how DOD plans to achieve them, (2) identify funding priorities, or (3) establish mechanisms to ensure that services' investment plans reflect the overall strategy and to measure DOD's progress toward strategic goals for the ISR enterprise. The ISR Integration Roadmap also does not define requirements for global persistent surveillance, clarify what ISR requirements are already filled, identify critical gaps as areas for future focus, or otherwise represent an enterprise-level architecture of what the ISR enterprise is to be. DOD's second initiative is its application of the joint capability portfolio management concept to ISR systems across DOD as a test of the concept. Through the capability portfolio management concept, DOD seeks to develop and manage ISR capabilities across the entire department — rather than by military service or individual program—and by doing so, enable interoperability of future capabilities and reduce redundancies and gaps. While implementation of the portfolio management concept is in its

early stages, our preliminary assessment identified challenges. For example, the portfolio managers do not currently have the authority to direct services' investments in ISR capabilities, and DOD leadership is monitoring the portfolio management test cases to determine whether such authority is needed. Therefore, the extent to which the services will change their investment plans to adopt suggestions from portfolio managers to maximize the effectiveness of the overall enterprise is not clear. In addition, DOD has undertaken some data-driven analyses of the capabilities and costs of different systems that could provide portfolio managers with a basis for making trade-offs among competing investment options. We identified some limitations to the analysis that DOD performed. Still, if expanded to be more comprehensive and integrated, this analytical approach could inform portfolio managers and decision makers and enable DOD to develop and field the ISR capabilities that most efficiently and effectively fill gaps and reduce redundancies.

DOD's approach to managing its current ISR assets, including unmanned aircraft systems, limits its ability to optimize the use of these assets. While the Joint Functional Component Command for Intelligence, Surveillance, and Reconnaissance (JFCC-ISR), which is charged with recommending to the Secretary of Defense how theater-level assets should be allocated to support operational requirements of combatant commanders, has visibility into the DOD ISR programs supporting theater-level requirements, it does not currently have visibility into all ISR assets. JFCC-ISR is working to increase its knowledge of these assets so that it can consider all assets in the allocation process. Similarly, during ongoing operations, the commander responsible for planning, coordinating, and monitoring joint air operations does not currently have visibility over how tactical assets are being tasked, which could result in unnecessary duplicative taskings and limit DOD's ability to leverage all available ISR assets. In addition, DOD lacks sufficient metrics and feedback for evaluating the performance of its ISR assets. DOD currently assesses its ISR missions with limited quantitative metrics such as the number of targets planned versus the number collected against. DOD officials acknowledge more needs to be done and there is an ongoing effort within DOD to develop improved metrics and identify qualitative as well as quantitative ISR metrics, but progress has been limited and no milestones have been established. Further, although DOD guidance calls for an evaluation of the effectiveness of ISR support in meeting warfighter requirements, DOD officials acknowledge that this feedback is not consistently occurring, due mainly to the fast pace of operations in theater. Without sufficient visibility over the full range of available ISR assets and feedback and metrics for evaluating ISR missions, DOD may not be in the best position to validate

the true demand for ISR assets, ensure it is optimizing the use of existing assets, or acquire new systems that best support warfighting needs.

The services are not required to jointly develop new weapon systems but can attain economies and efficiencies when this happens. Short of a joint development program, there are still opportunities for similar weapon systems being developed by different services to gain synergies that can result in providing new capabilities to the warfighter more efficiently and affordably. We have identified development programs where program managers and services are working together to gain these efficiencies and where less collaborative efforts could lead to more costly stovepiped solutions that are redundant. Additionally, of the 13 airborne ISR programs that we reviewed, most have encountered either cost growth or schedule delays. These problems are typically the result of not following a knowledge-based approach to weapon system development as provided for in DOD policy. In some cases, the resultant delay in delivering the new capability to the warfighter has led to unplanned investments to keep legacy systems relevant and operational until the new capability is finally delivered.

Background

The term "intelligence, surveillance and reconnaissance," or "ISR," encompasses multiple activities related to the planning and operation of sensors and assets that collect, process, and disseminate data in support of current and future military operations. Intelligence data can take many forms, including optical, radar, or infrared images or electronic signals. This data can come from a variety of sources, including surveillance and reconnaissance systems ranging from satellites, to manned aircraft like the U-2, unmanned aircraft systems like the Air Force's Global Hawk and Predator and the Army's Hunter, to other ground, air, sea, or space-based equipment, to human intelligence teams. DOD ISR activities support the missions of the Department of Defense and the Director of National Intelligence, as well as the missions of other government agencies. ISR activities directly support current and future operations and military forces rely on the collection, analysis, and dissemination of intelligence in the planning and conduct of their operations and activities.

Many defense organizations play a role in identifying ISR requirements, managing current assets, and developing new capabilities. DOD established the Under Secretary of Defense for Intelligence (USD(I)) to coordinate policy and strategic oversight of defense intelligence, security, and counterintelligence to meet combatant commander requirements. Other defense intelligence agencies, such as the National Security Agency,

the National Reconnaissance Office, and the National Geospatial-Intelligence Agency have key roles in supporting defense and national security missions.

Combatant commanders may identify their needs for ISR capabilities to support their missions through the Chairman of the Joint Chiefs of Staff. For example, the U.S. Central Command is charged with identifying the ISR capabilities required to support his theater of operations. Generally, the individual military services or other DOD agencies are responsible for managing the acquisition of new DOD ISR systems.

In 2003, DOD altered its unified command plan to give the U.S. Strategic Command (USSTRATCOM) responsibility for planning, integrating, and coordinating ISR in support of strategic and global operations. To execute this responsibility, USSTRATCOM established the Joint Functional Component Command-ISR in March 2005 and designated the Director of the Defense Intelligence Agency as the commander. The Joint Functional Component Command-ISR is charged with developing strategies for distributing, or allocating, existing ISR assets among combatant commanders and ensuring the integration and synchronization of DOD, national, and allied ISR capabilities and collection efforts. In the case of ongoing operations, the Joint Force Air Component Commander generally tasks theater-level ISR assets made available for support of the Joint Force Commander's operational objectives.

Implemented in 2003, the Joint Capabilities Integration and Development System (JCIDS) is DOD's principal process for identifying, assessing, and prioritizing proposals to improve existing capabilities and develop new capabilities. The JCIDS process is designed to facilitate coordination among DOD components in assessing proposals for new capabilities to ensure that they enable joint forces to meet the full range of military operations and challenges. Under the JCIDS collaborative review process, proposals for new intelligence capabilities that support DOD or national intelligence requirements must be reviewed by the Joint Requirements Oversight Council, which consists of the Vice Chairman of the Joint Chiefs of Staff and a four-star officer designated by each of the military services. Eight Functional Capabilities Boards assist the Joint Requirements Oversight Council in evaluating proposals and making recommendations on approval.[1] The Battlespace Awareness Functional Capabilities Board

[1]The other Functional Capabilities Boards are Command and Control, Focused Logistics, Force Management, Force Protection, Force Application, Net-Centric, and Joint Training.

(BA/FCB) is responsible for reviewing proposals to develop and acquire new ISR capabilities.

Under section 426 of title 10 of the U.S. Code, DOD is required to establish an ISR Integration Council to serve as a forum for the services and the defense intelligence agencies to discuss their ISR integration efforts in order to ensure unity of effort and preclude unnecessary duplication of effort. Led by the Undersecretary of Defense for Intelligence, the council is statutorily made up of senior intelligence officers from each of the armed services and U.S. Special Operations Command, the directors of the defense intelligence agencies, and the Joint Staff Director for Operations.[2] DOD is also required under section 426 to develop a comprehensive plan—known as the ISR Integration Roadmap—to guide the development and integration of DOD ISR capabilities from 2004 through 2018. DOD published the first iteration of the ISR Integration Roadmap in May 2005 and updated the Roadmap in January 2007. The details of the ISR Integration Roadmap are classified, but the management issues and initiatives it contains are not classified.

DOD Is Undertaking Important Initiatives, But the Extent to Which These Will Guide Future Investments to Achieve Better Integration of ISR Assets Is Not Clear

Over the past few years, DOD has taken some important steps to enable it to take a department-wide view of ISR capabilities. These steps are important in DOD's efforts to formulate a strategy for meeting future ISR requirements in a more integrated manner by considering how existing and future assets will fit together to provide needed information to support combatant commanders and national decision makers. Specifically, DOD has developed and is updating a statutorily required ISR Integration Roadmap that charts current programs and has begun testing portfolio management principles to manage the requirements for future ISR capabilities. However, these two initiatives are in the early stages of implementation and have some limitations, and it is unclear whether these initiatives will be enough to improve integration of DOD ISR assets and guide DOD ISR investment decisions.

ISR Integration Roadmap

DOD's ISR Integration Roadmap is a noteworthy step for DOD in examining the ISR capabilities that DOD currently has available and in

[2] The Under Secretary of Defense for Intelligence has voluntarily expanded membership of the council to include representatives of several additional Joint Staff and Office of the Secretary of Defense offices, a representative of U.S. Joint Forces Command, and the Commander of U.S. Strategic Command.

development, although the Roadmap does not represent a comprehensive vision for the ISR enterprise or define strategy to guide future investments. First published in May 2005 in response to a statutory requirement and updated in January 2007, DOD's ISR Integration Roadmap comprises a catalogue of detailed information on all the ISR assets being used and developed across DOD, including ISR capabilities related to collection, communication, exploitation, and analysis. DOD's recent update took the ISR Integration Roadmap a step farther than its 2005 version because it incorporated information from the QDR and the National Intelligence Strategy. For example, the updated version includes a list of the ISR-related QDR decisions aimed at achieving future joint force characteristics and building on progress to date, such as increasing investment in unmanned aircraft systems and balancing air- and space-borne ISR capabilities. In addition, the recent ISR Integration Roadmap included changes in funding and ISR program information driven by the fiscal year 2007 President's Budget.

We believe that, given the vast scope of ISR capabilities, which operate in a variety of mediums and encompass a range of intelligence disciplines, the ISR Integration Roadmap represents a significant step toward providing DOD leadership and the Congress with the information needed to assess the strengths and weaknesses of current ISR capabilities. However, while the Roadmap sets out some strategic goals objectives for the defense ISR enterprise,[3] such as recapitalizing ISR capabilities, it does not yet constitute an enterprise-level architecture or represent an investment strategy. The Roadmap does not clearly show how the ISR systems—existing and future—will fit together in a vision for common architecture to most efficiently meet priority ISR requirements or provide a basis for making trade-offs among competing programs. Specifically, the Roadmap does not (1) identify overall ISR requirements and how DOD plans to achieve them, (2) identify funding priorities, and (3) establish mechanisms to enforce an investment strategy or measure progress. Moreover, the Roadmap does not clarify what requirements for future ISR systems are already filled, or possibly saturated, identify the critical capability gaps that need to be filled by future systems, or identify focus areas for future requirements. For example, although the Roadmap sets

[3] The Defense ISR Enterprise consists of the intelligence components of DOD operating cohesively to fulfill the Secretary of Defense's obligation to meet DOD's intelligence needs and a significant set of government-wide intelligence needs (as tasked by the Director of National Intelligence.)

the objective of attaining global persistent surveillance,[4] it has not yet defined the requirements for persistent surveillance or how to use current assets to attain it. We have previously testified on the need for better planning for other ISR-related development programs. For example, DOD has continued to request funding to support the services' plans to develop new unmanned aircraft system capabilities in the absence of overall plans to guide development and investment decisions. DOD officials acknowledged that the ISR Integration Roadmap has limitations and said that these limitations will be addressed in future revisions. As the department moves forward with its ISR Integration Roadmap, we believe it could provide a basis for DOD to determine the mix of future capabilities that provides the best value with regard to their place in an overarching ISR architecture.

Battlespace Awareness Capability Portfolio Management

DOD is attempting to better manage the requirements for future ISR capabilities across DOD by applying a joint capability portfolio management concept to ISR assets. In September 2006, the Deputy Secretary of Defense decided to bring ISR systems across DOD together into a capability portfolio as part of a test case for the joint capability portfolio management concept. The capability portfolio containing these ISR systems is known as the battlespace awareness capability portfolio, and it is one of the four test cases for exploring this management concept.[5] The intent of the ISR portfolio management test case is to enable DOD to develop and manage ISR capabilities across the entire department—rather than by military service or individual program—and by doing so, to improve the interoperability of future capabilities, minimize capability redundancies and gaps, and maximize capability effectiveness. The Under Secretary of Defense for Intelligence is the lead office for battlespace awareness capability portfolio management. The ISR Integration Council acts as the governance body for the ISR portfolio management effort. In addition, the Under Secretary of Defense for Intelligence works closely

[4] DOD defines persistent surveillance as the integrated management of a diverse set of collection and processing capabilities, operated to detect and understand the activity of interest with sufficient sensor dwell, revisit rate, and required quality to expeditiously assess adversary actions, predict adversary plans, deny sanctuary to an adversary, and assess results of U.S./coalition actions.

[5] Under this concept, a group of military capabilities, such as ISR capabilities, is managed as a joint portfolio rather than separately by each service. The other test cases are Joint Command and Control, Joint Net-Centric Operations, and Joint Logistics.

with the Battlespace Awareness Functional Capabilities Board,[6] which is a Joint Staff organization that provides analytic support for the Joint Requirements Oversight Council's discussions and decisions on ISR capability needs, joint concepts, and programmatic issues.

Battlespace awareness capability managers reviewed and prioritized ISR assets to inform budget development for the first time with the fiscal year 2008 budget, and the portfolio management concept is still being tested. Therefore, it is too early to assess its effectiveness in integrating ISR programs to meet future requirements. However, our preliminary work has shown that the concept faces implementation challenges, among them clarifying the responsibilities and authorities of the capability portfolio managers in relation to the services in order to make trade-offs among competing service priorities. For example, the ISR Integration Council held discussions on service resource allocation decisions in an effort to achieve consensus among the services, combatant commanders, and other stakeholders. The Council proposed recommendations for rebalancing the services' investments in their respective ISR portfolios during the fiscal year 2008 budget. However, the ISR Integration Council did not have the authority to compel services to change their budget plans. According to defense officials, there were some disagreements between the ISR Integration Council's recommendations and the services on funding levels for ISR systems. These issues were elevated to the Deputy Secretary of Defense for final decision. DOD leaders are monitoring the implementation of the capability portfolio test cases to determine whether portfolio managers should have the authority to direct changes to service plans. However, without authority to direct the military services to adopt any of its suggestions, it is unclear the extent to which the ISR Integration Council can influence service plans.

The Battlespace Awareness Functional Capabilities Board is charged with reviewing service proposals for new ISR capabilities and the Under Secretary of Defense for Intelligence assists in this effort. The documentation that the board reviews provides analysis of the capability required and includes cost information related to the proposed approach for generating the capability. However, it is not clear to what extent these proposals are based on a comprehensive analysis that includes data on

[6] The principal members of the Battlespace Awareness Functional Capabilities Board are representatives from the services, the combatant commands, the Joint Staff, OUSD(AT&L), the Director, PA&E, and OASD(NII)/DOD Chief Information Officer.

cost/performance evaluations and consideration of national-level capabilities.

Our preliminary work identified an example of the kind of data-driven analysis of alternative investment strategies that we believe could be useful to battlespace awareness capability portfolio managers for analyzing competing ISR programs and developing an investment strategy for the future. In 2004, the National Security Space Office[7] completed a limited architecture analysis of ISR assets using cost and performance data. Specifically, the National Security Space Office analyzed how much additional ISR capability would be provided by various ISR system mixes for given levels of additional investment. The intent of the study was to provide insight into the most efficient mix of current and planned ISR systems. While the analysis was a useful demonstration of an approach to inform decision makers, it had several limitations. For example, the analysis did not include all national and tactical ISR systems, mainly focusing on space and air. The analysis also assumed that the additional infrastructure needed to support integration of information from additional ISR systems would be available, while the costs associated with such additional infrastructure, which are difficult to estimate, were not included in the analysis. Further, the analysis was limited in that it only considered ISR capabilities for levels of increased investment, not for levels of decreased investment; thus, it did not consider what the most efficient mix of ISR systems would be if limited resources forced decision makers to decrease funding for ISR programs. Moreover, the analysis represented a one-time effort and has not been repeated. Still, we believe that, if expanded to be more comprehensive and integrated, this type of data-driven analytical approach could inform decision makers on the implications of various options for providing the most effective mix of ISR capabilities that DOD can afford. Without an enterprise-level architecture and an ongoing and comprehensive data-driven analysis of the most efficient solutions, it is not clear to us how DOD can be assured that it is developing and fielding the ISR capabilities that most efficiently and effectively fill gaps and reduce redundancies.

[7] The National Security Space Office (NSSO) falls under the office of DOD's Executive Agent for Space—the Under Secretary of the Air Force. Its mission is to provide unity of effort and strategic focus to national security space issues. The mission of the NSSO's ISR Functional Integration Office, which conducted this analysis, is to create and sustain the nation's integrated ISR architecture to provide a basis for informed decision making across the national security enterprise.

Future GAO Work Will Continue to Focus on DOD's Approach for Developing ISR Capabilities

While our preliminary work has focused on the new processes that DOD has established to address what it has acknowledged are weaknesses in its planning for integrated future capabilities, our future work will investigate DOD's processes for integrating requirements and developing an investment strategy. Among the issues that we plan to address are the extent to which:

- DOD's ISR Integration Roadmap, or other DOD initiatives, establish a framework for developing an overarching joint ISR architecture and an investment strategy;
- DOD's review processes enable it to identify gaps and redundancies in ISR requirements; and
- DOD has considered comprehensive analyses of new ISR capabilities, to include consideration of all available ISR assets and cost/performance evaluations.

DOD Lacks Adequate Visibility and Metrics to Optimize ISR Assets

Given the substantial investment DOD is making in ISR assets and the increasing demand for them, effective management of these assets has become critical. Currently, DOD's approach to allocation and tasking do not provide full visibility for managing its current ISR assets. Although DOD has established a process for allocating available ISR assets to the combatant commanders to meet theater needs, including unmanned aircraft systems, it does not have visibility over all ISR assets, which would improve its ability to allocate assets. Additionally, DOD's process for tasking ISR assets does not currently allow for visibility at all levels into how ISR assets are being used on a daily basis. Furthermore, DOD does not have metrics and feedback for systematically measuring the effectiveness of ISR missions. Without better visibility and performance evaluation, DOD does not have all the information it needs to validate the demand for ISR assets, to ensure it is optimizing the use of existing assets, and to acquire new systems that best support warfighting needs.

DOD's Approach to Allocating and Tasking ISR Does Not Consider All ISR Assets

DOD uses an annual process for allocating or distributing available ISR assets to the combatant commanders to meet theater-level needs, including unmanned aircraft systems. That process is managed by USSTRATCOM's Joint Functional Component Command-ISR (JFCC-ISR), which is tasked with making recommendations to the Secretary of Defense on how best to allocate ISR resources for theater use across the combatant commands. Once ISR assets have been allocated, those assets

are available to the theater commanders to be assigned, or tasked, against specific requests for ISR support, in support of ongoing operations.

JFCC-ISR's ability to fulfill its mission of integrating DOD, national and allied partner ISR capabilities to support the warfighter depends on the extent to which it has awareness and visibility over all ISR assets including DOD, national and allied. However, although the JFCC-ISR has been assigned the mission of integrating national and DOD ISR capabilities, it does not currently have visibility into all assets that could be brought to bear to support combatant commanders' needs. Currently, JFCC-ISR has visibility into DOD ISR assets available to support theater-level requirements, but does not have the same level of visibility into other ISR assets such as national and allied. According to JFCC-ISR officials, although they are working to develop better visibility over all ISR assets by working with other defense and national intelligence agencies, they lack full visibility into these ISR assets. JFCC-ISR officials estimate it has 80-90 percent visibility into DOD ISR assets but does not have the same level of visibility into other ISR assets available to support theater-level requirements. Without an approach to its allocation process that allows visibility over all ISR capabilities and access to all relevant information, it is not clear to us that the JFCC-ISR has the tools it needs in order to fulfill its mission, in particular to leverage all available ISR assets and to optimize the effectiveness of those assets.

Greater visibility of assets is also needed during ongoing operations to improve DOD's process for tasking, or assigning ISR assets to specific missions. Specifically, greater visibility of assets is needed at the theater level. The theater combatant commander's Joint Force Air Component Commander is responsible for planning, coordinating, and monitoring joint air operations to focus the impact of air capabilities and for assuring their effective and efficient use in achieving the combatant commander's objectives. However, while the Air Component Commander has visibility into how all theater-level ISR assets, like the Air Force's Predator, are being used, it does not currently have visibility into how ISR assets, embedded in and controlled by tactical units, such as the Army's Hunter, are being used on a daily basis. Greater visibility is also needed at the tactical level to allow units a greater awareness of where other ISR assets, including both theater-level and those assets embedded in other units, are operating and what they are being used to do. Our preliminary work shows that as a result of this lack of visibility, the potential exists for unnecessary duplication, or multiple ISR aircraft to be tasked to operate in the same area and against the same requirement. However, some level of duplication may be necessary when driven by system capabilities and

mission requirements. Our work has also shown that by leveraging the capabilities of different ISR assets using techniques such as cross-cueing,[8] the Air Component Commander has been able to use the different types of capabilities brought by different theater-level manned and unmanned assets to maximize the intelligence collected. For example, a manned Joint Surveillance, Target Acquisition, and Reconnaissance system could be used to sense movement in an area and then an unmanned system such as a Predator could be called in to collect imagery to confirm suspected activity. With greater visibility at all levels into the tasking of all ISR assets, including those tactical assets controlled by the military services, there is an opportunity for DOD to gain greater synergies and optimize the use of its ISR assets, reduce the potential for unnecessary duplicative taskings, and determine whether additional perceived demand for these assets is well-founded. This visibility would also allow tactical units, when appropriate,[9] to leverage other assets operating in their area to maximize the information captured and avoid unnecessary duplicative taskings. Without this visibility, DOD is not likely to optimize the capability offered by these assets or achieve the joint approach to employing its ISR assets called for in the Quadrennial Defense Review.

DOD Lacks Metrics and Feedback for Systematically Tracking the Effectiveness of Its ISR Missions

The growing demand for ISR assets is an indication of their value in supporting combat forces, but DOD does not have sufficient metrics for evaluating the effectiveness of ISR missions and is not getting consistent feedback on whether the warfighters' needs were met. For example, DOD currently assesses its ISR missions with limited quantitative metrics such as the number of targets planned versus the number collected against. We recommended in a December 2005 report that DOD ensure its performance measurement system measures how effectively unmanned aircraft systems perform their missions, identify performance indicator information that needs to be collected, and systematically collect identified performance information.[10] DOD officials acknowledged shortcomings of its metrics, and DOD is developing qualitative as well as

[8] Cross-cueing is the collaborative effort of utilizing capabilities offered by multiple ISR platforms to fulfill a mission.

[9] Some missions, such as special operations, are classified and it is not always appropriate to share specifics of the missions.

[10] GAO, *Unmanned Aircraft Systems: DOD Needs to More Effectively Promote Interoperability and Improve Performance Assessments*, GAO-06-49 (Washington, D.C.: Dec. 13, 2005).

quantitative ISR metrics, but progress has been limited and no milestones have been established. Additionally, although DOD guidance calls for an evaluation of how effective ISR support is in meeting the warfighters' requirements, DOD officials acknowledge that this feedback is not consistently occurring mainly because of the fast pace of operations in theater. For example, while there is real-time communication among unmanned aircraft system operators, requesters, and intelligence personnel during an operation to ensure that the needed information is captured, and agency officials indicate this communication is beneficial to providing real-time feedback, there is little to no feedback after the operation to determine whether the warfighters' needs were met by the ISR mission. Without developing metrics and systematically gathering feedback that enables it to assess the extent to which ISR missions are successful in supporting warfighter needs, DOD is not in a position to validate the true demand for ISR assets, determine whether it is allocating and tasking its ISR assets in the most effective manner, or acquire new systems that best support warfighting needs.

ISR Development Programs Have Opportunities for Greater Synergies and Have Experienced Some Cost and Schedule Growth That Impact Legacy Systems

Without a comprehensive and integrated approach to managing current ISR assets and balancing demands for the ISR capabilities required for the future, some of DOD's current ISR acquisitions are not benefiting from collaboration among the services that could save time and money. Among the ISR acquisition programs we reviewed, we found specific cases where the military services' successful collaboration resulted in savings of time and resources. We also found cases where more collaboration is needed to provide greater efficiencies in developing more affordable new systems to close gaps in capabilities. Most of the 13 airborne ISR programs that we reviewed have experienced some cost and/or schedule growth. One program experienced significant cost growth and 9 programs have experienced schedule delays that range from 2 months to 60 months. These problems were caused largely by acquisition strategies that failed to capture sufficient knowledge about the product technologies and design before committing to the development or demonstration of a new system. Resultant delays in the delivery of some new systems have required DOD to make investments in legacy systems in order to keep them relevant and operational until they can be replaced by new systems.

Opportunities Exist for Greater Collaboration across the Services' ISR Programs

While the Office of Secretary of Defense has historically endorsed the concept of joint acquisitions because of the potential synergies and resultant benefits, the military services have not always embraced joint acquisitions and often prefer separately managed programs to satisfy their individual needs. As a result, opportunities to gain efficiencies through common engineering, design, and manufacturing efforts are not presented when a new acquisition program begins. However, we found the military services sometimes initiate collaborative approaches on their own to achieve some of the economies and efficiencies of a joint program. In one case, we also found the services resisted seeking synergies that could benefit both programs and lead to potential savings in development and procurement costs. The following three examples illustrate programs that are collaborating, have taken initial steps to begin collaborating, and have resisted collaborating. The ultimate extent of collaboration as well as outcomes of these programs still remains to be seen.

Successful Collaboration on Fire Scout

The Army began developing its Future Combat Systems—a family of systems that included a vertical takeoff and landing unmanned aircraft system called Fire Scout—in 2000. Program managers from the Army Fire Scout contacted their counterparts in the Navy Fire Scout program to share information and see if there could be any synergies between the two programs. This was done on their own initiative as acquisition policy does not require joint or collaborative programs. Army and Navy officials met several times to discuss configuration, performance requirements, testing, support, and other issues. Initially the requirements for the two systems were quite different. The Army's unmanned aircraft system had four blades and a larger engine, while Navy's system had three rotor blades and a smaller engine. After discussions, the Navy decided to switch to the Army's configuration. The Army is buying common components, such as the air vehicle and flight components, under the Navy contract.

An Army program management official estimated that the savings to the Army in research and development alone would be about $200 million. As both programs mature, the official believes additional synergies and savings could be realized through contract price breaks on quantities and shared test assets, such as air vehicles, support equipment, and test components. Jointly acquiring common hardware under one contract will also reduce procurement administrative lead time and permit common design, tooling, and testing. Finally, future payload development such as communications, sensors, and data links could be procured jointly.

Opportunity to Collaborate on Broad Area Maritime Surveillance (BAMS)

The Navy identified a mission need for a broad area maritime and littoral ISR capability in 2000. Based on a 2002 analysis of alternatives, the Navy decided to pursue a manned platform Multi-mission Maritime Aircraft (MMA) with an unmanned adjunct, the BAMS. The Navy subsequently performed an analysis of alternatives for the BAMS program, which identified several potential alternatives; foremost among them was the Global Hawk system. As a risk reduction effort, the Navy funded the Global Hawk Maritime Demonstration program in 2003. Working through the existing Air Force contract, the Navy procured two Global Hawk unmanned aircraft and associated ground controls and equipment. The demonstration program was expected to leverage the existing Global Hawk system to develop tactics, training, and techniques for maritime mission applications.

The BAMS program is at a critical juncture. It released a request for proposals in February 2007 and plans to proceed with system development and demonstration in October 2007. If the Global Hawk (or another existing system like the Air Force Reaper) is selected, there are opportunities for the Navy to work with the Air Force and take advantage of its knowledge on the existing platform. By adopting the collaborative techniques used by the Fire Scout officials, the Navy could leverage knowledge early in the acquisition process and avoid or reduce costs for design, new tooling, and manufacturing, and streamline contracting and acquisition processes.

Collaboration Slow to Happen on Warrior and Predator

In contrast to the Fire Scout experience, the Air Force and Army repeatedly resisted collaborating on their Predator and Warrior unmanned aircraft programs. The Air Force's Predator is a legacy program that has been operational since 1995. Its persistent surveillance/full motion video capability continues to be a valued asset to the warfighter. When the Army began in 2001 to define requirements for the Warrior, a system similar to the Predator, it did not explore potential synergies and efficiencies with the Air Force program. Both the Air Force and the Joint Staff responsible for reviewing Warrior's requirements and acquisition documentation raised concerns about duplication of an existing capability. Despite these concerns, the Army did not perform an analysis of alternatives, citing the urgent need of battlefield commanders for this capability.[11] The Army

[11] The Army asserted that its need was urgent and it could not get sufficient support from Predator because of the system's limited assets.

awarded a separate development contract to the same contractor producing the Predator.

Responding to direction from the Quadrennial Defense Review and the Secretary of Defense, the Army and Air Force agreed to consider cooperating on the acquisition of the two systems in January 2006. However, the effort has stalled because the services have different concepts of operation and requirements. For example, the Army does not agree with the Air Force's requirement for rated pilots. The Air Force and the Army are currently working to identify program synergies in a phased approach. Initially, the Air Force will acquire two of the more modern Warrior airframes and test them. Later, the services will compare their requirements for ground control stations and automated takeoff and landing. Finally, the Army and Air Force plan to compare concepts of operation and training requirements for additional synergies. However, so far the Army has coordinated the proposed approach through the Vice Chief of Staff level, but the agreement has not yet been approved by the Department of Army. The Air Force is still working to resolve comments and concerns at lower organizational levels. If this stalls, these programs could be more costly and redundant.

Some ISR Development Programs Have Experienced Problems That Have Led to Cost Growth, Delays, and Additional Investments in Legacy Systems

Nearly all of the 13 airborne ISR programs[12] we reviewed have experienced changes in cost or schedule. This can be attributed to a variety of causes. Many programs began development without a solid business case or a realistic acquisition strategy. As a result of the schedule delays in some programs, the services will have to make investments in legacy systems to keep them in the inventory longer than planned. These investments represent opportunity costs that could have been used for other needs within DOD.

Cost, Schedule, and Performance Status of Airborne ISR Programs

Programs must build a business case that provides demonstrated evidence that (1) the warfighter need exists and that it can best be met with the chosen concept, and (2) the concept can be developed and produced

[12] These 13 programs are post Milestone A and are in technology development or systems development and demonstration. A project enters technology development at Milestone A, when the decision maker has approved the technology development strategy. The purpose of this phase of development is to reduce technology risk and to determine the appropriate set of technologies to be integrated into a full system.

within existing resources—technologies, design, funding, and time. Establishing a business case calls for a realistic assessment of risks and costs; doing otherwise undermines the intent of the business case and invites failure. Once the business case is done, programs must develop a realistic acquisition strategy, which requires having critical program knowledge at key points in the acquisition. This includes knowledge about technology maturity, system design, and manufacturing and production processes. DOD's acquisition policy endorses this knowledge-based approach to acquisition. This policy includes strategies to reduce technology, integration, design, manufacturing, and production risks.

Table 1 summarizes ISR programs that have encountered problems either in development or as they prepared to begin the system development and demonstration phase of an acquisition program.[13] Results of these problems included cost and schedule growth, program restructuring, cancellation, and unplanned investments in the legacy systems that were being replaced.

Table 1: Causes and Impacts of Cost and Schedule Growth

System	Problem encountered	Impact
E-10A	Uncertain need and immature technology	Program cancelled.
Aerial Common Sensor	Requirements and design changes	Development stopped; program being restructured; schedule delayed 60 months; and increased investments in legacy systems.
Global Hawk	Concurrent acquisition; immature technology; and requirements and design changes	Cost growth (261 percent in development); schedule delayed 36 months; program restructured; potential increased investments in legacy system.
Reaper	Concurrent acquisition and immature technology	Cost growth (13 percent in development) and schedule delayed 7 months.
BAMS	Immature technology	Schedule delayed 39 months.
MMA	Immature technology	None to date.
Army Fire Scout	Acquisition dependent on another major acquisition program (Future Combat Systems)	Schedule delayed 22 months.
Navy Fire Scout	Acquisition dependent on another major acquisition program (Littoral Combat Ship)	Schedule delayed 3 months.

[13] The EPX, the Navy's replacement for its EP-3, is not included in the table because it is a new program as of February 2007 and has not had a cost increase or schedule delay.

System	Problem encountered	Impact
Space Radar	Immature technology and requirements change	Cost growth (18 percent in development); schedule delayed 8 months; and program restructured.
Multi-Platform Radar Technology Insertion Program	Acquisition strategy and funding dependent on other major acquisition programs (E-10A cancelled and Global Hawk continues)	Requirements changed and program restructured.
Warrior	Concurrent acquisition strategy and immature technology	Cost growth (21 percent in development); schedule delayed 9 months.
Airborne Signals Intelligence Payload (sensor)	Immature technology and design	Schedule delayed 2 months.

Source: GAO analysis of DOD data

Impact of Delays on Legacy Systems

Following are detailed examples of programs that failed to either develop a good business case or an executable acquisition strategy and that had problems. The outcome was that the services either had to or may have to make additional investments in the legacy systems to keep them relevant and in the operational inventory until the new system has completed development and is fielded.

Aerial Common Sensor (ACS)

The Army's termination of the ACS system development and demonstration contract could have significant schedule, cost, and performance impacts on three legacy systems in the ISR portfolio—the Army's Guardrail Common Sensor (GRCS) and Airborne Reconnaissance Low (ARL), and the Navy's EP-3. The Army and the Navy had planned a phased approach to field the ACS and retire the legacy systems from the inventory with a minimal investment in maintaining legacy systems. Delays in ACS development will now require the Army and Navy to make investments in the legacy systems at the same time that they develop new replacement systems. In addition, any delay in either the development of new systems or modification of legacy systems could result in an ISR capability gap on the battlefield.

- The GRCS and ARL were to be replaced by ACS beginning in fiscal year 2009. Since the termination of the ACS development contract, the ACS program has reverted to a predevelopment stage as the Army restructures the program. ACS is scheduled to restart system development and demonstration in 2009, 5 years later than the initial development decision. Although the Army has not established a new date for initial operating capacity, that date is also likely to slip by 5 years to fiscal year 2014. The cost to keep GRCS and ARL mission equipment viable and the platforms airworthy is estimated to be $562

million between fiscal years 2008 and 2013. Without these improvements, the systems will not remain capable against modern threats which could result in a gap in ISR capabilities on the battlefield. In addition, the airframes could not continue to fly during this time frame without some structural modifications.

- The Navy had planned to replace its EP-3 with ACS and begin fielding the new system in fiscal year 2012. After the Army terminated the ACS development contract, the Navy considered staying with the Army in its development effort. However, according to Navy officials, the Chief of Naval Operations directed the Navy to proceed with a separate development effort, designated the EPX. The Navy now plans to proceed with system development and demonstration in the fourth quarter of fiscal year 2010. The Navy has not established a date to begin fielding the new system, but that is not likely to take place before 2017. This translates into a 5-year slip in retiring the oldest EP-3 systems and will make modifications to those systems necessary so that they can remain in the field until the Navy achieves full operating capacity for its EPX. The Navy plans to invest $823 million between fiscal years 2008 and 2013 to modify the EP-3.

Global Hawk

The Air Force plans to replace the U-2 with the Global Hawk but delays in the Global Hawk program have contributed to the need to keep the U-2 in the inventory longer than anticipated. In December 2005, the Air Force had planned to begin retiring the U-2 in fiscal year 2007 and complete the retirement by fiscal year 2012. Although the next configuration of the Global Hawk (with limited signals intelligence capability) is scheduled for delivery in fiscal year 2009, it will not have the same capability as the U-2. The version of the Global Hawk that is planned to include a more robust signals intelligence capability is scheduled to begin deliveries in 2012. The Air Force is now developing a plan to fully retire the U-2s a year later in 2013 and at a slower rate than the 2005 plan. There are no funds in the budget beyond fiscal year 2006 but the Air Force intends to fund projects necessary to keep the U-2 capable.

Mr. Chairman, this concludes our prepared statement. We would be happy to answer any questions that you or members of the Subcommittee may have.

Contacts and Staff Acknowledgments

For future questions about this statement, please contact Davi D'Agostino at (202) 512-5431, Sharon Pickup at (202) 512-9619, or Michael Sullivan at (202) 512-4841. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Other individuals making key contributions to this statement include Margaret Morgan, Patricia Lentini, Michael Hazard, Assistant Directors; Gabrielle A. Carrington, Susan Tindall, Dayna Foster, Catherine H. Brown, Frank Cristinzio, LaShawnda Lindsey, Elisha Matvay, Rae Ann Sapp, Michael Aiken, and Grace Coleman.

Related GAO Products

Unmanned Aircraft Systems: Improved Planning and Acquisition Strategies Can Help Address Operational Challenges. GAO-06-610T. Washington, D.C.: April 6, 2006.

Unmanned Aerial Vehicles: Improved Strategic and Acquisition Planning Can Help Address Emerging Challenges. GAO-05-0395T. Washington, D.C.: March 9, 2005.

Unmanned Aircraft Systems: Global Hawk Cost Increase Understated in Nunn-McCurdy Report. GAO-06-222R. Washington, D.C.: December 15, 2005.

Unmanned Aircraft Systems: DOD Needs to More Effectively Promote Interoperability and Improve Performance Assessments, GAO-06-49. Washington, D.C.: December 13, 2005.

Defense Acquisitions: Changes in E-10A Acquisition Strategy Needed before Development Starts. GAO-05-273. Washington, D.C.: March 15, 2005.

Unmanned Aerial Vehicles: Changes in Global Hawk's Acquisition Strategy Are Needed to Reduce Program Risks, GAO-05-6. Washington, D.C.: November 5, 2004.

Defense Acquisitions: Greater Use of Knowledge-Based Concepts Would Reduce Risks in Developing New Signals Intelligence Aircraft, GAO-04-939 Washington, D.C.: September 30, 2004.

Force Structure: Improved Strategic Planning Can Enhance DOD's Unmanned Aerial Vehicles Efforts. GAO-04-342. Washington. D.C.: March 17, 2004.

Signals Intelligence: DOD Should Consider Joint Replacement of Aging Aircraft. GAO-02-401. Washington, D.C.: March 29, 2002.

(350883)

This is a work of the U.S. government and is not subject to copyright protection in the United States. It may be reproduced and distributed in its entirety without further permission from GAO. However, because this work may contain copyrighted images or other material, permission from the copyright holder may be necessary if you wish to reproduce this material separately.

GAO's Mission

The Government Accountability Office, the audit, evaluation and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through GAO's Web site (www.gao.gov). Each weekday, GAO posts newly released reports, testimony, and correspondence on its Web site. To have GAO e-mail you a list of newly posted products every afternoon, go to www.gao.gov and select "Subscribe to Updates."

Order by Mail or Phone

The first copy of each printed report is free. Additional copies are $2 each. A check or money order should be made out to the Superintendent of Documents. GAO also accepts VISA and Mastercard. Orders for 100 or more copies mailed to a single address are discounted 25 percent. Orders should be sent to:

U.S. Government Accountability Office
441 G Street NW, Room LM
Washington, D.C. 20548

To order by Phone: Voice: (202) 512-6000
TDD: (202) 512-2537
Fax: (202) 512-6061

To Report Fraud, Waste, and Abuse in Federal Programs

Contact:

Web site: www.gao.gov/fraudnet/fraudnet.htm
E-mail: fraudnet@gao.gov
Automated answering system: (800) 424-5454 or (202) 512-7470

Congressional Relations

Gloria Jarmon, Managing Director, JarmonG@gao.gov (202) 512-4400
U.S. Government Accountability Office, 441 G Street NW, Room 7125
Washington, D.C. 20548

Public Affairs

Paul Anderson, Managing Director, AndersonP1@gao.gov (202) 512-4800
U.S. Government Accountability Office, 441 G Street NW, Room 7149
Washington, D.C. 20548

PRINTED ON RECYCLED PAPER

FOR OFFICIAL USE ONLY
UNTIL RELEASED BY THE
HOUSE COMMITTEE ON
ARMED SERVICES

TESTIMONY OF

MR. JOHN R. LANDON

DEPUTY ASSISTANT SECRETARY OF DEFENSE,

FOR COMMAND, CONTROL, AND COMMUNICATIONS,

INTELLIGENCE, SURVEILLANCE, RECONNASSIANCE

AND INFORMATION TECHNOLOGY ACQUISITION

BEFORE THE UNITED STATES HOUSE COMMITTEE ON ARMED SERVICES

SUBCOMMITTEE ON AIR AND LAND FORCES

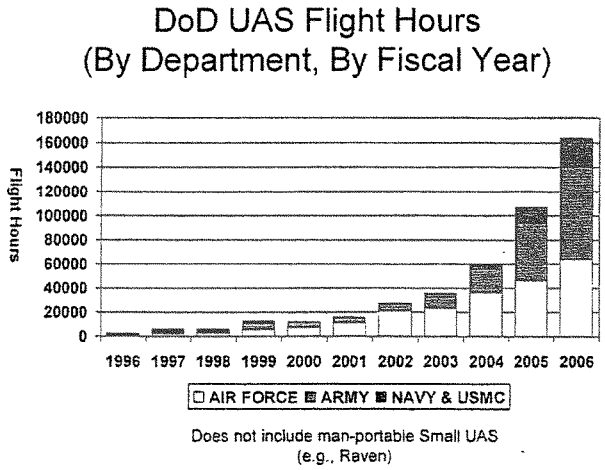
April 19, 2007

FOR OFFICIAL USE ONLY
UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE'S
SUBCOMMITTEE ON AIR AND LAND FORCES

INTRODUCTION

Good morning Chairman Abercrombie, Mr. Saxton, and Members of the Subcommittee. I am the Deputy Assistant Secretary of Defense for Command, Control, Communications, Intelligence, Surveillance, Reconnaissance and Information Technology Acquisition (C3ISR & IT Acquisition) within the Office of the Assistant Secretary of Defense for Networks and Information Integration. I am here today representing Mr. Ken Krieg, the Undersecretary of Defense for Acquisition Technology and Logistics. I provide acquisition oversight for Mr. Krieg on major defense acquisition programs and major automated information systems programs. I also support the Undersecretary of Defense for Intelligence by reviewing the acquisition programs under development by the defense intelligence agencies.

DoD Intelligence, Surveillance, and Reconnaissance (ISR) systems are playing a major combat support role in both Operation IRAQI FREEDOM and Operation ENDURING FREEDOM. During the past year, unmanned aircraft system (UAS) operations supporting the Global War on Terror expanded dramatically, with tactical and theater unmanned aircraft flying well over 160,000 hours. This is an increase of some 60,000 flying hours over this time a year ago.



Does not include man-portable Small UAS
(e.g., Raven)

UAS are playing an ever increasing role in a wide range of DoD missions, including counter-insurgency operations, force and infrastructure protection, collection of vital intelligence, and strike of time-critical targets. UAS can also play a vital role in homeland defense and domestic disaster relief operations, as well as supporting civilian agencies in other missions, including border security, when given authorization to operate in the National Airspace System.

Your committee asked that this testimony focus on specific objectives. I addressed each objective below.

The qualitative and quantitative measures used to evaluate the Department's present ISR capabilities and what those measures indicate.

The Department utilizes various measures to evaluate present ISR capabilities. These measures include tracking trend data regarding the different types of ISR assets and capabilities requested, an assessment of assets that are provided to the different Combatant Commanders, and operational data regarding how effectively and efficiently ISR assets are being utilized. The measures indicate the demand for ISR capabilities of all types are increasing at a rapid rate and that the Department's initiatives for increasing persistent surveillance in both quality and quantity are needed to move us towards this goal.

The Department's planning and resource management methodology for determining ISR required capabilities and the process through which efficient development, procurement, and support is achieved.

Defense Intelligence continues to evolve in managing and strengthening the intelligence support to the warfighter. The Department established a "Capability Portfolio Management" (CPM) approach for managing like capabilities prior to development of the Fiscal Year (FY) 2008 budget. Among the Capability Portfolios established was the Joint Battlespace Awareness (BA) Portfolio, which addressed ISR planning and resource issues in support of the Department's FY08 Budget request. As part of the CPM process, defense intelligence capabilities were reviewed across the enterprise, and then prioritized based on the warfighter's needs. These efforts enabled key trade-off decisions by the Department's leadership to ensure the most effective use of intelligence resources and investments.

Shortfalls, as applicable, in Office of the Secretary of Defense (OSD) authorities to properly oversee the military services ISR programs.

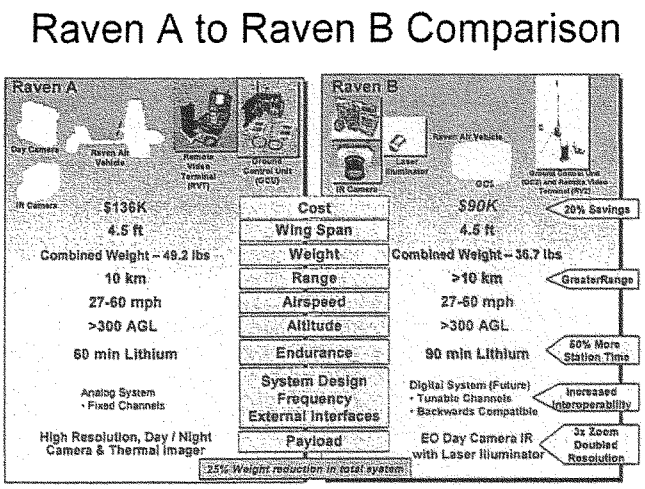
In May 2006, the Deputy Under Secretary of Defense for the Military Intelligence Program (DUSD/MIP) was established to support the continued development and management of the MIP. DUSD/MIP is also the secretariat for the Department's ISR Integration Council which is responsible for ensuring the broadest range of views are highlighted before establishing the Department's overall direction for joint-ISR capabilities. The DUSD also serves as the BA Portfolio Manager. Through the creation of this position, the Department is better able to ensure clarity, transparency, and thorough analysis of all ISR capabilities and funding to support efficient and effective resource allocation across Defense Intelligence.

DoD efforts to reduce the number of UAS and to achieve commonality, interoperability and standardization

The Department is focused on meeting the warfighter's UAS needs and doing so as effectively and efficiently as possible. The Department's UASs provide an increasing percentage of ISR capability. Our goal is to provide this capability with more common platforms to increase interoperability and reduce acquisition and support costs. Examples of the Department's efforts to increase commonality during the past year include:

- **Common Small UAS (SUAS):** The Army, Marine Corps, and the Special Operations Command are all transitioning from the Raven A, Pointer, and Dragon Eye SUAS to the Raven B SUAS. The Air Force has also bought Raven Bs. The Army's Raven B was competitively selected in October 2005 and began fielding in 2006. The Raven B's improvements include: an improved day camera with a wider field of view, increased resolution, and a 3X digital zoom; an infrared camera with a laser illuminator (25 foot diameter spot marking capability); and improved ground control and communication components that weigh only 14 pounds. (vs. 27 pounds.). In addition to the improved capability, the Raven B systems' cost is significantly lower. A Dragon Eye and Raven A system includes three aircraft and ground support equipment and costs approximately $135,000. Raven B systems are being procured today at a cost of about $90,000, and could go lower with larger order quantities. Figure 1 compares Raven A with Raven B.

Figure 1 (Source USSOCOM).



- **Common Tactical UAS:** The Marine Corps planned to upgrade its Pioneer UAS in FY2007, but recently decided to replace their Pioneer systems with Shadow, the Army's tactical UAS. Also in FY2007, the Department of the Navy combined its Marine Corps Tier II and Navy Small Tactical UAS programs as a new start for FY2008. For greater interoperability with the Army and other Marine Corps UAS, the Marine Corps plans to operate its Tier II UAS with the Army One System Ground Control Station (OSGCS). The Army will use the OSGCS to control all its tactical UAS, including Hunter, Shadow, and Air Warrior.

UAS with Common Components:

- The Army's Future Combat Systems Class IV UAS program is leveraging the Navy's Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle (VTUAV) system (Fire Scout). The Army and Navy are modifying the same manned aircraft, the Schweizer 333 helicopter. Coordination between the two program offices is on-going to investigate

potential cost savings where system commonalities and common logistics support can be identified.

- The Department also believes there are cost saving opportunities between the Army's Warrior UAS and the Air Force Predator UAS programs. During the 2006 Quadrennial Defense Review deliberations, the Joint Capability Enabler Integrated Product Team recommended combining similar capability programs into more common acquisition programs, and the Army Warrior and the Air Force Predator UAS were identified as potential candidates. In November 2006, the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)) requested that the Army and the Air Force collaborate on the two programs, and work towards a short-term goal of common aircraft, propulsion and avionics. The Under Secretary believes there is a real window of opportunity for the Department to reduce unit acquisition costs through economies of scale and less duplication of effort while improving interoperability, system performance and flexibility.

As you can see, the Department continues to strive for greater commonality through both common solutions and common components.

Standardization for UAS comes through the NATO Standardization Agreement 4586. Unmanned Ground Vehicles, Unmanned Surface Vehicles, and Unmanned Undersea Vehicle standardization is achieved through the Joint Architecture for Unmanned Systems. These two standards have established the standardization anchors for the air, land and maritime unmanned communities. An OSD sponsored, industry supported effort is also underway to harmonize these two standards enabling greatly improved interoperability among unmanned systems.

The above description discusses the Department's efforts toward commonality and interoperability with the focus on combat operational capability. Another facet of interoperability is that related to the integration of unmanned aircraft systems with manned aircraft in the National Airspace System. The Department, in coordination with the Federal Aviation Administration, is working to develop and validate standards to maximize the effectiveness of unmanned aircraft systems operating in the National Airspace System in support of homeland defense and disaster support to civil authorities.

DoD efforts to diversify suppliers and encourage participation and ensure access of small businesses and non-traditional suppliers in ISR programs

The Department is continuing to ensure the maintenance of the ISR industrial base. The growth in the Defense budget for UAS acquisition is an example of the importance of this sector to the Department. In FY2000 the budget contained approximately $200 million dollars for UAS. Based on the Presidents Budget for 2008, funding for UAS development and procurement will exceed $3 billion annually by 2010. As the UAS budget grows, the revenues accrued by small businesses and non-traditional suppliers will also grow.

Today, the Military Departments have a force of over 3400 small UA and over 500 tactical and theater-level UA supporting military operations worldwide. This is noteworthy when one recalls that the Department operated only one UAS type in support of Operation DESERT STORM in 1991; and as late as 2000, we had less than 50 operational tactical UA systems. We are buying more systems, and providing more capability to the warfighter. It is important to note that UA come in a wide variety of sizes and with differing capabilities and performance characteristics. This characteristic has led to the growth of the industrial base, one that includes non-traditional defense industry. In fact, most of the Department's small and tactical UA are produced by such companies.

The Department's investment in this innovative technology has led to growth in both the variety and number of capabilities provided by unmanned systems. In the past, UAS programs evolved into operational systems from technology demonstrations that involved limited competition and a relatively small supplier base. Today's programs are openly competed providing access to small businesses and non-traditional defense contractors. Frequently, small businesses and non-traditional suppliers specialize in niche technology not always offered by traditional suppliers. Significant effort is made to leverage the ingenuity of non-traditional ISR suppliers. The rapid fielding of the Air Force ROVER and the Army's One System Remote Video Terminal handheld video terminals was made possible in this manner. These systems allow tactical soldiers on the ground to see the UAS full-motion video previously only seen in the theater command center.

The rapid growth of the Department's UAS provided challenges in both acquisition and operations. The use of non-traditional ISR suppliers for UAS is one method used to meet the acquisition challenge; by-products are a broader industrial base, innovation, increased competition, and reduced costs. This technology provides the DoD, and other government agencies, with a powerful capability and has allowed these benefits to accrue. Participation of a diversified supplier base is key to meeting this challenge.

DoD views on section 941 of the fiscal year 2007 National Defense Authorization Act

Section 941 of the John Warner National Defense Authorization Act for Fiscal Year 2007, Public Law No. 109-364, requires the Secretary of Defense to submit a report to congressional defense committees containing the Department's unmanned systems policy and implementation plan.

The Department initiated activities to address unmanned policy, planning, and assessment. Although not yet complete, the Department made significant progress in addressing section 941. An integrated Unmanned Systems Roadmap is being drafted with contributions from all Military Services and Combatant Commanders for all unmanned domains (land, sea, and air). This Roadmap, which we expect to publish on or about August 31, 2007, addresses policy, congressional direction, technology enablers, organizational structure, goals and objectives for unmanned systems, and schedules for introducing unmanned systems into the force structure. Additional effort is still required by the Department to respond fully to all the elements of section 941, including the requirement for a certification that an unmanned system is incapable of meeting a manned system's program requirements. We are working with your staff to refine the report to address your concerns. We anticipate submitting the report to the Committees no later than 30 September 2007.

Current views on the efficacy of the U-2 aircraft.

The U-2 has been operating at a high operations tempo in Southwest Asia for more than 6,000 days performing the high-altitude-ISR collection and dissemination mission. It continues to provide critical intelligence at every echelon of command. As part of the Department's modernization and recapitalization effort, the Global Hawk Unmanned Aerial System (UAS)

Program is expanding its capabilities by adding signals intelligence (SIGINT) and Multi-Platform Radar Technology Insertion Program (MP-RTIP) sensors to the aircraft. As more RQ-4 Global Hawks come on line and their multi-intelligence (imagery and signals) capabilities are fielded, the Department will retire U-2 aircraft. Future investments will replace and extend the multi-intelligence capabilities currently provided by the U-2. The FY 2008 budget requests for these programs were formulated to provide the foundation for this transition from the U-2 to RQ-4 in order to satisfy Combatant Commander's high-altitude-ISR requirements, and to ensure the same level of ISR capacity historically provided by the U-2 will be delivered in the future.

Rationale for Termination of the E-10A Program

The E-10A was envisioned as the nation's future capability against cruise missile detection as an integrated ISR and Battle Management Command and Control platform. The 2006 Quadrennial Defense Review (QDR) recommended removal of the E-10A production funds; however, it endorsed the technology development with test flights in 2010-2011, as a basis for future decisions on the program. Thus, the FY 2007 budget only funded the E-10 Technology Development Program and the MP-RTIP sensor development, and no operational capability after 2011. Based on QDR guidance and overwhelming fiscal pressures, the Air Force canceled the E-10A and its associated MP-RTIP Wide Area Surveillance radar development. Therefore, the FY 2008 budget only funds the smaller advanced MP-RTIP variant for Global Hawk.

When installed on the Global Hawk Block 40, MP-RTIP will provide robust Ground Moving Target Indicator and Synthetic Aperture Radar imaging in addition to current capability. The weight and power restrictions of the platform, however, drive the smaller Global Hawk Radar design and limit its performance.

Conclusion

Mr. Chairman, this concludes my prepared remarks addressing the topics you asked me to focus on. Again, thank you for the opportunity to testify. I am prepared to entertain any questions you might have.

NOT FOR PUBLICATION UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE

STATEMENT OF

BRIGADIER GENERAL WALT DAVIS
COMMANDER, JOINT UNMANNED AIRCRAFT SYSTEMS
CENTER OF EXCELLENCE

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON AIR AND LAND FORCES

ON

INTELLIGENCE, SURVEILLANCE AND RECONNAISSANCE (ISR) PROGRAMS

APRIL 19, 2007

NOT FOR PUBLICATION UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE

INTRODUCTION

Chairman Abercrombie, ranking member Congressman Saxton, and distinguished members of the Subcommittee on Air and Land Forces, thank you for the opportunity to appear before you today to address Joint Staff policy and procedural issues with regard to roles and missions, the Joint Forces Air Component Commander, designation of lead service, and executive agency responsibilities. It is my privilege to join this distinguished panel representing the Chairman, Joint Chiefs of Staff and all military and civilian members of the Joint Staff. On behalf of all our Service members, I want to thank you for your continued strong support of these great men and women. Again, I am honored to be here today.

Role the Joint Chiefs and Joint Staff play in establishing the roles and missions of the Services, designation of executive agency and/or lead agency responsibilities, and assignment of capability requirements to preclude unnecessary duplication and expenditure of resources.

Establishing the roles and missions of the Services, designation of executive agency and/or lead agency responsibilities falls under the purview of the Secretary of Defense. As the principal military advisers to the Secretary of Defense, the Joint Chiefs of Staff can advise and assist in addressing these topics. The Joint Staff's role is to assist the Chairman in accomplishing his responsibilities for: providing unified strategic direction of the combatant forces; execution of operations under unified command; and for integration of land, naval, and air forces into an efficient team.

Department of Defense (DoD) Directive 5101.1 specifically governs the establishment and administration of a DoD Executive Agent. As per this Directive, only the Secretary of Defense or Deputy Secretary of Defense can designate a DoD Executive Agent. DoD Directive 5101.1delineates a DoD-wide definition of DoD Executive Agent[1]; provides approval authority for assigning DoD Executive Agent responsibilities, function, and authorities within the Department of Defense; prescribes the policy for DoD Executive Agent management and control; and provides for the exchange of information between DoD Executive Agents and the DoD Components regarding resources and the quality of support throughout the full range of

[1] DoD Directive 5101.1 Executive Agent Definition: The Head of a DoD Component to whom the Secretary of Defense or the Deputy Secretary of Defense has assigned specific responsibilities, functions, and authorities to provide defined levels of support for operational missions, or administrative or other designated activities that involve two or more of the DoD Components.

operations. This Directive applies to the Office of the Secretary of Defense (OSD), Military Departments, Chairman of the Joint Chiefs of Staff, Combatant Commands, Office of the Inspector General, Department of Defense, Defense Agencies, DoD Field Activities; and all other organizational entities within the Department of Defense.

DoD Directive 5101.1instructs the Chairman of the Joint Chiefs of Staff (CJCS) to coordinate with the OSD Principal Staff Assistants and the Heads of the DoD Components to monitor DoD Executive Agent assignments and arrangements associated with such assignment for the impact on the full range of operations. Additionally, the CJCS will communicate to the Combatant Commander, DoD Executive Agent assignments and arrangements associated with such assignments in order to support and facilitate national military objectives throughout the full range of operations.

Assignment of capability requirements to preclude unnecessary duplication and expenditure of resources fall within the purview of the Joint Requirements Oversight Council (JROC). Title 10, USC, section 181, directed the Secretary of Defense to establish the JROC. The JROC assists the CJCS in identifying and assessing the priority of joint military requirements (including existing systems and equipment) to meet the national military strategy. The JROC also ensures that the assignment of such priorities conforms to and reflects resource levels projected by the Secretary of Defense. Furthermore, the combined efforts of the JROC helps the DoD avoid unnecessary duplication and expenditure of resources by considering alternatives to any acquisition program that has been identified to meet military requirements by evaluating the cost, schedule, and performance criteria of the program and of the identified alternatives.

The role of the Combined / Joint Force Air Component Commander in Iraq in the execution of the ISR mission, the mobile ISR resources in Iraq and of those, the resources available to him in executing the coalition ISR mission.

Capstone, keystone, and joint doctrine publications establish the responsibilities and considerations of the Joint Force Air Component Commander. Abbreviated as JFACC, this individual is "the commander within a unified command, subordinate unified command, or joint task force responsible for making recommendations on the proper employment of air forces. The JFACC plans and coordinates air operations, and accomplishes assigned operational missions.

The JFACC is given the authority necessary to accomplish missions and tasks assigned by the establishing commander."[2]

When the aerospace force in a theater of operations is multinational, as is the case in Iraq, the JFACC is designated as the Combined Force Air Component Commander. Abbreviated as CFACC, this individual executes Intelligence Surveillance and Reconnaissance (ISR) operations based on the Combatant Commander's concept of operations and air apportionment decisions. In this capacity, the CFACC is responsible for planning, coordinating, and tasking allocated and apportioned airborne ISR assets to accomplish assigned tasks and meet collection requirements.

ISR is a complex capability made up of platforms, sensors, communication nodes, and processing, exploitation, and dissemination nodes. In order to manage these assets, the Commander, United States Central Command (COMUSCENT) exercises Collection Management Authority over his ISR assets by delegating specific Collection Operations Management responsibility to his functional component commanders. The process that brings all the collection management requirements together is with the Joint Collection Management Board, held between USCENTCOM and all Task Force, Component Command, and Combat Support Agencies five times per week. For example, CFACC has Collection Operations Management for ISR platforms like MQ-1 Predator, RC-135 Rivet Joint, JSTARS, U-2, RQ-4 Global Hawk, and Senior Scout; the Combined Force Maritime Component Commander has Collection Operations Management for EP-3, P-3 AIP, and Atlantique; and Multi-National Forces-Iraq (MNF-I) has Collection Operations Management for Guardrail, Hunter, Shadow, and I-GNAT.

The CFACC, through his ISR Division at the Combined Air Operations Center, exercises Collection Operations Management for his ISR assets. During the Joint Collection Management Board, collection managers from the components and task forces brief their ISR plans for approval by USCENTCOM. In addition, ISR issues are discussed and resolved. All operational forces in Iraq, and their associated intelligence collection requirements, are represented at the Joint Collection Management Board.

Of note, ISR systems organic to specific divisions or brigades are tasked against unit-level requirements. If units cannot fulfill the entirety of their collection requirements with their organic ISR assets, they submit their collection shortfalls to MNF-I for resolution. MNF-I, in

---

[2] Joint Publication 3-0, *Joint Operations*, 17 Sep 2006.

turn, submits its collection shortfalls to the USCENTCOM JCMB for theater- or national-level collection.

In regards to the Joint Staffs position and considerations relating to the March 5, 2007 Memorandum from the Air Force Chief of Staff on "Executive Agency for Medium- and High-Altitude Unmanned Aerial Vehicles (UAVs)".

The Joint Staff will conduct a thorough review of the recent memorandum from the Chief of Staff of the Air Force (CSAF) requesting designation of the Air Force as Executive Agency for medium and high altitude UAVs (defined by CSAF memorandum as any UAV operating at 3500 feet above ground level and higher). In order to remain consistent with the standard naming convention adopted in the 2005 DoD Unmanned Aircraft Systems Roadmap, I'll refer to UAS versus UAV for the remainder of this written submission.

The Joint Staff and Service Chiefs most recently addressed the question of an Executive Agent for Unmanned Aircraft Systems in 2005, in response to Air Force Vice Chief of Staff memorandum dated 11 March, 2005. At that time, Joint Review Oversight Committee Memorandum (JROCM) 074-05 dated 11 April, 2005 designated the Air Force to lead a Joint "Tiger Team" composed of representatives from the Army, Navy, Marines, Air Force, Joint Staff, OSD, and Joint Forces Command to define the scope, composition, requirements and charter for a UAS Joint EA. The Tiger Team was also tasked to evaluate the role of a Joint UAS Center of Excellence relative to a UAS EA.

In a 1 June 2005 briefing to the Joint Review Oversight Committee, consisting at that time of: General Pace, USMC (Chairman); General Cody, USA; Admiral Willard, USN; General Moseley, USAF; and General Nyland, USMC. The Joint Staff tiger team recommended that an EA for UAS was not required. The Tiger Team however reached unanimous consensus supporting the establishment of UAS Center of Excellence and briefed their recommended concept. The JROC approved the recommendation and provided initial guidance.

Detailed implementation guidance came in the form of JROC Memorandum 136-05, dated 5 July, 2005 signed by General Pace. The memorandum directed the establishment of the Joint UAS Center of Excellence at Creech Air Force Base in Indian Springs, Nevada, to focus on

operational issues such as joint tactics, techniques, and procedures and doctrinal issues related to unmanned aircraft systems and their employment. It was directed the JUAS COE would have an Initial Operations Capability goal of 1 October, 2005. The COE is to be commanded by a 07 with a 06 deputy on a inter Service rotational basis. The Army would provide the first commander and the Air Force would provide the first deputy. The commander of the COE is assigned to and reports through the Director J-8 to the Chairman Joint Chiefs of Staff. I am the current commander of the JUAS COE and in early summer, I will turn the organization over to Brigadier General Charles Shugg (USAF).

Worthy of mentioning here is the Joint Unmanned Aircraft Systems Center of Excellence Advisory Council. The Council is chaired by the Commander of the Center of Excellence and is represented by every Service and Combatant Commander (COCOM). These 0-6 Service and Combatant Commander representatives are empowered to speak for their Service and COCOM as well as submit and validate UAS initiatives. Additionally, the membership of the Advisory council includes non-voting representation from a variety of non-service specific Government organizations as required. The JUAS COE maintains direct liaison with the council membership and the Advisory Council officially meets twice a year.

Additionally, JROC Memorandum 136-05 requested the Services re-charter their existing Joint UAS Overarching Integrated Process Team (JOIPT). The re-chartered JOIPT, subsequently re-named the Joint UAS Material Review Board was to address Joint UAS material issues and prioritize solutions. The JUAS MRB was to be chaired by a 07 on an inter-Service rotational basis starting with the current USMC chairman at that time. Because the JUAS MRBs recommendations were to be considered by the JROC through the Joint Capabilities Integration and Development System (JCIDS), the JUAS MRB 3-Star General Officer Steering Council was disbanded. The JUAS MRB was directed to have representation of all Services, Joint Staff, U.S. Joint Forces Command, and OSD. Other Combatant commands were to be represented when appropriate. The JUAS MRB is currently chaired by Brigadier General Steven Mundt (USA) and meets every four to six weeks.

The JUAS COE and the JUAS MRB both submit recommendations to the JCIDS process

via the appropriate Functional Capabilities Board and serve as JCIDS' coordination source for Service sponsored UAS submissions. The JUAS COE and JUAS MRB maintain formal liaison with each other, the Services and COCOMS. The Joint UAS Materiel Review Board and Joint UAS Center of Excellence work jointly to achieve the best UAS solutions for all our joint force.

As in 2005, the Joint Staff will again lead a thorough assessment of this Executive Agent proposal and will consider the collective input of all the Services and Combatant Commands.

CONCLUSION

Mr. Chairman, this concludes my prepared remarks addressing the topics you asked me to focus on. Again, thank you for the opportunity to testify. I am prepared to entertain any question you might have.

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE

HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON AIR AND LAND FORCES

UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: Air Force Intelligence, Surveillance and Reconnaissance (ISR) Programs

STATEMENT OF: Lieutenant General David A. Deptula, USAF
Deputy Chief of Staff, Intelligence
Surveillance and Reconnaissance
United States Air Force

April 19, 2007

NOT FOR PUBLICATION UNTIL RELEASED
BY THE HOUSE ARMED SERVICES COMMITTEE
UNITED STATES HOUSE OF REPRESENTATIVES

Mr. Chairman, distinguished members of the committee, I appreciate this opportunity to address you today as the first Air Force Deputy Chief of Staff for Intelligence, Surveillance and Reconnaissance (AF/A2). The Chief of Staff of the Air Force established this 3-Star position as a Deputy Chief of Staff to acknowledge the growing importance of intelligence, surveillance and reconnaissance (ISR) in the Air Force of the 21st Century.

Our vision is to transform Air Force intelligence into a preeminent U.S. military intelligence organization, with the most respected intelligence personnel, and the most valued ISR capability. As such, we are establishing Headquarters Air Force (HAF) A2 as the focal point for *all* things AF ISR. We are transforming our approach to ISR by managing systems, platforms, and personnel through a capabilities-based construct, rather than solely through individual program elements. What this means is that for everything from planning to programming to acquisition to employment, ISR requirements and capabilities are driving and shaping the effort to satisfy the needs of the warfighter—not numbers of platforms or pots of money. We have charted and embarked upon a way ahead that includes top-to-bottom changes in the way we do business—from realigning organizations, to recapitalizing capabilities, to refocusing our skills training programs to ensure the talents of our Airmen are optimized.

In the hearing invitation letter, your committee asked that I address major ISR investment programs and focus on specific objectives including a summary of current field operational experience for existing programs, Air Force views on the Aerial Common Sensor program, the Air Force plans for the U-2 mission, and the Air Force's decision to terminate the E-10. I address each of those subjects in detail later in this statement. First, however, I want to address the Air Force's proposal for Executive Agent (EA) for Medium- and High-Altitude Unmanned Aerial Vehicles (UAVs).

PROPOSED EXECUTIVE AGENT FOR MEDIUM- AND HIGH-ALTITUDE UAVs

The Chief of Staff of the Air Force recently sent a memo to the Deputy Secretary of Defense, the Chairman of the Joint Chiefs, the Service Chiefs, and combatant command (COCOM) commanders articulating the benefits of designating the Air Force as the Department of Defense (DoD) executive agent for medium- and high-altitude UAVs. I have provided that memo at the end of my testimony for easy reference.

In one sentence, the intent of the AF Chief's UAV executive agent proposal is to improve delivery of ISR information to America's joint warriors on the ground, at sea, and in the air while increasing jointness and achieving resource efficiencies. Specifically, the benefits of designating the Air Force as executive agent for medium- and high-altitude UAVs fall in three major categories: 1) Achieving efficiencies in acquisition; 2) Increasing warfighting effectiveness in designing an optimal medium- and high-altitude UAV concept of operations; and 3) Enhancing UAV interoperability by directing common, synchronized architectures, data links, radios, etc.

Why appoint an executive agent for medium- and high-altitude UAVs? In the dynamic post 9-11 world the DoD deployed multiple UAVs of all shapes and sizes to meet an immediate need. However, because of that proliferation, it is time to re-examine how to best orchestrate these resources jointly to ensure that the right information gets to the right combat unit at the right time.

In light of increasing resource constraints, the Services do not have the luxury of duplicating multiple UAV program offices, duplicating multiple independent training operations, duplicating multiple logistics and maintenance operations, duplicating multiple intelligence

support facilities, sustaining multiple procurement contracts, etc. This approach does not pass the common sense test with respect to economy of effort, or optimizing the way to get ISR information to America's joint warriors around the world.

The 2006 Quadrennial Defense Review (QDR) recognizes that an executive agent definition may vary, but the universal intent is to ensure joint efforts are efficiently managed and resourced. In the case of medium- and high-altitude UAVs, the executive agent would integrate the development, acquisition, and procurement of jointly designed, standardized UAVs and their associated equipment and ground-control stations. This is not unlike executive agent responsibilities assigned to the Air Force for other programs.

Advantages to the Nation derive from having a single focal point—a single Service—leading medium- and high-altitude UAV design, acquisition, and procurement. Specifically, as executive agent, the Air Force would merge and streamline the separate Service acquisition stovepipes that currently exist for medium- and high-altitude UAVs, eliminating costly duplication of effort. Immediate benefits would include reduced research, development, testing and evaluation costs, as well as decreased per-unit procurement costs resulting from greater economies of scale.

The primary focus of the executive agent would be on programs where the majority of DoD's near-term investments are being made—MQ-1 Predator, MQ-1C Warrior, RQ-4 Global Hawk, Broad Area Maritime Surveillance (BAMS), and MQ-9 Reaper. It is reasonable to expect that the present medium- and high-altitude UAV investment budget could be reduced. Additional efficiencies could be achieved through common basing, training, sustainment, and employment.

In an environment of increasingly constrained resources, the DoD cannot afford the inefficiencies that result from individual Service UAV stovepipes. Without an executive agent, the Services will likely continue their separate design and procurement efforts, and the DoD will have forfeited the considerable savings it could have realized. Additionally, the DoD will have lost an opportunity to create and harness the inter-Service synergies that would result from building upon – rather than duplicating – each Service's strengths. The Services need to be moving toward increased *interdependency*, vice resourcing to achieve *self-sufficiency*.

The UAV executive agent construct embraces the necessity (and the *benefits*) of true Joint interdependence—the notion that each Service should hone its own core competencies and rely on their sister Services to do the same. The goal is to provide an array of capabilities from which the Joint Force Commander can choose, without suffering from either significant overlap that our department's resources *cannot* sustain, or gaping holes that our warfighters *cannot* accept.

As UAV executive agent, the AF will not eliminate or subsume existing UAV "Centers of Excellence" (the Army's Center at Fort Rucker and the Joint Center outside Las Vegas) that craft tactics, techniques, and procedures for effective UAV employment. Rather, General Moseley has stated that as executive agent, the Air Force will continue to draw upon the expertise of these established Centers and synchronize their efforts to provide the Joint Force Commander with a more robust, flexible and responsive capability.

Given the aforementioned, demonstrable benefits of having an executive agent for medium- and high-altitude UAVs, which Service is best positioned to effectively serve in this role? The Air Force emerges as the logical choice for a variety of reasons.

First, the Air Force has the most experience—over a decade—in developing and fielding cutting-edge medium- and high-altitude UAV platforms and technologies. While other Services do operate similar systems, in the case of medium- and high-altitude UAVs, their systems are derivatives of technology demonstrators initially produced and fielded by the Air Force. Key to being an effective executive agent is the ability to translate joint ISR requirements into the capabilities that meet them—whether or not such capabilities currently exist. The Air Force has been succeeding in this realm for years.

A related issue is that of operational control. Currently in joint theaters around the globe, manned aircraft operating above a specified coordinating altitude (ranging from 1500 ft to 3500 ft) come under control of a Joint/Combined Force Air Component Commander (J/CFACC) as described in US Joint Doctrine. General Moseley's memo recommends applying the same operating procedures to UAVs. While operational control is not an executive agent responsibility, there is an important area of convergence. Specifically, all UAVs operating above the designated coordinating altitude must have common, interoperable systems to facilitate J/CFACC control for safe and seamless operations. As executive agent for medium- and high-altitude UAVs, the Air Force would be postured to integrate these requirements into the UAV programming and acquisition process at the outset.

With respect to numbers, from a strictly budgetary perspective, accounting for the entirety of UAVs as a system (i.e., airborne platforms, ground stations, data-handling architecture, personnel, and facilities poised to exploit, and then disseminate collected data), the Air Force surfaces as the heavy-lifter in this realm. Perhaps more telling to medium- and high-altitude UAV success are not platform counts or dollar investments, but employment usage.

Numbers aside, all the persistent surveillance in the world buys us nothing if we can't expedite the collected data to operational processing and analysis elements in a timely manner, and then get the finished intelligence into the hands of America's warriors when and where they need it. The Air Force has the most mature and robust ISR collection, processing, analysis, and dissemination architecture in place to facilitate rapid information transfer. The critical link in that chain is provided by our experienced and highly skilled intelligence professionals – without whom simple *data* would never be converted into usable *intelligence*.

The mission of the Air Force is to fly, fight, and win in air, space and cyberspace. As such, Air Force senior leaders are appointed to serve as joint force air component commanders (JFACCs) providing the theater joint force commander (JFC) a subordinate commander responsible for unifying air and space operations from all the Service components to achieve joint force objectives. At the same time the JFACC fulfills the roles of Airspace Control Authority and Area Air Defense Commander. The JFACC is charged with tasking and controlling air- and space-based assets in accordance with the Joint Force Commander's stated priorities. Using airborne assets and capabilities to meet joint force requirements is an Air Force role, one in which the Air Force has the preponderance of experience.

Designating the AF as executive agent for medium- and high-altitude UAVs is not a panacea. There will never be enough capacity to satisfy every desire for the information that UAVs provide. This sufficiency problem however, should not be confused with a lack of responsiveness. Per Joint Publication 2.0, Doctrine for Intelligence Support to Joint Operations, "Because intelligence needs will always exceed intelligence capabilities, prioritization of efforts and ISR resource allocation are vital aspects of intelligence planning." The demand for ISR assets argues for "centralized control and decentralized execution" to optimize effects required to

support respect to the JFC's highest priorities. It argues against organically assigning medium- and high- altitude UAVs to individual units solely for that unit's use precluding their benefit to the entire theater joint fight. Accordingly, optimal warfighting ISR effectiveness is gained by prioritizing medium- and high-altitude UAV allocation based on Joint Force Commander guidance to the JFACC, who will task and command and control them where they are needed most, while deconflicting them from other on-going air operations, and tracking them as part of air defense procedures.

Today, all operational Air Force medium- and high-altitude UAVs are assigned to Central Command (CENTCOM), but that will not always be the case. The war on terror is by definition "global." At some point medium- and high-altitude UAVs will be allocated to theaters other than CENTCOM—perhaps in locations without significant U.S. ground presence. A joint approach to optimal employment of these assets in any assigned COCOM in any region of the world is embedded in the JFACC structure.

Given National Security Strategy guidance mandating the intelligence enterprise become more unified, coordinated, and effective—and that it eliminate redundancy—appointing an executive agent for medium- and high-altitude UAVs is a step we can take now that will significantly contribute to that directive.

Appointing the Air Force as executive agent for medium- and high-altitude UAVs will ensure the most efficient use of DoD resources, will maximize UAV effectiveness, and will produce the most seamless array of medium- and high-altitude UAV capabilities for Joint Force and Combatant Commanders.

MAJOR ISR INVESTMENT PROGRAMS

Air Force ISR has been engaged in active combat operations, continuously, for more than 16 years. Since September 11, 2001, we have exceeded the operational pace previously thought possible. Requirements have grown each year, as has our capacity to collect intelligence anywhere, anytime, day or night, under virtually all weather conditions. Our high-altitude ISR aircraft, consisting of the manned U-2 and the RQ-4 Global Hawk, are currently flying in excess of 90 missions per month in CENTCOM alone. Our fleet of medium-altitude MQ-1 Predator UAVs has expanded such that we can now support indefinitely up to 12 simultaneous combat air patrols (CAPs) 24 hours-a-day, 7-days-a-week. We will increase this capacity to 16 CAPs by the end of the next year. Our RC-135 Rivet Joint aircraft and crews persevere in spite of being deployed in excess of what their infrastructure is designed to support. The same holds true for numerous other systems and associated personnel. To accomplish this feat the Air Force has operated at extended "above-max-surge" levels of effort. There has been a price—our systems are aging at a rate far above what was anticipated. To mitigate this, we are investing heavily in our existing systems to keep them functional while leveraging advanced technologies to optimize the capabilities of our personnel and platforms.

The Air Force is committed to enhancing our Global Hawk UAV fleet. Ongoing plans to structure its future acquisition and employment are being calculated to ensure that as the U-2 is retired from active service, there is no loss in continuity with currently provided ISR capabilities. Accordingly, in addition to developing and testing new technologies, the Air Force is also providing Global Hawk with an interim combat capability and accelerating employment options to execute the National Military Strategy.

In an effort to continue and strengthen the critical support this system is providing to CENTCOM in both OEF and OIF, the FY08 budget procures five additional Global Hawk

aircraft and sensors, one ground-control station and advanced technologies procurements for all five aircraft. The FY08 budget submission also starts funding of a much-needed maintenance depot, provides for system modifications implemented through a series of new capabilities spirals and funds the stand-up of a second Main Operating Base at Grand Forks AFB, North Dakota by FY10. Additional funding provides for RDT&E to be used to support the ongoing spiral development. Included among the many significant program events taking place this calendar year is the first flight of the larger, Block 20 aircraft on 1 March and the commencement of Global Hawk sorties in support of SOUTHCOM.

With respect to the MQ-1 Predator medium-altitude UAV, the FY08 budget request procures 24 additional aircraft and 12 Ground Control Stations. These assets represent the continuation of our planned build toward an ultimate objective force structure of 170 aircraft, covering 21 Combat Air Patrols (CAPs) by FY10. Additionally, the FY08 POM assists us in meeting the increased training capacity necessary as we continue to grow the numbers of these systems, their combat and collection capabilities and thus our reliance on this resource in meeting ever-growing warfighter requirements.

We are also continuing spiral modernizations of the RC-135 Rivet Joint signals intelligence (SIGINT) fleet. These upgrades are necessary to keep pace with the wide-ranging and continuously evolving threat posed by our adversaries, particularly in light of the rapid and continual evolution and advancements being made in the commercially available personal communication systems. This spiral modernization will be accomplished through a series of baseline modifications, designed to ensure there is no interruption in the sizeable contribution this asset brings to the fight. The FY08 budget allows for the fielding of our Baseline 8 aircraft and starts the critically needed work on Baseline 9.

In addition to improving its current collection capabilities, the Rivet Joint will also field upgrades in Net-Centric Collaborative Targeting technology; this allows multi-platform, multi-INT target geo-location, and a "reachback" capability to enable task-saturated Rivet Joint crews to send a portion of their collection to rear area facilities and operators for processing and analysis.

Just as airborne ISR collection platforms are being employed at above-maximum surge levels, so too the Air Force Distributed Common Ground System (AF DCGS). Many of the system's elements are maintained through the use of contractor support, and, as critical cogs in the AF DCGS enterprise, they have also been logging long hours and sustaining high PERSTEMPOs to prosecute the GWOT. For this reason, the FY08 GWOT request includes funding of critical Contractor Logistics Support (CLS) for these worldwide activities, essential to ensuring AF DCGS' continued ability to conduct timely exploitation of the data collected by ISR platforms.

The FY08 GWOT request also funds advancements in a number of technical capabilities across all intelligence disciplines that will improve our capacity to share data with coalition and national mission partners and to decrease the "kill-chain" timeline (the amount of time that passes between when identification of a target is made and when the appropriate assets are employed to neutralize it). It also ensures the AF DCGS weapon system is capable of leveraging data and information from an ever increasing number of ISR collection systems.

Unmanned aviation technology has matured greatly in recent years and will continue to advance at a rapid pace. UAVs such as the RQ-4 Global Hawk started out as an advanced concept technology demonstration (ACTD), a proof of technological concept. Lighter-than-air (LTA) aviation such as airships and powered wings are advancing rapidly technologically, and

we are aware of their potential benefits. Starting this year, we are evaluating several joint concept technology demonstrators (JCTD) that may be promising in the LTA regime as future technologies for niche ISR applications. While it will take time to develop and field long duration LTA and powered wing platform technology, we are evaluating candidates such as Global Observer and the SA-90 low altitude airship that may yield small-scale residuals to support unique COCOM requirements. This is another incremental step towards battlespace ISR "persistence."

THE AIR FORCE'S ACQUISITION STRATEGY FOR ISR PROGRAMS AND THE ANALYSIS THAT SUPPORTS THAT STRATEGY

The Air Force acquisition strategy for ISR programs is a dual approach designed to ensure proper stewardship of taxpayers' dollars while supporting joint warfighter needs. The Air Force continues to advance existing ISR capabilities under traditional acquisition timelines while rapidly providing enhanced capabilities in support of the GWOT.

Experience has shown that normal acquisition processes and government oversight is key to providing and sustaining long-term ISR capabilities. The Air Force follows the Integrated Defense Acquisition, Technology, & Logistics Life Cycle Management Framework for developing systems like the RQ-4 Block 30 Global Hawk and upgrading systems such as re-engining the E-8C JSTARs aircraft. Analyses conducted as part of the Joint Capabilities Integration and Development System process identify measurable needs that are entered into user Capability Development Documents (CDDs). These CDDs are used to identify baseline program capabilities, as well as incremental Pre-planned Product Improvements that are time-phased with the program budget. Air Force system program offices analyze capability needs,

required timelines, technology readiness levels and industrial capacity when starting new efforts using traditional acquisition strategies.

Another approach involves our evolutionary acquisition improvements that are managed via incremental baseline upgrades. The RC-135 Rivet Joint and MQ-1 Predator programs are prime examples of Air Force ISR programs using this acquisition approach. As noted previously, the Rivet Joint fleet is continually being upgraded with enhanced capabilities. Its new baselines are developed approximately every three years and Quick Reaction Capability (QRC) enhancements are incorporated to keep pace with rapidly evolving technologies in target communications. A second example of this acquisition strategy is the Air Force's plan to integrate Target Location Accuracy improvements on the MQ-1 Predator. This 18-month development effort will provide coordinate-seeking-weapons (e.g., JDAM) quality target coordinates automatically from the MQ-1 sensor's aimpoint.

At times, traditional acquisition strategies lack the responsiveness needed to meet warfighter requirements. A validated, combatant commander-identified "joint urgent operational need" may have a fielding solution goal of 120 days or less. Clearly, normal acquisition strategies cannot support such dynamic timelines should a materiel solution be the only possible response. The Air Force, typically in support of the Joint Staff or OSD, follows well-established procedures to determine if rapid acquisition is appropriate and has formalized programs and strategies to facilitate obtaining the needed capabilities. These rapid acquisition processes were instrumental, for instance, in providing Counter-Improvised Explosive Device (C-IED) capabilities for the GWOT, fielding one especially effective measure within four months.

SUMMARY OF CURRENT FIELD OPERATIONAL EXPERIENCE FOR EXISTING

PROGRAMS

U-2 Dragon Lady: The U-2 remains the workhorse of America's high-altitude ISR collection and dissemination mission, providing all-weather surveillance and reconnaissance, day or night, in direct support of Air Force, DoD and national requirements. Overall, the U-2 has a fully mission capable (FMC) rate of 88.2%. Its bandwidth is more than adequate for the extended tether program (ETP) or for direct downlinking via the Interoperable Airborne Data Link (IADL). The average class "A" mishap rate per 100,000 hours is 4.39 since September 2001 and 6.63 across the U-2's lifetime. Two U-2s have been lost since September 2001, one in PACOM in 2003 and one in CENTCOM in 2005. Neither aircraft was replaced. Of significant note, in varying configurations, the U-2 has flown more than 3,700 missions accumulating in excess of 32,900 hours in support of the GWOT.

RQ-4 Global Hawk: The RQ-4 Global Hawk provides persistent, high-altitude electro-optical, infrared and synthetic aperture radar payloads with its integrated sensor system. Current OIF and OEF operations are conducted via remoted satellite communications data relay from ground control stations located at Beale AFB. There have been two platform losses since September 2001, both in CENTCOM. One was lost in December 2001, the other in July 2002. Neither aircraft was replaced (and were residual advanced concept technology demonstration platforms). Of significance, in the first year of operations in Southwest Asia, over 4,000 combat support hours were logged with two aircraft providing in excess of 64,000 images with a scheduled mission effectiveness rate of 90.3%. Since May 2004, Global Hawk has flown approximately 7,600 hours in support of the GWOT, collecting 102,000 images.

RC-135 Rivet Joint: The RC-135 Rivet Joint provides medium-altitude signals intelligence (SIGINT) collection coverage in support of the full spectrum of combat operations

and meets a host of national information needs. It flies approximately 73 missions per month in four theaters, 50-60 in support of operations in Afghanistan and Iraq. Its FMC rate stands at greater than 95%. There are no bandwidth limitations on the Rivet Joint and it has the added benefit of an organic processing, exploitation and dissemination capability. Its class "A" mishap rate is zero and there have been no losses since 2001. Since September 2001, the Rivet Joint has flown approximately 36,300 hours comprising 4,200 missions in support of the GWOT.

MQ-1 Predator: The MQ-1 Predator, an armed/weaponized UAV, delivers long-dwell reconnaissance and target acquisition in support of the joint force commander. It flies 12 Combat Air Patrols (CAPs) per day in OEF and OIF, providing 24x7 full-motion video in support of warfighters. Its FMC rate is greater than 90%. Currently, the Predator uses beyond-line-of-sight for reachback command and control and imagery datalink. As we increase capacity (i.e., number of CAPs), bandwidth allocations need to increase accordingly. The MQ-1's class "A" mishap rate is 23.8 per 100,000 hours or an 8-year annual average of 3.13 mishaps. There have been 20 other-than-combat losses since September 2001 and funding for the replacement of 18 has been requested in the FY07 GWOT supplemental. The MQ-1 has logged over 200,000 hours since September 2001 including 63,000 flying hours in 2006 alone.

AIR FORCE VIEWS ON THE AERIAL COMMON SENSOR PROGRAM

The RC-135 Rivet Joint aircraft is the Air Force's "heavy lift" medium-altitude SIGINT platform. We have completed re-engining and cockpit modernization for the entire fleet and our proven baseline modernization strategy provides incremental upgrades to pace advances in adversary communications. As a result, the Rivet Joint does not require recapitalization until 2023 and, with a relatively minor service life extension, will remain a viable platform until 2040.

We continue to monitor the Aerial Common Sensor development activities however, we are aware that the Army and Navy are pursuing different paths to recapitalize their aging airborne fleets. We understand the Army's and Navy's requirements and will continue to track their efforts to develop and field new airborne collection platforms. However, the Services need to strike a balance between ISR requirements and the concern for "assured support." The establishment of a joint theater ISR strategy for all medium- and high-altitude theater ISR assets including establishing an Executive Agent for medium-and high altitude UAVs will improve DoD stewardship of limited resources and better meet the needs of the Joint Force Commander.

AIR FORCE PLANS FOR THE U-2 MISSION

As previously noted, the U-2 has been deployed to Southwest Asia for more than 6,000 days (over 16 *years*). During that time it has continued to supply vital intelligence to warfighters at every echelon of command. A testament to the value placed upon its ability to gather and provide intelligence, the U-2 has experienced a 30% increase in sustained operations tempo (OPSTEMPO) since 9/11. However, as this committee is aware, we are recapitalizing our U-2 fleet with the Global Hawk UAV, providing much greater persistence, longer endurance and more capacity than the current U-2 fleet.

To mitigate the risk as we retire the U-2 and field Global Hawk, we have developed a High-Altitude Transformation Flight Plan centered on an Integrated Master Schedule. The schedule is a synchronized transition plan linking successful RQ-4 operational stand-up events to specific U-2 divestiture decisions through FY12. It is designed to ensure there will be no significant ISR capability gaps during the transition. For example, we do not take any irrevocable actions until the beginning of FY10 with the termination of Program Depot

Maintenance (PDM) for the U-2 and closure of the Flying Training Unit (FTU) at Beale AFB. Our programming actions for the FY10 Budget Request are aligned with the successful completion of Global Hawk Initial Operational Test & Evaluation in FY08. If Global Hawk were to miss this milestone, we would take the appropriate actions in our FY10 Budget Request to extend PDM activities and keep the FTU operating.

Any identified disconnects will be operationally mitigated or programmatically addressed in the FY09 or the FY10 budget requests. As noted earlier, the FY08 President's Budget continues the department's high-altitude ISR transformation by providing RQ-4 air vehicles, ground segments, personnel, communications infrastructure and the processing, exploitation, and dissemination architecture necessary to stand-up our Main Operating Bases and Forward Operating Locations. Additionally, we have requested sufficient funding to maintain U-2 operations until FY12 to ensure continued COCOM high-altitude ISR support.

THE AIR FORCE'S DECISION TO TERMINATE THE E-10

In 2005 an OSD-directed restructure reshaped the E-10A program into a flight demonstration for 2010 with the weapon system development phase fielding a capability in 2018. However, the 2006 Quadrennial Defense Review recommended removal of E-10A production funds. The QDR sponsored the technology development, but wanted to see results of test flights in 2010-2011 before any future program decisions were made. Therefore, the FY07 President's Budget only funded the E-10 Technology Development Program and related Multi-Platform, Radar Technology Insertion Program (MP-RTIP) developments.

In light of this and overwhelming fiscal pressures during this difficult budget cycle, the Air Force had to cancel the E-10A and its associated MP-RTIP Wide Area Surveillance radar

development. The FY08 PB funding supports moving forward with only the smaller advanced MP-RTIP variant for Global Hawk. When installed on the Global Hawk Block 40, MP-RTIP will provide improved GMTI and SAR imaging. The weight and power restrictions of the platform, however, drive a smaller Global Hawk Radar design and determine its performance.

CONCLUSION

The USAF is organized, trained and equipped for command and control of air, space and cyber assets and capabilities. The Air Force is deeply committed to delivering premier ISR capabilities in defense of our nation. We appreciate this opportunity to provide an overview of our programs, and your support in keeping the US Air Force America's asymmetric advantage.

RECORD VERSION

STATEMENT BY

MAJOR GENERAL (PROMOTABLE) JEFFREY A. SORENSON
DEPUTY FOR ACQUISITION AND SYSTEMS MANAGEMENT
OFFICE, ASSISTANT SECRETARY OF THE ARMY
(ACQUISITION, LOGISTICS, AND TECHNOLOGY)

BEFORE THE

SUBCOMMITTEE ON AIR AND LAND FORCES

COMMITTEE ON ARMED SERVICES

UNITED STATES HOUSE OF REPRESENTATIVES

ON ARMY AIRBORNE INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE PROGRAMS

FIRST SESSION, 110TH CONGRESS

April 19, 2007

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
COMMITTEE ON ARMED SERVICES

Introduction

Chairman Abercrombie, Congressman Saxton and distinguished members of the Subcommittee on Air and Land Forces: on behalf of the U. S. Army, thank you for this opportunity to update you on Army Airborne Intelligence, Surveillance and Reconnaissance (ISR) Programs. It is my privilege to represent the Army's leadership, the military and civilian members of the Army's acquisition workforce, and the Soldiers who rely on us to provide them with world-class weapon systems and equipment so that they can successfully accomplish any mission, anytime, anywhere in the world. Army intelligence, like other warfighting functions, is focused on providing maximum support to forces deployed in Iraq, Afghanistan and other Global War On Terrorism (GWOT) locations while simultaneously transforming to meet the diverse challenges of tomorrow.

All Army ISR programs follow the DOTML-PF (Doctrine, Organization, Training, Materiel, Leader Development, Personnel and Facilities) model to ensure the system solutions provided to our soldiers can be operated and sustained across the spectrum of conflict. Our success would not be possible without unwavering congressional support, which allows the Army to enhance our ISR posture not only on today's battlefield but on tomorrow's as well. Thank you for your advice, guidance and strong support.

ISR Overview

Army intelligence is transitioning to a more modular, scaleable, capabilities-based design as part of Army Transformation and in response to emerging threats. Lessons-learned over the past six years from combat in Iraq, Afghanistan and other theaters have highlighted the overarching importance of multi-disciplined intelligence and fusion analysis to gain full situational understanding. The Fiscal Year 2008 (FY08) base budget request provides the foundation for essential intelligence modernization

efforts, synchronized with Army modular transformation and readiness. The FY08 supplemental funding request pays for additional costs associated with ongoing GWOT combat operations, and will allow us to accelerate the fielding of advanced collection and analysis capabilities in response to wartime needs.

The Chief of Staff of the Air Force recently sent a memorandum to OSD, the Joint Staff, the Services, and Combatant Commands requesting executive agency for medium and high altitude unmanned aerial systems (UAS). The Army Staff is carefully evaluating this request and will provide a response in the near future. Most, if not all ISR assets are considered high demand and low density. Simply put, we do not have enough capability to meet warfighter requirements at the strategic, operational, and tactical levels. The Army will support any effort that increases focused and assured ISR support to ground maneuver commanders.

Supporting Analysis

The Army uses two paths to analyze requirements that influence acquisition strategies. The first is the Joint Capabilities Integration and Development System (JCIDS). This is a very deliberate process that starts with a capability gap/mission needs analysis and ends with the Joint Requirements Oversight Council (JROC) approving or disapproving a requirements document. The second path is the Operational Need Statement (ONS) process. When the warfighter realizes there is a capability gap, an ONS or Joint Urgent ONS (JUONS) is submitted to the Joint or Army Staff for resolution. The Army G-3 coordinates each ONS and, if approved, directs a materiel solution. Each ONS is also submitted to the Training and Doctrine Command (TRADOC) for further analysis to determine if an enduring requirement exists. The process TRADOC uses to do this is Capabilities Development for Rapid Transition (CDRT). These processes have been used in developing our ISR acquisition

strategies. All our ISR programs have an approved requirement, and adhere to a disciplined and responsive process to competitively acquire the most combat effective solution at the best value using the tenets previously listed.

Army Airborne ISR Programs

The Army has several airborne ISR programs, each providing a critical piece of required situational awareness and understanding. The following provides a current snapshot across the manned and unmanned fleet:

a. Readiness rates: The operational mission readiness rates for our manned and unmanned fleets in theater are greater than 85 percent and 90 percent respectively. Some systems, such as the Hunter companies, have not missed a mission in over a year. These rates are achievable because the Army builds, fields, trains, and sustains the fleet as systems.

b. Bandwidth: There are bandwidth and frequency constraints that affect our manned and unmanned systems. The frequencies in the L and C Band are nearly saturated by military applications across the spectrum. When other Nation's and civilian applications in these same frequencies are factored, the remaining bandwidth results in limited availability and throughput. The Army, in accordance with the 2006 Defense Authorization Act and DoD directive, is converting its UAS airborne links to the DoD Common Data Link (CDL). Operating in a different frequency range affords us the potential to increase current capacity at least ten-fold. Also, these data links are digital and encrypted, which enables a wide dissemination of the product.

c. Accident Rates: The UAS accident and mishap rates have steadily declined since the Army went into full rate production on our tactical UAS (Shadow) and the Small UAS (Raven). In fact, the Shadow annual accidents decreased from FY05 to FY06 by 13 percent and the accident rate per 100K flying hours decreased by 82

percent while the flying hours increased by 385 percent. This improvement can be attributed to two things. First, our soldier operators and maintainers have gained tremendous experience and proficiency since the start of the war. Through March 2007, Shadow systems have flown 148,528 hours / 31,418 sorties and Hunter has flown 19,625 hours / 22,762 sorties. Second, the Army has taken several initiatives to reduce mishaps including a more reliable engine for the Shadow, the use of an automatic tactical landing system to eliminate the need for external pilots, and the Raven B with improved avionics and GPS. Our manned accident rate is equally impressive. Between 2001 and 2006 Guardrail Common Sensor (GRCS) and Airborne Reconnaissance Low (ARL) flew a total of 124,490 hours and 34,026 hours, respectively without a Class A (catastrophic) accident. The last ARL accident was July 1999 and the last GRCS accident was November 1998.

d. Success stories: Army UAS operate in every dimension of the Land Warfare battlespace. As tactical, assured support ISR assets, these systems shape and develop the situation for intelligence surveillance of improvised explosive devices (IED) emplacements, overwatch of tactical engagements, cordon and search missions, and even hostage extraction. The Hunter and Shadow systems have repeatedly demonstrated the airborne manned-unmanned teaming essential to integrated and immediate kinetic effects necessary to win the intense and lethal ground combat operations. The Raven system has been used to direct mounted combat teams to break up insurgents blocking the path of Iraqi voters. They have also been used to direct fires (mortars) on insurgent positions. Commanders insist on having GRCS coverage during major operations. Signals Intelligence (SIGINT) provides a large portion of all actionable intelligence in theater. The ARL has been a large contributor to

the success of Special Operations and has participated in every significant operation in the last 12 months.

Unmanned Airborne ISR

The Army's UAS consists of more than aircraft. As systems they provide a combat capability of multiple aircraft, sensor payloads, personnel, communications equipment, vehicles and logistics. All Army UAS systems have approved Joint requirements documents, are competitively procured, and have completed or programmed to conduct independent test and evaluation. Two of the Army's UAS programs, the Shadow and the Raven, were the first in DoD to enter full rate production, in accordance with DoD 5000.2 guidelines. The Army recently fielded the One System Remote Video Terminal (OSRVT) which provides enhanced situational awareness with near real time video and telemetry data from multiple manned and unmanned platforms like, Hunter, Shadow, Predator, Pioneer, IGNAT, and Raven. The USMC also uses the OSRVT which is considered more capable than the Remote Operations Video Enhanced Receiver (ROVER).

The operational usage of unmanned systems has dramatically increased since 2001. In fact, across DoD, unmanned systems flew a total of 164,001 hours in FY06 compared to 16,167 hours in FY01. This is nearly a ten-fold increase in UAS support to the warfighter. The Army's contribution to the UAS mission also has increased dramatically. Today, the Army is providing more UAS coverage than any other service. In FY04, the Army executed 32 percent of all UAS flying hours compared to the Air Force's 60 percent and the Navy/Marine's 8 percent. In FY06, the Army executed 47 percent of all UAS flying hours (not including Raven) compared to the Air Force's 39 percent and the Navy/Marine's 14 percent. To illustrate further the Army's increased role, we started Operation Iraqi Freedom (OIF) with only one Hunter Company and only

two Brigade Combat Teams (BCT) equipped with a Shadow system. Today we have two Hunter systems in OIF and 18 Shadow systems, which translates to every BCT in OIF having an organic Shadow system. In Afghanistan, Operation Enduring Freedom (OEF) currently has two Shadow systems, as well. Since 2006, the Army has also been pursuing the deployment of more capable Extended Range / Multi-Purpose (ER/MP) systems to tactical commanders. Eight early ER/MP system demonstration variants, called Warrior Alpha, have been funded by the Joint Improvised Explosive Device Defeat Organization (JIEDDO) to perform surveillance and change-detection missions in response to wartime counter-IED requirements in Iraq. Lessons learned are being incorporated into later baseline systems. We plan to deploy an additional four Warrior Alpha aircraft to OEF toward the end of FY 2007.

Small Unmanned Aerial System (SUAS)

The Army started fielding the Small UAS Raven B systems directly to ground maneuver BCTs in July 2006. Raven B is a day/night, adverse weather, multi-sensor collection system with improved connectivity to joint forces. It weighs less than the A version but offers more capabilities, such as a higher quality day camera with a zoom feature and wide-area target acquisition. It provides much-needed real-time battle information that cannot be observed from stand-off airborne sensor systems, ground collection systems or scouts. Thus company commanders now have a far greater ability to shape over-the-hill and close-proximity operations, to track high-value targets and to conduct both shaping and decisive operations with substantially increased lethality. The Raven is a critical tool operated at the lowest levels to shape our current and future battles.

The Raven is currently providing significant support to brigade, battalion and company commanders in the GWOT, logging more than 22,764 hours in OIF and OEF.

The Raven B is in full-rate production and the Basis of Issue Plan is 15 systems for each BCT. Currently, there are more than 300 Raven A/B systems in OIF and OEF combined. This is the same system that the Special Operations Command (SOCOM) and the U.S. Marine Corps (USMC) chose to support their respective maneuver units. The efficiencies of commonality, training, sustainment, and contracting of having the same Small UAS has been realized. In early FY07, an additional 44 complete Raven systems were procured without any additional cost due to the joint contracting leverage between the Army, USMC, and SOCOM.

Shadow Tactical Unmanned Aircraft System (TUAS)

The Army's Shadow Tactical Unmanned Aircraft System (TUAS) program is a major component of the Army's family of unmanned systems. Shadow provides dedicated and responsive surveillance and targeting information at the BCT and battalion levels ranging out to 125 kilometers, giving commanders the ability to observe the enemy at extended distances in real-time and confirm/deny ambiguous reports of enemy activity or presence. Every BCT deployed to Iraq and Afghanistan has a Shadow TUAS platoon, comprised of four air vehicles with day/night payloads and two Ground Control Stations (GCS). Due to the incredible demand for ISR platforms, Shadow units are flying six to eight times above the projected usage rates. The Army is using supplemental funding to accelerate Shadow training and fielding to next-deploying forces, and to address battlefield losses. Programmatically, the system is in the third year of full-rate production with ongoing upgrades, such as engine retrofits, software updates, tactical common data link (TCDL) and laser designation development.

Currently, this system is also operated by others in the DoD including SOCOM, USN, and the USMC in the near future. In November, 2006, the USMC chose the Shadow to replace their aging Pioneer system. They have requested eight systems and

the first two will be delivered this year. Like Raven, the opportunities to maximize efficiency will be explored.

Extended Range/Multi-Purpose (ER/MP)

The Extended Range/Multi-Purpose (ER/MP) Warrior UAS is a multi-sensor, armed UAS, designed to satisfy a JROC solution to identified capability gaps at Division and below. Based in the divisional Combat Aviation Brigade, ER/MP provides assured intelligence collection, reconnaissance, surveillance, target acquisition (RSTA), armed attack and communications relay capabilities to the ground tactical commanders at Division and below.

The Army's materiel need to fill a capability gap was determined via strict adherence to DoD 5000. Specific key performance parameters, threshold and objective requirements supporting the Operations and Support Concept of the total system, not just the air vehicle, were approved in the Operational Requirements Document (ORD)

Let me address the Army's reasons for not selecting the Predator. The Predator A did not, and today still does not, meet the Army's requirements for a tactical medium-altitude UAS. For instance, the Predator A system lacks an Automated Take-off and Landing System (ATLS), a common One System Ground Control Station (OSGCS) capability, and a TCDL. Also, to achieve the best value at the lowest cost and comply with the Competition in Contracting Act, the Army executed a competitive procurement for the ER/MP capability. General Atomics, the same prime manufacturer of the Predator A, offered a materiel solution to the Army ER/MP request for proposal, and was selected via a full and open competition. Our ER/MP not only provides an ATLS, OSGCS, and TCDL, but the air vehicle has been redesigned and includes a heavy fuel engine, improved fuselage/wings, and two additional hard-points for weapons. The system is currently in the System Development and Demonstration (SDD) phase and

the Army anticipates widespread fielding to begin in FY09 Lastly, on 23 Jan 07, the U.S. Air Force Chief of Staff approved the limited procurement of ER/MP air vehicles to meet their requirement for the "Block 20/X" medium-altitude UAS program.

The Army ER/MP is tactically teamed with the following manned systems for rapid, dynamic tasking and intelligence fusion: Apache Block III, Armed Reconnaissance Helicopter, Fires Brigade, Battlefield Surveillance Brigade, and Aerial Common Sensor. The ER/MP's manned-unmanned- teaming reduces risk to ground operations, reduces manning requirements, increases stand-off distances, increases target location accuracy, and improves the situational understanding of the ground tactical commander.

The ER/MP operators and system are completely integrated and synchronized into the full ground maneuver plan, providing assured, dynamic, responsive and simultaneous support to the ground tactical commander's planning and execution cycle. ER/MP is directly linked to tactical operation centers and the global broadcast system. The control system is Link 16 and WIN-T compliant, TCDL-equipped, and capable of sensor and/or aircraft control hand-off from Division to Squad and laterally across the battlefield through the OSGCS and dissemination system.

We are fully committed to meeting the tactical and Joint Task Force (JTF) commanders' need for unmanned ISR/RSTA support and have shaped our UAS investment strategy accordingly.

Manned Airborne ISR

The Army's current fleet of airborne ISR aircraft --- termed Special Electronic Mission Aircraft (SEMA) -- consists of the GRCS and the ARL systems. While they have served us superbly in the past and continue to perform yeoman's work in OIF,

OEF and Korea, they fall far short of the capability we will require to support our transformed Army and its multi-dimensional doctrine and battlefield structure.

Today, the SEMA fleet, which consists of five Guardrail and ARL battalions, is flying at a high usage rates in support of ongoing military operations worldwide. All battalions are either forward-deployed, most in support of OIF or OEF, or recently returned to home station and preparing to re-deploy again. Let me explain:

- Our Korea-based fleet continues to provide over 80 percent of the Sensitive Reconnaissance Operations (SRO) on the Korean peninsula, while flying an average of 444 sorties a year in support of early warning and force protection missions for U.S. forces there.
- Since September 11, 2001, our three U.S.- and Germany-based Guardrail battalions have deployed to the U.S. Central Command theater a total of eight times, including five separate year-long tours in Iraq. Guardrail is the workhorse of the SEMA fleet, flying an average of 1,900 sorties annually and providing precision signals intelligence (SIGINT) geo-location data on threat communications and radar emitters.
- The ARL battalion at Fort Bliss, Texas, provides a continual operational presence in South America in support of the U.S. Southern Command's coordinated intelligence collection plan, while supporting simultaneous operations in OIF. Portions of this unit are deployed to Colombia year-round, flying an average of 288 sorties per year and supporting numerous counter-drug and other operations.

Guardrail Common Sensor (GRCS)

Currently there are four Guardrail Common Sensor (GRCS) systems that have evolved over the past 35 years to meet the changing threat and resulting increased

deployment requirements. Since the Vietnam War, Guardrail has provided daily support along the "Iron Curtain" in Europe, the DMZ in Korea, in Central and South America for various counter-insurgency and counter-drug operations, in Kuwait and Saudi Arabia during Desert Shield/Desert Storm, and in the Balkans during Joint Endeavor. More recently, GRCS has been used in Afghanistan, where it has saved the lives of U.S. and coalition troops during. GRCS also has been constantly deployed since the start of OIF in 2003, providing critical SIGINT targeting to our brave men and women in Iraq.

GRCS supports tactical commanders' requirements for timely, accurate, critical signals intelligence. Multi-ship and cooperative operations provide wide-area coverage as well as coordinated collection necessary to map rapidly high-density battlefield threats. The multi-ship operation supports precision communications intelligence (COMINT) and electronic intelligence, as well, enhancing the warfighters' ability to locate and apply kinetic energy on high-priority targets. GRCS' capability for split-based operation allows for quick deployment of these essential sensor capabilities.

GRCS consists of an airborne subsystem and a ground subsystem. The airborne elements are integrated into the RC-12D/H/K/N/P/Q aircraft. The airborne subsystem consists of SIGINT sensors, including communications and electronic intelligence capabilities, as well as communications equipment that supports direct reporting and connectivity to ground processing stations. The GRCS aircraft are typically flown in two- or three-aircraft missions, and coordinated sensors provide large-area coverage and precision location for targeting. And GRCS does not require on-board SIGINT operators; the airborne sensors are remotely controlled through satellite communications and CDLs to operators located at remote sites. A satellite remote relay supports rapid deployment, minimum footprint forward and remote signal processing

capability. The ground subsystem provides signal processing and connectivity with other DoD tactical and fixed networks (e.g.; NSA NET, JWICS and SIPRNET).

The GRCS is the premier precision geo-location system and supports tactical commander's requirements for timeliness, accuracy, and confidence for critical SIGINT. Multi-ship and cooperative operations provide wide area of coverage which provides actionable intelligence to multiple BCTs simultaneously. Multi-ship operation supports precision COMINT and Electronic Intelligence (ELINT) targeting location capabilities sufficient for putting steel on target and precision location of high priority targets. The GRCS capability for split-based operation allows for rapid deployment of sensor capabilities.

Beginning in 2002, GRCS Guardian Eagle payloads were provided to enhance processing of non-traditional signals and interception of military communication emitters and modern, commercially available hand-held communication devices. This capability supports ongoing deployments to OIF and OEF. Recently, the Army and OSD leadership, led by the Army G-2, elected to modernize GRCS. This decision was driven by current operations' need for an assured, relevant SIGINT capability, in response to a constantly evolving threat, and the cancellation of the Aerial Common Sensor (ACS) SDD contract. The GRCS modernization effort will provide increased commonality across the fleet, as well as significantly better SIGINT performance. The upgrade will include increased throughput, increased frequency coverage and capabilities against emerging threats. A key aspect of this modernization program will be the standardization of aircraft payloads and ground processing, which will enable deployment flexibility to support multiple theaters with tailored operations. The Army projects that increased commonality and the transition to modern, Commercial-of-the Shelf based equipment will significantly reduce operations and maintenance costs for

the remaining life of the system. The Army is confident that a sustained modernization effort will effectively bridge the gap until ACS is fielded, keeping GRCS relevant until 2017 and beyond.

Airborne Reconnaissance Low (ARL)

Airborne Reconnaissance Low (ARL) is a self-deploying, multi-function, day and night, all-weather reconnaissance, intelligence, echelons-above-corps asset. It consists of a modified DeHavilland DHC-7 fixed-wing aircraft equipped with communications intelligence, imagery intelligence (IMINT) and synthetic aperture radar/moving target indicator (SAR/MTI) mission payloads. The payloads are controlled and operated via on-board open-architecture, multi-function workstations. Intelligence collected on the ARL can be analyzed, recorded and disseminated on the aircraft workstations in real time and/or stored on board for post-mission processing. During multi-aircraft missions, data can be shared between cooperating aircraft via ultra high frequency (UHF) air-to-air data links, allowing multi-platform COMINT geo-location operations. The ARL system includes a variety of communications subsystems to support near-real-time dissemination of intelligence and dynamic re-tasking of the aircraft.

ARL has enjoyed many operational successes since its fielding in 1993. It has provided daily support along the DMZ in Korea, participated in Operation Uphold Democracy in Haiti, Operation Joint endeavor in Bosnia, as well as Central and South America, supporting various counterinsurgency and counter-drug operations. ARL also has supported operations other than war: Operation SNIPER in Washington, DC, hurricane disaster support and support to the Border Patrol on the Southwest border.

There are currently two ARL configurations. The first is the ARL-COMINT (ARL-C) configuration, with a conventional communications intercept and direction finding (location) payload. Two ARL-Cs currently support SOUTHCOM counter-drug

operations and border patrol. The second is the ARL-Multifunction (ARL-M) configuration, which is equipped with a combination of IMINT, COMINT and SAR/MTI payloads and multi-INT data fusion capabilities. Of the six ARL-Ms, three support U.S. Forces Korea operations, two are deployed to OIF, and one supports SOUTHCOM counter-drug operations and border patrol.

Modernization will standardize and baseline the fleet through: a common architecture for sensor management and workstation Man-Machine Interface (MMI), downlinks and communications, common sensors across the fleet, and cockpit and safety standardization. The ARL-Cs will be converted to ARL-M's (a complete multi-function configuration conversion). These changes also will help reduce the maintenance burden and operational support costs until ARLs can be replaced. Sensors will be modernized, as well, to address emerging threats and requirements (resulting in radar, COMINT, IMINT and possibly MASINT upgrades).

Aerial Common Sensor (ACS)

Aerial Common Sensor (ACS) is the Army's next-generation manned, multi-INT (COMINT, ELINT and SAR/MTI) airborne ISR collection platform, a critical enabler for battlefield information superiority. It will merge and enhance the capabilities of the Army's current airborne reconnaissance assets, consisting of GRCS and ARL, into a single, multi-intelligence system that supports the full spectrum of operations. Strategically self-deployable worldwide, ACS will bring global relevance and tactical responsiveness to the ground component commander and joint task force commander to "see first, understand first, act first and finish decisively," primarily through the Distributed Common Ground System (DCGS) architecture. ACS will provide the commander with a rapid-response, multi-discipline capability to self-deploy manned aircraft worldwide and conduct operations immediately upon arriving in theater. ACS

will provide information directly to tactical operations centers at brigade and higher echelons through the Intelligence Broadcast Service in DCGS-A and in other selected nodes on the battlefield. ACS will detect, identify, accurately locate, track and rapidly disseminate time-sensitive survival information on high-payoff targets to Army, joint, allied and designated coalition warfighters for mission planning, force protection, maneuver, targeting and battle damage assessment.

Since the cancellation of the original ACS SDD contract in January 2006, DoD, the Army and the Navy have been working together to develop a program path forward and to ensure that lessons learned from the previous effort are captured. The USD (AT&L) recently completed a Program Support Review of the previous ACS program, identifying what led to contract termination, including recommendations to both services to improve program oversight.

The Army remains strongly committed to the ACS program. In FY07, the Army and Navy completed a Quadrennial Defense Review-directed joint assessment of ACS requirements, called the Joint ISR Study. That assessment revalidated the need for a manned, multi-INT airborne ISR system to meet Army and Navy operational requirements and supported the recapitalization of legacy airborne systems (GRCS, ARL and EP-3) as a bridge to ACS deployment. Over the past several months, the Army and Navy have jointly determined that requirements for the service programs diverge enough to drive pursuit of separate efforts. On March 16, 2007, the Army Vice Chief of Staff approved the development of a blocked requirement for the acquisition strategy. This blocked strategy will allow the ACS capability to be achieved by taking advantage of mature payloads early and integrating them when prudent. Funding in the current President's Budget will support continued requirements development,

technology risk reduction and evaluation, and milestone documentation activities in anticipation of restarting the program.

Until ACS is fielded, the Army will invest in a robust recapitalization and modernization effort of the existing GRCS and ARL fleets to ensure that they remain operational and relevant for the next 15 years. This modernization effort will upgrade both airframe and mission equipment, enabling these current systems to keep pace with an evolving threat and to continue providing the tactical commander with the timely, accurate intelligence collection required to fight and win our nation's wars.

Conclusion

As we look to FY08 and beyond, it is imperative that Army airborne ISR programs be fully resourced to meet current warfighter requirements and future challenges. The Army vitally needs continued congressional advice, guidance and strong support. Successful battlefield operations and Soldier survivability have increased substantially with airborne ISR modernization and quick reaction solutions. Sufficient financial resources are necessary to meet all the missions we are being asked to perform; and will ensure continued support from American industry, which enables us to rapidly develop and field new equipment solutions. Our nation is at war, and likely to be for the foreseeable future. With your support, we will continue to provide our men and women in uniform with the tools they need to win decisively and return home safely. Thank you.

NOT FOR PUBLICATION UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE
AIR AND LAND FORCES SUBCOMMITTEE

STATEMENT OF

RADM BRUCE W. CLINGAN

DEPUTY CHIEF OF NAVAL OPERATIONS

DEPUTY DIRECTOR, AIR WARFARE

BEFORE THE

TACTICAL AIR AND LAND FORCES SUBCOMMITTEE

OF THE

HOUSE ARMED SERVICES COMMITTEE

ON

FY 2008 NAVY UAS, UCAS, and EPX PROGRAMS

MARCH 13, 2007

NOT FOR PUBLICATION UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE
AIR AND LAND FORCES SUBCOMMITTEE

Mr. Chairman, Congressman Saxton, distinguished members of the Subcommittee, thank you for this opportunity to appear before you to discuss the Navy's Fiscal Year (FY) 2008 acquisition and RDT&E Unmanned Aircraft Systems (UAS) and Aerial Common Sensor (ACS) (now called the EPX) programs. Brigadier General Conant is with me today on behalf of the US Marine Corps.

Since its initial experience with UAS during DESERT STORM, operating Pioneer from the sea, the Navy has pursued a strategy of developing a family of UAS maritime Intelligence Surveillance and Reconnaissance (ISR) and penetrating strike UAS that supports our Navy Strategic Plan and Naval Power 21 strategy. This family of systems encompasses a range of small tactical, tactical, persistent, and penetrating platforms that are being developed to provide maritime domain awareness across the Sea Shield, Base, and Strike pillars that embody naval power in the 21st century.

In the area of small tactical UAS, the Navy continues to employ Scan Eagle through a number of ISR "fee-for-service" contracts that mitigate the current tactical ISR shortfall. To date, these contracted air vehicles have supported Global War on Terrorism (GWOT) operations from both ships and land based facilities. During FY08 the Navy will begin, in concert with the Marine Corps, a Small Tactical UAS (STUAS)/Tier II Program of Record (POR) that will replace Scan Eagle fee for service ISR operations in FY11.

In the tactical realm, the Navy continues to support the Marine Corps by providing

Pioneer UAS training. This Pioneer support effort is expected to be phased out during FY08, when the Marine Corps transitions to the U.S. Army RQ-7B Shadow UAS as a near term solution to immediate operational needs.

Plans to acquire the Fire Scout UAS, a helicopter derivative that will provide the Littoral Combat Ship (LCS) tactical organic UAS capability in 2008, continue on track. The Fire Scout will play an integral role in the Surface Warfare, Anti-Submarine Warfare, and Mine Interdiction Warfare missions of LCS.

In the persistent ISR arena, the Navy has taken delivery of two Global Hawk UAVs that are the core of a Maritime Demonstration Program. This Demonstration Program supports sensor testing and both Maritime Patrol and Reconnaissance Aircraft community and Joint exercises, with the objective of developing manned/unmanned maritime surveillance concepts of operations (CONOPS) as well as tactics, techniques, and procedures that will accelerate the initial operational effectiveness of the Broad Area Maritime Surveillance (BAMS) UAS Program. The attributes of the BAMS UAS, which will be informed by the Global Hawk Maritime Demonstration Program, are being shaped to provide a worldwide, persistent, maritime ISR capability by 2014. This program will reach a Milestone B decision in 4Q of FY07.

The Navy employs one Predator A system as part of the United States Joint Forces Command's Joint Operational Test Bed System (JOTBS), which examines UAS

interoperability. The Navy is also in the process of procuring a Predator B air vehicle, using funding provided by Congress in FY06, to address the growing Service and Joint persistent ISR operational demand.

In the area of penetrating ISR, the Navy is continuing its efforts to demonstrate the suitability of a relevant low observable platform air vehicle in a carrier environment by 2013. This demonstration represents the first step in a process that will lead to an unmanned, penetrating ISR and future strike capability for the carrier air wing.

Finally, the Navy is refining its overall ISR strategy to align its manned and unmanned ISR capability with Naval Strategy and Sea Power 21. This study, led by the Navy intelligence community, will inform the Navy's POM-10 submission.

NAVY UNMANNED AIRCRAFT SYSTEM (UAS) PROGRAMS ACQUISITION STRATEGY

Small Tactical UAS (STUAS)/Tier II UAS - The Fiscal Year 2008 budget includes a request for $6.2M in RDT&E that will be used to begin System Development and Demonstration efforts for a STUAS/Tier II UAS POR. This funding will support a combined Navy and Marine Corps acquisition program (an additional $5.7M RDT&E is funded by USMC) that will field a small, persistent ISR platform in FY11 that can be operated from both ships and land facilities.

Fire Scout Vertical Takeoff UAV (VTUAV) - The Fiscal Year 2008 budget requests $33.0M in RDT&E and $37.73M in Aircraft Procurement, Navy (APN) for the Fire Scout program. Fire Scout is on track to complete test and evaluation in 2008 and reach Initial Operational Capability (IOC) in 4Q FY08 onboard the Littoral Combat Ship. Procurement funds will be used to buy three Low Rate Initial Production (LRIP) air vehicles, plus associated Ground Control Stations (GCS) and equipment. Analysis supporting the Navy's employment of Fire Scout VTUAV includes an LCS aviation warfighting requirements analysis, LCS and draft VTUAV CONOPS, the campaign analysis completed in support of the DoN FY08 budget submission, and the applicable Joint Capabilities Integration and Development System (JCIDS) documents. The procurement profile in FY08 begins the process of fielding VTUAV systems aligned to meet LCS mission module deliveries in the FYDP and beyond.

Tactical Control System (TCS) - The Fiscal Year 2008 Budget requests $9.4M to continue TCS development. TCS provides mission planning, command and control, and C4I interface commonality for tactical and medium altitude unmanned UAS. The TCS program continues development of a standards-based architecture compliant with NATO STANAG 4586 that integrates Fire Scout functionality with LCS, and facilitates future interoperability and payload capability enhancements. TCS will IOC in FY08 as part of the Fire Scout VTUAV system. With the help of $1.0M provided in FY07, the TCS program is also transitioning to open architecture and open source software.

Global Hawk Maritime Demonstration System (GHMD) - The Fiscal Year 2008 Budget requests $17.7M in O&M,N funding to support CONOPS development and fleet battle experiments with the two Global Hawk UAS the Navy procured in concert with Air Force production. As part of the GHMD program, the Global Hawk Integrated Sensor System (ISS) radar software has been modified to provide the wide area search, maritime moving target indicator (MMTI), and inverse synthetic aperture radar (ISAR) modes that provide required capability in the high clutter maritime environment. GHMD participated in the NETWARCOM led Trident Warrior 05 Sea Trial Exercise in December 2005 and the FY06 Joint Expeditionary Force Experiment (JFEX) in July 2006. The FY08 budget includes $5.9M in APN to procure needed spares to support continued GHMD operations.

Broad Area Maritime Surveillance (BAMS) UAS - The Fiscal Year 2008 Budget requests $116.7M to continue development of the BAMS UAS. BAMS UAS will provide a persistent, multi-sensor, maritime Intelligence, Surveillance and Reconnaissance (ISR) capability and communications relay in support of major combat operations and the GWOT. BAMS is a key component of the Navy's future Maritime Patrol and Reconnaissance Force, which includes the P-8A Multi-Mission Maritime Aircraft (MMA) and the EPX Information Operations aircraft. The BAMS UAS program is now scheduled for Milestone B in fourth quarter FY07, leading to an IOC in late FY14. A competitive request for proposal was issued to industry on 14 February 2007.

Responses are due in April and the source selection results will be part of the MS B decision process.

Navy Unmanned Combat Air System (N-UCAS) - The Fiscal Year 2008 Budget requests $161.7M to continue development of the Navy's carrier suitable, Unmanned Combat Air System. Navy is committed to a carrier based, penetrating, persistent UCAS to provide the Joint warfighter with a responsive ISR and time-sensitive strike capability that fills the gap identified in the Joint Strike Enabler Initial Capability Document. To field that capability, the Navy is conducting a risk reduction demonstration program of a relevant low observable platform air vehicle. This carrier demonstration, scheduled to complete in FY13, will inform a decision to continue UCAS development in a program that will leverage the complementary developmental efforts of Air Force and other Services' unmanned programs.

CURRENT FIELD OPERATING EXPERIENCE

Scan Eagle – During the past year, Scan Eagle ISR fee for service contracts provided persistent ISR coverage for deployed Expeditionary Strike Groups (ESG), Expeditionary Action Groups (EAG), and independent naval ships, as well as land-based operations in the Central Command area of responsibility. There are currently 3 contracts (two ship-based and one shore-based) in use, with a follow-on contract in work. To date Scan Eagle UAS have completed in excess of 925 sorties / 7,700 hours. A typical contract

provides 10 hours of ISR coverage per day / 300 hours per month. Reliability data is not directly tracked, but mishap rates for the Scan Eagle system have averaged 1 air vehicle loss per 214 hours historically. The mishap rate for recent shipboard operations has improved to 1 per 500 hours (or one to two lost air vehicles per six month deployment). This rate is not atypical for this size/class of "expendable" air vehicle. A loss in this case is categorized as an air vehicle that is no longer in an airworthy status. Scan Eagle video has been linked to its Ground Control Station, Toughbook based Remote Video Terminal (RVT), and Rover III RVT's.

Other UAS Initiatives - During this fiscal year the Navy, as the lead service for Explosive Ordnance Disposal (EOD), will sponsor the demonstration of small UAS capabilities in support of EOD forces deployed in the GWOT. This in-theater demonstration, scheduled during 3Q FY07, will employ 3 Silver Fox UAS and 10 Micro Air Vehicle (MAV) systems in response to a validated Joint Urgent Operational Need (JOUN).

Additionally, the Navy continues to support the Marine Corps' Pioneer program. Program management, testing, and training support for its currently fielded systems is programmed through FY08.

EP-3E - The EP-3E flew more than 8000 mission hours in support of Maritime Component Commanders and Combatant Commander GWOT missions world-wide. The details of those missions are classified, but can be provided upon request.

NAVY'S AERIAL COMMON SENSOR (ACS) PROGRAM RECOVERY PLAN

Since the Aerial Common Sensor (ACS) contract with Lockheed Martin (LM) was cancelled by the Army in January 2006, an OSD-directed Joint ISR (JISR) study co-led by Army and Navy has been completed. This study reexamined the multi-intelligence requirements that were the core of the ACS program, and considered potential manned and unmanned solutions. The JISR study validated the need for a manned, multi-Int platform to meet the tactical commander's direct support ISR needs and highlighted the specific attributes required to be effective in this regard.

Additionally, Navy campaign analysis for POM-08 refined the electronic warfare capabilities required to meet the threat posed by emerging peer rivals. Specifically, the Navy requires a platform with an unrefueled on station time of 4 hours at a combat radius of 1200 NM. While collaboration on the mission system continues with our sister Services, the significant difference in range and endurance requirements for the Army and Navy have prompted both Service Chiefs to pursue separate platform solutions. In the case of the Navy, the follow-on to the EP-3E is being called the EPX, pending development of the acquisition strategy. The EPX will be an integral part of the Maritime Patrol and Reconnaissance Force family of systems that includes the MMA and BAMS UAS.

The Navy is fully committed to sustaining the EP-3E airframe and keeping its mission systems effective until the EPX is fielded. Three spiral upgrades to the mission system and installation of Special Structural Inspection Kits (SSI-K) similar to the P-3 are programmed to sustain the EP-3E through 2019. Of note, the EPX will incorporate the EP-3E Spiral 3 capabilities as the baseline for EPX Block 0, plus additional capabilities that will result in a true multi-intelligence platform.

SUMMARY

The Navy continues to make positive progress in developing and fielding unmanned aircraft systems specifically designed to address maritime capability gaps. These systems are a key element of our transformation. We will continue to refine our UAS operational concepts and make appropriate technology investments to deliver the kind of dominant military power from the sea envisioned in our Navy Strategy and Sea Power 21. We look forward to continuing our strong partnership with Congress, and thank you for your support of the Navy and Marine Corps team.

NOT FOR PUBLICATION UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE

STATEMENT OF

BRIGADIER GENERAL RANDOLPH D. ALLES
COMMANDING GENERAL, MARINE CORPS WARFIGHTING LAB

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON AIR AND LAND FORCES

ON

INTELLIGENCE, SURVEILLANCE AND RECONNAISSANCE (ISR) PROGRAMS

April 19, 2007

NOT FOR PUBLICATION UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE

Introduction

Chairman Abercrombie, Representative Saxton, distinguished members of the subcommittee, thank you for this opportunity to appear before you to discuss Marine Corps Intelligence, Surveillance and Reconnaissance (ISR) program capabilities and requirements. As a Corps, we remain true to our congressionally-mandated mission "to be most ready when the Nation is least ready;" thus providing the Nation a general purpose force that is adept at both irregular and traditional force operations. On behalf of our Marines forward deployed around the globe, I thank the Committee for your continued commitment to the health of our Marine Corps through budget increases and supplemental funding. Your support has made us more effective in the fight, saved lives, and helped us prepare for an uncertain future.

Marine Corps ISR Enterprise (MCISR-E)

The Marine Corps develops and manages the complete range of our current and future ISR capabilities/requirements under a concept known as the Marine Corps Intelligence, Surveillance, and Reconnaissance Enterprise (MCISR-E). The enterprise goal is to ensure ISR capabilities are considered across the entire Marine Air Ground Task Force (MAGTF), and are filtered through the combat development pillars of Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities (DOTMLPF), to harmonize effects and benefits throughout the organization. We do this on a regular basis.

Through this enterprise approach, your Marine Corps is proactively transforming its current and future ISR capabilities into a fully integrated architecture, including adherence to joint data interoperability standards effected through the Distributed Common Ground/Surface System Marine Corps. The MCISR-E vision is to provide networked intelligence down to the squad level in either conventional or irregular operations.

In order to grow to its full potential, this vision is dependent upon a robust communications environment referred to as the future Global Information Grid (GIG). The GIG will integrate all the Service components' ISR collection and dissemination assets to form a flexible, distributed, and collaborative joint ISR capability. The GIG will greatly accelerate the

ability of the entire Joint Force to exploit time-sensitive intelligence gathered at the tactical level by any collection asset, to include Unmanned Aircraft Systems.

The Unmanned Aircraft Systems (UAS) Family of Systems (FoS)

The Marine Corps requires a three-tiered, joint-interoperable UAS Family Systems (FoS) to provide the correct level of Battle Space Awareness, Force Protection, and Force Application required by our commanders. The three tiers are built upon our ISR Concept of Operations (ConOps) in support of a Marine Battalion, Marine Regiment, Marine Expeditionary Brigade, Marine Expeditionary Unit (MEU), or Marine Expeditionary Force (MEF). Our ConOps is integrated with the Joint ISR ConOps to provide a tactical, organic, joint-interoperable, and integrated ISR, fire support, and communications relay capability to each level of the MAGTF. This systems approach is designed to allow commanders relevant situational awareness through a common Command and Control (C2) architecture across the entire range of military operations. Our FoS approach has also been integrated into the Department of Defense UAS Roadmap.

Acquisition Strategy

The goal of our acquisition strategy is to develop and procure joint-interoperable systems that support both our Service and Joint Requirement Oversight Council (JROC) validated requirements. Where appropriate and available, we will always leverage and align ourselves with Joint common capabilities. The Marine Corps has worked hard to bring validated JROC Joint Capabilities Integration Development System (JCIDS) documentation and analysis into each of our three UAS tiers.

Tier I

Tier I UAS are man-packable, hand-launched, autonomous systems designed to provide the small unit commander with a reconnaissance and surveillance capability to see over the next hill on the battlefield or around the next building in the urban environment. The Marine Corps is transitioning this year from the highly successful Dragon Eye UAS to the Joint Raven B UAS. Our deployment of Raven B down to the battalion level will begin in Sept 2007. The President's Fiscal Year 2008 Budget has $13.1M programmed for the continued procurement of Raven B systems, and our total acquisition objective is 467 systems.

Tier II

Tier II UAS are designed to support our Divisions, Regiments, Battalions and MEUs. Tier II is funded to begin in Fiscal Year 2008 with an Initial Operating Capability scheduled for Fiscal Year 2011, and Full Operational Capability (FOC) in Fiscal Year 2014. In the interim, we must continue to rely on an ISR fee-for-services agreement to fill this capability gap. We are working with the Navy, Air Force and US Special Operations Command (USSOCOM) to develop a tactical, expeditionary, and long endurance UAS capable of multiple missions. It is being designed with plug-and-play payloads, advance target acquisition, and fire support capabilities. The President's Fiscal Year 2008 budget contains a request for $5.7M in RDT&E for the development of Tier II systems. We plan to use an incremental acquisitions approach to reach our requirement of twenty-six systems.

Tier III

Tier III UAS are designed primarily to support a MEF or Joint Task Force-level command. The Pioneer UAS has served us well since 1986; it has proven its worth in the fight against insurgent forces and terrorists in Iraq. However, due to the Pioneer's age and obsolescence, it has become a logistical challenge for our operational forces. Based on these challenges, the Marine Corps decided it will begin to transition to the Army Shadow UAS during the fourth quarter of Fiscal Year 2007. The Shadow's capabilities are similar to the Pioneer and have been upgraded over the past few years. It will provide the MEFs with a day/night ISR and target acquisition capability. The President's Fiscal Year 2008 budget contains a request for $90.3M for procurement of five of thirteen Shadow systems. We envision the Shadow serving as an interim system until a Vertical UAS (VUAS) is developed.

The VUAS will provide a capability that can be either land or sea-based. It will provide the future MAGTF with organic, responsive and real-time ISR. VUAS will also employ a targeting and weapons employment capability that will enhance our responsiveness to confirmed threats with organic or joint fires.

Family of Systems Interoperability

A critical aspect of our UAS FoS approach is to ensure we have true interoperability. This requires us to design our ConOps within a common C2 architecture. We see this as critically important in helping to reduce life cycle cost, while ensuring we maintain interoperability with our sister Services and USSOCOM. This approach includes utilization of

common hardware such as the Army "One System" ground control station and Remote Video Terminal, and the Air Force Rover remote receive stations.

MAGTF Operational Employment Statistics

Tier I:

The Marine Corps does not directly track flight hours, aborts, or the operational availability rates of our fifty-two deployed Tier I UAS; however, from sparing and battery use, we estimate that the Dragon Eye has flown an excess of 10,500 missions, with an average flight hour consisting of forty-five minutes.

Tier II / ISR Services:

We have contracted Tier II ISR services to fly at four sites for a total of 1500 hours per month. ISR Service systems have flown over 2,500 flights in excess of 10,000 hours in support of Operation Iraqi Freedom (OIF) operations. Scan Eagles have experienced 199 mission aborts for an operational availability rate of ninety-two percent; and we had lost forty-three aircraft to mishap through the end of 2006.

Tier III:

The Pioneer continues to be the backbone of Marine UAS capability. Today seventy-seven percent of the air vehicles and two of our three ground control stations are supporting OIF operations. These hours have accounted for nearly forty percent of the 40,000 total Pioneer flight hours flown since the program's start in 1986. During the eight months of OIF I, there were twenty-three incidents, including five strikes translating to one incident for every 103 hours and one strike per every 472 flight hours. During the twelve months of OIF II, Pioneer had six incidents including one strike for an incident for every 863 flight hours and a strike for every 5,177 flight hours. During the period of operations for OIF III, there were six incidents, which included no strikes, translating to an incident for every 1,045 flight hours and no strikes for 6,273 flight hours flown. During OIF IV the rate has remained relatively constant, with the majority of incidents related to engine and avionics failures, and none attributable to human error.

Future MAGTF Capabilities

The Marine Corps Persistent ISR (P-ISR) integrating concept is being designed within MCISR-E. The focus of P-ISR is to enable the MAGTF Commander to sense enemy activity across the electromagnetic spectrum in near-real-time without interruption. The payloads associated with the UAS FoS fulfill unique attributes associated with P-ISR. They will allow for a much more robust set of capabilities to include, platform endurance, sensor fidelity, fire support, strike, communications relay, and electronic warfare. In order to ensure that Marines have access to these new capabilities, the MAGTF C2 system of systems will provide the user interfaces necessary to integrate MCISR-E and UAS capabilities into Combat Operation Centers and small unit C2 nodes across the MAGTF.

We are currently bringing two critical capability sets -- ANGEL FIRE and Ground Based Operational Surveillance System (GBOSS) -- into the fighting force, based on valuable operational recommendations from both I MEF and II MEF. Combined with current UAS capabilities, ANGEL FIRE and G-BOSS will give insight into the future by providing critical layers to the MAGTF P-ISR concept. This systems approach to the current operational challenges will contribute to the MAGTF Commander's all-encompassing view of the battlespace.

ANGEL FIRE

ANGEL FIRE is an airborne sensor with a wide field of view capability that will provide near-real-time electro-optical video coverage enabling rapid identification and interdiction of enemy activity in medium-sized urban areas. ANGEL FIRE will allow the MAGTF Commander to cue and employ high-fidelity UAS capabilities in the urban battlespace with greater efficiency and effectiveness, and will mitigate the requirement for dense UAS coverage over cities.

Ground Based Operational Surveillance System (G-BOSS)

G-BOSS is an expeditionary, camera-oriented tool that provides a twenty-four hour day/night detection, tracking, and recording capability to disrupt insurgent activities in the emplacement and employment of Improvised Explosive Devices (IED). The system design will allow for integration with UAS, ground surveillance radars, unmanned ground stations, and acoustic systems. G-BOSS video will provide commanders an operational surveillance capability and will integrate with C2 and fire support systems. Initial employment of

autonomous camera tower systems has performed admirably in theater, and we anticipate integration of a fully networked G-BOSS system of systems later this year.

Processing and Display Equipment

Intelligence derived from UAS, ANGEL FIRE, G-BOSS and other sensors will be integrated and displayed via P-ISR applications within MCISR-E. This multi-functional digital workspace will provide a high fidelity, scaleable, and tailorable digital display; multi-sensor correlation and manipulation; sensor cross-cueing and control; data archive and "backtracking;" and "Cursor on Target" engagement capability. P-ISR will also provide on-demand overlay of geographically correlated multi-sensor data.

Developmental efforts

Our Marine Corps Warfighting Lab (MCWL) is currently performing test and evaluation on a hand-launched, back-packable, Micro Air vehicle. Known as the Wasp, it is being developed and employed in conjunction with the Defense Advanced Research Projects Agency . The fourteen deployed Block II Wasp systems have flown more than 1,000 sorties in-theater with tremendous success. This Micro UAS extended user evaluation has provided small-unit leaders with unprecedented situational awareness during combat operations and has developed and validated joint tactics, techniques and procedures. We see the Wasp as a complement to the Tier I Raven B UAS.

Another MCWL effort, the USMC Tier II UAS Concept Demonstrator, SpyHawk, will be employed as a test platform for evaluation of emerging technologies. It will also be used to develop and refine Tier II UAS concepts of employment and tactics. techniques, and procedures; and to collect data to inform Joint Tier II program of record development.

Service/Joint Interoperability

Recognizing that interoperability is key to our success, the Marine Corps has proactively cultivated productive and responsive partnerships with leading technology innovators and program managers at the Joint and Interagency levels. For example, ANGEL FIRE is being developed and delivered by a consortium of organizations that includes Los Alamos National Labs, Air Force Research Labs, Naval Research Labs, Marine Corps Warfighting Lab, and Marine Corps Combat Development Command. Funded by the Marine Corps and the Joint IED

Defeat Organization, our consortium is working under the cognizance of the Under Secretary of Defense for Intelligence to ensure that this critical capability will deliver effects that address needs of the joint force beyond the current fight.

The Marine Corps has representation at the Joint UAS Center of Excellence (JUASCOE) and on the Joint UAS Materiel Review Board. All three tiers of the Marine Corps UAS FoS are categorized as 'tactical UAS' by the JUASCOE Joint ConOps. We plan to leverage the operational and strategic capabilities of other Service systems by integrating with them operationally and through common joint-interoperable architectures. This will provide our commanders with a comprehensive joint battlespace awareness.

Conclusion

The Marine Corps is actively engaged in bringing a more robust ISR capability to our current and future MAGTFs. This combination of architectures, ground and air based sensor capabilities, and C2 systems will provide a real, persistent ISR capability for the joint force.

Again, thank you for the opportunity to provide an update on our ISR programs. We are extremely proud of our Marines and what they do for this Nation each day. Marines remain committed to their mission and they know that the American people and its government support them in their endeavors. Your Corps stands ready to serve in any clime and place, but your continued support remains a vital and appreciated foundation to this Service.

QUESTIONS AND ANSWERS SUBMITTED FOR THE RECORD

APRIL 19, 2007

QUESTIONS SUBMITTED BY MR. ABERCROMBIE

Mr. ABERCROMBIE. Regarding UAVs, could we acquire more equipment if we got rid of duplication of research and development?

Admiral CLINGAN. The Navy does not believe there is duplication of effort in its UAS programs. The Navy and Marine Corps continually review opportunities for achieving both warfighter and acquisition efficiencies in their UAS and all other programs. A key element of the strategy is to leverage and apply the successes of the other Services. UAS-specific examples include:

- Army and Navy collaborate extensively on the Fire Scout Program. Army buys the aircraft off of the Navy contract. Fire Scout aircraft and avionics are currently over 90 percent common. The GAO report highlighted this efficiency as a positive example of inter-service cooperation.
- The Navy/Marine Corps are retiring the Pioneer system and are buying Shadow 200 systems—including aircraft and ground control systems—directly from the Army.
- The Navy/Marine Corps have curtailed further development and production of the Dragon Eye system in favor of buying the Raven B system directly from the Army.
- The Navy leveraged an existing Air Force contract to procure the Global Hawk Maritime Demonstration System (GHMD) system. Development has been limited to modifications to the payload, which in turn have been provided to the Air Force and are planned to become part of the Global Hawk Block 10 baseline. Additionally, Navy GHMD test data will be used to help the Air Force mitigate Global Hawk Block 10 schedule risk.
- The Navy's Broad Area Maritime Surveillance (BAMS) UAS Program is being acquired competitively. Planned system developmental efforts are limited to those attributes uniquely related to the maritime environment including sensors, architecture, and tactical integration. The Navy is leveraging all the Air Force as well as other DOD UAS accomplishments.
- Last, in order to avoid any unnecessary duplication of effort or redundancies, the Navy fully supports the Joint UAS Center of Excellence and Joint UAS Material Review Board. These organizations, which are jointly manned and report to the Joint Staff, will improve the Department's ability to efficiently provide interoperable and effective capabilities to the warfighter. These organizations are already positively informing our programs of record.

In summary, the Navy has an excellent relationship with the Air Force, Army and Marine Corps that allows information to flow freely between program managers, requirements officers and leadership. In this way, we can focus on developing the unique aspects that our missions and roles require, while taking full advantage of efforts that have gone before.

Mr. ABERCROMBIE. Regarding UAVs, could we acquire more equipment if we got rid of duplication of research and development?

General SORENSON. Efficiencies are obtained by a collaboration of efforts between the Services in respect to Research & Development, whether the product is an Unmanned Aircraft System (UAS), or other materiel solution. If there are two or more simultaneous System Development & Demonstration (SDD) programs to meet a similar set of technical thresholds and Key Performance Parameters (KPP), that would be an example of a duplicate effort expending funding that could be used for other obligations/missions. In respect to the Medium-Altitude UAS, the U.S. Army, through the competitive process, included features on the Extended Range/Multi-Purpose UAS (Warrior) such as Automated Take-off and Landing System, a Heavy Fuel Engine, a Tactical Common Data Link to the One System Ground Control Station (already in use by the U.S. Army, USMC, and SOCOM), to achieve a capability that has greater endurance, 50 percent greater payload, and more than double the onboard power of the Predator, at less cost. The U.S. Army openly offered these advanced features to the USAF as part of the competitively awarded contract. The USAF accepted (January 2007) the Army ER/MP Air Vehicle as the potential system

for their Block "X" Predator product improvement for the future and is procuring aircraft now. Additionally, the Army is providing the Air Force documentation of the ER/MP, such as the Test & Evaluation Master Plan (TEMP), and other information is being shared through Technical Interchange Meetings (TIM) between product management personnel. With a complete collaboration of efforts, the DOD saves valuable resources since the expenditure of funds for the System Development is not duplicated and both the Army and Air Force reap the benefits of commonality of the same basic aircraft which includes a redesigned fuselage/wing and improved engine. Historically, at the time of the Joint Requirements review for the ER/MP and the source selection competition, the Predator was still an Advanced Concept Technology Demonstration (ACTD). The benefits of the competition are evident in the selection of an aircraft within a full system design that is 10 percent lower in cost and 50 percent more capable than the Predator. The U.S. Army's systems architecture deliberately reused the previous investments in training, installations, personnel, contracts management, and logistics to achieve the greatest commonality within the DOD.

Mr. ABERCROMBIE. Regarding UAVs, could we acquire more equipment if we got rid of duplication of research and development?

General ALLES. The Marine Corps is not duplicating effort in its UAS programs. The Marine Corps continually reviews opportunities for achieving both warfighter and acquisition efficiencies in its UAS programs. A key element of the strategy is to leverage and apply the successes of the other Services. UAS-specific examples include:

- The Navy/Marine Corps are retiring the Pioneer system and are buying Shadow 200 systems—including aircraft and ground control systems—directly from the Army. Fielding of the Army One Ground Control Systems by the Marine Corps with the Shadow 200 will significantly increase interoperability amongst the services.
- The Navy/Marine Corps have curtailed further development and production of the Dragon Eye system in favor of buying the Raven B system directly from the Army.
- The Marine Corps lead ICD and CDD development for Tier II/Small Tactical UAS (STUAS) is a joint collaboration between the Navy, Air Force, SOCOM and Marine Corps.
- Last, in order to avoid any unnecessary duplication of effort or redundancies, the Marine Corps fully supports the Joint UAS Center of Excellence and Joint UAS Material Review Board. These organizations, which are jointly manned and report to the Joint Staff, will improve the Department's ability to efficiently provide interoperable and effective capabilities to the warfighter. These organizations are already positively informing our programs of record.

In summary, the Marine Corps has an excellent relationship with the Army, Navy and Air Force, which facilitates the flow of information between program managers, requirements officers and leadership. This allows the Marine Corps to focus on developing the unique aspects which its missions and roles require, while taking full advantage of previous developmental and operational efforts.

Mr. ABERCROMBIE. Regarding UAVs, could we acquire more equipment if we got rid of duplication of research and development?

General DEPTULA. Yes, the Air Force believes there is duplication of effort with regard to medium- and high-altitude UAV acquisitions.

For example, with the exception of its weapons payload capacity, the Predator (MQ–1) meets all threshold Key Performance Parameters (KPP) approved by the Joint Requirements Oversight Council (JROC) for the Army's Warrior UAV. The larger MQ–9 air vehicle is capable of meeting all Warrior threshold KPPs. Despite these considerations, the Army invested $190M in research and development for the Warrior system. While the Army investment did yield improvements to the MQ–1 family of air vehicles that the AF plans to take advantage of, the MQ–1 was in production at the time the Army began their development efforts for Warrior, and could have delivered operational capability much sooner than the current Extended Range Multi-Purpose (ER/MP) program of record. It is our understanding that the Army ER/MP will not be deployed with initial operating capability until 3QFY09. Air Force MQ–1 has been deployed since 1995, and is currently maintaining 12 combat air patrols for CENTCOM, providing 24/7/365 UAV orbit capability. Full rate production for the Warrior program is not scheduled to begin until 4QFY09. At that time, the Air Force will have 19 combat air patrols available for the Combatant Commanders. It is reasonable to believe that significant savings could be realized by combining MQ–1 and ER/MP program acquisition, contracting, research and de-

velopment, depot maintenance, logistics and training activities into a single effort. New capabilities needed to meet additional Warrior requirements could have been spiraled into the existing MQ–1 program, as the Air Force has done throughout the history of the Predator. Although the Army asserts that there is a 10% reduction in Warrior program costs when compared to those of the Predator program, their analysis compares an existing, fielded capability to a program that has not yet finalized its production contract. The Army assertion is premature.

The Navy BAMS program is another case where there is potential to realize significant savings by eliminating duplicative efforts. Although the Air Force and Navy have collaborated extensively on the Global Hawk Maritime Demonstration effort, the Navy's Request For Proposal for BAMS could result in initiation of a completely new, high-cost acquisition program. A derivative of the existing MQ–9 or RQ–4 can satisfy mission requirements of the BAMS platform. Savings could be realized by using an existing platform for BAMS, even though new or modified sensors may be required for maritime use.

The Air Force believes that consolidating development, procurement, contracting activities, depot maintenance, logistics, and training for medium- to high-altitude UAVs could offer at least a 10% savings compared to the cost of separate efforts. However, detailed analysis is needed to accurately quantify the potential savings. Certainly, if acquisition efforts were combined and DOD was able to use existing contract vehicles and production capacity, initial research and development activities and costs could be reduced. DOD would decide how best to apply those savings. Acquiring more UAV systems, fielding UAV combat capability sooner, and reducing UAV unit costs would be among their options.

Mr. ABERCROMBIE. What is the process and what office is responsible for providing oversight of service, combatant command, OSD, and defense agency, to include JEIDDO, ISR acquisition programs and operational implementation to ensure a coordinated, effective program. Does this office have the authority to modify service and agency budgets?

Mr. LANDON. The Department employs Portfolio Management to provide authority for oversight of Service, combatant command, OSD, and defense agency ISR programs. The portfolio management structure ensures unity of effort from strategy to execution and also provides a forum to bring together the three key DOD processes: Planning, Programming, Budget and Execution Process (PPBE), Joint Capabilities Integration and Development System (JCIDS) and Defense Acquisition System (DAS) into an end-to-end fashion. The Battlespace Awareness (BA) Capability Portfolio Manager (CPM) integrates enterprise level investments from a Joint operational viewpoint of ISR performance and capabilities.

Portfolio governance is provided through the Intelligence, Surveillance and Reconnaissance Integration Council. The BA CPM uses the Council to resolve issues and to develop trade space and identify new alternatives.

Portfolio adjustments are made through the PPBE process. The Capability Portfolio Manager (CPM) enables resource decisions based on trade-offs within the portfolio after reviewing operational capabilities across the enterprise and prioritizing the warfighter's needs. The CPM recommends to the leadership of the Department needed adjustments within the portfolio which would allow effective use of resources. The CPM does not currently have the authority to modify Service or Agency budgets, but provides the overall recommendations for ISR budget allocations to the Secretary of Defense in building the Department's Budget.

Mr. ABERCROMBIE. Are you familiar with all of the Joint Improvised Explosive Device Defeat Organization TSR acquisition projects and are you otherwise satisfied that there is no unnecessary overlap among the JIEDDO projects, services and defense agencies among ISR programs?

Mr. LANDON. I am familiar with JIEDDO and their ISR work. JIEDDO seeks to expedite and rapidly deploy the national technical base to provide better weapons, training, intelligence fusion, and defensive capability to the warfighters. Unlike most ISR acquisition programs, the key to JIEDDO's mission is rapid acquisition of predominantly, non-developmental items. Consequently, although there may be some overlap among JIEDDO's projects, we view this overlap as a by-product of seeking to explore and field different approaches to solve urgent problems rapidly.

JIEDDO's focus is on Department of Defense actions in support of Combatant Commanders' and their respective Joint Task Forces' efforts to defeat Improvised Explosive Devices as weapons of strategic influence. To accomplish this mission JIEDDO seeks near-term, non-developmental items and capabilities that can be rapidly adapted, demonstrated and fielded within 6–18 months after contract award.

Mr. ABERCROMBIE. What OSD office is responsible to ensure that the services aerial common sensor acquisition programs are effectively coordinated to ensure max-

imum use of common mission equipment, training, infrastructure and interoperability? Does this office have the authority to modify service and agency budgets?

Mr. LANDON. In September 2006 the Deputy Secretary of Defense selected Battlespace Awareness as one of the four areas for capability portfolio management. The Office of the Deputy Under Secretary of Defense for Acquisition, Resources and Technology is the Battlespace Awareness (BA) Capability Portfolio Manager (CPM). The BA CPM is responsible for facilitating strategic choices and making capability tradeoffs. Coordinating Aerial Common Sensor program issues among the Services is part of the BA CPM's responsibility.

The Department's four CPMs do not currently have the authority to modify Service or Agency budgets, however, the CPMs provide overall recommendations for budget allocations within their capability areas to the Secretary of Defense in building the Department's Budget.

Mr. ABERCROMBIE. Is there any plan to provide joint capability portfolio managers the authority to direct or redirect service budgets when it is determined that specific ISR programs could be improved by so doing?

Mr. LANDON. The Department's portfolio management model emphasizes resource decisions based on trade-offs within a given portfolio. The Battlespace Awareness (BA) Capability Portfolio Manager (CPM) exercises authority provided by and with the approval of the Deputy Secretary of Defense to "direct" the ISSR POM and budget. The CPM has an open and direct line to the Milestone Decision Authority and to the Program Managers (PMs) for programs within the portfolio. The CPM develops and issues POM guidance for ISR programs; controls and approves budget execution, and advocates resource needs. The BA CPM will recommend resource allocations to the Deputy Secretary of Defense through the ISR Council and the Deputy's Advisory Working Group.

Mr. ABERCROMBIE. Recapitalization of DOD ISR programs and achieving global persistent surveillance are listed as two of DOD's strategic objectives. Has the cost of achieving these two objectives been established? If so, please provide.

Mr. LANDON. Recapitalization of DOD ISR programs and global persistent surveillance are incremental capabilities that evolve over time and will incorporate elements of space, air, land, and maritime domains. The cost of achieving these objectives is included in the FY2008 President's Budget and is spread across multiple funding lines (programs) and multiple years within the budget. These two objectives were not separately costed as specific initiatives but achievement of these goals is important to the Department.

Mr. ABERCROMBIE. The GAO indicates the Strategic Command is charged with making recommendations on the allocation of ISR assets to meet worldwide requirements, but does not have the visibility of all ISR assets in executing its responsibilities. Do you agree with this observation? If so, are steps being taken to correct this shortcoming?

Mr. LANDON. I agree with the observation but capabilities are being developed and fielded now that will provide needed insight and visibility into ISR assets. To make sound ISR allocation recommendations, global visibility of ISR assets is essential. An efficient ISR enterprise must leverage all available resources, integrating DOD, national and allied partner ISR capabilities. Visibility includes the awareness of and access to all available ISR capabilities, combined with the ability to capture collection requirements, tasking, and asset allocation in real time. Capability gaps currently exist in applications and tools supporting Intelligence Collection and ISR Operations Management, particularly in the consolidated planning and management of National and Theater ISR assets. These include a lack of ISR global force management applications, databases and connectivity to plan, coordinate and execute ISR collection requirements. These capability gaps have been identified through Combatant Command Integrated Priority Lists as well as the Joint Staff's recent Winter 2007 Capability Assessment. USSTRATCOM's Joint Functional Component Command-Intelligence, Surveillance, and Reconnaissance (JFCC-ISR) in coordination with the Defense Joint Intelligence Operations Center as DOD's Collection Manager, is evaluating and developing integrated capabilities for ISR management to help address these capability gaps. The initial versions of these software tools are currently fielded and are beginning to provide visibility into the Global ISR picture from the national to tactical arenas.

Mr. ABERCROMBIE. What is the status of coordination with the FAA and what are future plans for the operation of specific UAVs in U.S. airspace for homeland security and disaster response purposes?

Mr. LANDON. DOD coordinates with FAA through the DOD Policy Board on Federal Aviation (PBFA) for policy issues related to the Department's operations in the National Airspace System (NAS). Issues such as airworthiness standards, operational requirements, safety oversight activities, and airspace modernization are ex-

amples of such policy issues. To better coordinate DOD and FAA efforts on a daily basis, each military service and the PBFA has liaison representatives assigned to FAA headquarters. DOD participates in bi-weekly phone conferences with the FAA and representatives from Department of Homeland Security (DHS), and other government organizations to discuss issues, activities and developments related to operating Unmanned Aircraft Systems (UAS) in the NAS. The Deputy Secretary of Defense directed PBFA to work with FAA on a DOD/FAA Memorandum of Agreement (MOA) to allow ready access to the National Airspace System (NAS) for DOD UAS domestic operations and training. This MOA sets forth provisions allowing, in accordance with applicable law, increased access for DOD UAS into the elements of the NAS outside of DOD-managed Restricted Areas or Warning Areas.

Regarding future plans for homeland security and disaster relief purposes, DOD is working to achieve more timely responses with our family of UAS in support of Civil Authorities during disaster relief situations. Operating UAS within the NAS (outside Restricted and/or Warning Areas) requires an FAA Certificate of Authorization (COA). The COA approval process can take up to 90 days. To facilitate the timely use of UAS, DOD is working with the FAA for contingently approved COAs for the Predator UAS and Reaper UAS. These contingent agreements provide much of the authority for a UAS to operate in response to a disaster. Final FAA approval of the contingent COAs is required prior to initiating UAS operations based on additional information related to the specific disaster. The pre-coordinated COAs cover disaster relief support only and is issued to the Joint Forces Air Component Commander directing the assigned UAS during such operations. The Army is submitting a similar COA request for the Shadow UAS.

With the exception of the pre-coordinated COAs for disaster relief operations, DOD UAS support to Department of Homeland Security (DHS) is on a case-by-case basis initiated by a DHS request, and subject to approval by the Secretary of Defense. The *Joint Concept of Operations (CONOPS) for UAS,* released by the Joint UAS Center of Excellence in March 2007, provides an overarching CONOPS for UAS, including support for Homeland Defense and Civil Authorities. NORTHCOM also plans to release a UAS CONOPS later this year addressing Homeland Defense and civil support missions.

Mr. ABERCROMBIE. Are all theater-capable ISR assets in Iraq allocated to the theater commander to be tasked on a daily basis to meet theater requirements? If not, why not. Please list ISR theater-wide assets.

General DAVIS. [The information referred to is classified and retained in the committee files.]

Mr. ABERCROMBIE. What is the status of coordination with the FAA and what are future plans for the operation of specific UAVs in U.S. airspace for homeland security and disaster response purposes?

General DAVIS. The lines of communication and coordination between the FAA and the Services are open and functioning well. The FAA has formed a UAS Group that works to maintain and promote UAS-specific knowledge and to address operational and safety issues in a prompt manner. Additionally, the FAA has developed and employed an automated Web-based system as a means for DOD (and others) to request authorization to operate unmanned aircraft in non-segregated portions of the national airspace system. The FAA has demonstrated the ability to approve requests from DOD within 60 days and in some cases much more promptly. In preparation for future disaster relief operations, a standing FAA Authorization for US Northern Command's (USNORTHCOM's) Joint Force Air Component Commander to operate pre-coordinated UAS assets was established in May 2006.

USNORTHCOM and DHS provide defense and security for the homeland. USNORTHCOM provides defense support of civil authorities (DSCA) when directed to do so by the President or the Secretary of Defense. Future homeland security plans requiring UAS operations will employ these DOD assets via DSCA with the appropriate FAA coordination. DHS is developing their own UAS capability to meet their mission sets—Coast Guard, Customs and Border Protection, and Immigration and Customs Enforcement. DHS coordinates directly with the FAA on their UAS operations. Additionally, DHS has a number of law enforcement functions not shared with USNORTHCOM. Therefore, DOD's use of UASs for homeland security missions is controlled at the Secretary of Defense level to monitor compliance with the Posse Comitatus Act.

Mr. ABERCROMBIE. General Pace has been quoted as saying he favors integrating certain classes of unmanned aircraft into mainstream operations in Iraq, is this accurate? If this is his view, is this consistent with current practice being followed by the in Iraq?

General DAVIS. General Pace's view is consistent with current practices being followed in Iraq. All aircraft flying above 3,500 feet in Iraq today are part of the air

tasking order (ATO), including unmanned aircraft systems (UAS). In this sense (airspace deconfliction), unmanned aircraft are integrated into mainstream operations in Iraq now. It is important to note, however, that listing aircraft on the ATO by design does not give the Joint Force Air Component Commander (JFACC) "real-time" visibility of the specific mission tasking of the aircraft due to decentralized execution by local commanders. In actual practice, a UAS listed on the ATO does not provide JFACC with the authority to task it. However, it does provide the JFACC with awareness of an unmanned aircraft's presence, who is operating the vehicle, and the information necessary to contact the controlling agency, if required.

Mr. ABERCROMBIE. General Pace is also quoted as saying, "It makes absolute sense to me that things flying above 3,500 feet should be part of the ATO, air tasking order, so that there is deconfliction of the airspace and the Joint Force Air Component Commander—normally Air Force but not necessarily—is the right person to ensure that the airspace is deconflicted." Is this General Pace's view? Is this the practice?

General DAVIS. General Pace's statement echoes the procedures currently in place per Joint Publication 3–52, "Joint Doctrine for Airspace Control in the Combat Zone," dated 30 August 2004, and Joint Publication 3–30, "Command and Control for Air Operations," dated 5 June 2003. The Joint Force Commander appoints an airspace control authority (ACA) to assume overall responsibility for the airspace control system. Normally, a Joint Force Air Component Commander (JFACC) is also designated and assumes the role of the ACA. Acting as the ACA, the JFACC staff issues the airspace control order (ACO) and the air tasking order to task joint force components and provide additional information about the missions during the tasking period. The coordinating altitude, a procedural airspace control method to separate fixed and rotary wing aircraft through altitude deconfliction, is used as the lower altitude limit for ACA/ACO authority and planning.

In the IRAQ area of responsibility, Army unmanned aircraft operating above the coordinating altitude (actual altitude classified) are integrated into the ACO and their missions published as part of the daily ATO. Army unmanned aircraft direct-support missions currently integrated into the ATO include SHADOW, HUNTER, and I-GNAT/WARRIOR-ALPHA. The Marine Corps operates separately from the ACA/JFACC and establishes a direct air support center responsible for the direction of air operations directly supporting ground forces, including their unmanned aircraft such as PIONEER, SHADOW, and SCAN EAGLE.

Mr. ABERCROMBIE. Are any of the Army UAVs of the I–GNAT, Hunter, or Warrior A class, the large medium altitude UAVs, made available to the Joint or Combined Forces Air Component Commander on a regular basis for the tasking of high priority theater requirements?

General SORENSON. Depending on the missions within the Corps (Multi National Corp–Iraq) and divisions, the Hunter, IGNAT, and Warrior Alpha Unmanned Aircraft Systems (UAS) could be assigned missions above the tactical level to support strategic or theater level missions. These Army UAS are best suited to directly support the tactical commander.

Mr. ABERCROMBIE. If the medium altitude UAVs were made available for allocation to the highest priority UAV ISR targets, how many tactical UAVs would be available to support Army-organic tasking?

General SORENSON. The Army has integrated manned and unmanned systems of manned aviation and unmanned aviation. Diverting the division Unmanned Aircraft Systems (UAS) such as the Warrior Alpha and the Extended Range/Multi-Purpose (ER/MP) UAS out of the tactical (division) battlespace is a conscious decision the next higher commander has to assess in terms of risk, time, and consequence. Priority and allocation depends on the time horizon of the command. Should the Joint Force or Combined Force Commander Force Commander take these systems it would create a void at the tactical level.

For the CFACC assets, the CAOC approves the UAS target deck and has the final say on how assets are employed. CFACC asset allocation requires lengthy requirements planning and submissions 72-hours in advance which complicates target servicing due to the fluid tactical battlespace.

Mr. ABERCROMBIE. The Army has purchased eight Fire Scout UAVs for the Future Combat Systems program which is not planned for an initial combat capability until 2015. What is the status of those UAVs? How many missions and flight hours have they logged, by month/vehicle, since January 2006? What is the planned use rate and for what purpose for fiscal year 2008? Do they have the planned mission equipment installed and integrated? Is there any plan to deploy them to Iraq?

General SORENSON. The eight Class IV UAVs (Fire Scout) you reference are preproduction air frames only. Only five airframes have been delivered and none have completed integration or flight testing. The purpose of these air vehicles is to per-

form integration of FCS specific avionics and computer systems, and testing of flight software to meet the FCS requirements. The Preliminary Design Review is scheduled for September 2008, the Critical Design Review is scheduled for July 2009, and First Flight is anticipated in November 2010. These dates are synchronized with the overall FCS integrated schedule. The Army continues to assess the technical performance in order to accelerate this capability.

To date, no Army Fire Scout air vehicle has been fully configured. Of the five Army air vehicles that have been delivered, Army number one is 90% configured, less communication equipment and sensors. Army number two is approximately 40% integrated; no work has begun on the remainder of the air vehicles. No flights have occurred, only ground engine runs have been conducted.

However, The Army and PM FCS have been working with Northrop Grumman, the developer of the Fire Scout, to explore earlier flight opportunities. The Program Manager of Unmanned Aerial Systems (PM UAS), Training and Doctrine Command System Manager (TSM) UAS and Army Test and Evaluation Command (ATEC) briefed the Vice Chief of Staff of the Army (VCSA) on the potential of providing Fire Scouts into theater next fiscal year (FY), after the air vehicles are integrated (with non-FCS communications equipment and sensors) and tested. The Army has not made a decision to deploy the Fire Scout UAVs. Previous initiatives included a proposal to the Joint Improvised Explosive Device Defeat Organization (JIEDDO). FCS agreed to provide two Fire Scout airframes and two Airborne Standoff Minefield Detection System (ASTAMIDS) payloads to be used in the JIEDDO proposal, that proposal was not funded by JIEDDO. In addition, we are discussing bailment of aircraft to Northrop Grumman and are supporting the Special Operations Command (SOCOM) fact finding efforts into Fire Scout.

Mr. ABERCROMBIE. What is the planned evolution of the class I FCS UAV? How many have been procured? How many are to be procured, in what time frame? What is the planned acquisition budget for the program and note any changes the program planned in FY07 for the FYDP. How are the ones that are currently fielded to be used through the FY07–08 period?

General SORENSON. The Micro Air Vehicle (MAV) Advanced Concept Technology Demonstration (ACTD) program has transitioned into the Future Combat Systems (FCS) Class I Unmanned Aerial Vehicle (UAV) program. Honeywell is under contract to the FCS Lead System Integrator (LSI) to complete the development of the Class I UAV. Currently, no Class I UAVs have been procured/fielded (the MAVs residuals delivered under the ACTD program, remain with the Army's 25th Infantry Division). The MAVs delivered under the ACTD are currently being used in the development of Concept of Operations (CONOPS) and Technology Transfer Programs (TTPs) on how to best employ Vertical Take-Off and Landing (VTOL) UAVs. The 25th Infantry Division has submitted an Operational Needs Statement (ONS) to the US Army Pacific Command (USARPAC) to deploy the MAVs to Iraq. To date, no decision has been made on whether the MAVs will be deployed to Iraq. The MAVs will continue to be used by the FCS program for experimentation and to reduce the risk to the Class I UAV.

The planned acquisition budget for the Class I program through FY13 is as follows:

	FY08	FY09	FY10	FY11	FY12	FY13
RDT&E	$20.2M	$13.1M	$4.3M	$0.9M	$1.7M	$0.4M
Procurement					$0.9M	$4.9M

The Procurement budget in FY13 supports acquisition of the first Class I UAV production (the FY12 Procurement budget supports acquisition of long lead materials). The total production quantity of Class I UAVs in FY13 is 62 (35 for the core FCS program and 27 for Spin Out 3). Current Army funding supports acquisition of 2,239 Class I UAVs, although the final quantity will be dependent upon future Army decisions.

Mr. ABERCROMBIE. Please provide the Army's definitions for UAVs. What is a "tactical" UAV and what current UAVs fall in each of the Army's various definitions for UAVs?

General SORENSON. The Army's definitions for UAVs are defined in the Joint Field Manual 3–04.15, "UAS Multi-Service Tactics, Techniques, and Procedures for the Tactical Employment of Unmanned Aircraft Systems", dated August 3, 2006. This document describes three classes of Unmanned Aircraft Systems (UAS): Manportable, Tactical, and Theater.

- Man-portable UAS are small, self-contained, and portable. Their use supports the small ground combat teams/elements in the field. The Army's Raven UAS falls into this category. It is hand-launched, soldier transported, and fielded to battalions and smaller organizations. The Army's Future Combat System (FCS) Brigade Combat Team (BCT) will have its own man-portable UAS, the Micro Air Vehicle (MAV). The MAV will feature both "hover and stare" and "perch and stare" capabilities made possible by its lift-augmented ducted fan propulsion system. This capability will allow operation virtually anywhere, even in confined spaces.
- Tactical UAS are larger systems that support maneuver commanders at various tactical levels of command and can support the small combat teams when so employed and are locally controlled and operated by a specialized UAS unit. The Army's Shadow, IGNAT, Hunter, Warrior A, and Extended Range/Multi-Purpose (ER/MP) Warrior all fall into this category. The FCS BCT will have its own tactical rotary-wing UAS, the Firescout.
- Theater. The Army does not have any UAS that fall into this category.

In addition to these definitions, the Joint UAS Center of Excellence (JUAS COE) Concept of Operations (CONOPS), as endorsed by the Army during FY07, defines three "Tactical" UAS. The Raven is considered a "Tactical 1" system by the JUAS COE CONOPS since it is hand-launched, soldier transported, and fielded to Battalions and smaller organizations. The Shadow is defined as a "Tactical 2" system per the JUAS COE CONOPS since it is mobile-launched, vehicle transported, locally controlled and operated by a specialized UAS platoon within the Brigade Combat Team (BCT). The IGNAT, Hunter, Warrior A, and Extended Range/Multi-Purpose (ER/MP) Warrior are classed "Tactical 3" systems within the JUAS COE CONOPS since they are organic to the Division, conventionally launched (rolling take-off) and primarily operated out of airfields. The FCS MAV is a Tactical 1 and the Firescout is a Tactical 2, in accordance with the JUAS COE CONOPS.

Mr. ABERCROMBIE. Please provide any available information on fielded UAS accident and loss rates.

General DEPTULA. MQ–1 Predator aircraft loss rates per flying hour have decreased from a rate of approximately 40/100,000 hours in 2001 to an all-time low in 2006 of 15.3/100,000 hours. This trend is comparable to early historical rates of the F–16—a true success story. Since September 2001, workload of the Predator force has dramatically increased, while the loss-rate continues to decline.

There have not been any accidents or losses of fielded RQ–4 Global Hawk Block 10 aircraft.

Mr. ABERCROMBIE. Please provide any available information on fielded UAS accident and loss rates.

Admiral CLINGAN. Information on fielded UAS accident and loss rates for Fiscal Years (FYs) 2004 to date in FY 2007 is as follows:

	FY04	FY05	FY06	FY07	
Pioneer:	1	0.83	0.83	0.25	Crash rate per 1000 flight hours
Scan Eagle:	N/A	5.5	3.1	2.0	Crash rate per 1000 flight hours

The overall UAS loss rate (beyond repair) for Pioneer during Operation Iraqi Freedom (OIF) is 0.045 per 1,000 flight hours, and the loss rate for Scan Eagle is 1.6 per 1,000 flight hours. The very low loss rate on Pioneer is in part due to the inability to produce new Pioneers, which drives us to repair most crashed air vehicles. Scan Eagle is a low cost air vehicle (about $130K), and economic considerations result in only about 40 percent of the crashed air vehicles being repaired. Small, hand-launched UAS such as Dragon Eye and Raven B are classified as expendable items, and as such, accident/loss rate data is not tracked.

Mr. ABERCROMBIE. Please provide any available information on fielded UAS accident and loss rates.

General ALLES. [See the information below.]

Marine Corps
UAS Loss Rates and Accidents

FY06 USMC UAS Accident & Loss Rates			
UAS Type	**Flight Hours**	**Accidents**	**Losses**
Dragon Eye	Not reported	Not reported	14
Pioneer	7,152.3	7	0
FY07 USMC UAS Accident & Loss Rates (thru July 07)			
UAS Type	**Flight Hours**	**Accidents**	**Losses**
Dragon Eye	Not reported	Not reported	2
Pioneer	5603.2	1	0

Mr. ABERCROMBIE. Please provide any available information on fielded UAS accident and loss rates.

General SORENSON. [See the information below.]

FY06 Army UAS Accident and Loss Rates			
UAS Type	Flight Hours	Accidents	Losses
Raven	19,853	61	59
Shadow	69,332	63	15
Hunter	6,987	5	2
IGNAT & Warrior A	11,681	1	1

FY07 Army UAS Accident and Loss Rates (thru May 07)			
UAS Type	Flight Hours	Accidents	Losses
Raven	10,714	45	32
Shadow	65,963	23	9
Hunter	6,316	4	3
IGNAT & Warrior A	10,740	1	1

Note: Losses are those Air Vehicle accidents resulting in an uneconomically reparable condition (usually 75 percent damage or more to vehicle), completely destroyed, or unrecoverable.

Mr. ABERCROMBIE. What aspects of the DOD organizational structure preclude effective management of the requirements-through-acquisition process? In your testimony you referred to a "sloppy process." Can you provide more specific information as to how the requirements establishment and acquisition process needs to be modified and/or disciplined?

Mr. SULLIVAN. There are multiple aspects of DOD's structure that contribute to problems with its requirements-setting and acquisition processes. They have led to poor acquisition outcomes—cost overruns and delays in delivering new systems to the warfighter. First, the department's requirements-setting process (JCIDS) is platform-oriented and hampered by stove-pipes across the services. Second, the department's planning, programming, budgeting, and execution process (PPBES) is not effectively integrated with the JCIDS and, therefore, does not constrain requirements early enough by matching needs with available resources. The result is that there are no clear priorities from which to choose programs and, at a strategic level, there are too many programs chasing too few dollars. This unhealthy competition for funding combined with unconstrained, stovepiped requirements creates poor business cases for acquisition programs. Third, as a result of this lack of clear priorities at the strategic level, the services' acquisition organizations begin individual programs with inadequate cost and schedule estimates. These programs are hampered from the start and further hampered during execution by a lack of controls (or rules) concerning program management tenure or that provide knowledge concerning technological, design, and manufacturing maturity prior to making the next incremental investment in a weapon system's development. Fourth, the department does not effectively include the voice of the S&T community in decisions about requirements, resources, and program execution at the appropriate times. Most programs begin with requirements for capabilities that are not yet invented, significantly complicating the execution of an acquisition program. GAO has issued numerous reports regarding these problems and potential solutions.

Our written statement for the testimony provides some examples of these problems. There are many more. Two of these examples are the Global Hawk and the Predator/Warrior.

- The Global Hawk program exemplifies a requirements process driven by the Air Force to include requirements for capabilities that were not achievable. These requirements were not constrained by the PPBES process since it is not integrated with requirements-setting. As a result, the program's original cost and schedule was significantly underestimated and additional funds have had to be set aside for the program, impacting other programs given available funding. Since then, the program has encountered technology, design, and manufacturing problems that have significantly increased its cost and delayed deliveries.
- The Predator/Warrior debate exemplifies the difficulty that the requirements-setting process has breaking through stovepiped services. To date, the Army and the Air Force have made some progress in acquiring these capabilities together; however, the process has been very difficult and there has been considerable resistance to a joint acquisition within each service. This can lead to unnecessarily redundant and inefficient acquisitions.

Our recent best practices work (**GAO–07–388**) identified the lack of integration between the key decision support processes and the absence of a single point of accountability for acquisition investment decisions as two key structural contributors to the "sloppy" (perhaps better characterized as "undisciplined") nature of DOD's management of the requirements-through-acquisition process. We reported that DOD's acquisition decision-making structure is built on three separate processes that are headed by separate organizational entities. In addition, weapon system investment decisions continue to be heavily influenced by the military services. Within this structure the responsibility and authority for making decisions about what to buy, how to buy it, and how to pay for it is divided among the Joint Chiefs of Staff, the Under Secretary of Defense for Acquisition, Technology and Logistics, and the OSD Comptroller/PA&E respectively. This fragmented structure lacks effective accountability and has led DOD to commit to more acquisition programs than its resources can support.

In contrast, we found that successful commercial companies take a portfolio management approach to making investment decisions to help ensure they pursue the right mix of programs to meet the needs of their customers within resource constraints. Successful portfolio management requires strong governance with committed leadership that empowers portfolio managers to make decisions about the best way to invest resources and holds those managers accountable for the outcomes they achieve. This type of an approach requires knowledge about the customer's requirements and available corporate resources—existing products, money, and technology—to be assessed in an integrated fashion early and often to ensure that investment decisions are adequately informed.

While DOD implemented a new requirements process a few years ago, positive results have not been forthcoming and need and solution determinations are still over-

ly stovepiped. These problems are deep seated and of a cultural nature. They generally are not solved until leadership (the Secretary as well as the Congress) exhibits the will change. There are many obstacles to creating the right environment for this cultural transformation. Below I list some of the actions that would help achieve better results in the requirements and acquisition processes.

1) An enterprise level (above the military services—OSD/ATL) investment strategy to determine needs jointly within a resource constrained environment. (Do not start more programs than you can afford.)
2) A sound business case at the start of an acquisition program (milestone B) that ensures requirements and resources are matched—requirements are balanced to match the real warfighter need, mature technology, design knowledge, short cycle-times, and available funding.
3) An evolutionary approach that develops new capabilities in increments rather than a single quantum leap.
4) A knowledge-based acquisition process that defines specific criteria or knowledge that must be captured at key decision junctures before investing further in the development program.
5) Program managers that are held accountable for the outcome of their decisions and remain on programs until the product is delivered.
6) Senior leadership committed to the application and enforcement of a joint enterprise level investment strategy and knowledge-based acquisition process.
7) Transparency in the acquisition decision making process.

Mr. ABERCROMBIE. Is GAO in a position to offer recommendations on what qualitative metrics DOD might use to measure the success of its ISR missions?

Ms. PICKUP. At the subcommittee's April 2007 hearing, we testified that DOD lacks sufficient metrics for evaluating the effectiveness of its ISR missions. For example, DOD currently assesses its ISR missions with limited quantitative metrics such as the number of targets planned versus the number collected and more work needs to be done to develop qualitative as well as quantitative metrics. DOD officials acknowledge more needs to be done and there is an ongoing effort within DOD to develop qualitative as well as further quantitative metrics. Such qualitative metrics would address how the warfighter is benefiting from information gathered during ISR missions. Below are some examples of qualitative metrics, consistent with those being considered by the department.

— Whether the essential elements of information requested by the warfighter were satisfied or not and what effect the captured intelligence had (e.g., Improvised Explosive Device hot spots were identified).
— The impact the intelligence had on an operation (e.g., partner security forces were able to maintain border integrity and enforce border security).

In addition to metrics that assess the success of individual ISR missions and assets, DOD should have metrics for tracking trends over time to assess whether ISR assets are meeting warfighter needs. These metrics would help inform DOD's decision making regarding ISR acquisition.

○