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AIR FORCE AND ARMY AIRLIFT AND AERIAL REFUELING FIXED-WING AIRCRAFT PROGRAMS

HEARING

BEFORE THE

AIR AND LAND FORCES SUBCOMMITTEE

OF THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

ONE HUNDRED TENTH CONGRESS

FIRST SESSION

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CONTENTS

CHRONOLOGICAL LIST OF HEARINGS

2007

Page

HEARING:

Wednesday, March 7, 2007, Air Force and Army Airlift and Aerial Refueling Fixed-Wing Aircraft Programs 1

APPENDIX:

Wednesday, March 7, 2007 49

WEDNESDAY, MARCH 7, 2007

AIR FORCE AND ARMY AIRLIFT AND AERIAL REFUELING FIXED-WING AIRCRAFT PROGRAMS

STATEMENTS PRESENTED BY MEMBERS OF CONGRESS

Ortiz, Hon. Solomon P., a Representative from Texas, Air and Land Forces Subcommittee 1

Saxton, Hon. Jim, a Representative from New Jersey, Ranking Member, Air and Land Forces Subcommittee 2

WITNESSES

Bolkcon, Christopher, Specialist in National Defense, Congressional Research Service 7

Chandler, Lt. Gen. C.H. "Howie", Deputy Chief of Staff for Operations, Plans and Requirements, U.S. Air Force; Lt. Gen. Donald J. Hoffman, Military Deputy, Office of the Assistant Secretary of the Air Force for Acquisition, U.S. Air Force; Lt. Gen. Mark Curran, Deputy Commander, Training and Doctrine Command, U.S. Army; Maj. Gen. (Select) Jeffrey Sorenson, Deputy for Systems Management, Secretary of the Army for Acquisition, Logistics and Technology, U.S. Army; Maj. Gen. Thomas P. Kane, Director of Strategic Plans, Requirements and Programs, Air Mobility Command, U.S. Air Force beginning on page 22

Solis, William M., Director, Defense Capabilities and Management Issues, Government Accountability Office 3

Sullivan, Michael J., Director of Acquisition and Sourcing Management Issues, Government Accountability Office 5

APPENDIX

PREPARED STATEMENTS:

Bolkcon, Christopher 81

Curran, Lt. Gen. John M., joint with Maj. Gen. Jeffrey A. Sorenson 110

Ortiz, Solomon P. 53

Solis, William M., joint with Michael J. Sullivan 57

Hoffman, Lt. Gen. Donald, joint with Lt. Gen. Howie Chandler, and Maj. Gen. Thomas Kane 102

Page

DOCUMENTS SUBMITTED FOR THE RECORD:

Defense Transportation, Study Limitations Raise Questions about the Adequacy and Completeness of the Mobility Capabilities Study and Report 117
Slides and map submitted by General Kane 150

QUESTIONS AND ANSWERS SUBMITTED FOR THE RECORD:

Mr. Abercrombie 157
Mr. Akin 162
Mr. Johnson 164
Mr. Meek 164
Mr. Miller 159
Ms. Tauscher 161

AIR FORCE AND ARMY AIRLIFT AND AERIAL REFUELING FIXED-WING AIRCRAFT PROGRAMS

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
AIR AND LAND FORCES SUBCOMMITTEE,
Washington, DC, Wednesday, March 7, 2007.

The subcommittee met, pursuant to call, at 3:03 p.m., in room 2118, Rayburn House Office Building, Hon. Solomon Ortiz presiding.

OPENING STATEMENT OF HON. SOLOMON ORTIZ, A REPRESENTATIVE FROM TEXAS, AIR AND LAND FORCES SUBCOMMITTEE

Mr. ORTIZ.The subcommittee will come to order.

Chairman Abercrombie has been delayed in getting back from Hawaii, so he has asked that I sit in to get the hearing started.

Today we will receive testimony from the Government Accountability Office (GAO) and Congressional Research Service (CRS) witnesses, plus Air Force and Army fighting experts, about the airlift and the aerial refueling aircraft programs.

Today's hearing will focus on parts of the Department of Defense's (DOD) recent mobility study and its conclusions, which shape the Air Force and Army force structure requirements for aerial refueling and airlift aircraft.

Over the past 10 years, the United States has reduced its Cold War infrastructure and closed two-thirds of its forward bases. Yet, we have increased our operational tempo of deployments. Our aircraft platforms continue to age without replacement due to procurement shortfalls that began in the last century.

We now see the results of these challenges as we look at our aging airlift and the tanker fleets of aircraft. These aircraft, including even our new strategic airlifters, the C–17s, are getting used up far faster than we had planned.

In January 2006, the Department of Defense released a mobility capability study, or MCS, and they are currently conducting other airlift and tanker studies.

There are many programs and associated issues that we would like to discuss today regarding the C–17, the C–5, the C–130 airlifters, the KC–X, the KC–135 tankers, and the Joint Cargo Aircraft (JCA).

To help us understand the results of the MCS, to give us insight into program issues and the way forward, for recapitalization, we have two panels of witnesses today.

For our first panel, I welcome Mr. Solis—good to see you again, sir—Director of Defense Capabilities and Management of the Gov-

ernment Accountability Office; Mr. Michael Sullivan, Director of Acquisition and Sourcing Management of the Government Accountability Office; and, Mr. Chris Bolkcom, Specialist in National Defense from the Congressional Research Service.

We want to welcome you and thank you for joining us today.

But before we begin with witnesses' opening statements, let me call on my good friend, the gentleman from New Jersey and ranking member of the subcommittee, Mr. Saxton, for any remarks that he would like to state today.

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

Mr. SAXTON. Mr. Chairman, thank you very much. I appreciate you holding this very important hearing on airlift and refueling programs for the Air Force and, of course, for their best customer, the Army.

I am very pleased to be here because I believe the issues we are addressing today are absolutely crucial to the nation's ability to meet our nation's national security strategy.

We have several witnesses before the committee today, and they come to us with a tremendous amount of knowledge on these extremely important issues.

I would like to welcome all of you gentlemen. Thank you for being here. We appreciate it, and I know I speak for myself as well as for Chairman Abercrombie, who is not here of course.

We are here to examine the Department of Defense's airlift and aerial refueling program requirements. These requirements and capabilities have gaps that vary against a backdrop of ever-changing global security challenges.

I am reminded, Mr. Chairman, of the first time I went to Iraq and was briefed there on airlift capabilities and requirements. We were using C–130's tactically in the country, and, as you just mentioned, as the C–130's become less capable because of wear and tear, we have supplemented them with a permanent contingent of 20 C–17s in country to do tactical lift.

The programs we are talking about are an enormous part of the defense budget and, for that reason, we, the Congress, like to be very sure before we commit to a course of action.

Part of being sure is to gather as many facts, study the issue and to examine all of the alternatives.

We first saw mobility requirements study MRS–05 in the spring of 2001. That study was designed to tell us how many millions of ton miles per day of cargo capacity we needed to meet our national security strategy. With those conclusions, we could then go about the business of developing a fleet of aircraft to fill that requirement.

The problem here, of course, is that MRS–05 was initiated prior to the attacks of 9/11 and was outdated even before it was released.

Next, we had, as you mentioned, Mr. Chairman, the Mobility Capabilities Study, MCS. Started in the summer of 2004, MCS was designed to take a hard look at the nation's airlift requirements as the global war on terror (GWOT) unfolded.

Unfortunately, the MCS, at least in my opinion, didn't say much. It validated that we can do the things that we are doing with the assets we have. There were no hard questions asked by the MCS and there were certainly no answers in MCS. Yet, we waited for MCS, hoping that it would steer us in the right direction.

Along with MCS, we awaited the QDR to be released. The QDR finally arrived only to call for five more studies related to airlift requirements and provided us little insight into the nation's true airlift capability needs.

Today we are waiting for MCS–06 to be released. MCS–06 is designed to incorporate the findings of the five other studies called for in the QDR.

On top of all these studies, we wait for DOD requirement validations, Nunn-McCurdy certifications, operational test results and fleet viability reports, while we are sitting around waiting for these reports, studies and analyses.

In a world that is moving much faster than our bureaucracy, we, as a nation and the Congress, are faced with some tough decisions and everyone I talk to tells me they are waiting on another study before they can answer our questions.

While we are waiting for those studies, let me share some facts.

The fiscal year 2008 budget request is here. Long lead suppliers for C–17 are being issued stop-orders. The line is scheduled to close in 2009, although I received a call last week that said it may close even sooner or may begin to phase down even sooner.

The Army and the Marine Corps are increasing their end-strength by 65,000 personnel, I believe, increasing the requirement.

The weight of most armored vehicles now required in Iraq precludes the use of C–130 aircraft. We do not know the final weight of the Army's future combat system nor has it been taken into account in establishing future requirements.

The number of improvised explosive Device (IED) attacks continues to grow. The one sure way to keep our troops out of that threat is to keep them off the roads.

The global war on terror is just that, a global war that is being fought by many nations and many continents.

We are faced with several decisions regarding the nation's airlift and tanker requirements. We cannot afford to put off those decisions in order to wait on another report, because as we wait, the world continues to change around us.

To be clear, I am not advocating disregarding any of our current policies. I am making one simple point: Reports don't make decisions; leaders make decisions.

Thank you, Mr. Chairman. I look forward to hearing from our witnesses.

Mr. ORTIZ. Without objection, all witness statements will be entered for the record.

And, Mr. Solis, it is all yours. You can proceed with your opening statement, sir.

STATEMENT OF WILLIAM M. SOLIS, DIRECTOR, DEFENSE CAPABILITIES AND MANAGEMENT ISSUES, GOVERNMENT ACCOUNTABILITY OFFICE

Mr. SOLIS. Thank you, Mr. Chairman.

Chairman Ortiz, Ranking Member Saxton and members of the subcommittee, I am pleased to be here to discuss the development of aircraft program requirements and issues related to the acquisition process.

Before I review our work concerning DOD's efforts to assess our future mobility needs, allow me to summarize what I am going to tell you: Good analysis equals good requirements, which support good decision-making.

We have spent the last year reviewing DOD's efforts to assess future mobility needs and can state emphatically that this is a very complex process, with many moving parts.

There are no easy answers to very tough questions. However, we do believe that distinguishing wants from needs starts with good analysis based on good data modeling.

We recently issued our report on high-risk areas in the Federal Government, which was DOD acquisition processes as one of the longstanding areas of concern.

Acquisition has been on this list since 1990. As we have reported, DOD knows what needs to be done to achieve more successful outcomes, but finds it difficult to apply the necessary discipline and controls or assign much needed accountability.

We have reported in the past that a sound business case for acquisition contains firm requirements, mature technologies, a knowledge-based acquisition strategy, a realistic cost estimate, and sufficient funding.

However, we found that many of these elements are missing or incomplete as DOD and the services attempt to acquire new capabilities.

Persistent acquisition problems include failure to identify needs versus wants and to limit cost growth, schedule delays and quantity reductions, but fiscal realities will not allow budgets to accommodate these problems any longer.

Today I will highlight some of the issues related to the analysis supporting the DOD's mobility capabilities and requirements and Mike Sullivan will discuss actions that are needed to improve the outcome of weapons system acquisitions.

DOD has an obligation to deliver high-quality products to warfighters when they need them at a price the country can afford. However, our work shows that acquisition problems will likely persist until DOD provides a better foundation for buying the right things the right way.

This foundation begins with setting requirements that are based on adequate and complete analysis using current and operational data and updated and effective models.

For the past several years, we have reported our concerns with the analysis done to support requirements and have recently issued two reports that raise concerns about the quality of analysis underpinning programmatic decisions surrounding the DOD airlift requirements.

In September 2006, we issued our report on DOD's mobility capability study, or the MCS. The MCS determined that the projected mobility capabilities are adequate to achieve U.S. objectives with an acceptable level of risk during the period fiscal years 2007 through 2013.

That is, the current inventory of aircraft, ships and pre-positioned assets and other capabilities are sufficient in conjunction with host nation support.

In our report, we stated that conclusions of the MCS were based on incomplete data, inadequate modeling and metrics that did not fully measure stress on the transportation system.

We further observed that the MCS results were incomplete, unclear or contingent upon further study, making it difficult to identify findings and evaluate evidence.

It is not clear how the analysis was done for the study to support DOD's conclusions and we suggest that decision-makers exercise caution in using the results.

This year we issued a report on the lack of mandatory analysis to support a pasture or cargo capability for the new replacement refueling aircraft, the KCX tanker.

Contrary to mandatory Air Force implementing guidance, the Air Force proposed a capability without an identified need, a requirement that was not supported by need and not underpinned by analysis.

Air Force officials could not provide supporting information sufficient to explain this discrepancy between the required analysis and the proposal.

In closing, as I said at the beginning of my testimony, acquisition problems will persist until DOD provides a better foundation for buying the right things the right way.

This concludes my oral statement. I will be happy to answer any questions that you may have.

I will now turn to Mike Sullivan for his comments.

[The joint prepared statement of Mr. Solis and Mr. Sullivan can be found in the Appendix on page 57.]

Mr. ORTIZ. Mr. Sullivan.

STATEMENT OF MICHAEL J. SULLIVAN, DIRECTOR OF ACQUISITION AND SOURCING MANAGEMENT ISSUES, GOVERNMENT ACCOUNTABILITY OFFICE

Mr. SULLIVAN. Thank you, Mr. Chairman, members of the subcommittee.

Over the last several years, we, the GAO, have examined weapon acquisitions from the perspective of best practices for product development. We have found that successful product development programs begin with a sound business case, as Bill was alluding to, business cases that provide evidence that a product can be developed and produced if it has proven technologies at the outset, there is design knowledge at the right times, and adequate and stable funding is available, and then the business case must be executed through an acquisition process that is anchored in knowledge to reduce risk.

Basic systems engineering practices should provide the underpinning for all of this.

Without these kind of practices in place, a cascade of negative effects results in cost increases and delays in getting new capability to the war-fighter.

While DOD has included many of these best practices into its acquisition policies, its programs still often do not follow through on

them. The underlying cause for this is the department's inability to enforce those policies at the programmatic level.

Airlift acquisitions are not immune to this and have experienced unnecessary cost growth and schedule delays as a result.

In the past 25 years, DOD has invested more than $140 billion on airlift and tanker forces. Between 2007 and 2011, it plans additional investments of nearly $32 billion. Roughly a third of this is planned for four ongoing programs under discussion today.

These programs include programs to modernize the C–5 and the C–130 avionics systems, re-engine the C–5 aircraft and develop the C–130 airlifter.

All of these programs were considered low technological risks because they relied on proven commercial technology when they began. However, they have not delivered on their original business cases.

As a result, each program has encountered some difficulty in moving into production and delivering to the field.

Poor results in each program stem, at least in part, from a failure to use basic systems engineering practices to do three things. First, fully analyze requirements and the resources that are needed to integrate the proven technologies into a military system; second, begin system demonstration only after you have stabilized the design; and, three, demonstrate that the aircraft will work in its intended environment before you make large production investments.

The net effect of the problems across all four of these programs is additional unplanned expenditures so far of $962 million and a longer wait than planned for the war-fighter to get the equipment delivered to him.

For example, the Air Force now expects by 2011 to have completed the modification of about 135 fewer C–130 airlift aircraft when compared to its plan 2 years.

There could be additional cost increases and schedule delays reported in the near future. Programs' current budget indicates that total costs have recently increased almost another $700 million and planned quantities have been reduced from 434 to 268, nearly doubling the unit costs for the Avionics Modernization Program (AMP).

The program recently notified Congress of a critical Nunn-McCurdy breach concerning this.

I will conclude by making five points.

First, DOD will continue to face big challenges in modernizing its forces, especially with the new demands on the Federal dollar.

Second, the four acquisition cases that I cite in this testimony are not atypical and, in fact, were not as complex as most major acquisitions. Even with no major technological invention to meet war-fighters' needs in these cases, they have achieved suboptimal results in terms of costs and deliveries.

Third, there are major consequences to these outcomes. The war-fighter does not receive needed capability on time and the department and the Congress must spend additional unplanned money to correct mistakes.

Fourth, a product development process based in knowledge, steeped in best practices from systems engineering can solve many of these problems that happen before they start.

And, finally and perhaps most important, DOD knows how to do this and, in fact, already informs its acquisition policy with systems engineering rules. It should redouble its efforts to enforce these policies on programs by ensuring, first, that the right mix of programs, given all available resources, is in the mix; second, establishing sound business cases for each one of those programs; and, third, by holding people accountable for better cost, schedule and performance results as they execute those programs.

That concludes my remarks.

[The joint prepared statement of Mr. Sullivan and Mr. Solis can be found in the Appendix on page 57.]

Mr. ORTIZ. Thank you, sir.

Mr. Bolkcom.

STATEMENT OF CHRISTOPHER BOLKCOM, SPECIALIST IN NATIONAL DEFENSE, CONGRESSIONAL RESEARCH SERVICE

Mr. BOLKCOM. Thank you, Mr. Chairman.

Mr. Chairman, distinguished members of the subcommittee, thanks for inviting me to speak with you today about airlift and aerial refueling. As requested, I will address the potential oversight issues for this and future legislative cycles.

First, I will address the KC–X, the Air Force's plan to recapitalize its aging tanker fleet. The Air Force hopes to begin replacing its 500 KC–135 tankers with a 179 new aircraft, either the Boeing KC–767 or the KC–30, made by Airbus and Northrop Grumman.

Media reports have raised concerns that this competition may be biased against Airbus' larger aircraft. After an initial review, CRS found that as DOD defined its tanker requirements, the KC–X competition does not appear biased in favor of either aircraft.

Another issue is whether the Air Force plan is affordable. In 2006, DOD's tanker analysis of alternatives found that buying new commercial aircraft was the most cost-effective way to initially recapitalize the KC–135 fleet, but that overall affordability was an important consideration.

Purchasing new aircraft is more capital intensive than other options, such as re-engining KC–135Es, buying used aircraft, and leasing aerial refueling services.

The Air Force has consistently objected to these other options and hopes to purchase approximately 350 more new aircraft after KCX.

Congress will have future opportunities to examine the efficacy of buying used aircraft or leasing tanker services. However, the Air Force wants to retire its last KC–135E aircraft in fiscal year 2008. If it is successful, the re-engining option will be moot.

The final point on tankers is that the requirement is unclear. DOD's last study on tanker requirements in 2001 is outdated. The 2006 mobility capabilities study, or MCS, provided guidance on tanker capabilities, but it did not estimate required force size.

Further, there is debate among the acquisition community, the mobility community and the combatant commanders on specific tanker requirements, such as airlift capacity.

My second subject is long-range airlift. The airlift requirement is also imprecise and can be met in different ways.

The MCS found that DOD's airlift programs could meet the national military strategy with moderate or acceptable risk. But these are subjective terms and a close examination of this classified study and the recent addition of 10 C–17s to the plane inventory could lead many to perceive the risk as actually being low.

As the C–17 production line wanes, pressure is building to procure more aircraft. This brings C–17 funding in direct competition with C–5 modernization.

There are strong arguments in favor of both programs, but it is not simply an either/or competition. Broader tradeoffs exist because more airlift capacity in the tanker fleet could make smaller C–5 or C–17 fleets acceptable.

Because the C–17 can perform both long-and short-range airlift, it may compete against programs like the C–130 for funding and for mission.

Last, I will address short-range airlift, specifically the C–130 and joint cargo aircraft programs.

Again, a number of aircraft are competing for limited funding to satisfy an ambiguous requirement. C–130J procurement competes with the C–17 and with the modernization of older C–130 models.

In fiscal year 2006, for example, DOD proposed terminating the C–130J, in part, because modernizing older C–130's was cheaper. Since then, C–130J funding was reinstated and procurement of nine aircraft is planed in fiscal year 2008.

Conversely, C–130 modernization programs are now being reduced, as Mike just mentioned.

The Joint Cargo Aircraft program is, in many ways, a shotgun marriage between Army and Air Force programs. There is noteworthy disagreement between the services on how this aircraft would be used.

Formally, the Air Force agrees with the Army's initial vision, but is still defining its own final requirements.

An issue for Congress is whether the Army could begin acquiring the Joint Cargo Aircraft only to find that the Air Force's final requirements are not easily met by the aircraft chosen. If this turns out to be the case, it could mean costly retrofits or even the need for a different aircraft.

Mr. Chairman, I appreciate the opportunity to appear before you and look forward to any questions you may have.

[The prepared statement of Mr. Bolkcom can be found in the Appendix on page 81.]

Mr. ORTIZ. Thank you so much, Mr. Bolkcom.

Maybe you can expand a little bit to help us understand the capabilities about the C–5 and the C–17 aircraft and why they are important to the Air Force inventory.

Could you please compare and contrast what advantages both give to the Air Mobility Command in moving cargo and supplies to the war-fighter, if you can elaborate a little bit on that?

Mr. BOLKCOM. I would be happy to, sir.

Both airplanes are long-range strategic platforms and what distinguishes them from commercial carriers, such as Civil Response Air Fleet (CRAF), are a number of things, but one of the most important is the ability to carry outsized and oversized cargo, like Patriot antimissile systems, Apache helicopters and the like. They

provide a certain capability that you just can't find anywhere else in that regard.

I do note that in an earlier hearing, General Mosley characterized the C–5 as "a little bigger than the C–17." And, respectfully, I believe that General Mosley might have misspoken, because Air Force planning factors show it is almost twice as big. Depending on what you are carrying, it can carry twice as many larger outsized objects or twice as many pallets. So there is a nontrivial difference between the two in terms of their size.

And the final point I will just make is although quite capable, the C–5 is limited to large prepared runways, where the C–17, of course, can do both short-range austere operations and the longer operations.

Mr. ORTIZ. The ranking member, Mr. Saxton.

Mr. SAXTON. Mr. Chairman, I think I would like to yield my time to one of the junior members who may not have had an opportunity to ask questions in the last hearing.

Mr. ORTIZ. Do you want to single anybody out?

Mr. SAXTON. Mr. Turner.

Mr. TURNER. Thank you, Mr. Saxton. I greatly appreciate that.

There are a couple things that interest me about the subject matter that you have been testifying about.

One is General Mosley and Secretary Wynn have been talking about concerns of the aerospace industry to meet the capacity needs of the Air Force and it certainly seems that inherent in all of our concerns with the acquisition process, the health of the underlying industry's ability to meet our needs is certainly an important one.

Do you have any thoughts or comments concerning the aerospace industry's overall capacity in looking at future acquisitions?

Mr. BOLKCOM. I would be happy to address that, sir.

I think that the way you phrased it actually confuses me a little bit, because when I look at the Air Force plans, they are actually planning to purchase fewer aircraft than our industry has the capacity to build.

The over-capacity tends to be the problem, not an under-capacity. I didn't hear his testimony.

Mr. TURNER. Their perspective was in the future, that as we begin the process of turning the spigot off and constraining what we are currently acquiring, that the loss of production capacity can have an impact on our abilities in the future.

And, certainly, if you look at the issue of the tankers, our acquisition planning for replacement and then looking at those aircraft, the amount of time that will expire before all the aircraft are replaced and what their service would have to be before we then are able to replace them based on the capacity of the aerospace industry is certainly a very lengthy projection.

Mr. BOLKCOM. Specifically on that, sir, I think you have characterized it correctly. The days of buying 100 aircraft a year are really gone. So those old models of the industrial-government relationships have got to change and they have changed and, frankly, that is one of the stronger arguments against purchasing just new aircraft.

Certainly, that is an important part of recapitalizing the fleet, perhaps the foundation, but I agree with that assessment that buying 15, 17, 20 a year doesn't recapitalize the fleet very quickly and still does not reduce the average age of our fleet very quickly.

Mr. TURNER. And, therefore, then has an impact of reducing the overall capacity of the industry in case we should look to trying to close the gap at a quicker pace or have higher needs.

Mr. BOLKCOM. That would be one approach.

Mr. TURNER. Thank you, Mr. Chairman.

Mr. ORTIZ. We are going to try to see if we can stick to the 5-minute rule, but at the same time, give sufficient time for the witnesses to respond to the question, because we do have two panels. This is the first panel, then we have the second panel.

Mr. Smith.

Mr. SMITH. I will strive to be quick, Mr. Chairman. I appreciate that.

First of all, I just want to thank you gentleman and the Air Force for their work on the refueling tanker issue. I know that wasn't easy, and I know my hometown company there at one time or another didn't make it easy for you. So I appreciate that that process is being moved forward and we have got a decision date and the project is going forward. I know that wasn't easy. I appreciate you working that.

My question is on the airlift piece, in terms of what we need to have the airlift between the C–17 and the C–5 and the 130's, where you think we are at, what we need to add. I know there are questions about that. Do we have sufficient airlift now, a sufficient plan? What are the major challenges in that area?

And, second, not to insert my own subcommittee into this discussion, but I chair the terrorism subcommittee, jurisdiction over special ops. Special ops folks in particular have a need for an updated C–130, and they are, as you know, dependent upon the Air Force for getting that set up to transfer it over to them.

If you could give me an update on when that update—and the 130's specific to the special ops needs, how that is progressing. So just those two pieces of the question.

And, forgive me, I don't know which one of you would be best qualified to answer that, but I will let you figure out amongst yourselves. Thank you.

Mr. SOLIS. I will take a first crack at it.

In terms of the needs, right now, if you go back, and recognizing that there were limitations on the MCS, it didn't indicate that there was adequate airlift in the inventory to take care of the existing missions.

Having said that, there are things that have changed since the MCS with regard to things like pre-positioning of Army equipment that have changed possibly some of those ideas and, also, recognizing that there are still studies under way for intratheater lift.

So it is a little muddied at this point as to exactly how much in terms of lift is needed at this point.

Mr. SMITH. Do you have an idea of when we are going to clarify those questions?

Mr. SOLIS. Well, the studies are under way. We don't have visibility, that is, GAO doesn't have visibility over where those studies are at. But my understanding is that they are under way.

Mr. BOLKCOM. I would add on that subject, sir, I think the larger challenge is to take a holistic view of our airlift needs and although the MCS was the first sort of comprehensive study by the participants of the mission, it didn't look at certain aspects of lift.

The thing I would also mention is that we do have an evolving sort of need and it is questionable how useful oftentimes the metrics are.

Mr. SMITH. That is something I have often wondered about. We do a fabulous study that takes two years and when it is done, it tells you exactly what we needed two years ago. And how do we make sure we update that a little bit more quickly?

That is obviously a problem throughout the military, but this is an area——

Mr. BOLKCOM. So really it comes down to comfort level in terms of sort of public policy-making, how much risk are you comfortable with, are you taking a holistic approach, looking at pre-positioned stocks, capacity lift and the like.

My view, and I will make this my last comment, is the military is incredibly flexible and creative in terms of satisfying their military challenges and a shortfall in their lift can be made up with another way.

Mr. SMITH. And my second question I realize is better suited for the next panel, unless one of you want to take a stab at it. And I am not sure I am going to be here for the next panel, so if not, those of you who are going to be on that can consider that and submit it for the record and just get the answer to my office when you get a chance.

Mr. SULLIVAN. Just so we understand, I guess, it is something we could probably also get for you.

Were you asking about where they are in terms of delivering——

Mr. SMITH. Yes.

Mr. SULLIVAN [continuing]. For special ops.

Mr. SMITH. Right.

Mr. SULLIVAN. I don't have a complete answer to that yet, but we could certainly get that and get back to you.

Mr. SMITH. Thank you.

Thank you, Mr. Chairman.

Mr. ORTIZ. The gentleman from New Jersey, Mr. LoBiondo.

Dr. Gingrey, do you have a question, sir?

Dr. GINGREY. Mr. Chairman, thank you. I am going to address a question to Mr. Bolkcom.

Mr. Bolkcom, you outline in your testimony that the C–5A fleet has at least 25 years of life remaining and investment in the modernization would be recouped for decades. And, additionally, current estimates of the per aircraft cost of AMP and Eligibility Enhancement and Re-engining Program (RERP) combined are one-third that of a new C–17.

And, in fact, as you pointed out, and I am glad you did this, that the C–5 will actually carry almost twice the payload of a C–17 and I also read in your testimony that we are leasing Russian AN–124 Condor aircraft to carry outsized and oversized cargo in both Oper-

ation and Enduring Iraqi Freedom, because we didn't have enough C–5 availability.

So that DOD is outsourcing missions to Russian aircraft shows us, I think, that C–5 can perform missions that no other aircraft in our fleet can accomplish.

Doesn't this make the case that we should be supporting modernization of an aircraft that can perform critical missions no other aircraft can, especially in light of the fact that the C–5 has a 70 percent service life remaining and it can be modernized at a fraction of the cost of a new C–17?

And, again, any one of the three of you can respond to this. In the president's 2008 budget, I didn't see any request for C–17s. In fact, I think we have maybe 10 more than was recommended in the fleet that we really need something like 190 aircraft.

So I am just not sure that we—all these studies and everything would suggest that we need this balance, and, yet, what we heard from the secretary and from the chief sort of contradicted what was in the president's budget for 2008.

So if you can respond to that, I would appreciate it.

Mr. BOLKCOM. Yes, sir. I couldn't have said it better myself, but as a CRS guy, of course, I am not going to say that. But I think your summation of the facts were very powerful.

The point I would just make is the Air Force program of record currently is to modernize all the C–5s. So that is their plan.

And we have read in the open press that they have experienced some cost growth in RERP especially that we have heard anecdotally may cause some changes in the program, but that, again, remains to be seen and it is really for the Air Force to bring up.

Mr. SULLIVAN. I guess I would just note that I would probably reinforce that a little bit. The thing that would be troubling right now is the problems that the C–5 RERP has had and I think they are looking at the costs now.

They are going to probably come out with a new cost estimate. There are problems on the program that are going to probably be fairly costly. So I think that is something we need to keep in mind.

Dr. GINGREY. Maybe when we hear from my colleague from Georgia, Mr. Marshall, we will find out a little bit more about those costs and the specifics of that, because I know he is extremely knowledgeable about it. But I appreciate it.

Any further comments from the GAO?

I yield back, then, Mr. Chairman. Thank you very much.

Mr. SMITH [presiding]. A lot of pressure on you now, Jim, but your expertise has been called upon and you are up. Mr. Marshall?

Mr. MARSHALL. Thanks, Mr. Chairman.

And I don't know whether I need to thank you, Mr. Gingrey. I shouldn't have said anything about you riding up just one flight earlier today. [Laughter.]

It is better for your health, by the way, to walk those flights of stairs.

I do have questions about the C–5A, C–17 and joint cargo aircraft. I have had lots of conversations on this subject.

If I recall correctly, it was the Institute for Defense Analysis, at the request of the Senate, concluded in 2002, after a lengthy study,

that the RERP AMP for C–5A/C–5B made absolute sense and they considered all different configurations that we might go with.

I am not sure whether it is IDA or some other group, but the study was quite clear and it wasn't a close call.

And so we decided to go ahead and do that. I now hear Air Force saying, "Lockheed, the costs are going up unacceptably here," and the dynamic is changing and the cost may to get a point where it is no longer cost-effective to consider RERPing and AMPing these C–5As.

I have suggested to Lockheed that Lockheed lock in a price. I don't see any reason why Lockheed can't do that and, frankly, would advise Lockheed, if it wants to have this business, to go ahead and do it rather than keep up in the air the question concerning how much cost we are going to incur.

In talking with the Air Force, I understand there are 29 or 31 C–5—well, all but two of which are C–5As, two C–5Bs, that Air Force simply considers to be, as Chief Mosley describes it, "hard broke."

Are you gentleman familiar with that? You are not.

We have torn down a C–5A and concluded that its frame was good to go for quite some time, which would justify the RERP/AMP investment and the viability board has said the C–5As are good to go.

But we just need to hear more about those that have been specifically identified as ones that should be retired.

So it is a twofold thing here. It is not retire all the C–5As, but there are some that just seem to be so broken that it doesn't make sense to fix them. They would like to permission to retire those. We need to know more about that.

Then the second thing is this quandary we are in with regard to rising costs and an inability apparently to manage the program as well as it needs to be managed.

Where KC–X is concerned, are any of you gentlemen involved at all in the process of thinking through how in the acquisition process we get an agreement from the Original Equipment Manufacturer (OEM) that is appropriate so that we know how sustainment, modernization, maintenance is going to occur over the lifetime, the projected lifetime of the platform?

Are you involved at all in any of that? If you are not, just say "no" and we will go to the next panel.

Mr. BOLKCOM. No, sir.

Mr. MARSHALL. Let me try one more here.

Mr. SULLIVAN. If I could, we look at acquisitions of the major weapons systems, something like the C–17 program, for example, and in doing so, we are focused mostly on what it takes to develop and then procure the aircraft.

But there is also, especially in the past ten years or so, this idea of performance-based logistics, which has become very important.

The department and the services have tried much harder to make the life-cycle costs part of the cost of acquiring—the total ownership costs more important at the time they are acquiring the aircraft.

Mr. MARSHALL. Mr. Sullivan, I don't really think it is a just-in-the-last–10-years kind of phenomenon. I think, historically, while

we might not have taken that into account, it was simply assumed that we, the government, would be in control of the long-term maintenance, sustainment and modernization process for everything we bought militarily.

It was all ours. We got all the data rights. You didn't have to go back to the OEM for anything and you began immediately developing the management process that you needed in order to logistically take care of the platform over a long period of time.

Mr. SULLIVAN. Yes.

Mr. MARSHALL. We quit doing and probably the most glaring example of our failure in that regard, to the detriment of the Air Force, the detriment of DOD and the American taxpayer, is the C–17.

We have got a real problem with the C–17 because we didn't think that through at that time and we don't know how, over the long haul, we are going to wind up, what sort of partnership we will develop that will enable us to, in a cost-effective way, deal with that platform.

It was a real mistake and I am just hoping that we get to a point—I think the KC–X is our opportunity to set a model that makes sense in the long run and that is why I bring that up.

Mr. SULLIVAN. If what you are discussing is organic capability versus contractor-based capability.

Mr. MARSHALL. It is more basic than that. Yes, that is true, but it is more basic than that. We buy these things without taking into account what they are going to cost over the long haul and the kinds of understandings we need to have up front that will help us with cost over the long haul.

We buy them cheaper to start out with, but in the long run, if you discount the present value of what it is going to cost us, we are spending more than we should.

May I, Mr. Chairman?

Mr. SULLIVAN. I would just like to say, Congressman, I think I am exactly with you there. And what I was trying to say, I guess, is there are ways to build in reduced total ownership costs or life-cycle costs when you acquire a weapons system.

Mr. MARSHALL. Mr. Chairman, are we going to have a second round?

Mr. ORTIZ [presiding]. Well, we have another panel, but I think if we move fast enough, we could have a second round.

Mr. MARSHALL. Thank you.

Mr. ORTIZ. My good friend from Michigan, Ms. Miller.

Mrs. MILLER OF MICHIGAN. Thank you, Mr. Chairman. I will be brief, as well, knowing we have another panel.

And perhaps this question is better-suited for the second panel. But let me ask you, gentlemen, if you have any comment, since you are in the business, about how the Air Force and the Army is coordinating, as they look to the future, in regard to strategic airlift and specifically how are they looking to accommodate Future Combat Systems, for instance?

That is really the Army's future there and being able to strategically airlift those kinds of vehicles. Do you see good coordination amongst the groups there? Could you comment on that?

Mr. SULLIVAN. I could comment briefly on what the—the Joint Combat Aircraft, I think, would be the best example right now of where we see the Army and the Air Force having to come together now to collaborate a little bit more and see if they can get synergies out of the requirements process.

And I think you would have to give them an incomplete grade at this point, because the process has really just gotten started. I think they just stood up a joint program office and some joint requirement-setting mechanisms to see how well they can work together.

So it is kind of in its infancy in that regard.

Mrs. MILLER OF MICHIGAN. One follow-up question, as well, for Mr. Bolkcom from CRS.

You mentioned you thought there was quite a bit of resistance about the possibility of leasing for refueling. Could you flesh that out just a little bit about how much resistance you think there is to that kind of a thing and if that really is an appropriate way for us to go?

Mr. BOLKCOM. Ma'am, I base my observations on ongoing relationship with the Air Force at many different levels, but their stated position is that there is a part B to the RFP, the request for proposal. And they will conduct a business case analysis (BCA) to look into this and see if it is worth doing and then submit an RFP for refueling services. That is their position. So it sounds like they are taking it under consideration.

I think if you look at the proposed business case analysis, the study design seemed to contain a number of assumptions that might not have been favorable to fee for service compared to other options.

So that raised some questions, in my mind. And just my continued interaction with Air Force staff has kind of raised a question mark. What has happened to it? The BCA was supposed to have been completed.

I don't know who is doing it, its status, if one even exists. So I think it is up to the Air Force to document whether they are pursuing it or not.

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

Mr. ORTIZ. Thank you.

Mr. Marshall.

Mr. MARSHALL. Joint Cargo Aircraft, I am not as sanguine as you are, Mr. Sullivan, about the current status of the development of that. I almost feel as if I am emissary between the parties at this point, listening to both sides and our Air Force's worries about what Army is going to do and Army's worries about what Air Force is going to do.

I am wondering what advice—and if you all can't do this, if this is beyond you, fine with me, don't try and answer—but what advice do you have to us? Is it Congress? Who in DOD, I mean, who pulls these folks together and tries to make sure that they are on the same page or at least if they can be gotten on the same page, get them on the same page?

Mr. SULLIVAN. Well, one of the things that we look at when we look at the major acquisitions is the joint capability requirements process that the department has tried to put in place, in some

sense, trying to go more toward functional capabilities in a way to set requirements as opposed to across the services or platforms, if you will.

The department has worked very hard to try to institute those policies. There are cultural problems with that. There is stovepiping and things like that.

But we have reported quite a bit on some of the failings of that process, some of the ways that the process and the funding process, for example, mechanically, don't link up. So it makes it more difficult for these services to come together.

Mr. MARSHALL. What worries me is that Army is about to make a decision and that decision made by Army will be one that Air Force will conclude it can't live with at some point down the future.

And it seems to me that there ought to be some mechanism for Congress or DOD or some other group to come in and stop the stovepiping and the cultural problem between the two services and if there is, in fact, some legitimate reason why there needs to be two different pipe forms, fine, so be it.

It is going to cost us a lot of money to do that, it is not smart economically, but maybe we have to live with it.

If, in fact, there is not a good reason, we ought to force them together.

How do we force them together? I understand the problem. How do we force them together? Who does that?

Mr. SULLIVAN. If you are asking me, mechanically, how would that operate in the department, I think there it the Under Secretary of Defense for Acquisitions probably would be the right position to get up above.

Mr. MARSHALL. Would it be maybe this subcommittee that has a hearing and says, "Don't do this to us. Can you come to us and explain why you can't do this jointly??

Mr. SULLIVAN. This subcommittee certainly has a stake in them developing doable and efficient requirements that can take advantage of the synergies across the services. It certainly does, yes.

Mr. MARSHALL. Thank you, Mr. Chairman.

Mr. ORTIZ. Mr. Akin.

Mr. AKIN. Thank you, Mr. Chairman.

I understand that you gentleman tried to give us an overview perspective on the planning, particularly in some of these larger kinds of systems, and the line of questioning, I want to stay on where we have been, which is particularly airlift capacity.

I guess my first question is, do you know if the Air Force or the Air Mobility Command, when they are trying to lay out their requirements, have they been preparing for new and future systems that have to be lifted to combat zones?

Has that been specifically built into their numbers? Maybe that is for the second panel, I don't know if you know that.

The second question I have for you is it seems, from what we have seen in the last number of years in Iraq, that there is going to be a trend to go to more armor on almost everything that we are hauling people around with.

Maybe at the point of making that case would be the mine resistant ambush protected vehicles, MRAPS, that 4,000 of the Marines are going to be using and it is probably quite possible that the

Army may be moving into more of those, too, which is 1.5 times the weight of an up-armored Humvee.

And then in my district, we are doing a lot of the engineering work on Future Combat Systems and the idea was to kind of keep it really light, but as you design it, it is coming out almost a little too big a bite for a C–130.

So I guess my question is, is the trend that we see partly projected because of Iraq, is that going to be typical for military vehicles, that they are going to be heavier? And if that is the case, is the Air Force doing the planning needed to realize that we are going to have to be lifting heavier loads into these combat zones, wherever we end up fighting?

Mr. BOLKCOM. Sir, I will say I don't believe it is a truism that all our ground equipment is always going to be heavier. Certainly, we have a data point.

We are fighting an insurgency in this context, in this environment, where the roadside bombs are a very effective tool, then, yes, in this case we need more armor. But we don't know that is always going to be the case.

And I will just mention I think that I have witnessed pretty clear communication between Air Force and Army both directions. The Army is designing vehicles to fit on particular aircraft and the Air Force is considering what the Army is working on.

So I see appropriate interaction.

Mr. SOLIS. I think it depends not so much on the vehicle, per se, although that certainly is a consideration, but the operational scenarios that they are planning for for the future that would probably dictate more about what the aircraft and the lift requirements are going to be into the future.

One of the problems, if we go back to Stryker, for example, now, this was intratheater. There was the requirement that the Chief of Staff of the Army laid out at one time to move that brigade anywhere in the world in 96 hours.

Noble goal, but then trying to figure out how to do that became very problematic both strategically and intratheater, given some of the weight of the Stryker and just what they were trying to do and the number of assets, both C–5 and C–17, that you would have to employ to do that.

The other thing, for example, with the Stryker, too, and you notice all the Strykers in Iraq have the slat armor, you are going to almost probably need to aircraft, like C–130's, to move that, because you can't necessarily put all that armor on that aircraft.

So, again, it probably depends on the particular scenarios and how you are going to operate and what you are going to do into the future.

Mr. AKIN. So it sounds like "all depends" is your answer. But somehow or other, I have a hard time visualizing that we are going to send a whole lot of Humvees that don't have any armor on them anywhere where we get in trouble in the world.

But you are saying, "No, we may just be sending all these very light pieces of equipment over."

Mr. SOLIS. No, I am not saying that. I am just saying that your airlift requirement may be dictated by that very thing that you are saying, Congressman.

If we are going to have, for example, as I said, with the Stryker, if you are going to be moving the Stryker and the armor and everything else, the people that go with it, you may need more aircraft, depending on the operational scenarios and the requirements that are laid out.

Mr. AKIN. That is what common sense seemed to dictate to me, but I know you can sometimes look at one war and just plan everything based on one scenario and things can change.

But still I am having a hard time seeing where future combat systems seem to be going. I am having a hard time seeing that we are getting lighter somehow.

It is true they are not battle tanks, but still, just because of the physical size, as well as the weight, that is what I am curious about.

Thank you very much.

Thank you, Mr. Chairman.

Mr. ORTIZ. Mr. Saxton.

Mr. SAXTON. Thank you, Mr. Chairman.

Mr. Solis, you brought up an interesting subject that I lived through. That was the——

Mr. SOLIS. I know. You and I talked about this at one time.

Mr. SAXTON. Did we?

Mr. SOLIS. Yes, if it is the same question I think you are going to ask.

Mr. SAXTON. Let me go to the next chapter then. With regard to Future Combat System and deployment, I believe the concept, once again, is to deploy a brigade quickly with airlift.

My understanding, however, is that in carrying out the mobility requirement study, as well as the MCS, that the Army has not come up on the net yet to put the requirement forward for the Air Force to meet that deployment and that, therefore, conclusions that were drawn about how much airlift we need in terms of C–5 or C–17, whichever, were made in the absence of that requirement.

Is that true, and do you see that as a problem?

Mr. SOLIS. Congressman, I don't know. I can't answer specifically.

What I would note, again, is that, for example, the study on intratheater lift is still ongoing. I don't know what the results of that may be, but, obviously, as I mentioned with the Stryker, that was a big issue.

How are you going to move those vehicles within theater? Are you going to do that by, in the case of C–130, going back to what I know, the Stryker, or are you going to start moving to buy other aircraft, such as C–17?

I can't answer specifically, but if you would like, we could probably take it for the record.

Mr. SAXTON. Do you know if the Stryker would fit on a C–130 with the slat armor on it?

Mr. SOLIS. I don't believe so.

Mr. SAXTON. I don't believe so either.

My great friend, Jim Marshall, and my other great friend, Mr. Gingrey, talked a little about the C–5 and its attributes, and I agree that it is a great platform.

As I listened to Mr. Bolkcom and his analysis, he talked about the size and its capability of carrying twice as much as a C–17. I just wanted to point out—and I am sure this makes a difference. I just wanted to point out that there is a reason that the Air Force didn't build another great big airplane like the C–5 and that was that the number of times that we fly it fully loaded is really small. Very few times do we fly that airplane fully loaded.

So when they went out to design the airplane that they thought they needed that could land on a short runway and take off on a short runway, carry a heavy load, they thought that the C–5 fit the bill better than the C–17. There is something to be said for having more tails that carry a partial load.

So I think we have to be very careful of saying that the C–5 is the ultimate airplane because it can carry almost twice as much as the C–17. Would you agree?

Mr. BOLKCOM. Sir, I think that is very fair. I think the DOD's transportation system is really elegant. If you look at the layers of CRAF, the C–5, the C–17, they are very complementary. So I think that is a very fair statement.

Mr. SAXTON. Okay, thanks.

Now, let me just throw something else out. The C–5 modernization program is a good program, and I here in this committee helped to put in place and promote it. And I think it makes sense in some respect.

But I am not sure that it makes sense in modernizing, fully modernizing both the C–5A and the C–5B, and here is why. In order to modernize the C–5A, you start from a baseline of a mission capability rate of 49.3 percent today and that is going down. You start with a fleet availability rate of 35.5 percent for C–5As. That means, I think in layman's terms, that they have a lot of problems to fix.

And so this committee, some years ago, actually initiated by the Senate, as Mr. Marshall pointed out, said that we should do a test run on one bird, one C–5A, and that is in the process of being done.

So I guess my question is, what needs to be done to correct the problems that have these low mission capability rates?

And, incidentally, the C–17 has a mission capability rate of 86.8 percent, not 49 percent. So my question is, what needs to be done to the C–5A to correct the problems that result in a 49 percent mission capability rate and a 35 percent fleet capability rate and how much does it cost?

And, finally, how does that relate to the tripwire in Nunn-McCurdy?

Mr. BOLKCOM. The C–5M, which will be the version that is AMP'ed and RERP'ed, is estimated to be 85 percent mission capable. I think that is, by comparison to most aircraft, reasonable and effective.

So I think the answer to your first question is AMP and RERP, if it works the way they would like it to work. That should make it as available as you are going to make it.

In terms of the tripwire of Nunn-McCurdy, I guess, sir, I really don't know how to answer that. You have got a tripwire of, what is it, 15 percent over the initial baseline. I don't know where RERP is.

Mr. SAXTON. They haven't come up with a final cost estimate, but I understand it is likely to trip Nunn-McCurdy and that will set in motion a whole set of new requirements.

Mr. BOLKCOM. Yes, sir. And I will just say, in conclusion, that those laws and thresholds are there for a reason. That sort of cost growth is of concern.

I will also note that the Air Force is very supportive of some programs that have 200, even 300 percent cost growth. Those might be different cases, but those are some data points for you in terms of——

Mr. SAXTON. When we get to this tripwire, we have the responsibility of making a decision, if we have the opportunity, if we don't let the C–17 line go down.

We then have the opportunity to say based on the cost that resulted from the test of the C–5A rebuild, do we want to decide to buy new airplanes or AMP and RERP C–5s, and I think that is a decision point that we need to come to.

Does that make sense?

Mr. BOLKCOM. Agreed, sir. That is a tradeoff one can make.

Mr. SULLIVAN. I guess I would add I think the redone cost estimate for the C–5 RERP we are talking about here should be available probably in the June-July timeframe. So that is when we should know that, and the cost could be pretty high.

Mr. SAXTON. When you say the cost could be pretty high, can you elaborate on that?

Mr. SULLIVAN. Some of the indications we have had, some of the problems they are having with touch labor on the program, for example, I think the thrust reverser problems they have had, designs like that, they are looking at that now and it looks like there is going to be a lot more engineering effort needed to redesign that.

It could be fairly substantial, Nunn-McCurdy breach kind of numbers, I think.

Mr. SAXTON. Thank you, Mr. Chairman.

Mr. ORTIZ. Mr. Spratt.

Mr. SPRATT. The C–5A experienced significant problems fairly early in its life with wind damage, interior wind damage, which have been indicated when the plane was being constructed at Lockheed Georgia, because of dynamic testing before the lane was operational showed damages in the spars and struts inside the wing.

Later, the wing had to be replaced at a cost of about $2 billion, rebuilt for the C–5A.

In assessing the viable life, future life, given the stress that the wings have to bear, has any study been made of the wing? General Mosley mentioned that there were certain bad apples that they wanted to get rid of.

Is there a particular set of problems that this airplane has experienced that needs to be addressed? I mean, are they still having structural problems with the wings, the old C–5As, do you know?

Mr. BOLKCOM. Sir, I don't have a specific answer. I think right now the authoritative study on the C–5 is the Air Force's own fleet viability board.

I don't recall seeing any mention of bad apples in that report, but I would be happy to look at it more closely and get back to you.

Mr. SPRATT. How many C–5As are operational today?

Mr. BOLKCOM. We have 60 in the inventory, sir. I don't know how——

Mr. SPRATT. Sixty?

Mr. BOLKCOM. Yes, sir.

Mr. SPRATT. There were 81 originally contracted to be built. One burned up on the runway at Lockheed Georgia. One crashed at Dover, and a couple of others were lost by other means. That means there are about 20 that have been retired.

Mr. BOLKCOM. Sounds about right, sir.

Mr. SPRATT. Do we have any idea as to why those 20 were retired as an indication of what is problematic about the airplane?

Let me ask you this. Has anybody considered possibly keeping the good, still viable C–5s, but putting in a system where they would be utilized a lot less, so that you would have this airlift capacity when and if needed, but you wouldn't fly this airplane which is otherwise operationally much more expensive to fly than the C–17, particularly if it is not fully loaded?

Mr. BOLKCOM. I haven't heard of such an idea, sir. One challenge may be that you have air crews that need to fly these and they need to get certain hours in and training and experience.

So any movement in the number of airplanes or how they are used tends to have a ripple effect through the force that you would have to wrestle with.

But I want to just point out there are a number of tradeoffs we can make in our larger system, as I said. It is a very elegant system of CRAF and other capabilities.

So, certainly, some reduction in C–5s is one of the tradeoffs you can make.

Mr. SPRATT. It has the unique capacity to carry outsized equipment. Is there anything that it can carry that the C–17 can't carry in smaller loads?

Mr. BOLKCOM. Yes, sir. There is a list of things, an engineering bridge comes to mind. Maybe the most significant is a special operations force, a Sea Air and Land Forces (SEAL) boat that the C–17 cannot carry, and the others escape me.

Mr. SPRATT. Thank you very much.

Mr. ORTIZ. I want to ask the members here that we are going to have one 15-minute vote and then followed by three 5-minute votes. It is going to take us at least 25 to 30 minutes before we come back.

If we have any questions for these witnesses, do you all have any questions? If not, we can dismiss them so that we can get ready for the second panel. Is that okay?

And if you all have any questions, some of the members who are not here, we will give them time to submit some of the questions to you in writing.

Thank you so much. You have made good statements, and you answered our questions. So thank you so much for joining us today.

When we come back, we will be ready for the second panel.

Thank you.

[Recess.]

Mr. MARSHALL [presiding]. Let me go ahead and recognize our second panel and get started.

I am Jim Marshall. I am sitting in for Mr. Ortiz, who is not feeling very well at the moment, and it wouldn't surprise me if we have a much smaller group of members here, given other things that members are doing this time of day.

For our second panel, we have Lieutenant General Howie Chandler, Air Force deputy chief of staff for operations plans and requirements; Lieutenant General Don Hoffman, Air Force military deputy for the assistant secretary of the Air Force for acquisition; Lieutenant General Mark Curran, Army deputy commander for the training and doctrine command; Major General Tom Kane, air mobility command of the Air Force director's strategic plans, requirements and programs; and, Major General Jeff Sorenson, Army deputy for systems management in the Office of the Secretary of the Army for acquisition, logistics and technology.

Gentlemen, welcome.

Lieutenant General Chandler, if you would please proceed with your opening remarks.

STATEMENT OF LT. GEN. C.H. "HOWIE" CHANDLER, DEPUTY CHIEF OF STAFF FOR OPERATIONS, PLANS AND REQUIREMENTS, U.S. AIR FORCE; LT. GEN. DONALD J. HOFFMAN, MILITARY DEPUTY, OFFICE OF THE ASSISTANT SECRETARY OF THE AIR FORCE FOR ACQUISITION, U.S. AIR FORCE; LT. GEN. MARK CURRAN, DEPUTY COMMANDER, TRAINING AND DOCTRINE COMMAND, U.S. ARMY; MAJ. GEN. (SELECT) JEFFREY SORENSON, DEPUTY FOR SYSTEMS MANAGEMENT, SECRETARY OF THE ARMY FOR ACQUISITION, LOGISTICS AND TECHNOLOGY, U.S. ARMY; MAJ. GEN. THOMAS P. KANE, DIRECTOR OF STRATEGIC PLANS, REQUIREMENTS AND PROGRAMS, AIR MOBILITY COMMAND, U.S. AIR FORCE

STATEMENT OF LT. GEN. C.H. "HOWIE" CHANDLER

General CHANDLER. Sir, thank you.

Mr. Chairman, Congressman Saxton, distinguished members of the subcommittee, thank you for the opportunity to appear here today to talk about Air Force airlift and tanker programs.

As you know, your Air Force is fully engaged around the world fighting the global war on terror. We also stand guard as our nation's strategic reserve, ready to respond rapidly to conflict or humanitarian needs around the globe.

The combat and combat support missions your Air Force is flying today are the latest in a string of 16 continuous years of Air Force combat in the Central Command (CENTCOM) area of responsibility.

Through last March or March 1, 2007, your Air Force has flown 82 percent of the coalition's over 282,000 sorties in Operation Iraqi Freedom (OIF) and 78 percent of the coalition's over 160,000 sorties in Operation Enduring Freedom (OEF).

At home, we have flown almost 47,000 sorties in support of Operation Noble Eagle and we are also supporting the war on drugs, having flown over 3,000 counter-drug sorties since 1991.

Despite this operation's tempo, fiscal year 2006 was the safest year ever in Air Force aviation. In 1947, the first year the Air Force was an independent service, we recorded 1,555 major acci-

dents, for a rate of 44.22 per every 100,000 flying hours. In the process, we destroyed 536 aircraft at a cost of 584 lives.

In 2006, your Air Force recorded 19 major accidents for a rate of .9 for every 100,000 flying areas, destroying eight aircraft, with one fatality.

This record is indirectly attributable to the hardworking men and women at all levels across the Air Force who focus on performing our mission safely, even as we fly in combat.

Air Force mobility aircraft are essential to the expeditionary nature America's armed forces. None of our current operations would be possible without our airlift and aerial refueling aircraft.

An Air Mobility Command aircraft departs a runway somewhere in the world every 90 seconds, 24 hours a day, 365 days a year, and through March 1, 2007, these aircraft have flown 315,000 mobility sorties, moving over 5 million passengers and 2.2 million tons of cargo in support of the war effort alone.

Air Force tankers provide global mobility and reach for Air Force aircraft, the joint team and coalition forces. Through the end of February 2007, our aerial refueling aircraft have flown more than 92,000 sorties, offloading over 5 billion pounds of jet fuel to more than 343,000 receiver aircraft in support of the global war on terror.

While the average tanker is over 40 years old, KC–135s and KC–10's nonetheless fly 30 tanker missions on a typical day in Central Command and stand alert to provide additional endurance for our aircraft performing homeland defense.

For the past 50 years, the Air Force's primary tanker platform has been the KC–135 and it has served with distinction.

However, we are carrying greater risks operating this aircraft beyond expected service life. Some of the oldest models already operate well beyond the point of cost-effective repair.

Tanker recapitalization is not a new idea. In 1999, a GAO report appreciated the declining operational utility of our aging tankers and underscored the need for immediate investment in recapitalization.

Given the increased operational requirements of the global war on terror, procurement of a new tanker aircraft, a KCX, has become both an operational necessity and the most fiscally prudent option to maintain America's global presence and expeditionary capabilities.

The KC–X is our number one procurement priority. KC–X tankers will provide increased aircraft availability, more adaptable technology, and greater overall capability than the current inventory of KC–135E tankers they will replace.

Enhancements to every aspect of aircraft operation will provide the joint war-fighter with more flexible employment options.

It is imperative that we begin a program of smart, steady reinvestment in a new tanker, coupled with measured timely retirements of the oldest, least capable tankers. Recapitalizing our tankers will ensure viability of this vital national capability.

Sir, again, I thank you for the opportunity to be here today. We deeply appreciate your support and the support that you have provided for our Air Force as we pursue our chief's three priorities—fighting and winning the global war on terror as part of the joint

team, developing and caring for our airmen and their families, and recapitalizing and modernizing our aging aircraft and space inventories.

Sir, I look forward to your questions.

[The joint prepared statement of General Chandler, General Hoffman and General Kane can be found in the Appendix on page 102.]

Mr. MARSHALL. Thank you, sir.

General Hoffman.

STATEMENT OF LT. GEN. DONALD J. HOFFMAN

General HOFFMAN. Mr. Chairman, Congressman Saxton and members of the committee, it is my pleasure to be here today to discuss the military capability that truly makes the United States a global power, and that is mobility.

Since last year's testimony cycle, the following things have happened in the mobility acquisition area. We have retired 29 grounded KC–135E models. By the end of this year, an additional 14 E models will have been grounded due to expiration of the interim repair on engine pylons.

We need the flexibility to manage this aging fleet, to include retirements and harvesting of key parts after retirement.

The KC–X tanker is now in source selection with contract award expected later this year. The Air Force has gone through a rigorous review process for KC–X and we remain committed to a competitive environment for this important program.

The Joint Cargo Aircraft is in source selection and we expect results in the next several months.

The Air Force is in the final stages of the C–17 production line. To date, 162 C–17 aircraft have been delivered. The production line closure that was forecast for a year ago was delayed by one year, with an additional 10 aircraft added to the U.S. buy and nine additional foreign buys.

However, Boeing has already started sub-vendor line closures, which require 34 months of lead time from production delivery.

The C–130J contract was converted from a Federal acquisition regulation Part 12 commercial contract to a Part 15 military contract. Thirty-eight aircraft remain on this multi-year contract.

The C–130 AMP program, the first test aircraft has flown 24 sorties and a second aircraft will fly later this month.

This program is in a Nunn-McCurdy breach and we are working with OSD to restructure and recertify this program.

C–5 AMP has delivered 23 aircraft. C–5 RERP delivered the first two aircraft and the third will fly this month. The test aircraft have flown 66 flights and the performance is meeting our expectations.

However, this program has experienced significant cost growth, and we are in the middle of a re-pricing process to determine affordability and the way ahead.

In short, every major mobility program moved forward over the last year.

I would ask for the committee's continued help on one area, and that is the area of specialty metals. In last year's Authorization Act, Congress provided some relief in the area of electronic compo-

nents, where the source of minute amounts of specialty metals cannot be traced throughout the commercial production supply chain.

This relief is certainly helpful, but I would ask that there be further consideration for relief in the area of commercial products.

Tracing the source of metals in commercial products is very problematic for industry, particularly where DOD is a very small part of their market.

The cost of creating a separate supply chain that is able to trace specialty metals down to the lowest tier, such as fasteners, is something industry has been unwilling to accept if it is to remain commercial competitive.

While the Congress has authorized a waiver process, the justification and support of the waivers can be labor-intensive.

As an example, the waiver process last year for the Advanced Medium Range Air to Air Missile (AMRAAM), the government contractors spent over 2,200 man hours to review 4,000 parts and produced the documentation to justify the waiver. This documentation was eight inches tall in printed form. All this work was to justify a waiver for $1,400 on an item that is valued at $566,000.

I look forward to your questions and comments. Thank you.

Mr. MARSHALL. Thank you, General Hoffman.

General Curran.

STATEMENT OF LT. GEN. MARK CURRAN

General CURRAN. Mr. Chairman, Mr. Saxton and distinguished members of the subcommittee, I am pleased to be here today to talk about Army aviation. Both General Sorenson and I welcome this opportunity and appreciate the outstanding support you have provided to Army aviation and our soldiers engaged in the global war on terror.

Just a little over 3 years ago, in February 2004, the acting secretary of the Army terminated the Comanche helicopter program to achieve the aviation transformation and modernization plan, the plans that would restructure, reorganize and equip Army aviation, to be prepared to execute the full spectrum of military operations.

Critical to these plans is the Joint Cargo Aircraft. Last year we promised you that the Army and Air Force would sign a memorandum of agreement, establish a joint program office, and conduct a joint source selection board.

We have done just that. In May of this year, the program will proceed through the defense acquisition board for a milestone C decision.

We, the Army and the Air Force, are a unified team, with a common goal to provide the best support to the joint war-fighter. We truly embody the premise, one team and one fight.

We are a joint team working together to field the best equipment possible to meet the combatant commander's needs.

Fiscal year 2008 will be a pivotal year for Army aviation. The resources provided to the Army to conduct operations, while transforming and modernizing the aviation force, will determine Army aviation's ability to continue to accomplish its mission and to be postured to meet future commitments.

Your continued leadership and support in providing full, timely and sustained funding is critical to our success. We are facing the

challenging tasks of winning the war on global terrorism while simultaneously having to transform and modernize our force.

Sir, we are ready for any questions that you may have. Thank you.

[The joint prepared statement of General Curran and General Sorenson can be found in the Appendix on page 110.]

Mr. MARSHALL. Thank you, General Curran.

General Sorenson.

General SORENSON. Chairman, I have no statement at this time.

Mr. MARSHALL. General Kane.

STATEMENT OF MAJ. GEN. THOMAS P. KANE

General KANE. Sir, if you would allow me. Mr. Chairman, Mr. Saxton, thank you for the opportunity on behalf of General McNabb, our commander, and the 161,000 active guard and reserve total force members of the Air Mobility Command.

As the major command in the United States Air Force responsible for airlift and tankers and as a component of the U.S. Transportation Command, we appreciate the committee taking the time to look at this very important part of our capability.

As you know, our nation drives the requirements of this command and our Air Force in support of the services and the nation. Recent examples of Katrina and Rita, the Pakistan earthquake scenario, Lebanon, and, of course, what we do every day in the global war on terror.

Our command today is performing over 900 sorties in support of the nation. On all seven continents, the men and women of the Air Mobility Command appreciate the opportunity to tell our story today and to answer your questions.

Thank you.

Mr. MARSHALL. Thank you all for your statements.

The record, of course, is open for you to put written statements into the record, if you wish to do so. Please feel free to follow up with any of the questions or responses with additional remarks that we can put in the record, as well.

You gentlemen were present earlier when I questioned the preceding panel about the C–5A and this notion, and I guess this is directed to Air Force here, this notion that some of the C–5As and two Bs, apparently, have been identified as so structurally broken that it doesn't make sense, in Air Force's opinion, to RERP and AMP them and Air Force, at least the chief tells me he would like to retire them.

Could you gentlemen tell us a little bit about that?

General CHANDLER. Sir, at this point, the program of record is to continue with the AMP and the RERP modifications. There may be a time, as we do that, when we take airplanes apart that we may run into structural issues that would cause those kinds of things to happen.

As an aviator, there are airplanes that fly better than others, quite honestly. Some of them are a little easier to maintain than others, for whatever reason.

So you can have some that don't fly as well as others might. We are going to have to dig a little deeper, though, before we actually

come up with a list of airplanes that we would necessarily like to retire.

Mr. MARSHALL. General Chandler, if I could interrupt.

So do you not have within Air Force a team that has been specifically looking at different planes, trying to figure out whether or not it makes sense?

General CHANDLER. Sir, the fleet viability board does that and they looked at the C–5 and, as you heard earlier, they have said that there are 25 years of serviceable life left in the aircraft.

Mr. MARSHALL. But beyond that, has there been an attempt, instead of just generally making the comment about the fleet, an attempt to look at individual planes and do an analysis of whether or not that individual plane is, as Chief Mosley would say, "hard broke?"

General CHANDLER. Sir, if I may, let me defer to General Kane from the M.C. staff to see if they have a list at their level. We do not keep that on——

General KANE. Sir, I would answer the question this way. We have heard earlier that the reliability rates for the C–5A range in the 40 percent to 50 percent range.

The C–5Bs, which are operated with a total force formula, Dover and Travis Air Force Base, and now at Westover, range about 55 percent in their mission capable rates.

What General McNabb looks at, because the airplanes are in maintenance cycles, PDM, going through RERP or AMP modifications, that the availability of that fleet is much lower.

The availability of the C–5As today is only 36 percent. So those A models that are in the fleet today, most of them in the ARC, in the Air Reserve component, are available to the war-fighter about 36 percent of the time.

The B models, on the other hand, are available about 47.5 percent of the time, again, reflecting the AMP program that is going on that has taken airplanes out of the mix.

Today in the theater, in GWOT, we have five C–5s flying in support. On the other hand, you have about 22 dedicated C–17s to the theater and there is about 40 that are operating in support of the combatant commander in CENTCOM.

Mr. MARSHALL. That doesn't really answer my question and maybe I am just talking out of turn here a little bit.

General KANE. Sir, we don't have a list that we keep.

Mr. MARSHALL. So if you could just look into that.

General KANE. Yes, sir.

Mr. MARSHALL. Is there somebody out there that is evaluating individual C–5s? Is there a list of C–5As and C–5Bs, particular planes that have been identified as ones where a case can be made that these individual planes, not the fleet entirely, but these individual planes should not be RERP'ed and AMP'ed?

I think we need to know that. We are going to make a big decision here shortly on how we are going to fund different things and we need to know whether or not you are on the verge of making a recommendation to us with regard to specific planes and retiring those planes.

I am going to give a quick summary here and just correct me if I am wrong.

The C–5Bs that have already been RERP'ed and AMP'ed, and I think there are two of them——

General HOFFMAN. Negative, sir. We have 23 C–5s that have been AMP'ed. Only the three test aircraft have been RERP'ed and our production ramp-up rate for the RERPing runs over several FYDPs. It is a long-term process.

Mr. MARSHALL. But I am talking about you have got three—I thought it was two, but you have got two airplanes here——

General HOFFMAN. Two are flying right now. The third one will fly probably tomorrow.

Mr. MARSHALL. All right, great.

But what you have is you have got two at this point that have gone through the entire process.

General HOFFMAN. Yes.

Mr. MARSHALL. And at this point, they are performing as we anticipated.

General HOFFMAN. Correct.

Mr. MARSHALL. And as we anticipated, of course, costs now seem to be spiraling out of control, but as we anticipated, their level of availability was going to come close to matching the C–17's general level of availability.

Is that what we are experiencing?

General HOFFMAN. It would be 10 percent to 15 percent higher than the baselines that they are operating from right now. That is the expectation from an AMP'ed, RERP'ed aircraft.

Mr. MARSHALL. Well, that is not directly responsive to what I asked. What I understood, based on testimony that we have received over the last couple of years, the expectation by Air Mobility Command was that the RERP'ed and AMP'ed As and Bs were going to wind up being about 5 percent off the average performance level of the C–17s.

Am I mistaken?

General KANE. Sir, it is a 10 percent increase in the RFP. We will give you that number and that is what it is.

General HOFFMAN. But, Mr. Chairman, the comment that you have time to decide on how far we go into RERPing here, because of the rate at which we are entering this program, we have only done three and our production rate is fairly slow over the next couple years.

One other statistic, though, that I think General Mosley is referring to when he talks about bad actors, and he kind of goes by the fleet, the B fleet and the A fleet, it is one thing to talk about mission capable rates, but a more telling statistic is how hard do we have to work to keep them in the air.

And for every flying hour that they fly, over the last 16 years, the A model C–5s require 61 percent more maintenance man hours per flight hour. So it is a significant burden on the backs of the airmen to keep that aircraft flying.

Mr. MARSHALL. I am with you, but we have decided to do this RERP/AMP thing. We are about to have A, right? And I guess we will see what those same figures are with regard to the A that we are about to have come on.

General HOFFMAN. Right.

Mr. MARSHALL. I will have more questions later, but I want to move to the ranking member here, my good friend and great Member of Congress, Mr. Jim Saxton.

Mr. SAXTON. Thank you, Mr. Chairman.

Let me just continue on the other side of the lift. Let me ask some questions.

Let me start here. The requirement for lift has been elusive, it seems to me, and I would just like to ask you where we are on defining the requirement at this point given the major events that have happened in recent times and given the requirements that exist going forward.

Where are we now on the requirement?

General CHANDLER. Sir, I know the first panel discussed earlier a bit about the requirement and we talked about the mobility, the MCS, mobility capabilities study.

We in the Air Force need to stay on the glide path we are on with RERP and AMP with the C–5 program. One hundread and eighty was the number for C–17s and we thank you for the plus-up, because that certainly helps offset the wear and tear for the global war on terror and the loss of the C–5 we had at Dover.

As well, if we stay where we are at with the C–130J, we can stay on glide path to meet the minimum requirement.

Now, we understand that is the minimum requirement and we also understand that the world has changed. We are looking at potentially a larger Army and Marine Corps. We are looking at the Future Combat System and, as we talked about earlier, still defining how we are going to do that in terms of a concept of operations between the Army and the Air Force.

That leaves us also in a situation where Air Mobility Command (AMC) has gone back to take a look at the appropriate fleet mix which will bring in the C–17 and the C–130 and where we need to go with that end of the airlift spectrum in terms of intra and intertheater lift.

But to answer your question directly, those requirements are yet to be defined. We hope to have the AMC work done by the end of this year.

Mr. SAXTON. A reasonable person could conclude then, based on what you just said in your statement, particularly the closing part of your statement, that if we include the requirements caused by the war on terror, if we include the requirements resulting from a larger force, and if we include the requirement that comes from a new weapons system in the future, known as the FCS, we might want to order some more C–17s at some point.

General CHANDLER. Congressman, I think that is a reasonable statement.

Mr. SAXTON. Here is my problem and here is your problem and my problem.

The line is going to close and so we could, at some point, be precluded from making a decision to buy more if we don't make the decision in a timely manner.

And just let me say this for the record and I am not trying to be—it is not my nature to say things to be contrary, but the Secretary of the Air Force and the Chief of the Air Force, last year, when Jim Marshall and I and others were fighting for those 10 air-

planes that you just said thanks for, the Air Force said we didn't need them and based on the requirement that the Air Force had defined.

Now, I don't blame the Air Force for that and here is why. We here and the folks over at the White House and other parts of the administration define the needs of our country and send you a list of things to do and then we authorize and appropriate money to do it and we give you a cost level here and send you this much money. So I am contrary to all of us.

The real problem here is, this is my view anyway, this is a chart, which I have a bigger one someplace, but I couldn't find it, it is a chart that shows the defense budget as a percentage of GDP.

You have all seen it, I am sure. It says that during World War II we spent 34.5 percent of GDP on national security. During Korea, we spent almost 12 percent. During Vietnam, we spent almost 9 percent of GDP.

During the big rig and buildup, we spent almost 6 percent of GDP, and today we are spending—in 2005, we were spending 3.9 percent of GDP.

So this is more of an endemic problem for all of us to solve than just the Air Force. But having said that, we are now at a crossroads where, last Friday, a very high official in the contractor office in C–17 called me at home and said if we don't have an answer on C–17 in 2 months, we are going to have to start taking the line down.

And that is where we are today. And so I know you know this, because I have had this conversation with you before, like yesterday, but this is a conversation to be had on the record and somehow, in the next few months, we are either going to have to decide that we are going to be able to do without C–17s or else we are going to have to tell the contractor that we are going to order some more.

So anyway, that is that.

Now, on the Army side, on the Air Force and Army side, the Future Cargo Aircraft, General Curran, you said that we, that you and the Air Force, the Army and the Air Force signed the memorandum of agreement and I have got a copy of that right here. It was signed on June 20, 2006. That is a good thing.

I am wondering what decisions remain to be made by the Army and the Air Force subsequent to the signing of this agreement.

General CURRAN. Yet to be completed based upon that memorandum of agreement?

Mr. SAXTON. Let me tell you one thing that concerns me here. In defining roles and missions, in the first paragraph, it says, "It is understood that the Air Force is DOD's provider of fixed-wing intratheater airlift. However, that does not preclude the Army from operating weapons systems in a service organic airlift role."

I think that says the Army can do this and the Air Force is the provider of fixed-wing theater airlift and I am not sure exactly—I am not sure precisely what that means.

I mean, you told me earlier in a private conversation that the Air Force is going to have 75 of these new aircraft to fly. Is that right?

General CURRAN. Sir, we talked about the Army, at least its analysis of alternatives, is pursuing 75 and the Air Force is still

determining exactly what they are going to pursue, but it could be as many as 70.

Mr. SAXTON. If the Air Force is provider, do they have access to the Army airplanes?

General CURRAN. The Air Force, as the general support provider to the joint force commander, would clearly have whatever joint cargo aircraft they would have. The Army component commander would have whatever he had.

When those aircraft that the Army is operating are not flying in time-sensitive, mission-critical sensitive missions for the Army component commander, they would be available to the Air Force and to the joint force commander for operational support aircraft.

General CHANDLER. Congressman, if I could add one thing.

That is not anything different really than we do today with the Sherpa that the Army is trying to recapitalize.

Any excess airlift over and above what General Curran talked about in terms of mission-essential and time-critical come back to the joint force air component commander (JFAC) to be distributed to support the joint force commander's requirements.

The Air Force aircraft, on the other hand, are part of the transportation command (TRANSCOM) transportation system that the CFAC or the JFAC would work with to meet, again, the joint force commander's lift requirement.

So the statement on the memorandum of agreement (MOA), to me, is a restatement of what we do today in terms of fixed-wing aircraft.

Mr. SAXTON. Here is my concern. The Army, I believe, and correct me if I am wrong, is planning on replacing capabilities that are carried out by CH–47 and other current aircraft that is used by the Army for this mission.

And I think we want to be sure that when it comes time for the Army commander on the ground to say that, "I have got to fly these ten guys and their ammo and equipment from point A in theater to point B in theater," that the Air Force doesn't somehow have the aircraft that is necessary to do that mission in a timely fashion.

General CHANDLER. Sir, I would tell you that any Combined Forces Air Component Commander (CFACC) worth his or her salt would have exactly the same concern. We deliver goods and can deliver goods that last tactical mile to the Army, as required, just as we deliver ordnance off F–16s. We have that capability.

Now, I will be honest with you, there is always friction that surrounds efficiency and effectiveness, but, again, the CFACC understands the effectiveness part of that. So that in some cases, we will not be as efficient as we necessarily might be in order to meet the effectiveness needs of the Army.

Mr. SAXTON. I assume that the efficient type are the well planned routes that we run kind of on a regular basis.

General CHANDLER. Well, I would describe it more as collecting and filling the aircraft, so you have got the maximum use out of the aircraft to distribute whatever it is you are trying to distribute at the time.

Said another way, you may not fill all the pallet positions. You may simply go with people or pallets or backhaul, wounded or whatever is required.

Mr. SAXTON. And that is a different concept than the Army commander on the ground has when he has a need to get from point A to point B now.

General CHANDLER. Well, sir, what I just described, I think, matches with what the Army commander would want in terms of effectiveness.

General KANE. Sir, if I could give you one more comment. In the current scenario in CENTCOM, the joint force commander CENTCOM drives through his J–4 an analysis of the larger stuff that comes into theater and then works that with the service components.

They do that through the J–4 and then a deployment distribution operations center, which TRANSCOM chops to the combatant commander. That gives them visibility from the depot, DLA, where they are building pure pallets, all the way into theater to the war-fighter.

We acknowledge the fact that there is, and today I think the number is about seven to ten percent of time-sensitive, mission-critical mission that the Army component or the Marine component engaged in combat need real-time supply.

We have worked with the theater in a way that makes our assets available, as General Chandler has described, to the CFACC and the MD. One of the initiatives is we are putting more Aircraft Liason Officers (ALOs) in with the Army and the Marine components. We are dedicating 25 more people next year for those units engaged in combat, so that they can better clarify those requirements.

And then, last, I would say things like joint precision airdrop, a joint program between the Army and the Marines and the Air Force, we are trying to define new ways to deliver into areas like in Afghanistan, where the helicopters are getting shot at.

Today we have mobility airplanes being shot at at a higher rate because we are trying to satisfy the needs of the war-fighter engaged in combat.

General CURRAN. If I could just add. We agree absolutely with all that. That is the process. That is what we are attempting to achieve.

The land component commander has capabilities nested within his organization force. If he has a critical requirement, he will use up his assets first to meet that requirement.

If he can't meet it with his own assets, he will then take it to the CFAC or the joint force commander to satisfy those requirements. That is the way we have worked it in the past. That is how we plan to work in the future.

Mr. SAXTON. Very good. One final question. Can you explain to us the difference in requirements that the Air Force may currently believe it needs and how they are different from the requirements that the Army may think it needs in the platform?

General CURRAN. Well, to start with, and then Howie can pile on, as we have gone through the process of turning an Army program and an Air Force program into a single program, somewhat already

clearly stated in the MOA, but in the process of building those requirements documents, we have partnered with each other and reviewed what those key performance parameters (KPPs) will be for the base aircraft.

And from that, we have agreed that that is a good start, a good base from which we could then build our capabilities on.

The Air Force will define what specific mission packages I believe that they will need for their particular use of a JCA and then be able to add those as we go to a block two of that platform.

I think that is how we have kind of laid out.

General CHANDLER. Sir, that is exactly right. There will be some differences. One thing that comes to mind is the ability to fly in national and international airspace and the right avionics and equipment to be able to do those kinds of things, night vision goggle equipped.

Some of those things are still being worked out with regard to what is in the basic aircraft and then, of course, AMC will help us define over and above that.

We can get you a list of those requirements for the record, if you would like us to do that.

Mr. SAXTON. I would be interested in seeing it.

Thank you very much.

Mr. MARSHALL. Let me recognize the gentlelady from Florida, Ms. Castor.

Ms. CASTOR. Thank you, Mr. Chairman.

Good evening, gentlemen.

On the KCX, General Mosley was quoted recently that he believed awarding the tanker replacement contracts to more than one company would have some utility, because the Air Force would be able to purchase a mix of larger and smaller tankers to mirror this current fleet.

Is that an accurate reflection of the position of the Air Force?

General HOFFMAN. That is what the article said, but what I believe General Mosley said is that we will have a mixed fleet.

In fact, we have a mixed fleet today. We have KC–130's, we have KC–135s, we have KC–10's. So we see a mixed fleet all the way out into the future that will be medium size and some large size tankers.

So he is talking about a mixed fleet and, in fact, until the last R model goes away, we are going to have a mixed fleet for 40 years no matter what we do.

But tour present competition right now is to pick a single tanker and this is just the first wave, this is what we call the first traunch. We know we need around 500 tankers. We are sizing this first traunch at about 179 and we did that because no matter what commercial aircraft we pick, they only make commercial aircraft for 10 to 15 years.

If they run longer than that, it is a very successful run, but even then they have different models, different engines, different lengths of fuselages and so forth.

So to pick a commercial aircraft that we think is going to be made for 40 years probably won't happen.

Ms. CASTOR. But it is not your intention to bifurcate this contract award. You are going to stick with awarding it to a single——

General HOFFMAN. No, because of the duality of separate——

Ms. CASTOR [continuing]. The first wave that you said of 179.

General HOFFMAN. Right. We see all 179 as being the same type of aircraft. To go down a dual track would require doubling our expense in the development and having both vendors develop an aircraft, produce an aircraft, test an aircraft and then produce it, and you get the inefficiencies there with two sustainment lines, two training lines, et cetera, et cetera.

So we see 179 single aircraft. Now, 10 or 15 years from now, if they are still making that aircraft, we love that aircraft, we may just continue. That is a separate decision that can be made later if that option still exists. But we see that option probably will close at some point.

Technology will move along and other commercial aircraft will be available. So the second traunch may look the same or may look different.

Ms. CASTOR. Thank you for clarifying that.

One vendor right now is producing tankers for Italy and Japan. Another is maybe selling tankers to Saudi Arabia, Britain, Australia.

Are any of those out of testing yet? Explain where they are. Are any operational yet?

General HOFFMAN. They are not operational yet, but they are built and they are in various phases of the test phase. And you are right, both vendors have a strong tanker with cargo capability and some other capabilities that are out there flying for foreign customers.

Now, unlike the first panel had said, here are the two answers to the KCX, we don't know what they are going to bid. They may pick the ones that they have already built for someone else. They may offer a different commercial aircraft.

So we don't know what they are going to bid, or they may offer two bids from a single vendor.

So you would think that those that are already out there and developed would be stronger contenders and would be more competitive for those companies to bid something that they have already built than to start from scratch.

Ms. CASTOR. Does the Air Force actively monitor those aircraft for other countries that are testing those right now as they move into operations?

General HOFFMAN. They are direct commercial sales. We don't have a government role. But we do pay very close attention to their progress.

Ms. CASTOR. I am a new member and I am going back and trying to learn some history about the KC–X or KC–135 and I know that due to not having a full rate of the KC–135, the recapitalization program under way, the Air Force was legislatively restricted from retiring 114 KC–135E aircraft in fiscal year 2005 and 2006, but then Congress allowed retirement of 29 aircraft in fiscal year 2007.

In reviewing the materials, it wasn't clear to me what your recommendation is for 2008 and then looking out into 2009 and 2010.

General HOFFMAN. We would like permission, as the other services have permission, to manage their fleets. We want to do what we call fleet management and make a timely decision when it is

right to retire an aircraft, to not have boundaries put on that retirement, like even the permission we got last year for the 29s said they had to be recallable, which means you have to leave them in kind of inviolate status there.

Then they sit in the desert and they are going to age out very useful parts on those aircraft. So the remaining fleets, even the R models, could benefit from some of those parts.

So we would like permission in 2008 to have the ability to fleet manage our fleets. There are 85 remaining E models. We would like permission to retire and fleet manage those remaining 85 aircraft.

General KANE. Ma'am, if I could add one thing to that. Today we have grounded airplanes that are combat ineffective sitting on the ramps that our Guardsmen and Reservists of the 135 fleet or active duty in the C–130 fleet are taking care of at an expense to the country and, frankly, it is these people who are already stressed.

It is disheartening to them and lowers their morale when they have to take care of an airplane they know will never fly.

So we do applaud the Congress for giving us the permission to retire 15 C–130Es and 29 KC–135Es, but we need to go the distance in managing the fleet, because it come on the backs of our people.

Ms. CASTOR. Thank you very much.

Thank you, Mr. Chairman.

Mr. MARSHALL. Thank you, Ms. Castor.

Now, to the gentleman from Missouri, Mr. Akin.

Mr. AKIN. Thank you, Mr. Chairman.

Let me just ask a hypothetical. You have got some C–5A models—this is for the Air Force—and you start taking a look at fixing them up because they are costing you a lot to maintain and you think, "Well, we are going to put some money into these things," and each one you take apart, you are looking at a couple of them, each one you take apart, they are more just stress cracks, I mean, they are completely—you are going to have to replace the whole airplane.

Now, do you have the flexibility that if you wanted to, that you could retire those planes?

General HOFFMAN. Not at the present time. We are restricted from retiring any C–5As until the first C–5A that is going through the RERP process, which should fly we think tomorrow or Friday, until that goes through operational evaluation, which will take until the 2009–2010 timeframe before we have the test results on that, that is a present legislative restriction.

Mr. AKIN. So currently we are going to close down a potential source of a replacement airplane and burn that bridge behind us before we really have any data.

So in a way, it is almost like Congress has been micromanaging your job to manage your own air fleet, haven't we?

General HOFFMAN. I think the chief and secretary they want authority, as other chiefs of services, to manage the fleet and they are restricted in not C–5s, but it is 130's, it is F–117s, it is B–52s. There are multiple aircraft out there that we have specific language that binds our hands.

Mr. AKIN. But we put these restrictions on so that you really can't manage the fleet.

General HOFFMAN. That is right. Your comment is right there. I wouldn't describe it so much as burning the bridge. We can talk about storage of tooling and line closure on the C–17 there and there are expensive ways and less expensive ways of doing that, but there is definitely a line break and a gap and a timeframe requirement and significant costs to retool and restart that line.

But the bridge is not totally burned. We will keep the blueprints for the bridge, if we have got to rebuild it.

Mr. AKIN. But you have got all kinds of subcontractors and sub-subcontractors that are going to have to be rehired and re-contracted. So there is going to be a tremendous cost of trying to get that thing back up and going again, right?

General HOFFMAN. Right.

Mr. AKIN. And I think what I heard you say, also, so in other words, if we could put some language in to release you in terms of the C–5, particularly A models, is that where you would start?

General HOFFMAN. Yes, sir.

Mr. AKIN. And give you the flexibility that if you need to retire those things, you can do it. If you want to rebuild them, you could still rebuild them, but you would have that flexibility to take a look and, at the same time, you would have the flexibility, if you wanted to retire a few of them, because you have got a pretty good number of them, right?

General HOFFMAN. Sir, we have a 111 total C–5s and about half of them are C–5As.

Mr. AKIN. So you have got 50 at least. So if you wanted to, you could retire a certain number of them and get a replacement airplane or something like that now and then the ones that you have done this rebuilding on, you can evaluate that as quickly as you can.

General HOFFMAN. Yes, sir. We will not make the decision to actually RERP or even if we make the decision today, we won't actually be getting around to doing that modification for many years, because they will follow the B models in their modification process.

Mr. AKIN. So that seems to make sense for us to be working along those lines.

Now, I think what I heard you say was that the Air Force or Air Mobility Command has not really built in the requirement for heavier lift that might be required by a lot of these new additions of armor to things that weren't as heavy before, that that is something that is going to be sort of built into the equation next year, but that isn't in this year. Is that right?

General CHANDLER. Yes, sir. The existing mobility capabilities studies do not address some of the things that we talked about in terms of the potential for a larger Army, larger Marine Corps, those kinds of things.

Mr. AKIN. Larger in terms of more numbers or heavier equipment?

General CHANDLER. People and the definition, as you suggest, the Future Combat System and what that airlift requirement will actually be.

AMC today is taking a look at how that all fits together with our smaller aircraft fleet, the fleet that flies intratheater and intertheater, to see how that all fits together.

Mr. AKIN. Right. So that has still got to be built into the equation.

General CHANDLER. Yes, sir.

Mr. AKIN. I think you have pretty much answered the question.

I guess I have one question for the Army and this is more because I am not that familiar.

The Joint Cargo Aircraft, how is that different than a C–130 and does it do anything a C–130 wouldn't do? Is there any reason to build it or what is the logic on that?

General CURRAN. Sir, the Joint Cargo Aircraft is a smaller aircraft than the C–130, but it is compatible with the C–130 in that it will handle the same palleting system that is in the C–130 for ease of cross-load of cargo and equipment.

It has an additional capability of being able to land with a smaller load, but land on a shorter runway than you would find with a C–130, given both the Air Force and the Army greater flexibility with smaller loads and into more austere locations.

So those are some of the significant differences, I guess, between the C–130 and the JCA.

Mr. AKIN. So what is the load relative to C–130, two-thirds or something of the load or half the load?

General CURRAN. It is about half, sir.

Mr. AKIN. Half. So it is significantly smaller, significantly smaller.

General CURRAN. Yes, sir.

Mr. AKIN. And do we have trouble landing C–130's in short landing strips? Because it seems like, to me, we manage to drop them down pretty fast over in Iraq and didn't seem like it took a whole of pavement to get them up or down on the C–130's.

General CURRAN. C–130's are operating on, what would you say, 3,000 to 5,000 foot runways, based upon what loads they are carrying today. We are looking at a platform that could operate on 2,000 to 3,000 feet, based upon what its load is, to give you a relative comparison.

Mr. AKIN. And you think there is a need for that short of landing strips in some of the possible scenarios and places we might get involved.

General CURRAN. Yes, sir. There are F series analysis and analysis that we have done have indicated that we do have a gap there.

Mr. AKIN. And just one make sure to make sure I got my numbers right.

I think what I was hearing you say, with the rebuild, this is back to the Air Force again, I am sorry, with the rebuild of the C–5A models, I assume that includes new engines.

I don't know the AMP and RERP and those things.

General CHANDLER. Sir, the AMP program is an avionics enhancement program. It is a precursor and a requirement before the RERP, which is the acronym for the re-engining program.

Mr. AKIN. So you put those two together, you have got currently a 35 percent reliability rate and you think that you may jump it as much as 50 to 51 percent.

General CHANDLER. Yes, sir.

Mr. AKIN. And what is the reliability rate of a C–17?

General CHANDLER. That reliability rate will run in the mid 80's, sir.

Mr. AKIN. So you are talking 51 versus mid 80's.

General CHANDLER. Yes, sir.

Mr. AKIN. So if you are planning a mission and you have got these rebuilt A models, unless you are a gambling man, you are going to send two sets of gear for every one that you want to land and do the job.

General CHANDLER. Yes, sir. There is no doubt that the aircraft is going to be less reliable based on a number of issues.

Mr. AKIN. This is one that you rebuild.

General CHANDLER. Yes, sir.

Mr. AKIN. Well, that doesn't sound like a very good way to go.

General CHANDLER. Let me ask if there is some distinction?

Tom, if you want to——

General KANE. Sir, the one thing I might point out is the way we operate the C–5 today, and it was pointed out in the earlier committee, that there are about nine pieces of equipment this nation depends on on the C–5 to carry and we will provide that for the record.

[The information referred to can be found in the Appendix beginning on page 162.]

General KANE.But, in fact, we have been challenged to change the concept of operations for the C–5 to do major hubs where we have the logistics base to support that airplane.

Today, in support of GWOT, we have airplanes going into like Turkey, drooping off very large loads, particularly armor, that are moved forward on C–17s. That concept of operations (CONOPS) works very well and the C–5 performs very admirably in a system that I would call managed.

So that is the challenge is to use that. Remember that the mobility capabilities study number, the base number was 292. We have always questioned why do you pick the bottom of the range, because when the C–5 crashed at Dover last April, it drove us to 291 and gave the Congress some impetus to try to replace at least one of those airplanes or the 10 that we got.

I would suggest that the C–5, in those kind of roles, in a two major contingency operation scenario, is what drove that number in the requirement and left the risk at moderate.

So those fleets of 111 remaining C–5s is important to a global power that has to look two ways and overlap two scenarios. That is where that number came from.

Mr. AKIN. You went a little faster than I could go with that explanation, but I think what I am hearing you say is there are needs for some C–5s, just because of the massive lift that it can do.

General KANE. Yes, sir.

Mr. AKIN. But that you have got to be in an environment where you can really manage that and it has a low reliability rate.

General KANE. There are seven Russian sailors alive today because our C–5 delivered the undersea submersible at Kamchatka

Peninsula last year. And even though the British beat us there, we had the support equipment to download and save those sailors.

Mr. AKIN. So the point isn't to retire them all, but certainly to have the flexibility to manage your fleet. That just is common sense and sooner is a lot better than later right now in terms of cost of if we have to start to try to restarting a line or something.

Thank you, gentlemen.

Thank you, Mr. Chairman.

Mr. MARSHALL. I thank the gentleman.

I want to pick up, if I could, where Mr. Akin just left off, and it is back to the C–5.

I made reference to what I understand to be an analysis done by Air Force or some team of different specific C–5 planes and we are going to make a difficult decision here and if, in fact, Air Force is on the verge of being able to say, "We think these specific planes should be retired for these specific reasons," clearly, if they are going to be retired, that is going to drop those numbers down below the mobility capabilities study's bottom number.

And most of us think the mobility capabilities study is flawed to start out with, that the range should be a good bit higher, for reasons that are evident just reading the study.

So that would be pretty persuasive to us on buying more C–17s, but we need to know it now. It makes no sense at all to close down the C–17 line if, in fact, we are going to add more C–17s later, because we are getting rid of some of the C–5As. And I understand it is two C–5Bs and one of the C–5As.

I would like to clarify something. When you say 51 percent availability, that is a term that most of us I don't think understand particularly well. In part, that is because of the way the platform is managed with Guard and Reserve.

It is not that the platform is—if you manage the C–17 fleet the same way you have been managing the C–5A fleet, its availability would drop dramatically, as well.

So if we are comparing apples to apples, the idea behind the RERP/AMP program, as we understood it, was that C–5A would get pretty close to the reliability rate of the C–17. So that we could figure when a C–5A took off, or a C–5B or whatever it is, this RERP/AMP'ed platform, when it took off and landed, it was going to be able to take off again and do the next leg and the next leg and the next leg and we weren't going to have to worry about that.

It is not going to get stuck in Argentina and we are going to have the embarrassment of Argentina telling us they won't take any C–5s, that sort of thing.

Am I correct?

General CHANDLER. Yes, sir, I agree with that. We make most of our money in the re-engining, quite honestly, although the avionics program is important. It is a precursor to give you the electronic backbone to be able to do those things.

But the ability to take off with heavier loads from shorter runways, climb to higher altitudes faster, cruise at higher altitudes using less fuel, then, in turn, less tanker requirements if you do that, is important to us for all the reasons that General Kane described earlier and that we discussed earlier here.

It is a cleaner, more efficient airplane overall and it would give you the dependability then that would allow you to leave it at the kind of rates that we leave it at when it is in the Air Reserve Component (ARC) and then bring it up to standard should we need that surge capability and that is the way the fleet is managed today.

Mr. MARSHALL. I think it was IDA, I am not sure, I can't recall now who it was, did the study at the request of Senator Warner back in 2002 of our air mobility choices and that study clearly shows, dollars and cents-wise, that we should go through the RERP/AMP process even with the C–5As, tear one down, determine whether or not, in fact, it has got all these structural problems.

Well, we have done that. We tore a C–5A down and concluded that it was in good shape, it was good to go for 25 years or so.

So that study specifically said that this made financial sense, but that, of course, assumes certain costs associated with RERP and AMP. Now, these costs are spiraling out of control either because we can't manage it particularly well or because Lockheed is having problems managing things from its end.

I said earlier, and I say again, I really think Air Force and Lockheed need to be talking to one another and Lockheed, if it is interesting in having this continued business RERPing and AMPing, needs to be talking to the Air Force about how to control these costs and maybe locking in a cost so that we know what this is going to be cost-effectiveness-wise as we move forward.

I would just make that observation. I hope you are talking to Lockheed along those lines.

KCX, General Hoffman, you, I am sure, saw that GAO has raised some concerns that Air Force hasn't done an adequate analysis validating the uplift, the airlift capability of the new tanker.

Could you, just for the record—I am sure you are interested in replying to that. So for the record, could you comment on——

General HOFFMAN. Yes, sir. This is a requirements issue, so I will turn it over to my comrade here, General Chandler.

Mr. MARSHALL. General Hoffman is not interested in responding to that.

General CHANDLER. Sir, I am interested in requirements, but if I could ask you to rephrase the question. I was writing as you were talking, I apologize.

Mr. MARSHALL. I am sorry, I asked it to the wrong person.

I am sure you have heard the GAO has raised some concerns about whether or not the Air Force has gone through an appropriate analysis that validates the airlift capacity of the new tanker.

And if you could, just for the record, respond to that.

General CHANDLER. The mobility study that we talked about earlier actually recognizes the ability to carry cargo and people as a secondary mission in the tankers.

The joint doctrine addresses the ability to do that. Common sense, from an operator's perspective, would tell me that if we had the capability to put people and cargo on an aircraft, particularly during a deployment phase, where airlift could be at a premium and tanker requirements would be minimum, then it would make sense to look at the ability to carry cargo on a tanker aircraft, particularly from an operational perspective.

I would tell you, sir, that the tanker program that we are looking at today, the KCX, is probably the most studied program that I have seen in my 33 years in the Air Force.

I am convinced we have got the requirements right. The JROC, the joint requirements process, is convinced that we have it right and that the 6 percent cost over the life-cycle of this tanker, to have a cargo-passenger capability is worth the money.

We think we are on solid ground and we are in an effort here to progress with a transparent program to produce a tanker.

I guess if I could add just one more thing. It is important for us to get started from the aspect of when we will actually be able to retire the last KC–135R. If we would look at that, we are going to have some airframes that are nearly 80 years old in order to keep tanker availability where we need to if we are going to continue to maintain the——

Mr. MARSHALL. I regret, by the way, that Mr. Bartlett's not here. He would object to any suggestion that 80 years is too long to be around.

General CHANDLER. But I guess that is what I would say in terms of the KCX. We think it has been thoroughly scrubbed. We think we are on solid ground with the requirements and General Hoffman and his folks are proceeding with an open and fair, transparent acquisition process.

Mr. MARSHALL. General Kane.

General KANE. Sir, if I could add just a couple things.

Airlift has always been a part of the aerial refueling mission. To formalize that in this requirements document was important.

In 1991, during the Gulf War, we learned that units who could self-deploy on the tanker, fighter units, F–18s, A–10 units, saved a lot of lift that was more important to support the Army and the Marine Corps moving their heavy equipment.

We have re-learned that lesson again today.

In 1996, we were a little confused, because the GAO told us at that time that any future aerial refueling platform should consider the airlift responsibilities. In fact, if we look today, while it will cost some more to put that capability on the airplane, it will cost a lot more if we de-scope that airplane and not take advantage of the cargo.

So I think that is very important. In addition, I would answer the studies part of the question, we use the mobility capabilities study aerial refueling scenarios, program analyses and evaluation (PA&E) allowed us to do that.

We ran those scenarios with the airlift KPPs involved and we proved again that that was important and the analysis supported the use of airlift in that platform.

Mr. MARSHALL. Would you gentlemen get together with whoever in GAO has——

General KANE. Yes, sir.

Mr. MARSHALL. —produced the report and narrow your difference of opinion, resolve the difference of opinion, if possible, at the very least, just narrow it, and then get back with staff on the committee with where is the difference of opinion here, so that we clearly understand what it is?

General KANE. Yes, sir.

Mr. MARSHALL. Let me stay for KCX. For some time now, I have not been a one-man show, but I have really been beating the drums here about using this as a model for how to do it right with the C–17 acquisition as a model for how to get it wrong, at least with regard to the long-term questions of maintenance, sustainment, modernization.

It is the life-cycle issue, which is 75 percent of the cost of the craft and sometimes more than that. And I know there is this temptation to buy it cheap upfront. Car dealers will tell you in a heartbeat, and I used to represent a bunch of those guys, I will sell a car for no profit, anticipating that I will make my money at the tail end on repairing that car.

We have got depot issues, core issues, all kinds of other things to be thought about and it just looks like we are stovepiped on this stuff and that it is inappropriate stovepiping and acquisition doesn't really pay attention to what the long-term sustainment folks do.

And somehow we need to bring the two together and I know it is troublesome, because it means that maybe the cost of initial acquisition goes up, so you don't get as many as quickly, and nobody ever wants that, typically.

But it is something that we need to do and I thought that the KC–X was a good opportunity here, because one of the bidders is France—well, France, in a sense—and, at the moment, we are not terribly fond of France. Maybe we will get over that.

But we don't want to be beholding France for data rights, equipment, management of this thing, long-term management of sustainment, modernization, et cetera, in any way.

So I expect that whoever is the team that includes Airbus is going to be making a proposal, should make a proposal which shows that we will never be subject to that, directly or indirectly, and then it seems that Boeing would have to do the same thing just to make it fair and we could use that as a model.

Are you heading in that direction at all?

General HOFFMAN. Sir, I think the acquisition community holds hands very closely with the sustainment community and we are striving to do that better and better with every acquisition.

There have been some encouraging changes over the last year on CSAR–X, on JCA, and on KC–X. We specifically included in the RFP data rights issues that aren't in previous examples of acquisitions.

In other words, we want them to price to us all the data rights that we will need to do our own organic sustainment, should we choose to go that route in the future.

If we choose and source select and then we say, "Oh, forgot about data rights, go back" and we have already source selected, there is no competitive advantage there. That is going to be sky-high.

So in the competitive environment, we are going to have all the vendors price the data rights and we will execute that option in later years, if, in fact, we choose to go organic. But that is a business case decision that evolves over time about how much is organic, how much is not.

We might take in certain elements, leave engines out, bring in the airframe. There are all kinds of combinations of how we do long-term sustainment.

Mr. MARSHALL. But we would be managing that and wouldn't be beholden——

General HOFFMAN. Initially, especially on commercial aircraft, which all three of these are commercially-derived aircraft or other, they have a prior life like the H–47, but we didn't know which CSAR–X we were going to select at the time, because there were some commercial ones out there.

Commercial aircraft tend to have more traceability for sustainment argument in the commercial side. KC–X is going to be FAA-certified aircraft, which means will sustain that in accordance with FAA standards and a growing part of our workforce in the depot is now FAA-certified to do that level of work.

It also allows us to benefit by the wide network that is out there for engines and other parts, if it is a commercially-derived tanker, to use other sources of vendors that are FAA-certified to do repair.

So we are not wedded to that original OEM necessarily.

Mr. MARSHALL. One problem we have got with the C–17 right now is even if we had the data rights available to us, we don't have the infrastructure to manage the supply chain, et cetera.

General HOFFMAN. Depot standup is always one of the elements. It is one of the elements that gets scraped off first when you are under budget pressure in a program, is the facilitation of a depot standup.

It doesn't matter what the program is, whether it is F–22, F–16, KC–X and all that. We want to baseline our programs properly that have a cost line in there to say this is the cost of standing up organic depot.

Mr. MARSHALL. Well, that sounds very encouraging. Where Joint Cargo Aircraft is concerned, again, we have had this question concerning how are we going to maintain it in the long run.

When I first talked to Army about this, Army's business case was CLS and forget about it, that is it, that is what is going to happen.

General HOFFMAN. We had that discussion when the Army had their RFP. In fact, we amended the RFP after dialogue with the Army to allow the data rights entry to be there.

Mr. MARSHALL. I had a great conversation with the chief of staff. I was in Jerusalem and it was 2 in the morning. He was in his plane over Russia and we talked about this for an hour about a year ago.

So I am glad that progress has been made.

I am getting some feedback, though, that there have been some problems agreeing on what the requirements should be, that Air Force is pushing back on some of the things that Army wants and Army's pushing back on some of the things that Air Force wants, and that there may be a separation.

You heard my question to the prior panel along those lines.

I have heard a specific reference to the size of this thing. Will it carry the standard pallet that Air Force typically moves around? Army is focused on a pallet that will go into a Chinook. I have heard things like that.

Now, of course, General Curran, when you were talking just a minute ago, you said, if I understood you correctly, that the pallet size for this was going to be one that is the C–130 size and if that is the case, then it seems to resolve the pallet size, but there may be other things.

How are you all getting along as far as the requirements under this?

General CHANDLER. Sir, at this point, with the MOA, signed by the vice chiefs, we work closely with the Army to do exactly what we have been asked to do.

There are still two outstanding things that we are working in each service. Mark and his folks are working their mission-essential, time-critical needs. We on the Air Force side are seeing how this will fit in with our C–130/C–17 fleet mix.

All of those things have to come together in the May timeframe for a milestone C decision.

I would tell you that is where we are today.

Mr. MARSHALL. So that is a general description. What are some of the specific issues here where you see a possible difference of opinion that could cause Air Force to say, "We are not on board," or Army to say, "We are not on board?"

General CHANDLER. At this point, sir, I would tell you I am not sure there are issues like that.

Mr. MARSHALL. Do you think you are going to get there?

General CHANDLER. I think we are going to get there at this point.

General CURRAN. Sir, I don't know of any that come to mind.

Mr. MARSHALL. I guess we are asking for bids with data rights. Is Army still telling Air Force Air Force has to pay for the data rights, Army is not interested?

General SORENSON. Sir, let me address that. As was mentioned before, in the RFP, we have requested contract line items for the vendors to basically bid the data rights and, at some point in time, the Army and the Air Force will do the business case analysis, sometime, per statute, over the next five years to make a determination is it better to proceed with contracts for logistics support or do we take those data rights, excise that particular CLIN option, buy the data rights and do organic support.

The business case analysis will be done after the award is made and the milestone C decision.

Mr. MARSHALL. The Army recognizes that Air Force has a slightly different circumstance than the Army finds itself in. Air Force has depots capable of managing this thing and has core requirements that necessitate that those depots have workload.

General SORENSON. That is why those contract line items are there to be priced in the RFP as they provide their response.

Mr. MARSHALL. Well, that is very encouraging.

Mr. Saxton.

Mr. SAXTON. The other day, when the Chief of Staff was here with the Secretary of the Air Force, they talked a little bit about the aircraft retirement issue and I was wondering if you could give us a list, just a verbal list here of the aircraft, the types of aircraft that are old and need to be retired and why they need to be retired.

General CHANDLER. Sir, there are five different systems that are involved. The B–52 is one of those. The B–52 has been a great workhorse for us. We think we can do the job with fewer of those aircraft.

We have a three-pronged approach really to the next generation long-range strike aircraft, said another way, a new bomber. One of those is to modernize the existing fleet.

One of the ways for us to do that is to decrease the size of the B–52 and use the funds remaining to modernize and continue to upgrade the existing fleet and we think that is a viable way to do business.

C–130E, you are familiar with some of the stresses that we have got on that aircraft in terms of the center wing box problem and that is primarily the reason for retirement and the fact that we don't want to AMP those airplanes either.

The F–117A has been a great airplane for us. It is first generation stealth. It is a very expensive airplane to fly. We have replacements coming online in the F–22 and if you look at what we can do with the B–2 and the F–22 combined, we think it is acceptable to let that aircraft go to the bone yard.

We hate to do it. It is a great airplane and it has served us well. I think we tend to forget that it was in the black world for a long time and we were flying it for quite a while before it was generally known that we had that aircraft.

KC–135E, I think we have been through all the issues with regard to the engine mounts and why we would like to retire the last 85 of those aircraft.

Then the U–2, again, has been a great aircraft for us. It is, again, getting to be old, difficult to maintain. Global Hawk gives us a lot more persistence when you take the person out of the cockpit. We can now get a lot more persistence than we can get with a U–2, for example.

We think we can meet the combatant commander's needs. We realize that we need to meet those needs before we start to bring the U–2 offline. So we are going to have to make the Global Hawk program work as advertised.

But those are the five systems, sir.

Mr. SAXTON. I may have missed it, but I thought you said earlier that there were a few C–5s.

General CHANDLER. I am sorry. C–5 is also a part of that. I would tell you there is a knee in the curb somewhere, as we described earlier, as we talked, about how many C–5s we need to do the job. We will provide you the list of outsized cargo.

We have got the Patriot battery in its full mode is one of those and, as the GAO described, there are some other systems that can only be hauled in that aircraft. But whether or not we need the full 111 in that program AMP'ed and RERP'ed, which is our program of record today, is going to be dependent on whether or not we can make AMP and RERP work for us the way we thought it was going to work.

Mr. SAXTON. And the chief and the secretary, also, one of them mentioned a figure, a cost figure to keep airplanes around that we are not using because they are not safe or that we don't need and

I was astounded to find out from them that they thought that figure was about $1.7 billion a year.

Can you tell us how we run up a bill like that?

General CHANDLER. Sir, that bill basically involves about 400 aircraft, I think the number is 407, to be exact.

That bill totals up storage costs, as well as the costs to keep them in storage and the inspections required and, in the meantime, it also includes the cost to fly and maintain those aircraft that we would like to retire until such time as we could retire them.

Mr. SAXTON. And I understand that, not being an aeronautical guy myself, I understand that when an airplane sits like that, you have to do things to it to maintain it, even though it never flies.

General CHANDLER. Yes, sir. Part of the language that we are dealing with right now involves inviolate storage, which means we have to be able to bring that aircraft out of storage in a certain amount of time and be able to fly it.

So not only are you paying the storage costs and the required inspections in storage to make sure that it is at that status, there is a cost avoidance issue in terms of not being able to cannibalize parts from those aircraft to keep the remainder of the fleet flying that we are talking about, also

Mr. SAXTON. Thank you.

Mr. Chairman, I have no further questions.

Mr. MARSHALL. Just following up a little bit on that.

It would be enormously helpful to us and I suspect to Air Force if this bend or knee or whatever you were talking about there, if you have an analysis that suggests that in the mix, meeting the mobility capabilities study's minimum at least, it would be better to have fewer C–5s for some reason and more C–17s, I mean, that is the kind of thing we need to know now.

We also need to know if, in fact, there are some C–5s out there, As, Bs, that for reasons we are unaware of and certainly aren't suggested by the teardown of the one C–5A, because that indicated to the fleet viability board that the C–5A fleet was fine, but for reasons that we are just not aware of at this point, that some of those really do need to be retired.

General CHANDLER. Sir, we will work with General Kane and Air Mobility Command. We owe you a list of aircraft out there, if that lists exist, and we will also go back and look at the appropriate mix.

We appreciate that question.

Mr. MARSHALL. And we may need to real quickly think about how do we establish that, in fact, these things are going to be too expensive to fix. Obviously, Air Force came in and said, "Let's retire all the C–5As" and Congress, for whatever reasons, part political, part not, I suspect, said, "Let's get IDA to look at it" and then IDA came back and said, "No, the most cost-effective thing to do here is RERP/AMP. Keep the C–5A around."

So it is very different from what Air Force wanted to do and so we may be in a position where somebody needs to be talking to somebody like IDA to say, "Hey, fellows, we are going to have to do this on a hurry up schedule here. We have got some planes that we really think ought not to be flying and we may need you to lend your voice to Congress on this subject."

I would encourage you to think along those lines.

General CHANDLER. Sure, we will take that for the record.

Mr. MARSHALL. I guess I would end by saying that we appreciate your service and your patience here today and the service of all those who managed to stay awake behind you through your testimony and then all of those who serve for us in the armed forces. God bless you all.

The meeting is adjourned.

[Whereupon, at 6:51 p.m., the subcommittee was adjourned.]

A P P E N D I X

March 7, 2007

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

MARCH 7, 2007

Opening Remarks for Chairman Solomon Ortiz
Subcommittee on Air and Land Forces
Air Force and Army Airlift & Aerial Refueling Fixed-Wing Aircraft Programs

The subcommittee will come to order.

Chairman Abercrombie has been delayed in getting back from Hawaii, so he has asked that I sit in to get the hearing started.

Today, we will receive testimony from Government Accountability Office and Congressional Research Service witnesses, plus Air Force and Army war-fighting experts about airlift and air refueling aircraft programs.

Today's hearing will focus on parts of the Department of Defense's recent mobility study and its conclusions which shaped the Air Force and Army force structure requirements for air refueling and airlift aircraft.

Over the past ten years, the United States has reduced its Cold War infrastructure, and closed two-thirds of its forward bases, yet we have increased our operational tempo of deployments.

Our aircraft platforms continue to age without replacement due to procurement shortfalls that began in the last century.

We now see the results of these challenges as we look at our aging airlift and tanker fleets of aircraft.

These aircraft, including even our newest strategic airlifter, the C-17, are getting used up far faster than we planned.

In January 2006, the Department of Defense released the Mobility Capabilities Study, or M-C-S, and they are currently conducting other airlift and tanker studies.

There are many programs and associated issues that we would like to discuss today regarding the

C-17, C-5, and C-130 airlifters; the KC-X and KC-135 tankers; and the Joint Cargo Aircraft.

To help us understand the results of the M-C-S, give insight into program issues, and the way forward for recapitalization, we have two panels of witnesses today.

For our first panel, I welcome:

- **Mr. Bill Solis, Director of Defense Capabilities and Management of the Government Accountability Office;**

- **Mr. Michael Sullivan, Director of Acquisition and Sourcing Management of the Government Accountability Office; and,**

- **Mr. Chris Bolkcom, Specialist in National Defense from the Congressional Research Service.**

Before we begin with witness opening statements, let me call on my friend, the gentleman from New Jersey and Ranking Member of the subcommittee, Mr. Saxton, for any remarks he would care to make.

[Mr Saxton makes his remarks]

United States Government Accountability Office

GAO

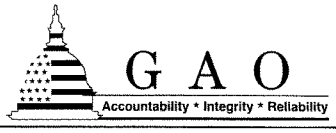
Testimony
Before the House Committee on Armed Services, Air and Land Forces Subcommittee

For Release on Delivery
Expected at 3:00 p.m. EST
Wednesday, March 7, 2007

DEFENSE ACQUISITIONS

Issues Concerning Airlift and Tanker Programs

Statement of William M. Solis, Director
Defense Capabilities and Management Issues and
Michael J. Sullivan, Director
Acquisition and Sourcing Management Issues



GAO-07-566T

March 7, 2007

GAO
Accountability·Integrity·Reliability
Highlights

Highlights of GAO-07-566T, a testimony to House Committee on Armed Services, Air and Land Forces Subcommittee

DEFENSE ACQUISITIONS

Issues Concerning Airlift and Tanker Programs

Why GAO Did This Study

The Department of Defense (DOD) has continuing efforts to modernize its airlift and tanker fleets by investing billions of dollars to modify legacy airlift systems, such as the C-5 and C-130, and procure new aircraft, such as a tanker replacement. Acquisition has been on GAO's list as a high risk area since 1990. GAO has reported that elements contributing to a sound business case for an acquisition are missing or incomplete as DOD and the services attempt to acquire new capabilities. Those elements include firm requirements, mature technologies, a knowledge-based acquisition strategy, a realistic cost estimate, and sufficient funding. Acquisition problems that include failure to limit cost growth, schedule delays, and quantity reductions persist, but fiscal realities will not allow budgets to accommodate these problems any longer.

Today's testimony addresses (1) the analyses supporting the Department of Defense's (DOD) mobility capabilities and requirements and (2) actions that are needed to improve the outcomes of weapon system acquisitions.

For this testimony, GAO drew from issued reports, containing statements of the scope and methodology used, as well as recently completed work not yet reported. GAO's work was performed in accordance with generally accepted government auditing standards.

www.gao.gov/cgi-bin/getrpt?GAO-07-566T.

To view the full product, including the scope and methodology, click on the link above. For more information, contact William M. Solis at (202) 512-8365 or solisw@gao.gov and Michael J. Sullivan at (202)-512-4841 or sullivanm@gao.gov.

What GAO Found

Past GAO reports, including two recently issued, raise concerns about the quality of analyses underpinning the programmatic decision-making surrounding DOD's airlift requirements. In September 2006, GAO issued our report (GAO-06-938) on DOD's Mobility Capabilities Study (MCS). The MCS determined that the projected mobility capabilities are adequate to achieve U.S. objectives with an acceptable level of risk during the period from fiscal years 2007 through 2013; that is, the current U.S. inventory of aircraft, ships, prepositioned assets, and other capabilities are sufficient, in conjunction with host nation support. GAO's report stated that conclusions of the MCS were based on incomplete data and inadequate modeling and metrics that did not fully measure stress on the transportation system. GAO further observed that the MCS results were incomplete, unclear, or contingent on further study, making it difficult to identify findings and evaluate evidence. It was not clear how the analyses done for the study support DOD's conclusions and GAO suggested that decision makers exercise caution in using the results of this study to make programmatic decisions. In March 2007, GAO reported (GAO-07-367R) on the lack of mandatory analyses to support a passenger and cargo capability for the new replacement refueling aircraft, the KC-X tanker. Contrary to mandatory Air Force implementing guidance, the Air Force proposed a capability without analyses identifying an associated gap, shortfall, or redundancy. GAO believes that without sound analyses, the Air Force may be at risk of spending several billion dollars unnecessarily for a capability that may not be needed to meet a gap or shortfall and made recommendations to the Secretary of Defense that included conducting the requiring analyses necessary to establish capabilities.

Successful acquisition programs make sound decisions based on critical product knowledge to ensure that program investments are getting promised returns–on time delivery, within estimated costs, and with expected capabilities. However, GAO has shown in its work that DOD practices diverge from best development practices intended to produce good outcomes and, as a result, have experienced significant cost growth and schedule delays. DOD expects to invest over $12 billion in new and improved capabilities in four airlift programs discussed in this testimony between now and 2013—C-5 Avionics Modernization Program, C-5 Reliability Enhancement and Reengining Program, C-130 Avionics Modernization Program, and the C-130J acquisition program. GAO found that all four programs failed at basic systems engineering practices to 1) fully analyze the resources needed to integrate proven commercial technologies, 2) achieve a stable design before beginning system demonstration, and 3) demonstrate the aircraft would work as required before making large production investments.

Mr. Chairman and Members of the Subcommittee:

We are pleased to be here to discuss the development of aircraft program requirements and issues related to the acquisition process. We recently issued our report on high risk areas in the federal government, which lists DOD's acquisition process as one longstanding area of concern.[1] Acquisition has been on this list since 1990. As we have reported, DOD knows what to do to achieve more successful outcomes, but finds it difficult to apply the necessary discipline and controls or assign much needed accountability. DOD has not been employing a knowledge-based development approach and business cases have not measured up. DOD has just begun piloting some corrective actions, so the proof of actual implementation may be years away. These initiatives also may not necessarily be applied to programs already under way.

DOD has continuing efforts to modernize its airlift and tanker fleets by investing billions of dollars to modify legacy airlift systems, such as the C-5 and C-130, and procure new aircraft, such as the KC-X replacement tanker. We have reported in the past that a sound business case for an acquisition contains firm requirements, mature technologies, a knowledge-based acquisition strategy, a realistic cost estimate, and sufficient funding. However, we have found many of these elements are missing or incomplete as DOD and the services attempt to acquire new capabilities. Persistent acquisition problems include failure to identify needs versus wants and to limit cost growth, schedule delays, and quantity reductions, but fiscal realities will not allow budgets to accommodate these problems any longer.

Today I will highlight for you some issues related to the analyses supporting the Department of Defense's (DOD) mobility capabilities and requirements and Mike Sullivan will discuss actions that are needed to improve the outcomes of weapon system acquisitions. For this testimony, we drew from issued reports, which contain statements of the scope and methodology used, as well as recently completed work not yet reported. Our work was performed in accordance with generally accepted government auditing standards.

[1] GAO, *High Risk Series: An Update*, GAO-07-310 (Washington, D.C.: Jan. 2007).

Summary

DOD has an mandate to deliver high-quality products to warfighters, when they need them and at a price the country can afford. However, our work shows that acquisition problems will likely persist until DOD provides a better foundation for buying the right things, the right way. This foundation begins with setting requirements that are based on adequate and complete analyses, using current operational data and updated, effective models. For the past several years, we have reported our concerns with the analyses done to support requirements and have recently issued two reports that raise concerns about the quality of analyses underpinning the programmatic decision-making surrounding DOD's airlift requirements. In September 2006, we issued our report on DOD's Mobility Capabilities Study (MCS). The MCS determined that the projected mobility capabilities are adequate to achieve U.S. objectives with an acceptable level of risk during the period from fiscal years 2007 through 2013; that is, the current U.S. inventory of aircraft, ships, prepositioned assets, and other capabilities are sufficient, in conjunction with host nation support. In our report, we stated that conclusions of the MCS were based on incomplete data and inadequate modeling and metrics that did not fully measure stress on the transportation system.[2] We further observed that, in some cases, the MCS results were incomplete, unclear, or contingent on further study, making it difficult to identify findings and evaluate evidence. It is not clear how the analyses done for the study support DOD's conclusions and we suggested that decision makers exercise caution in using the results of this study to make programmatic decisions. This week, we issued a report on the lack of mandatory analyses to support a passenger and cargo capability for the new replacement refueling aircraft, the KC-X tanker.[3] Contrary to mandatory Air Force implementing guidance, the Air Force proposed a capability without an analyses identifying an associated gap, shortfall, or redundancy. Air Force officials could not provide supporting information sufficient to explain this discrepancy between the required analyses and their proposal.

[2] GAO, *Defense Transportation: Study Limitations Raise Questions about the Adequacy and Completeness of the Mobility Capabilities Study and Report*, GAO-06-938 (Washington, D.C.: Sept. 20, 2006).

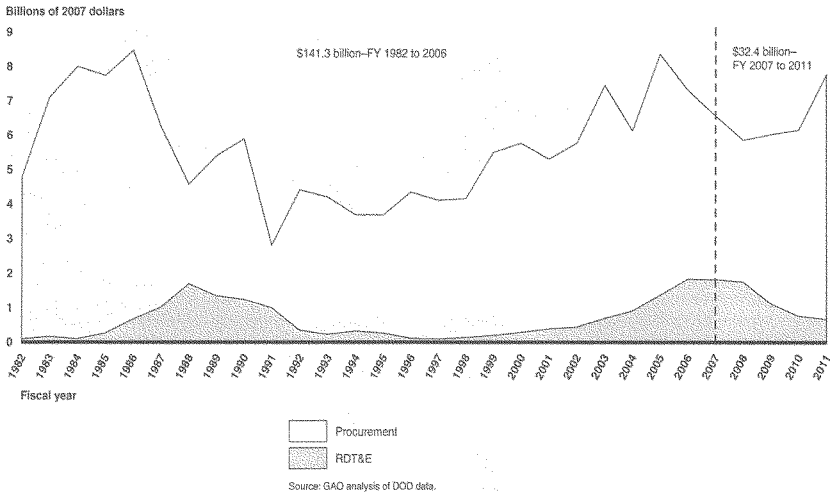
[3] GAO, *Defense Acquisitions: Air Force Decision to Include a Passenger and Cargo Capability in Its Replacement Refueling Aircraft Was Made without Required Analyses*, GAO-07-367R (Washington, D.C.: Mar. 6, 2007).

Successful acquisition programs make sound decisions based on critical product knowledge to ensure that program investments are getting promised returns—on time delivery, within estimated costs, and with expected capabilities. This is important because DOD expects to invest over $12 billion in new and improved capabilities in four airlift programs discussed in this testimony between now and 2013—the C-5 Avionics Modernization Program, C-5 Reliability Enhancement and Reengining Program, C-130 Avionics Modernization Program, and the C-130J acquisition program. These four programs have diverged from the best development practices intended to produce good outcomes and as a result have experienced significant cost growth and schedule delays. We found that all four programs failed at basic systems engineering practices to 1) fully understand the resources needed to integrate proven commercial technologies, 2) achieve a stable design before beginning system demonstration, and 3) demonstrate the aircraft would work as required before making large production investments. As a result, each has encountered significant delays in delivering capability to the field and as a group have spent $962.3 million (fiscal year 2007 dollars) more than planned for development.

Background

DOD must be capable of rapidly deploying armed forces to respond to contingency and humanitarian operations around the world. Airlift and tanker aircraft play a vital role in providing this capability. Over the past 25 years, DOD has invested almost $141 billion to develop, procure, and modify its airlift and tanker forces with an additional investment planned for fiscal years 2007 through 2011 of $32 billion. Recent annual funding levels are at the highest levels in two decades. (See figure 1.)

Figure 1: Planned and Future DOD Investments in Airlift and Tanker Fleets (1982 to 2011)



Source: GAO analysis of DOD data.

Note: Based on DOD's Fiscal Years Defense Program (2007).

In December 2005, DOD issued a report on the study of its mobility capabilities. The goal of this Mobility Capabilities Study was to identify and quantify the mobility capabilities needed to support U.S. strategic objectives into the next decade. The MCS determined that the projected mobility capabilities are adequate to achieve U.S. objectives with an acceptable level of risk during the period from fiscal years 2007 through 2013; that is, the current U.S. inventory of aircraft, ships, prepositioned assets, and other capabilities are sufficient, in conjunction with host nation support. The MCS emphasized that continued investment in the mobility system, in line with current departmental priorities and planned spending, is required to maintain these capabilities in the future. This includes, for example, fully funding Army prepositioned assets as planned and completing a planned reengineering of the C-5 aircraft.

In our previous reports concerning acquisition outcomes and best practices, we have noted the importance of matching warfighter requirements with available resources, a responsibility shared by the requirements and acquisition communities in DOD. As described in Air Force implementing guidance, there is within DOD a distinct separation between the requirements authority and acquisition authority.[4] Under this guidance, this separation requires early and continued collaboration between both communities.

Analyses Used to Determine Mobility and Tanker Capabilities Were Inadequate

Analyses done for the MCS contained methodological limitations that create concerns about the adequacy and completeness of the study and decision makers approving the KC-X tanker proposal lacked required analyses identifying need and associated risk for a passenger and cargo capability.

Mobility Capabilities Study Limitations Raise Questions about Adequacy and Completeness

While DOD used an innovative approach in conducting the study and acknowledged some methodological limitations in its report, it did not fully disclose how these limitations could affect the MCS conclusions and recommendations. In September 2006, we reported that DOD's conclusions were based, in some instances, on incomplete data and inadequate modeling and metrics that did not fully measure stress on the transportation system, and that, in some cases, MCS results were incomplete, unclear, or contingent on further study, making it difficult to identify findings and evaluate evidence. It is not clear how the analyses done for the study supported DOD's conclusions, and we suggested that decision makers exercise caution in using the results of this study to make programmatic decisions.

As measured against relevant generally accepted research standards, we identified limitations in the MCS study and report that raise questions. Among our findings

- Aspects of modeling and data were inadequate in some areas because data were lacking and some of the models used could not simulate all relevant

[4]Air Force Iinstruction 10-601, Capabilities-Based Requirements Development, ¶ 1.2 (July 31, 2006).

aspects of the missions. The report did not explain how these limitations could affect the study results or what the effect on the projected mobility capabilities might be. Relevant research standards require that models used are adequate for the intended purpose and represent a complete range of conditions, and also that data used are properly generated and complete. For example, the MCS modeled hypothetical homeland defense missions rather than missions for homeland defense demands from a well-defined and approved concept of operations for homeland defense because the specific details of the missions were still being determined, and DOD acknowledged that the data used may be incomplete. The MCS also was unable to model the flexible deterrent options/deployment order process to move units and equipment into theater due to lack of data, but the study assumed a robust use of this process, which in one scenario accounted for approximately 60 percent of the airlift prior to beginning combat operations.[5] In addition, the MCS report contains more than 80 references to the need for improved modeling, and 12 of these references call for additional data or other refinements. Additionally, the MCS modeled the year 2012 to determine the transportation capabilities needed for the years 2007 through 2013. The year 2012 did not place as much demand for mobility assets in support of smaller military operations, such as peacekeeping, as other years. However, DOD officials considered 2012—the year modeled—as "most likely" to occur and stated that statistically it was not different from other years in the 2007 to 2013 period even though the number of smaller military operations is the least of any of the years reviewed.

As I mentioned, we have reported before on the lack of data available for analysis that could benefit decision makers. In September 2005, we reported that the Air Force captured data on short tons transported but did not systematically collect and analyze information on operational factors, such as weather and runway length, that impact how much can be loaded on individual missions.[6] Therefore, Air Force officials could not know how often it met its secondary goal to use aircraft capacity as efficiently as possible. Without this information, Air Mobility Command officials do not know the extent to which opportunities exist to use aircraft more efficiently and whether operational tempo, cost, and wear

[5] Deployment orders are issued to deploy specific capabilities as commitment decisions are made, rather than a deploying unit's full set of equipment or capabilities. Flexible Deterrent Options (FDOs) provide escalation options during the initial stages of a conflict. FDOs are employed under certain conditions to deter adversarial actions contrary to U.S. interests.

[6] GAO, *Defense Transportation: Air Mobility Command Needs to Collect and Analyze Better Data to Assess Aircraft Utilization*. GAO-05-819 (Washington, D.C.: Sept. 29, 2005).

and tear on aircraft could be reduced. In addition, DOD officials do not have the benefit of such analysis to determine future airlift requirements for planning purposes.

- While the MCS concluded that combined U.S. and host nation transportation assets were adequate to meet U.S. objectives with acceptable risk, the report, in describing the use of warfighting metrics in its analyses, does not provide a clear understanding of the direct relationship of warfighting objectives to transportation capabilities. Acknowledging this point, the report stated that further analysis is required to understand the operational impact of increased or decreased strategic lift on achieving warfighting objectives. Relevant generally accepted research standards require that conclusions be supported by analyses. The use of warfighting metrics is a measure to determine whether combat tasks, such as achieving air superiority, are achieved. However, they do not measure whether appropriate personnel, supplies, and equipment arrived in accordance with timelines. As a result, we could not determine how the study concluded that planned transportation assets were adequate because the study did not contain a transparent analysis to support its conclusion or a clear roadmap in the report to help decision makers understand what that conclusion meant in terms of type and number of mobility assets needed. Previous DOD mobility studies primarily used mobility metrics, which measured success in terms of tons of equipment and personnel moved per day to accomplish military objectives. The use of both warfighting and mobility metrics to measure success would allow decision makers to know whether combat tasks were achieved and how much strategic transportation is needed to accomplish those tasks.
- In some cases, the MCS results were incomplete, unclear, or contingent on further study, making it difficult to identify findings and evaluate evidence. Relevant research standards require results to be presented in a complete, accurate, and relevant manner. For example, the report contains several recommendations for further studies and assessments, five of which are under way. However, at the time of our report, DOD had no plans to report the effect of these studies on the MCS results after the studies are complete. In addition, the report contains qualified information that is not presented clearly, such as varying assessments of intratheater assets in three different places in the report. The lack of clarity and conciseness of the reported results can limit the study's usefulness to decision makers and stakeholders.

The MCS report also made recommendations to conduct further studies, develop plans and strategies, and improve data collection and mobility models. In fact, DOD officials told us at the time that a Mobility Capabilities Study-2006 was underway, as well as studies on intratheater

lift, aerial refueling, and other mobility issues. However, unless DOD addresses the concerns I just outlined for you, decision makers may be unable to clearly understand the operational implications of the study results and make fully informed programmatic investment decisions concerning mobility capabilities. Also, some of the underlying assumptions used in the MCS have now changed significantly, such as the assumption that Army prepositioned equipment is in place and fully funded, which will no longer be the case. Therefore, the MCS analyses and results, which would be the starting point for any new studies, may no longer be relevant.

Mandatory Analyses Done to Support Passenger and Cargo Capabilities in the KC-X Tanker Were Incomplete

Mandatory Air Force policy requires Air Force organizations to use a formal capabilities-based approach to identify, evaluate, develop, field, and sustain capabilities that compete for limited resources. Contrary to mandatory Air Force implementing guidance, however, the Air Force proposal for a replacement refueling aircraft, the KC-X tanker, included a passenger and cargo capability without analyses identifying an associated gap, shortfall, or redundant capability. According to mandatory Air Force implementing guidance, analyses supporting the decision-making process should assess a capability based on the effects it seeks to generate and the associated operational risk of not having it. In this case, the supporting analyses determined neither need nor risk with regard to a passenger and cargo capability. Air Force officials could not provide supporting information sufficient to explain this discrepancy between the analyses and their proposal. Without sound analyses, the Air Force may be at risk of spending several billion dollars unnecessarily for a capability that may not be needed to meet a gap or shortfall.

Military decision makers approved the passenger and cargo capability as a requirement although supporting analyses identified no need or associated risk. Mandatory Air Force implementing guidance states that senior leaders must use the documented results of analyses to confirm the identified capability requirement. The Air Force Requirements for Operational Capabilities Council validated, and the Chairman of the Joint Chiefs of Staff's Joint Requirements Oversight Council validated and approved, KCX tanker proposal with a passenger and cargo capability. Following the approvals of the oversight councils, DOD plans to solicit proposals and award a contract for the KC-X tanker late in fiscal year 2007. At this time, the Under Secretary of Defense for Acquisition,

Technology and Logistics, who supervises DOD acquisition,[7] must certify, as Milestone Decision Authority for the proposed tanker acquisition, that, among other things, the Joint Requirements Oversight Council has accomplished its statutory duties and that the proposed program is in compliance with DOD policies and regulations.[8] However, the absence of analyses identifying a capability gap, shortfall, or redundancy, and the Joint Requirements Oversight Council approval of the program without these analyses is contrary to policy and implementing guidance and could preclude certification of the program by the Under Secretary. Absent this certification, the acquisition program for the KC-X tanker cannot begin.[9]

In this report, we recommended that the Secretary of Defense direct the Secretary of the Air Force to accomplish the required analyses to evaluate the proposed passenger and cargo capability so as to determine if there is a gap, shortfall, or redundancy, assess the associated risk, and then submit such documentation to the Joint Requirements Oversight Council for validation. We also recommended that, once these analyses are completed, the Secretary of Defense direct the Chairman, Joint Chiefs of Staff, to formally notify the Under Secretary of Defense for Acquisition, Technology and Logistics that such analyses have been completed as required prior to certification of the program to Congress.

DOD disagreed with our first recommendation to accomplish the required analyses. In its comments, DOD stated that through the Joint Capabilities Integration and Development System process, the Air Force presented analysis and rationale for the passenger and cargo capability. DOD further stated that its Joint Requirements Oversight Council and the Air Force concluded that the analysis was sufficient justification for the capability and the Joint Requirements Oversight Council validated the requirement. However, as our report points out, DOD did not perform the required analyses and failed to identify a gap, shortfall, or redundancy for the passenger and cargo capability. Considering the requirement for analyses that separate needs from wants and the risk of unnecessary expenditures in this multi-year multi-billion dollar acquisition program, we continue to believe that our recommendation has merit and that the analyses required

[7] 10 U.S.C. §133 (b)(1) (2006).

[8] 10 U.S.C. § 2366a § (a)(7) and (a)(10) (2006).

[9] 10 U.S.C. § 2366a (a) (2006) and Department of Defense Instruction 5000.2, Operation of the Defense Acquisition System, ¶ 3.7.1.2 (May 12, 2003).

by mandatory guidance are necessary to inform the decision that begins the acquisition.

DOD agreed with our recommendation to formally notify the Under Secretary of Defense for Acquisition, Technology and Logistics once the required analyses have been completed. However, DOD did not offer assurance that the Air Force would accomplish the required analyses that evaluate the proposed passenger and cargo capability as we recommended, and then submit such documentation to the Joint Requirements Oversight Council for validation. We believe that the time it could take to accomplish the required analyses and submit the analyses for revalidation by the Joint Requirements Oversight Council, could delay the Under Secretary's certification until just prior to the Milestone B decision, and may frustrate the congressional oversight that would otherwise be permitted under section 2366a.[10] We believe that in a program committing $120 billion over several decades, the review confirming that needs are justified should occur as far in advance of program initiation as possible.

In light of the DOD comments on our report, we have put forward a matter for congressional consideration. Specifically, we are suggesting that Congress consider requiring

- in addition to the certification described by section 2366a of title 10, United States Code, the Under Secretary of Defense for Acquisitions, Technology and Logistics make a specific certification that the Air Force employed a sound, traceable, and repeatable process producing analyses that determined if there is a gap, shortfall, or redundancy and assessed the associated risk with regard to passenger and cargo capability for the KC-135 Recapitalization, and
- consistent with service policy, these analyses are made available to the Joint Requirements Oversight Council prior to the Under Secretary's certification of the program pursuant to section 2366a of title 10, United States Code.

The Air Force intends to replace the fleet of more than 500 tankers and the Mobility Capabilities Study of 2005 set the requirement for tankers at a

[10] In respect to acquisition programs, milestones are established in DODI 5000.2 and are the points where a recommendation is made and approval is sought regarding starting or continuing a program into the next phase. In this instance, the decision at Milestone B is to enter into the system development and demonstration phase pursuant to guidance prescribed by the Secretary of Defense and to begin the acquisition program.

range of between 520 to 640 aircraft. Replacement of this fleet is estimated to cost a minimum of $72 billion. Compared to a refueling aircraft without a passenger and cargo capability, the inclusion of the capability is estimated, according to the Analysis of Alternatives done for the KC-X tanker, to increase costs by 6 percent. The Joint Requirements Oversight Council approval of the proposal of a replacement tanker aircraft with the passenger and cargo capability, without an established need supported by analyses and without an analysis of risk, could result in an unnecessary expenditure of at least $4.3 billion by our estimates.

In our August 1996 report, U.S. Combat Air Power: Aging Refueling Aircraft Are Costly to Maintain and Operate, we recommended consideration of a dual-use aircraft that could conduct both aerial refueling and airlift operations as a replacement for the KC-135.[11] We recommended that the Secretary of Defense require that future studies and analyses of replacement airlift and tanker aircraft consider accomplishing the missions with a dual-use aircraft. DOD only partially concurred with this recommendation, expressing concern at that time about how a dual-use aircraft would be used and whether one mission area might be degraded to accomplish the second mission. The lack of analyses done to support the current proposal still does not give DOD officials information about how a dual-use aircraft would be used or whether the primary mission of aerial refueling would be degraded.

Employing Best Practices Can Shape Better Program Outcomes for DOD's Airlift Acquisitions

Over the past 25 years, DOD has invested more than $140 billion on its airlift and tanker forces. Success for acquisitions requires sound decisions to ensure that program investments are getting promised returns—on time deliveries to the field, predictable costs, and sufficient capability. We have reviewed four major airlift programs and found they did not meet delivery schedules and were over cost. These programs did not involve huge technological leaps but presented significant design challenges to integrate new systems into the older aircraft. A consistent problem plaguing the programs was an insufficient job of analyzing the requirements and resources at the programs' outset, a key systems engineering activity. The divergence between these programs' experience and best product development practices are contributing factors to their outcomes.

[11] GAO, *U.S. Combat Air Power: Aging Refueling Aircraft Are Costly to Maintain and Operate. GAO / NSIAD-96-160,* Washington D.C.: (August 8, 1996).

Outcomes of Certain Airlift Programs

We assessed four airlift programs as part of our annual assessment of DOD's major acquisition programs and each has experienced cost growth and schedule delays. Despite being based largely on low technological risks involving mature systems, these programs have failed to deliver on the business cases that justified their initial investment. DOD estimates it will need over $12 billion between 2007 and 2013 to develop, modify, or procure these aircraft. The specific airlift programs include

- The Air Force's C-5 Avionics Modernization Program (AMP) is intended to improve the mission capability rate and transport capabilities, as well as reduce ownership costs by incorporating global air traffic management, navigation and safety equipment, modern digital equipment, and an all-weather flight control system.
- The Air Force's C-5 Reliability Enhancement and Reengining Program (RERP) is intended to enhance the reliability, maintainability, and availability of the C-5 through engine replacements and modifications to subsystems such as the electrical and fuel subsystems. The C-5 aircraft will require installation of the AMP capabilities before the aircraft engines can be replaced.
- The Air Force's C-130 Avionics Modernization Program (AMP) is intended to standardize the cockpit configurations and avionics of different models of C-130 aircraft by providing such things as communication and navigational system upgrades, terrain avoidance and warning system, dual flight management systems, and new data links.
- The C-130J, the latest model of the C-130 aircraft series, is designed primarily for the transport of cargo and personnel within a theater of operation. Variants of the C-130J are being acquired by the Air Force (e.g., Air Mobility Command and Special Operations Command), Marine Corps, and Coast Guard.

Each of these programs has experienced problems that have impacted cost and schedule (see table 1). The net effect of the outcomes to date is that DOD is now paying more to modify or acquire these systems and the warfighter has had to wait longer than initially planned before new capability is delivered. For example, the Air Force now expects by 2011 to have completed the modification of about 135 fewer C-130 airlift aircraft when compared to its plan 2 years ago.

Table 1: Outcomes of Selected Airlift Programs (as of fiscal year 2006) (FY 2007 dollars in millions)

Weapon Systems	Latest Development Cost	Development Cost Change Since Start	Program Acquisition Unit Cost Increases	Program schedule delays
C-5 AMP	$432.1	17 percent	86 percent	Initial operational capability delayed about 1 year
C-5 RERP	$1,342.9	(16 percent)	10 percent	Initial operational capability delayed over 2 years
C-130 AMP	$1,627.8	128 percent	43 percent	First production delivery delayed over 2 years
C-130J	$262.9	Not applicable	26 percent	First production delivery delayed about 1 ½ years

Source: GAO analysis of DOD data

Note: C-130J development costs have increased by 2,347 percent but this includes costs to correct deficiencies and add new capabilities.

We anticipate there could be additional cost increases and schedule delays reported in the future. For example, the C-130 AMP fiscal year 2008 budget indicates that the total program costs have increased almost $700 million and planned quantities have been reduced from 434 units to 268 units—nearly doubling the program acquisition unit costs since December 2005. The program recently notified Congress of a critical Nunn-McCurdy breach concerning its unit cost increases.[12] The budget also shows the Air Force plans to fund the modification of 110 C-5 aircraft with AMP improvements instead of 59 aircraft as stated in last year's budget. According to C-5 RERP program officials, total program costs are expected to increase due to costs with the engine, pylons, and labor.

Airlift Programs Have Not Captured Critical Product Knowledge at Key Decision Points

Over the last several years, we have undertaken a body of work that examines weapon acquisition issues from the perspective that draws upon lessons learned from best commercial practices for product development. We have found that a key to successful product development is the formulation of a business case that provides demonstrated evidence that (1) the warfighter need exists and that it can best be met with the chosen

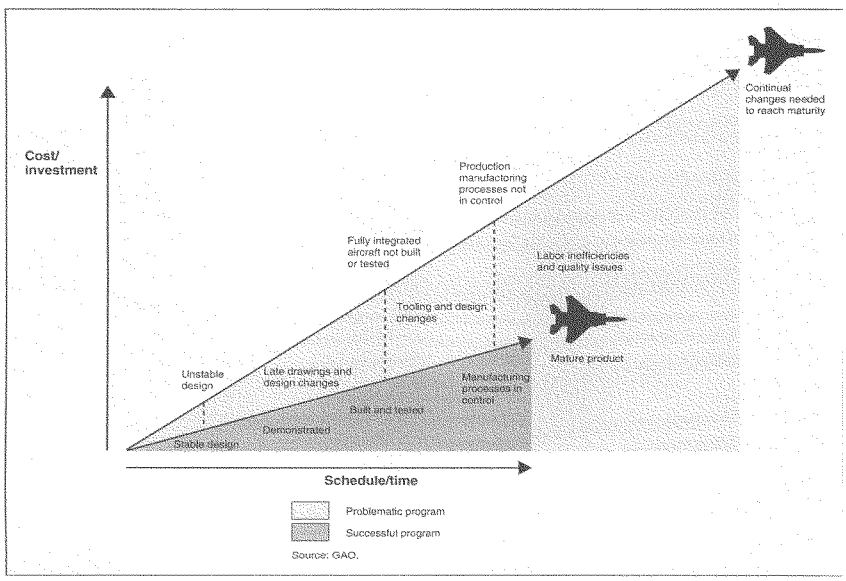
[12] 10 U.S.C. § 2433 establishes the requirement for unit cost reports if certain thresholds for program costs are exceeded (known as unit cost or Nunn-McCurdy breaches). DOD is required to report to Congress and, if applicable, certify the program to Congress.

concept and (2) the concept can be developed and produced within existing resources—including proven technologies, design knowledge, adequate funding, and adequate time to deliver the product when needed. The business case is then executed through an acquisition process that is anchored in knowledge. Leading firms ensure a high level of knowledge is achieved at key junctures in development, characterized as knowledge points described below:

- Knowledge point 1: A match must be made between the customer's needs and the developer's available resources—technology, engineering knowledge, time, and funding—before a program starts.
- Knowledge point 2: The product's design must be stable and must meet performance requirements before beginning system demonstration. This is primarily evidenced by the release of 90 percent of the design drawings by the critical design review and successful system integration.
- Knowledge point 3: The product must be producible within cost, schedule, and quality targets and demonstrated to work as intended before production begins.

There is a synergy in this process, as the attainment of each successive knowledge point builds on the preceding one. We have found that if the knowledge based acquisition concept is not applied, a cascade of negative effects becomes magnified in the product development and production phases of an acquisition program leading to cost increases and schedule delays, poor product quality and reliability, and delays in getting new capability to the warfighter (see figure 2).

Figure 2: Illustration of Cascading Negative Effects of Failing to Follow a Knowledge-Based Acquisition Approach



DOD programs often do not capture sufficient knowledge by critical junctures but decide to move forward regardless. The airlift systems we reviewed were not immune to this condition and have experienced unnecessary cost growth and schedule delays as a result. While we do not have in-depth knowledge on the specific details for these programs, we do have a broad understanding of the basic underpinnings that led to the problems. All of the programs were considered low technological risks by DOD because they planned to rely extensively on proven commercial and modified off the shelf technology for its new capabilities. However, these acquisitions have turned out to be more difficult than expected. The programs did not follow sound systems engineering practices for analyzing

requirements and for ensuring a well integrated design at the right time. As a result, each program has encountered some difficulty in achieving design and production maturity as the program moved forward. Some of the causes to problems encountered include

- Failing to fully analyze the resources needed to integrate proven commercial technologies and subsystems into a military system before initiating development.
- Not achieving a stable design before beginning system demonstration phase resulting in costly design changes and rework.
- Failing to demonstrate the aircraft would work as required before making large production investments.

In all these instances where appropriate knowledge was not captured before moving forward, the impact has resulted in a predictable need for additional resources as shown below in specific airlift programs.

C-5 AMP

The C-5 AMP entered production without demonstrating that the system worked as intended and was reliable. The program entered production just 2 months after flight testing started and ran into significant design problems while trying to complete development. Problems uncovered after flight test began required modifications to the aircraft design which increased by 50 percent the number of engineering drawings needed for the system. Addressing these problems delayed the initial operational capability by a year and contributed to the significant growth in the program's unit costs. Even today, 4 years after production was initiated, performance concerns remain with the C-5 AMP. The Director of Operational Test and Evaluation recently reported that the C-5 AMP is not operationally suitable because of high component failure rates, inadequate diagnostics systems, and low reliability rates.

C-5 RERP

The C-5 RERP did not demonstrate design stability before entering the system demonstration phase which resulted in rework and schedule delays. At the time the program entered system demonstration, program officials believed that they had released 90 percent of the design drawings but had not successfully demonstrated that the subsystems could be integrated onto the C-5 aircraft. During system integration activities the program found that the "pylon/thrust reverser" had to be redesigned to address overweight conditions and safety concerns. The program's design efforts have also been hampered by the fact that its success is dependent upon the success of the C-5 AMP program. Presently, according to test officials, the C-5 AMP design is not mature enough to provide a baseline design for the RERP efforts. These design issues have contributed to an

increase in costs and a 2-year delay in delivering an initial operational capability.

C-130 AMP

The C-130 AMP began development in 2001 without a clear understanding of the resources needed to integrate proven commercial technologies into a military system. According to the program office, they clearly underestimated the complexity of the engineering efforts that were needed to modify the different models of the C-130. At the critical design review held in 2005—the point that the design is expected to be stable and ready to begin the system demonstration phase—the program had not proven that the subsystems and components could be successfully integrated into the product.Upon integrating the new avionics into the test aircraft, program officials realized that it had significantly underestimated (by 400 percent) the amount of wiring and the number of harnesses and brackets needed for the installation. As a result, the design had to be reworked, delaying the delivery of the test aircraft and increasing costs.

C-130J

The Air Force procured the C-130J without assurances that the aircraft would work as intended. Program officials believed the design was mature when procurement began in 1996, largely because the C-130J evolved from earlier models and was offered as a commercial item[13]. However, the C-130J has encountered numerous deficiencies that had to be corrected in order to meet the minimum warfighter requirements delaying the initial aircraft delivery to the warfighter by about 1.5 years. DOD testing officials still report performance issues with the aircraft resulting in it being rated as partially mission capable. The performance issues involve the aircraft's ability to meet its airdrop operations requirements, its effectiveness in non-permissive threat environments, and maintainability issues. Program officials plan to address the deficiencies as part of a C-130J modernization effort.

Conclusion

As we said at the beginning, our work shows that acquisition problems will likely persist until DOD provides a better foundation for buying the right things the right way. This involves making tough tradeoff decisions as to which programs should be pursued, and, more importantly, not pursued, making sure programs are executable, establishing and locking in needed requirements before programs are ever started, and making it clear who is

[13] In October 2006, the program completed the transition to a non-commercial negotiated contract.

responsible for what and holding people accountable when these responsibilities are not fulfilled. Recognizing this, DOD has tried to embrace best practices in its policies, as well as taking many other actions. However, DOD still has trouble distinguishing between wants and needs. Because of our concerns about the analyses done for both the MCS, which has broad implications for DOD's mobility needs, and the KC-X tanker requirements, we would urge Congress and other decision makers to exercise caution when making airlift and tanker investment decisions.

DOD will continue to face challenges in modernizing its forces with new demands on the federal dollar created by changing world conditions. Consequently, it is incumbent upon DOD to find and adopt best product development practices that can allow it to manage its weapon system program in the most efficient and effective way. Success over the long term will depend on following knowledge-based acquisition practices as well as DOD leadership's commitment to improving outcomes.

The four acquisition cases we cite in this testimony are not atypical for all programs. Even with no major technological invention necessary to meet the warfighters needs in these cases, acquisition outcomes are not good. There are consequences to these outcomes. The warfighter does not receive needed capability on time and the Department and Congress must spend additional unplanned money to correct mistakes—an expense they can ill afford. A knowledge-based product development process steeped in best practices from systems engineering can solve many of these problems before they start. DOD knows how to do this and, in fact, informs its acquisition policy with systems engineering rules. It should redouble its efforts to drive these policies into practice.

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

Contact and Staff Acknowledgements

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Matthew Lea, Oscar Mardis, Sean Merrill, Karen Thornton, and Steve Woods.

Related GAO Products

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HOUSE ARMED SERVICES COMMITTEE

STATEMENT OF

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BEFORE THE

HOUSE ARMED SERVICES COMMITTEE
AIR & LAND FORCES SUBCOMMITTEE

HEARING ON AIR FORCE AND ARMY AIRLIFT AND AERIAL RE-FUELING FIXED-WING AIRCRAFT PROGRAMS

MARCH 7, 2007

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HOUSE ARMED SERVICES COMMITTEE

Mr. Chairman, distinguished members of the subcommittee, thank you for inviting me to speak with you today about Army and Air Force fixed-wing airlift and aerial refueling programs. As requested, I will address the potential oversight issues that these programs present for Congress that might be addressed during the current or future legislative cycles.

Taken as a whole, the programs you wish to examine in this hearing could represent more than $3 billion in FY08 and $23 billion over the Future Years Defense Plan. The macro-level questions these programs raise for Congress are:

- How sustainable are these investment plans considering increasing cost of personnel, plans to add almost 100,000 soldiers and marines to the active force, and cost growth in major weapon programs of up to 300%?

- Considering the large sums to be invested, and the pressures to constrain such expenditures, are these programs being considered holistically?
  - Are these airlift and aerial refueling programs being developed, planned and executed in a joint, interdependent way that considers all the potentially overlapping mission areas (e.g., aerial refueling, long-range airlift, intra-theater airlift) ?
  - will this result in the most cost effective means of satisfying the warfighter's requirement?

With these questions as a backdrop, the programs you requested I examine can be grouped into three overlapping categories:

1) Tanker recapitalization

2) Strategic, long-range airlift

3) Intra-theater airlift.

Issue 1: Tanker Recapitalization

FY 2002 DOD Appropriations Act (P.L. 107-117) Section 8159 provided the Air Force with statutory authority to begin a long anticipated recapitalization of the KC-135 fleet by leasing 100 Boeing KC-767 aircraft. This pilot program proved controversial, and tanker recapitalization was postponed following legislative action in the 107th Congress, 2nd Session. Many argued that tankers should be procured, not leased, and that the procurement contract should be let on a competitive basis.

The KC-135 recapitalization process appeared to be on-track in September 2006, when the Air Force's Aeronautical Systems Center (ASC) released to industry a draft Request for Proposal (RFP) for the KC-X program. The Boeing Company and a team composed of Northrop Grumman and Airbus have stated they will compete for this contract.[1]

Some in industry questioned the fairness of some of the draft RFP's conditions, and the

[1] Airbus is a subsidiary of the European Aeronautic, Defense and Space Company (EADS). For simplicity and ease of presentation the term "Airbus" will be used.

document was modified to address industry concerns, and re-released on December 15, 2006. At the time, Air Force officials called the RFP a "full and open, best value competition for the KC-X Program."[2] Objections to this version of the draft RFP were voiced, however, and revisions to this document were again considered. A final version of the RFP was re-issued on January 30, 2007, reportedly unchanged from the December 2006 version.[3]

Much is at stake in this competition. Aerial refueling is seen as a foundation of U.S. military power projection capability. The winner of the KC-X competition is to supply up to 179 new tankers over 15 years for a total estimated value of $30 billion to $40 billion. The winner of this competition also may enjoy a significant advantage in winning two potential follow-on tanker contracts. Three questions appear to dominate Congressional oversight of DoD's proposed aerial refueling recapitalization:

1) It is fair?

2) Is it affordable?

3) Will it produce what is needed?

Is it fair?

Over the past six months, there has been much dialogue in the media that the first draft of the tanker RFP was biased toward the capabilities apparent in the KC-767. Close review of this RFP is understandable in light of the controversy surrounding past tanker recapitalization efforts. It is important to note within this context, that the driving force behind DoD's weapon acquisition system is designed to be warfighter requirements, not what is most profitable to company x or company y. Northrop Grumman and Airbus reportedly complained that the original KC-X RFP did not adequately address how the candidate aircraft's airlift capability would be evaluated, and they feared that the Air Force might not look upon the airlift capabilities of their aircraft (the larger KC-30) as favorably as it should.

In the absence of detailed airlift evaluation information, however, Airbus could have offered a smaller aircraft, such as its A300/A310 class, which it might believe corresponded more closely to Air Force requirements.[4] Similarly, if Boeing believed the Air Force desired a larger aircraft with more airlift capability, it could have conceivably offered its 777 aircraft.

Reduced demand of defense-unique systems and the resulting consolidation of the defense industrial base has frequently reduced the number of companies available to provide

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[2] MEMORANDUM FOR INDUSTRY. SUBJECT: Executive Summary to the KC-X Program Draft Request for Proposal (dRFP) FA8625-07-R-6470.

[3] Carlo Munoz. "Air Force Nixes Criteria Change for Airlift Final Tanker RFP." *Inside the Air Force.* February 2, 2007.

[4] The last A300/A310 class aircraft are estimated to be produced in July 2007. The A300/A310 production line is currently in the process of being terminated. However, if Airbus believed that a medium sized tanker was more compatible with Air Force requirements and therefore more competitive than a larger A330-class aircraft, Airbus could have taken steps to keep the line open so this aircraft could compete in the KC-X program. A comparison of these aircraft can be found in Appendix I.

a given defense article, which adversely affects competition. Therefore, some compromise between a warfighter's "perfect world" requirements and real world industrial capabilities is inevitable. However, substantially modifying warfighter requirements or Key Performance Parameters (KPPs) to jibe with what industry wants to offer, would appear to reflect an imbalance between perfect world requirements and real world capabilities.

After an initial review, CRS found that *as DoD defines its tanker requirement*, there appears to be nothing obvious in the KC-X RFP or the supporting System Requirements Document (SRD) that would inherently bias the contract award in favor of any platform that could be offered by the competitors. The SRD makes clear, however, that the aircraft's primary mission is refueling DoD and allied aircraft with the flying boom mechanism. Any passenger or cargo carrying capability is deemed a "secondary mission." The SRD does contain a KPP for airlift, but it provides little substantive detail. Thus, if they were to lose the competition, the company offering the aircraft with greater airlift capability (the Northrop Grumman/Airbus team) could, conceivably, argue that the competition is still biased toward the smaller KC-767, which has less airlift capability, and might be offered at a lower price than the KC-30. If this scenario does occur, Northrop Grumman's arguments could be undercut by recent media reports stating that Northrop and Airbus find the RFP to be fair and responsive to their expressed concerns.

One of the functions of the Government Accountability Office (GAO) is to adjudicate contract award protests, such as the one recently lodged by Sikorsky and Lockheed Martin regarding the Air Force's award of its CSAR-X contract to Boeing. This agency may have useful observations on this matter.

Is it affordable?

DoD's Aerial Refueling Analysis of Alternatives (AR AOA) found that purchasing new commercially-derived tankers was the most cost effective means of *initially* recapitalizing the fleet.[5] This conclusion appears to be widely shared among defense analysts. However, this course of action is also capital intensive when compared with other potential courses of action, and the AR AOA noted that "affordability (annual budget outlays)" was an important factor that should "drive the acquisition schedule for tanker recapitalization."[6]

At one time, the KC-X program was described as a 540-aircraft effort. The recent Air Force description of the 179-aircraft KC-X program, however, portrays it as the first of three potential efforts – followed by the KC-Y and KC-Z, which combined, would add up to approximately 540 new tanker aircraft. This new conceptual framework may indicate implicit Air Force recognition that 540 new aircraft are likely unaffordable: Air Force staff have described the KC-Y and KC-Z programs as budgetary "off ramps."[7] Therefore, Air Force leaders might conceivably be more receptive to Congressional or DoD direction on other potential recapitalization options for the KC-Y and KC-Z programs.

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[5] KC-135 Recapitalization Analysis of Alternatives (AoA). Briefing to Congress. January 26-27, 2006. U.S. Department of Defense (USD AT&L).

[6] *Ibid.* p.5.

[7] Meeting between CRS and SAF/AQQ April 4, 2006, and follow-on interviews.

The 2004 Defense Science Board (DSB) Task Force on Aerial Refueling Requirements was an early proponent of examining less capital-intensive recapitalization options. The DSB recommended that DoD give "serious consideration" to purchasing surplus commercial aircraft such as the DC-10, re-engining some fraction of the KC-135E fleet, and expanding its use of commercial Fee-For-Service aerial refueling (FFS AR).

The Air Force has consistently argued against re-engining KC-135Es and purchasing surplus commercial aircraft. However, the AR AOA appears to agree with the DSB – although with distinct caveats – that purchasing used aircraft may merit additional study. The AR AOA found that purchasing used aircraft as tankers is "generally not as cost effective" (as purchasing new aircraft), but "...close enough in estimated cost to not exclude it from competition."[8] Surplus DC-10 aircraft, in particular, might offer attractive means of acquiring aerial refueling capabilities for less money up-front, and since the Air Force already operates KC-10 aircraft, significant additional investments may not be required in operations, maintenance, and supply.

Similarly, the AR AOA did not rule out re-engining some number of KC-135Es. The study found that re-engining the "E" models was "not a favorable return on investment unless operated into late 2030s."[9] In an earlier study, the Air Force concluded that the KC-135E fleet is "structurally viable until 2040."[10] A 2005 Air Force Study estimated, with numerous caveats, that KC-135E aircraft upgraded to the "R" configuration would remain viable until 2030.[11] When trying to weigh these various projections of the likely lifespan of KC-135s, it may be useful to review the findings of a third party. The Defense Science Board found that KC-135 corrosion problems (a major determinant of maintenance costs and life span) were more manageable than Air Force statements led some to believe, and that current and projected KC-135 operations and support costs were also less than Air Force projections. If the DSB is correct, this may lend credence to a longer life-span for KC-135 aircraft.

For FY08, the Air Force proposes to retire the final 85 KC-135E aircraft in its inventory, in essence, giving Congress one last opportunity to assess the pros and cons of investing approximately $45 million per aircraft to re-engine some number of "E" models. If Congress believed that the Air Force's aerial refueling budget was unsustainable, re-engining 10 KC-135E aircraft for $450 million and operate them until 2040 might appear more favorable than acquiring some number of new tankers at a procurement cost of $120 - $150 million each.

The KC-X RFP, "Part B" addresses Fee-for-Service aerial refueling (FFS AR), but many have questioned the strength of the Air Force's commitment to this recapitalization approach.[12] At one point the Air Force planned to complete a FFS AR Business Case Analysis (BCA) in December 2006, and to let an RFP in January 2007 "if merited." (A CRS

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[8] AOA Briefing to Congress. *OpCit.*

[9] AOA Briefing to Congress. *OpCit.*

[10] *KC-135 Economic Service Life Study.* Technical Report. February 9, 2001.

[11] *KC-135 Assessment Report.* Air Force Fleet Viability Board. Wright-Patterson AFB. September 2005.

[12] CRS interviews with congressional staff, Air Force personnel, industry representatives, and defense journalists. (October 2006 to February 2007).

assessment of the proposed BCA methodology and assumptions can be found in Appendix 2 to this statement.) The current status of FFS AR is unclear.

Will DoD's plans produce what is needed?

It is difficult to objectively evaluate DoD's approach to recapitalizing the aerial refueling fleet, because there is no current or clear tanker requirement study. The last comprehensive tanker requirement study performed by DoD was the Tanker Requirements Study 2005, or TRS-05, which was completed in 2001. TRS-05 concluded that to meet the National Military Strategy, DoD required 500-600 KC-135R -equivalents, with an 85% Mission Capable Rate, and 900-1,000 aircrews, for a crew ratio of 1.66 crews per aircraft to 1.92 aircrews per aircraft. The Mobility Capabilities Study reportedly recommended the acquisition of 520 - 640 KC-135R model equivalents.[13]

Because DoD's last tanker requirements study is outdated, and because subsequent analyses failed, for many, to provide increased insight into tanker and airlift requirements, many significant acquisition and force structure questions remain unclear. One question was alluded to earlier in this testimony: "how much airlift capability should the aerial refueling fleet provide?"

It appears that some within DoD believe that the KC-X program should provide for more airlift capability than it currently does. Last spring, DoD's top military transportation commanders expressed a strong preference for a multi-role tanker. Gen. Norton Schwartz, Commander U.S. Transportation Command (TRANSCOM) testified that

> What we need is a multi-mission tanker that can do both boom and basket refueling, that can do passenger lift, some cargo lift, and have defensive systems that allow the airplane to go wherever we need to take it....if we're going to war with Iran or Korea or over Taiwan or a major scenario, the first 15 to 30 days are going to be air refueling intensive. But what I'm talking about is the global war on terrorism, sir, for the next 15 or 20 or 25 years. That is not an air refueling intensive scenario and that's why a multi-mission airplane to me makes sense.[14]

The Defense Science Board agreed with Gen. Schwartz's opinion on refueling requirements and the availability of tankers to provide airlift missions. "The major driver for future aerial refueling needs is the number and type of nearly simultaneous "major" operations. Demands on aerial refueling are particularly stressed when time is of the essence for the mission and when local infrastructure is immature."[15]

The amount of airlift ultimately to be provided by the tanker fleet could have important implications for other programs under this subcommittee's purview. The Air Force's 59 KC-10 *Extender* aerial refueling aircraft currently represent approximately 3% of DoD's organic

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[13] LtCol Brian Jonasen. "KC-135 Tanker Replacement (KC-X) Program. SAF/AQQM. FY08 Staffer Brief. February 2007.

[14] "Senate Armed Services Subcommittee on Seapower Holds Hearing on FY2007 Budget: Transportation Command." *CQ Congressional Transcripts*. April 4, 2006

[15] Defense Science Board Task Force on Aerial Refueling Requirements. Office of the Under Secretary of Defense For Acquisition, Technology, and Logistics. May 2004. p. vi.

airlift capability. The procurement of larger KC-X aircraft could increase the percentage of airlift capacity provided by the tanker fleet, and could potentially reduce the number of dedicated airlifters such as C-5s and C-17s. The procurement of smaller KC-X aircraft could potentially have the opposite effect. Gen. Schwartz testified to the relationship between the amount of airlift provided by tankers and the strategic airlift fleet: "If I had an airplane that could carry passengers there with defensive systems, like a new tanker, I would use that instead, and we would be able to better manage the workload on the C-17 fleet and apply it against the things that it does exceptionally well, moving cargo."[16]

Issue 2: Long-range, or Strategic Airlift

The second, and related, issue facing the committee is whether DoD's plans to maintain and modernize its long-range airlift fleet will meet the national military strategy, and if so, whether they will do so cost-effectively.

Airlift Requirements to Meet the National Military Strategy

The number of C-17s that should be procured, and the number of C-5s to be modernized is related to the overall airlift requirement, which is typically measured in millions of ton-miles per day (MTM/D). In March 2001, the Air Force announced the findings of its Mobility Requirements Study 05 (MRS-05). MRS-05's principal finding was that the goal set by the previous mobility study for an airlift fleet capable of moving 49.7 MTM/D of personnel and cargo was inadequate to meet the national military strategy. MRS-05 recommended an airlift fleet capable of 54.5 MTM/D. At that time, DOD's strategic airlift capability was approximately 44.7 MTM/D, nearly 10 MTM/D short of the MRS-05 goal.

The terror attacks of September 11, 2001, and the subsequent operation in Afghanistan led many to believe that the findings of the MRS-05 were outdated. Significant changes in the National Military Strategy were required, and a different strategy would likely require different airlift capabilities. In June 2004 DOD began its first "post 9/11" review of transportation requirements. This Mobility Capabilities Study (MCS), once scheduled for completion in March 2005, was completed and briefed to Congress in February 2006.

Unlike past mobility studies, the MCS did not provide an estimate of airlift requirements in MTM/D. Instead, the MCS assessed the capabilities of the current and projected force (180 C-17s, 112 C-5s), and found that force to be sufficient to meet the National Military Strategy with "moderate"or "acceptable" risk. The terms "moderate" and "acceptable" are subjective., and subject to interpretation. A close examination of this classified study, and the acknowledgment that the projected force now includes 190 C-17s, could lead some to view the risk as "low."

The MCS caught many observers by surprise, who expected the study to project a growth in airlift needs, perhaps a requirement closer to 60 MTM/D than the 2000 estimate of 54.5 MTM/D.[17] Others speculated, however, that the MCS would not increase the 54.5 MTM/D requirement, because planners know that DoD cannot afford to purchase enough

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[16] Seapower Subcommittee Hearing on FY2007 Budget. *OpCit.*

[17] Marc Selinger, "DoD Launching New Review of Transportation Needs," *Aerospace Daily,* Mar. 11, 2004.

aircraft to provide this amount of airlift.[18] An "acceptable" risk does not argue for more aircraft as strongly as "high" or "unacceptable" risk. Those who hold this perspective imply that the MCS is not an unbiased study of requirements, but a compromise between what is needed and what can be achieved.

Many have criticized the MCS. In a September 14, 2005, letter to Defense Secretary Rumsfeld, for example, the GAO documented a number of shortcomings in the MCS' methodology.[19] Others criticized the study for not assessing intra-theater lift needs, and for focusing on "near term" capabilities rather than taking a longer view.[20] Some have called on DoD or an independent agency to conduct another mobility study to rectify the MCS' perceived shortcomings. DoD appears to be responding to these criticisms by executing a follow-on, "MCS-2006 study."[21]

How significant is a potential shortfall in airlift? Does it jeopardize current and future force projection capabilities? The actual U.S. airlift capabilities have met the stated MTM/D requirement only twice in the past 19 years.[22] During this time, the United States has successfully conducted military operations in Afghanistan, South West Asia, Bosnia and Kosovo. It can thus be argued that the airlift requirement set by MRS-05 and other studies is greater than is really needed, and less airlift is acceptable. A counter-argument is that airlift requirements are designed to satisfy a worst case scenario: executing two "near simultaneous" major combat operations. Adherents to this perspective say the 54.5 MTM/D requirement is justified, and the United States has been fortunate over the last 19 years not to have faced the worst-case scenario.

It may be difficult for Congress to evaluate DoD's airlift recapitalization plans because objective answers in MRS-05 and the MCS are either dated, unclear, or classified. Questions include: How much outsize/oversize airlift capacity is required, now that major state-on-state conventional warfare appears less likely than it did in the past (but for which DoD must still plan)? How many aircraft are required now that irregular warfare – which can occur less predictably, and frequently in theaters with limited infrastructure – appears more likely?

In attempt to provide Congress with greater clarity into airlift requirements, P.L. 109-364 Sec. 1034 requires DoD to submit a report to Congress no later than February 1, 2007 defining airlift requirements in terms of million ton miles per day. In response to this requirement, DoD delivered a classified report to the congressional defense committees on February 27, 2007.

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[18] John Tirpak. "Air Mobility in the Doldrums." *Air Force Magazine.* August 2005.

[19] *Defense Transportation: Opportunities Exist to Enhance the Credibility of the Current and Future Mobility Capabilities Studies.* Government Accountability Office. September 14, 2005. William M. Solis, Director Defense Capabilities and Management.

[20] John T. Bennett. "Influential DoD Mobility Study's Focus on Intratheater Needs Questioned." *Inside the Air Force.* April 7, 2006.

[21] *Defense Transportation: Study Limitations Raise Questions about the Adequacy and Completeness of the Mobility Capabilities Study and Report.* Government Accountability Office. (GAO-06-938) September 2006. p.1.

[22] Presentation by Brig. Gen. Robert Bishop to congressional staff, *Airlift Portion of MRS-05*, Mar. 28, 2001.

Budget Pressures and Cost-Effective Solutions to Airlift Modernization

Although the metrics needed to objectively evaluate the number of C-17s or C-5s required are not clear, it is clear that C-17 procurement and C-5 modernization are directly competing for the same budget authority. Senior DoD officials have implicitly recognized this competition. For example, when DoD officials defended the FY06 budget decision to end C-17 procurement, they argued that keeping the C-17 production line open "would be a smart thing to do" from a pure risk perspective, but, "the cost would be prohibitive" given the other airlift procurement programs that the Air Force plans."[23]

At issue in this year's budget is how many C-17s to purchase and how many C-5As to modernize. As it did last year, the Air Force is proposing not to procure any C-17s in FY08; although two C-17s are on the Air Force's Unfunded Priority List (UPL). Boeing representatives say that depending on their success in negotiating near-term international sales of the C-17, it will require funding for between 14 and 18 Globemasters in FY08 or the production line will begin to shut down in January or February 2008 toward a complete shutdown in mid-2009.[24] The Air Force's stated plan is to modernize both C-5A and C-5B fleets with the Avionics Modernization Program (AMP), and Reliability Enhancement and Re-Engining Program (RERP). There has been speculation that as budgets become tighter, the Air Force may opt not to RERP the C-5A fleet. Recent press reports about RERP cost increases have added to this speculation.[25]

Some argue that C-17 procurement should be increased at the C-5A's expense because of the growing need to engage terrorists and insurgents in theaters with limited aviation infrastructure. The Cold War paradigm of using strategic cargo aircraft to move large amounts of materiel to forward U.S. bases, then moving it a second time to the theater of operations on smaller airlift aircraft is not efficient, they argue. The C-17 can do the job of both the C-5 (strategic airlift) and the C-130 Hercules (intra-theater airlift) and move war materiel directly from the United States into combat, if need be. As a more modern aircraft, the C-17 also potentially offers more opportunity for upgrades and modifications than the C-5.

On the other hand, the C-5's unique capabilities argue for its continuation, potentially at the expense of additional C-17s. In a period where DoD's force posture is moving from forward basing to expeditionary, it may be unwise to prematurely retire aircraft in today's inventory. Although the C-5 is not as modern as the C-17, the Air Force's Fleet Viability Board found that the C-5A fleet — with appropriate investments — has at least 25 years of

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[23] Michael Sirak. Senior DoD Officials Defend Decision To Halt C-17 Production At 180." *Defense Daily.* February 10, 2006.

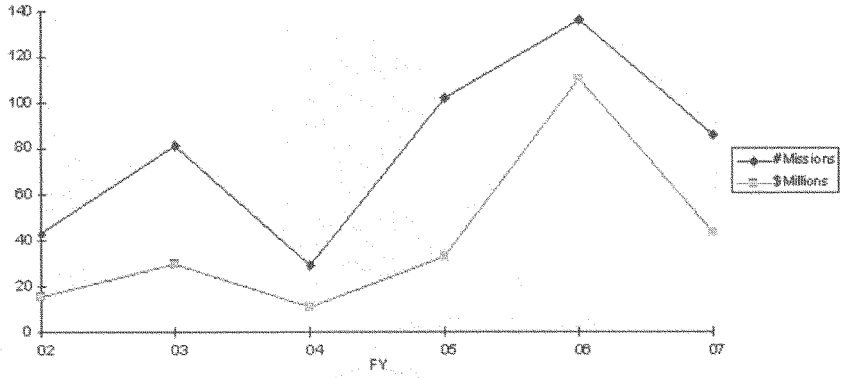
[24] Telephone conversation between CRS and Boeing officials. February 26, 2007. "Boeing Announces C-17 Line May End in mid-2009; Stops Procurement of Long-lead Parts." *News Release.* Boeing Integrated Defense Systems. March 2, 2007.

[25] See, for example, Carlo Munoz. "Air Force Mulling Future of Dueling C-5 Modernization Programs." *Inside the Air Force.* December 16, 2006. Amy Butler. "C-5 Reengining Cost Could Alter Program Course." *Aviation Week & Space Technology.* February 19, 2007.

life remaining.[26] Thus, today's investments could potentially be recouped for decades. Current estimates of the per-aircraft cost of AMP and RERP are expected to be approximately one-third that of a new C-17, and the C-5 will carry twice the C-17's payload. The C-5 also has superior load/off load capabilities. The upgraded aircraft (called the C-5M), is also expected to have greatly improved mission capable rates.[27] It may be noteworthy that during Operations Enduring Freedom and Iraqi Freedom, DoD leased Russian An-124 aircraft to carry outsize and oversize cargo because not enough C-5 aircraft were available.

The An-124 *Condor* is a strategic lift aircraft larger than, but comparable to the C-5. As Figure 1 below illustrates, the Air Force has spent $170 million since FY2002 for An-124 missions. It also appears that the number of An-124 missions is accelerating. FY07 figures already are on par with FY05 figures, and the fiscal year is not yet half over. While the C-5 may not be as modern as the C-17, or able to operate from as many runways, the fact that DOD has to outsource missions to Russian aircraft indicates that the C-5 still offers important capabilities that other U.S. aircraft may not be able to satisfy. (A description of the An-124 can be found at Appendix 3.)

Figure 1: Number and Cost of An-124 Missions Contracted by Air Mobility Command



TOTAL: 434 missions, $168,434,265.00

Source: USAF Air Mobility Command. International Airlift Procurement Branch. Feb. 23, 2007.

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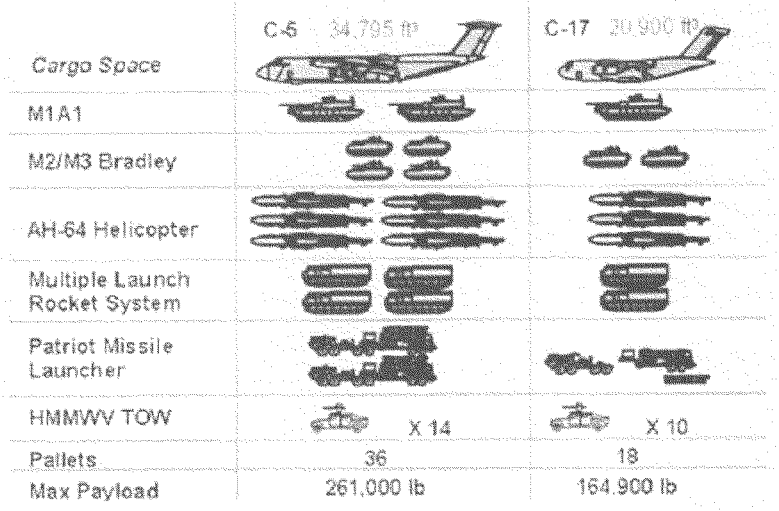
[26] Tech. Sgt. David A. Jablonski. "Air Force Fleet Viability Board releases C-5A Assessment," *Air Force Print News,* July 15, 2004. Amy Butler, "With a Little Help — And Cash — C-5As Can Fly For 25 More Years, Panel Says," *Defense Daily,* July 19, 2004.

[27] David Hughes, "C5 Avionic and Engine Upgrades Rolling," *Aviation Week & Space Technology,* Oct. 25, 2004. *C-5 Galaxy Modernization*, FY2006 Point Paper, Lockheed Martin Corp, Jul. 2005.

When evaluating the future of the C-5 and C-17 fleets, the factors described in the figure and table below may be worth considering.

Figure 2 Comparison of C-5 & C-17 Capabilities



Source: *FY06 Congressional Overview (C-5, C-130J).* "C-5 Operations During Iraqi Freedom." Lockheed Martin Aeronautics Company. p.18.

Table 1: C-5 Modernization Vs C-17 Procurement		
	Modernize C-5 Fleet	**Buy More C-17s**
Average Procurement Unit Cost[28]	$97 Million*	$280 Million
Est. Flying Hour Cost[29]	$23,075**	$11,330
Production Rate	~12 aircraft/ year	~15 aircraft/year
Aircraft Life Remaining	26,000 hours	30,000 hours
Mission Capable Rate	75%	78.6 - 85.9%
Austere Runways	No	Yes

[28] *Selected Acquisition Report (SAR)* Department of Defense OUSD(AT&L). Defense Acquisition Management Information Retrieval (DAMIR). C-17A, C-5AMP, C-5RERP.

[29] *Aircraft Reimbursement Rates (per Flying Hour) FY2007.* Air Force Cost Analysis Agency, Cost Factors Branch. Table A15-1.

Notes
* These costs have and will likely fluctuate over time. The procurement cost of future C-17s will likely be lower than the average, as learning increases and fixed costs are amortized over a longer production run.
**Aircraft Reimbursable Rates (per Flying Hour) reflect amortization of modernization programs, but not procurement costs. Because the C-5 AMP and RERP modernization programs are in their early phases, these costs strongly affect the hourly cost to operate the C-5. The C-17 is not implementing a modernization plans on the scale of AMP and RERP.

As mentioned at the beginning of this section of testimony, acquisition decisions on the amount of airlift capability to be procured on the KC-X may affect strategic airlift modernization. Similarly, decisions on the number of C-17s to be procured – due to *Globemaster's* ability to operate from short and austere runways – could affect acquisition choices in intra-theater airlift.

Issue 3: Short-Range Airlift

Many factors illustrate that, as in the mobility mission areas described above, Congressional oversight of potential investments and tradeoffs in intra-theater airlift is hampered by incomplete, or competing visions of what the warfighter requires.

As mentioned earlier in my statement, DoD's most authoritative mobility study has been criticized for failing to adequately address intra-theater airlift. Further, in late 2004, DoD Program Budget Decision (PBD) 753 proposed terminating C-130J production in the FY06 budget. This action would have terminated the first C-130J multiyear contract of 62 aircraft prior to completion, and prior to the negotiation of two follow-on multiyear contracts that the Air Force had hoped to use to procure over 100 more C-130Js. After receiving negative responses from many in Congress, DoD reversed its decision in a May 10, 2005 letter to Congress and reinstated FY06 funding. Many noted that the decision to cancel, then reinstate DoD's principal intra-theater airlifter, was made with little explanation of the potential impact on mobility requirements and capabilities.[30]

There has also been fluctuation in the requirements for short-range end of the intra-theater air lift. At one point, the Army believed it needed approximately 47 aircraft to replace its aging short-range airlifters. Presently, however, DoD sees a wider shortfall in this mission area – one that requires 145 aircraft. This requirement could grow pending further Air Force analysis.

Potential Intra-theater Investment Options and Tradeoffs

There are a number of potential options which Congress and DoD might consider. Purchasing more C-130Js would add capacity to DoD's airlift fleet. Purchasing additional C-17s would also add intra-theater airlift because of the Globemaster's ability to use short and austere runways. Some may favor purchasing more C-17s at the expense of C-130 aircraft, because the larger aircraft is something of a "twofer": it can conduct both long-range

[30] See for example, Jonathan Karp. "Rumsfeld Restores Lockheed's C-130 To Defense Budget." *Wall Street Journal.* May 12, 2005.

and intra-theater lift. A simple cost comparison – such as the one in the table below – illustrates however, that the C-17's increased capability comes at a high price relative to the C-130J. Purchasing more C-17s primarily to fly intra-theater lift missions does not appear to be a cost effective option.

Table 2: Illustrative C-17 and C-130J Costs		
	C-17	**C-130J**
Average Procurement Unit Cost (Then-year$M)	$280.0	$91.0
Average Annual Direct O&S Cost (Constant $M)[31]	$13.5	$1.8
Est. Flying Hour Cost[32]	$11,330	$3,650

There appears, however, to be inherent friction between making investments in the C-130J program and the modernization of legacy C-130 aircraft. First deployed in 1999, the C-130J was intended to replace C-130E models (first deployed in 1962) offering greater capability at reduced operating costs. The C-130J experienced development and production cost growth, and received criticism during the test and evaluation process.[33] Secretary Rumsfeld's proposal to end C-130J procurement in FY06 reflects DoD's loss of interest in the C-130J and its view that investments in C-130 modernization could be offset by reduced C-130J purchases. Secretary Rumsfeld was reported to have said that "'at $66.5 million, this aircraft (the C-130J) has become increasingly expensive to build and maintain,' especially compared to simply modernizing older C-130 models."[34] To many , the C-130J's average procurement cost of $91 million per aircraft, may give increased weight to Secretary Rumsfeld's statement that procuring C-130Js compared unfavorably to modernizing legacy C-130s.

While DoD supported increased C-130E/H modernization over C-130J procurement in the FY06 budget, it appears to have reversed its course this year. In FY08 the Air Force proposed to purchase nine C-130Js and two KC-130Js.[35] Conversely, the Air Force plans to reduce the number of C-130 aircraft to receive the Avionics Modernization Program (AMP) upgrade from 434 aircraft to 270 aircraft. Implementing AMP on fewer legacy C-130 aircraft would make available more funds for C-130J procurement, and likely facilitate accelerated retirement of older C-130 models. The Air Force's declining enthusiasm for C-130 upgrades may be caused in part by cost growth in the AMP program, resulting in the reporting of Acquisition Program Baseline (APB) and "Nunn-McCurdy" violations.

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[31] *Selected Acquisition Report (SAR)* Department of Defense OUSD(AT&L). Defense Acquisition Management Information Retrieval (DAMIR). C-17A, C-130J. Costs expressed in terms of O&S costs per 12 aircraft C-17 squadron and 79 C-130J fleet. Per-aircraft costs derived by CRS.

[32] *Aircraft Reimbursement Rates (per Flying Hour) FY2007. OpCit.*

[33] Elizabeth Rees. "Christie: 2003 Testing Shows C-130J Hercules Not Operationally Suitable." *Inside the Air Force.* January 30, 2004.

[34] Leslie Wayne. "The Flawed Plane Congress Loves." *New York Times.* March 24, 2005

[35] 29 *additional* C-130J and KC-130J aircraft are requested in DoD's FY07 andFY08 emergency supplemental spending requests.

DoD's apparent support for C-130J procurement versus C-130AMP in the FY08 budget may also be tied to the Air Force's plan to recapitalize its aging special operations C-130 models (MC-130 and HC-130) with 115 new aircraft. According to Air Force budget documents, a specific aircraft model has not yet been selected to replace these older C-130s, but the C-130J and Airbus A-400M (which has not yet been fielded) are leading options.

The military services generally would prefer to invest in new aircraft rather than modernize older aircraft. They often argue that new aircraft will be cheaper to operate and maintain than the aircraft they will replace. Frequently, this has not proven to be the case. Newer aircraft are often more complex than those they replace, and cost more to operate. The estimated flying hour cost of the F-22, for example, is $22,284.00. The estimated flying hour cost of the F-15C/D it will replace is $14,139/$13,524.

It is also argued that operations and support costs are growing, and purchasing new aircraft will reduce this trend. Outside agencies, however, have not found that aging aircraft are what increases operations and maintenance budgets.[36] There is no consensus on when it is more cost-effective to invest in new aircraft than in old aircraft, which complicates Congressional oversight of decisions such as whether intra-theater airlift capabilities would be best met by funding C-130J or C-130 AMP.

The final intra-theater airlift option I will address today is the Joint Cargo Aircraft, or JCA. On an intuitive level, modernizing and increasing the inventory of short-range airlift aircraft makes sense. The 2006 Quadrennial Defense Review and other governmental and non-governmental studies point to a growing need for U.S. forces to be prepared to operate in remote, and potentially austere environments as it prosecutes irregular warfare and counter-insurgency operations. The C-130 may be too big to adequately support these operations as it generally requires 3,500 - 5,000 feet of runway to operate.[37] In South America and Central America, for instance, only 5% of all airstrips are 5,000 feet or longer. In Africa, only 15% of all airstrips meet this criterion.[38] While the Air Force C-130 community is rightly proud of its ability to operate from unprepared surfaces such as roads or even fields, such operations are the exception, and not the norm. The Army proposes to use the JCA to move supplies "the last tactical mile" in theater, as close to the warfighter as operationally feasible. This goal suggests the *regular* use of unprepared runways by fixed-wing aircraft, something that the Army does not do today.

In a sense, the JCA program is the result of a "shotgun wedding." The Army's Future Cargo Aircraft (FCA) program was a relatively mature development program, and was near issuing an RFP, when DoD mandated it merge with the Air Force's nascent Light Cargo

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[36] See for example, *The Effects of Aging on the Costs of Operating and Maintaining Military Equipment.* Congressional Budget Office. August 2001, and Raymond Pyles. *Aging Aircraft.* RAND. 2003.

[37] The actual length of required runway depends on a number of factors such as elevation, weather and payload. 5,000 feet is a general rule of thumb.

[38] Wray Johnson. "The 6th Special Operations Squadron and the Icarus Syndrome." *Air & Space Power Chronicles.* January 12, 2000. Air University. Maxwell, AFB. P.8.

Aircraft (LCA) program.[39] Despite the disparity in the maturity of the joined programs, the JCA is moving forward in its acquisition approach, and a Defense Acquisition Board (DAB) meeting on the program is scheduled for May 2, 2007.[40] The Air Force, however, has not fully defined its requirements for the JCA.[41] An issue for Congress is whether the Army could move forward with JCA acquisition only to find that the final results of the Air Force's Analysis of Alternatives (AoA) adds requirements to the program that are not easily met by the aircraft chosen. Sufficient deviation between the chosen aircraft and the Air Force's final requirements could force costly retrofits or, in the worst case, acquisition of a different aircraft.

Increased use of small, intra-theater airlifters raises questions. First, while aiming to improve the distribution of men and materiel, increased use of small airlifters could create its own logistical challenges. The Marine Corps notes that "Where small air units are maintained and operated on outlying auxiliary fields, the problem of supplying fuel, ammunition, bombs, and other supplies becomes a considerable task."[42] If JCAs are remotely based, what fraction of their airlift capabilities will be consumed supplying and re-supplying their own operations and support needs?

As described earlier, the Army and Air Force are engaged in a negotiation of sorts over this program, including the specific capabilities to be acquired. Air Force officials have informally suggested that a short version of the C-130J could perform the JCA mission, while the Army favors smaller, two-engine aircraft options. Does the Air Force's desire for a larger, four-engine aircraft suggest that it does not intend to regularly employ unprepared runways? If so, then this operational concept would not appear to provide new capabilities in terms of rapidly re-supplying ground forces. Conversely, if the Army does not regularly employ its C-23 Sherpas and C-12 Hurons from unprepared runways today, what is new about their vision of the JCA that will make this more feasible in the future?

Finally, there may be other options for this mission area. The Army, Air Force, Marine Corps, and U.S. Special Operations Command are in different stages of exploring the efficacy of fielding battlefield UAVs to conduct tactical airlift of small, but valuable payloads such as blood plasma, night vision devices, ammunition, or communications equipment. UAVs may be able to precisely and quickly deliver these kinds of critical payloads to forces remotely located or isolated by enemy action.[43] Pilots remotely operating

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[39] Ashley Roque. "OSD Tells Army, Air Force To Work On Joint Intratheater Air capability."*Inside the Air Force.* January 20, 2006.

[40] Telephone conversation between CRS and Army OLA. February 28, 2006.

[41] In a June 20, 2007 MOA, the Air Force accepts the Army's existing analysis to articulate the *initial* capability gaps and JCA KPPs. Army representatives express confidence that the Air Force's requirements will be easily accommodated.

[42] *Small Wars Manual.* United States Marine Corps. (GPO: Washington: 1940). Chapter IX, Aviation.

[43] Gail Kaufmann. "USAF to Test Cargo UAV." *Defense News.* September 15, 2003. Jefferson Morris. "Army Considering Using UAVs for Medical Supply Drops." *Aerospace Daily.* January 8, 2003. Jim Garamone. "SnowGoose: UAVs Enter the Airlift Business." *American Forces Press Service.* July 16, 2003. Joshua Kucera. "Marines eye UAV 'Mule.'" *Jane's Defence Weekly.*

(continued...)

such platforms would not require Survival, Evasion, Resistance and Escape training, and the aircraft would likely have less need for air defense countermeasures. Questions include: How feasible is employing UAVs for this mission area? At what juncture might a pilot program begin to evaluate whether UAVs could augment the Army's C-23 and C-12 force, and potentially reduce the requirement for JCA aircraft?

The V-22 might be another platform that could perform the JCA mission. The table below compares estimated V-22 capabilities with current JCA requirements. Although not a perfect match, the V-22 capabilities appear to overlap considerably with what the Army said it required to perform this mission. BG Stephen Mundt, Director of the Army Aviation Task Force, is reported to have said that tilt-rotor aircraft are a potential JCA platform.[44] If the V-22 were judged to be capable of performing this mission, acquiring 145 of these aircraft beyond the current program of record might reduce average procurement unit cost of the Osprey considerably.

Table 3: Comparison of FCA Requirement and V-22 Capabilities

Parameter	FCA Requirement	V-22[45]
IOC	2010	2007
Self-Deploy	X	2100 nm
Airdrop Capable	X	X
Reconfigurable	X	X
Mission Radius	400-600nm	306nm max
Airspeed	250-300 kts	272 kts (cruise speed)
Payload	436L pallets, CDS bundles, Troops	24 troops, ½-sized 436L pallets, 20,000 lbs
Unimproved runways	Sod, Clay, Gravel	No runway required
Maximum airstrip	2,000ft @ 6,000-ft PA & 95°F	No runway required
Day/Night adverse weather, IFR/VFR	X	X
GATM Compliant	X	X
Modern Integrated ASE suite	X	X
NVG compatible	X	X

[43] (...continued)
November 17, 2004.

[44] Kevin O'Brien. "Future Cargo Aircraft Gets 'Jointed.'" *Aero-news.net*. February 20, 2006. Http://www.aero-news.net/news/military.cfm

[45] Sources: Selected Acquisition Report (SAR), Briefing to CRS by USMC PMA-275 DPM (August 2005), telephone conversation with retired CV-22 program officials.

Pressurized	X	No, but on-board Oxygen

Key
X = Parameter required, no quantification or qualification of requirement provided
N/A = not addressed in document
nm = nautical miles
kts = knot, true airspeed
PA = pressure altitude (reading on a barometric altimeter)
IFR = Instrument flight rules
VFR = Visual flight rules
GATM = Global Air Traffic Management
ASE = Aircraft Survivability Equipment
NVG = Night vision goggles

Mr. Chairman, this concludes my remarks. I appreciate the opportunity to appear before you, and look forward to any questions you or the other subcommittee members may have. Thank you.

Appendix 1

Specifications and Costs of Comparable Aircraft[46]

Only two manufacturers worldwide currently produce transport aircraft: The Boeing Company and Airbus Industrie. The closest comparable Airbus airplanes to the Boeing 767 are the A300-600, which is somewhat smaller and the A330-300, which is slightly larger. The table below provides a comparison of key dimensions, features, performance specifications, and costs of these aircraft. In discussing cost, it is important to note that negotiated costs for aircraft are dependent on many factors, such as how many firm orders are placed, how many options to buy are included in the order, and aircraft configuration and equipment options.

Comparison of Boeing 767- and Airbus A300-600, and A330 Airplanes[47]

	767-400ER	**A300-600**	**A330-300**
Length	201' 4"	177' 5"	208' 1"
Wingspan	170' 4"	147' 1"	197'10"
Max. Takeoff Weight (pounds)	450,000	363,800	507,000
Engines[48]	2 PW 4062 or GE CF6-80C2B8F	2 GE CF6-80C2 or PW4000	2 GE CF6-80E1 or PW 4000 or RR Trent 700
Maximum Range (nautical miles)	5,645	4,050	5,600
Maximum Operating Speed (Mach)	0.86	0.82	0.86
Cost ($ million)	120-132.5*	100**	124-131*

* Source: Flug Revue Online (www.flug-revue.rotor.com). Prices for 767-400ER were as of mid-2000, whereas prices for A330-600 were as of mid-1998.

** In January 2001, UPS Airlines placed a firm order for 60 Airbus A300-600 cargo airplanes at a total cost of $6 billion, or $100 million per airplane.

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[46] Table and text provided by Bart Elias. Specialist in Aviation Safety, Security, and Technology Resources, Science, and Industry Division. Congressional Research Service.

[47] Source (unless otherwise noted): Airbus Industrie and The Boeing Company.

[48] GE: General Electric, PW: Pratt & Whitney, RR: Rolls Royce.

Appendix 2

CRS Assessment of USAF KC-X "Part 2" Business Case Analysis (BCA)
Briefing to Congressional Staff October 11, 2006

Detailed analysis of the Air Force's proposed Business Case Analysis (BCA) of Fee-for-Service aerial refueling (FFS AR) is somewhat limited by the briefing's lack of detail. Based on the information provided, a number of factors in the proposed Air Force study appear likely to understate the benefit of this potential course of action. A summary of potential questions for Air Force officials on the proposed BCA follows.

Approach and Scope of Study

- One of the strongest arguments in favor of FFS AR is that this approach to aerial refueling is less capital-intensive than purchasing an equivalent number of aircraft. Reducing up-front investments in aerial refueling may be attractive to the Air Force as its total budget authority increasingly comes under pressure. However, the BCA does not appear to include any analysis of the potential budgetary implications of investing in FFS AR versus *X* number of KC-X aircraft.

- The U.S. Navy currently exploits FFS aerial refueling. The Air Force BCA contains no analysis of potential benefits of expanding the Navy's FFS AR arrangements to include the Air Force and other Services. Expanding the Navy's current FFS aerial refueling capability might achieve savings through economies of scale that would not be considered in the BCA as currently designed.

Study Assumptions and Methodology

- In at least three places in the BCA briefing, it appears that the Air Force may be making premature assumptions regarding FFS that could artificially reduce the scope of the analysis and potentially bias the study against FFS aerial refueling. For example, the Air Force asserts that "FFS AR will cover niche market." This may be true, but the analysis has not yet been completed. Therefore, it is unknown how big this "niche" may be. The briefing also suggests that a "niche" set of aerial refueling missions for FFS AR have been predetermined. A more appropriate first step may be to define and document restrictions applicable to this commercial service and then perform mission analysis to determine the reasons for the application of such restrictions. It may also be useful to include at least a brief summary of the origin and purpose of the restrictions.

- The briefing indicates that the potential costs of FFS would be compared to the actual costs of the current AR fleet: the KC-135 and KC-10. Fee for Service aerial refueling, however, is being evaluated as a potential complement to the KC-X. It appears irrelevant to compare the costs of FFS AR to the current fleet. Some may wonder whether the KC-X is being excluded from a cost comparison with the FFS AR because the KC-X costs are expected to be higher than the current fleet, and potentially higher than FFS AR.

- The Air Force proposes to use recent Air Force flying hour costs and demands from

June 1, 2005 to May 31, 2006 as a baseline for comparing potential FFS AR costs and demands to costs and demands of the existing tanker fleet. As a matter of study design, it appears well advised to choose at least two different time periods to serve as this comparative baseline. The chosen period is one in which the Air Force has experienced a very high operations tempo (OPTEMPO). The KC-X and any potential FFS AR will over time experience periods of both high and low OPTEMPO, and different types of high OPTEMPO. Choosing only one time period for a cost and usage comparison appears to risk skewing the results of the analysis.

- The briefing describes how the BCA will estimate the costs of the various potential alternatives to FFS AR (e.g., purchasing new aircraft). The costs to be considered appear to be incomplete. They include RDT&E, Procurement, O&M, and MILPERS. but do not include MILCON, and National Guard and Reserve costs. Underestimating these costs would make alternatives to FFS AR appear artificially less expensive.

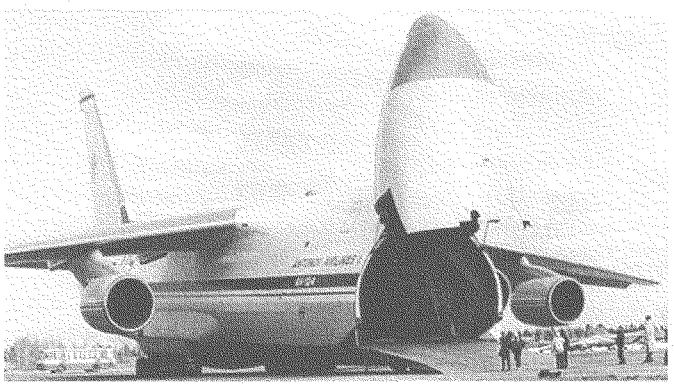
- The proposed BCA appears to include a number of assertions and assumptions that are of questionable accuracy. For example, it notes that the BCA will assume that no FFS AR will operate "in theater." If by, "in theater" the BCA is describing a theater of wartime operations, this ground rule appears inconsistent to today's reality. Commercial aircraft such as the civil reserve air fleet (CRAF) operate in theaters of military operations today. Also, it is unclear exactly how this theater is defined. If, for example, a war was being fought in Iraq, would Kuwait or Saudi Arabia be considered "in theater?" If so, this broad definition may artificially limit the applicability of FFS AR. Also the Air Force notes that the "CRAF delta is not addressed. Currently no assurance of set level of business in CRAF (must compete for work)." This statement appears to be incorrect. While some CRAF contracts are awarded on a competitive basis, there is also a set level of guaranteed minimum business for CRAF participants.

Appendix 3

Description of An-124 *Condor* Heavy Lift Aircraft[49]

Country of Origin	Russia
Builder	Antenov
Wing Span	240 ft, 5 in (73.3 m)
Length	226 ft, 3 in (69 m)
Height	68 ft 2 in (20.78 m)
Empty Weight	385,000 lbs
Engine	4 - Lotarev D-18T, 229.9 kN thrust each
Cruising speed	430 kts
Range	2,900 nm
Service Ceiling	35,000 ft
Payload	88 passengers or approximately 330,000lbs cargo
Cargo Bay	36.5 m x 6.4 m x 4.4 m (1027.8 cu. m)
Crew	Six--seven with loadmaster

AN-124 Condor



[49] Sources: FAS.org, Jane's All the World's Aircraft. Flight International, 3-9 October 2006.

House Armed Services Committee – Air and Land Forces Subcommittee

March 7, 2007

Subject: Air Force Airlift and Tanker Programs

Combined Statement of
Lt Gen Donald Hoffman (SAF/AQ)
Lt Gen Howie Chandler (AF/A3/5)
Maj Gen Thomas Kane (AMC/A5/8)

I. Introduction

Mr. Chairman and distinguished members of the subcommittee, thank you for the opportunity to appear before you today to discuss Air Force Airlift and Tanker Programs.

Your Air Force is fully engaged around the world, fighting terrorism and insurgents in the Global War on Terror (GWOT) while fulfilling our roles as Airmen for the joint team. Simultaneously, we stand prepared for rapid response to conflict around the globe as our Nation's strategic reserve. Air forces succeed when they anticipate and are allowed to shape the future strategic environment and develop the capabilities for the next fight. Air forces succeed when they remain focused on their primary mission as an independent force that is part of an interdependent joint team. We fly, fight and dominate in three war fighting domains – air, space and cyberspace – giving our Nation sovereign options to employ military force like no other nation.

II. We Are At War

The missions your Air Force is flying today are the latest in a string of 16 continuous years of Air Force combat in the Central Command (CENTCOM) Area of Responsibility (AOR), beginning with our initial deployments to Operation DESERT SHIELD in August 1990 through ongoing operations in Iraq and Afghanistan.

Through 20 February 2007 your Air Force has flown over 82% of the coalition's 280,025 sorties in Operation IRAQI FREEDOM and 78% of the coalition's 159,735 sorties in Operation ENDURING FREEDOM. In addition to our daily operations, the Air Force has also seen several surge periods over the past 16 years, resulting in unexpected wear and tear on our people and platforms. And, like each of the other Services, we've suffered combat losses.

On an average day, the Air Force flies approximately 430 sorties in support of Operations IRAQI FREEDOM and ENDURING FREEDOM. Of this number, approximately 275 are airlift sorties (both inter- and intra-theater) and 35 are air refueling sorties whose average daily offload is 2.1 million pounds of fuel to 175 receiver aircraft. The rest of the sorties are intelligence, surveillance, and reconnaissance (ISR), and strike.

Supporting CENTCOM is just a small part of what we do for our Nation's defense. The Air Force has responded to or has been prepared to respond across the entire spectrum of conflict – from rapid humanitarian aid to major combat operations. We have flown over 46,794 sorties in support of Operation NOBLE EAGLE and over 3,280 counter drug sorties, while also supporting operations in the Horn of Africa (HOA) and the Philippine Islands.

Air Force airlift aircraft have relatively low density compared to the incredible demand for them. Since 11 September 2001, these aircraft have flown 303,429 mobility sorties, moved 4,904,371 passengers and transported 2,164,548.4 tons of cargo in support of GWOT. Our C-130 aircraft are used extensively in support of the GWOT and from FY02 to FY05 the Air Force C-130 fleet flew 196,000 more hours than originally programmed. Their role in intra-theater airlift keeps convoys off the roads and away from IEDs. On average, our monthly airlift missions replace approximately 3,500 trucks, providing our ground forces the flexibility to reassign those vehicles and associated support troops to other missions.

III. Warfighter Tanker and Airlift Capability Needs

America's Global Reach relies on Air Force tankers, airlift, and spacelift.[1] Like our space and cyber forces, tankers and lift are single points of failure. Without them we will not be able to deliver on our commitments to the Nation and the joint force. Our heavy mobility aircraft – including cargo, special operations, tanker and VIP Special Airlift Mission (VIP/SAM) variants – carry out the Air Force's daily Global Reach missions. One Air Mobility Command aircraft takes off from a runway somewhere in the world every 90 seconds, 24 hours a day, seven days a week, 365 days a year. We are sending them into hostile areas where they're vulnerable to enemy fire more and more in order to support the joint team. The primary threat to these aircraft is the Man Portable Air Defense System (MANPADS), or shoulder-fired IR missile. Since the 1960s, more than 500,000 MANPADS have been produced, and they have become more technologically advanced and more lethal over the years. They are widely proliferated to those with hostile intent toward the United States. The Large Aircraft IR Countermeasures (LAIRCM) systems we are installing on our heavy mobility aircraft will increase their survivability.

Versatility enables air mobility to be a Joint Force multiplier and provide senior leaders more "day one" options. Versatility is dependent on possessing adaptable, multi-mission aircraft. Platforms such as the KC-X and C-17 provide the Combatant Commander with multiple options.

Tanker

It is noteworthy that the Air Force is providing vital air refueling capability via the oldest aircraft in the Air Force inventory. BRAC acknowledged this fact when it recommended all 85 KC-135E be transferred to the Aerospace Maintenance and Regeneration Center (AMARC). The average age of aircraft in our tanker fleet is 43.3 years. Fifteen percent of our current air refueling fleet consists of the KC-135E model aircraft, which has an average age of 49.4 years. That's significantly older than the aircrew flying them. Fourteen of our KC-135 fleet will be grounded this Fiscal Year due to Expanded Interim Repair (EIR) expiration, followed by 16 aircraft in FY08, 44 aircraft in FY09 and the remaining 11 aircraft in FY10. All 85 of our KC-135E model aircraft will be grounded by the end of FY10 due to EIR expiration.

The Air Force has programmed to retire all of the remaining KC-135E aircraft by the end of FY08. The projected cost to keep a KC-135E flying with no additional warfighting capability (i.e. a basic KC-135E) after EIR expiration is $17.3M per aircraft (85 x $17.3M per aircraft = $1.4B for the entire fleet). The projected cost to maintain these obsolete tanker aircraft on the ramp after EIR expiration (referred to as XJ status) is approximately $11.7M (85 x $138K per aircraft) in FY08.

The KC-10 represents approximately ten percent of the current Air Force Tanker fleet (59 aircraft). With an average age of 22 years, the aircraft has begun to experience aging aircraft-related problems and recently the Air Force has initiated an Aircraft Modernization Program (AMP) to ensure that the aircraft remains viable through 2045.

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[1] Our space lift rockets and Airmen have successfully launched the last 49 national security payloads in a row, and we have had 100 percent success with our EELV class of vehicles.

The KC-10 AMP will ensure that the aircraft meets Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) requirements and safely operates in a global environment well into the future. In addition to CNS/ATM upgrades, AMP will include reliability and maintainability upgrades, and install a digital "backbone" to facilitate future modernization efforts.

Since aerial refueling tankers are one of the single points of failure in modern, joint warfare, our Secretary and Chief of Staff made tanker replacement and recapitalization your Air Force's #1 acquisition priority. Our vision is a tanker born joint and able to refuel Air Force, Navy, and Allied aircraft on every mission using both boom and hose/drogue refueling capabilities.

KC-X

Retiring operationally cost-prohibitive and less capable aircraft allows the Air Force to focus on recapitalization and invest in transformational capabilities. The KC-135E is a good example. It is significantly less capable than the KC-135R with less fuel offload capability and fails to meet world-wide airspace and noise restrictions.

Operations in the 21st century mandate continuous modernization of our mobility platforms. To that end, the KC-X replacing the KC-135 "will revolutionize the way we do business". The KC-X will be able to multi-point refuel joint and coalition aircraft, carry cargo, and self-deploy.

Release of the KC-X request for proposal (RFP) on 30 January 2007 set the stage for a fair and open competition that will lead to the fielding of a flexible and versatile platform. The resultant tanker will possess numerous advantages over the current KC-135 fleet. In today's dynamic political-military environment, and with fiscal constraints in mind, the command must maximize the abilities of each platform.

The KC-X RFP defines an integrated, capability-based, best-value approach and is the first third of the fleet-wide tanker replacement program that will leverage new technologies and industry best practices. The RFP includes specific factors for assessing the capability contribution of each offeror. Along with cost and assessments of past performance and proposal risk, these factors provide the source selection authority with excellent means to determine the best value between proposals of significantly differing capabilities and cost.

The RFP stipulates nine primary key performance parameters:

1) Air refueling capability
2) Fuel offload and range at least as great as the KC-135
3) Compliant CNS/ATM equipment
4) Airlift capability
5) Ability to take on fuel while airborne
6) Sufficient force protection measures
7) Ability to network into the information available in the battle space
8) Survivability measures (defensive systems, Electro-Magnetic Pulse (EMP) hardening, chemical/biological protection, etc)
9) Provisioning for a multi-point refueling system to support Navy and Allied aircraft

The Air Force has gone through a rigorous review process for KC-X and has validated that the RFP accurately reflects the requirements as laid out by the warfighter. The Air Force remains committed to a full and open competition and will continue to be conducted in a transparent and deliberate manner. The Air Force expects to award the KC-X contract in 2007.

Airlift

Changes in military force structure, including the President's proposed troop strength increase and the Integrated Global Presence and Basing Strategy (IGPBS) reset, could increase airlift requirements and subsequently create the need for additional C-17 capacity. Operationally, the C-17 is extremely capable, has been incredibly busy, and will stay that way into the foreseeable future. Our Air Force's C-17 aircraft are performing remarkably well as our Nation's most reliable airlifter. With over one million total fleet hours, the C-17 is proving its value time and again. As the warfighter's platform of choice, we've employed C-17 aircraft interchangeably in inter- and intra-theater roles that have accelerated their wear and tear. We currently deploy 20 aircraft to the CENTCOM AOR in support of GWOT. The C-17 is also our nation's primary aeromedical evacuation aircraft, having transported more than 20,000 litter and ambulatory patients since the beginning of Operation IRAQI FREEDOM.

In the case of the C-130, vanishing vendors, SecDef directed safety modifications, and decreased access to international airspace limit the overall effectiveness of this workhorse. Although strategic lift is vitally important for moving personnel and equipment, the lynchpin to the warfighter is the ability to go the last tactical mile. A synchronized intra-theater airlift system empowers the Combatant Commander with the ability to employ the Air Force's unique core competencies in their AOR. The aging C-130 fleet faces many challenges including obsolete parts, costly structural repairs, and noncompliance with air traffic management requirements. The active duty Air Force possesses 75% of the oldest C-130 aircraft in the fleet – an average of 42 years. The most pressing challenges today are unprogrammed repair costs associated with cracks in the center wing box (CWB) and modernizing a portion of the fleet to meet the needs of the Nation in the future.

The correct balance of new and modernized aircraft creates a force mix which maximizes the versatility and reliability to the warfighter by designing a "mobility enterprise." This equitable distribution of assets creates a seamless enterprise resulting in reduced O&M costs, easily networked systems, and increased precision and effectiveness within the Defense Transportation System.

C-17

To date, we have accepted delivery of 162 C-17 aircraft. The original programmed buy of 180 aircraft was extended to 190 by the FY07 Bridge Supplemental Funding. The ten additional aircraft addressed our backup aircraft inventory (BAI) shortfall and provided a replacement for the Dover C-5 loss and two aircraft for USAFE.

International sales, coupled with the ten additional C-17 aircraft funded in the FY07 Defense Appropriations Act, are keeping the C-17 production line intact. Sales of four aircraft to Australia and a fifth to UK, along with Canada's recently signed letter of acceptance (LOA) for four C-17 aircraft, extend the production line to July 2009. Continued allied acquisition of C-17

strengthens coalition partnerships in GWOT. The Air Force is also working with NATO countries as they address the potential buy of three aircraft.

The C-17 is and will continue to be a great national asset; however our Nation is at a major C-17 production milestone with significant long-term impacts to the mobility enterprise. Without additional orders, the C-17 production fleet will begin to shutdown this year. To ensure the versatility of the mobility enterprise, careful consideration is and must continue to be given to the correct mix of aircraft before closing production.

C-5

Modernization of the C-5 fleet remains an Air Force priority to meet Combatant Commander requirements for on-time airlift delivery of oversized and outsized cargo. C-5 modernization includes over 70 structure and reliability enhancement items to improve force closure through the year 2040 by increasing the number of available aircraft with their unmatched outsized and oversized, roll-on / roll-off capability at a substantially reduced cost of operation. While the C-5A is among the oldest in the Air Force inventory, there are no major structural life issues. In June 2004, in the Air Force Fleet Viability Board's judgment, with the addition of avionics and engine modifications, the C-5A has at least 25 years of service life remaining and is assessed to be viable. Update of the avionics suite began in FY04 and update of engine and reliability enhancements is scheduled to begin in FY07 with the procurement of long-lead items.

The C-5 modernization effort is a two part program. The Avionics Modernization Program (AMP) modernizes the avionics and allows the aircraft to meet evolving Communication Navigation Surveillance/Air Traffic Management (CNS/ATM) requirements world-wide. AMP is required prior to entering the second phase, the Reliability Enhancement and Re-engining Program (RERP). Once a C-5 is both AMP- and RERP-modified, the fully modernized C-5 will be re-designated as the C-5M. The C-5M will be able to takeoff with more cargo, on a hotter day and from a shorter runway than either the C-5A or C-5B. It will be able to climb faster to higher altitudes where it can cruise unrestricted in international airspace with better fuel efficiency, increasing its unrefueled range and requiring less tanker support. The C-5M will do all of this while producing less noise and pollution.

Where AMP enhances airspace access capability, RERP adds the equivalent of ten tails with increased performance to fully exploit AMP's airspace access improvements as well as increase maintenance reliability. A fully modified C-5M is expected to yield improved wartime fleet availability and mission capable rate to 75%. The C-5M will have improved performance, be capable of operating in the CNS/ATM environments, have increased payload capability, and increase transportation system throughput. Specifically, a 58% faster climb improves access to CNS/ATM airspace and reduces in-flight refueling; a 30% shorter takeoff roll improves performance from obstacle-restricted airfields, and a cleaner/quieter aircraft improves access to airfields world-wide and reduces closure time. For example in wartime, the C-5M could directly transport two Army Stryker vehicles and their troops from Pope AFB, NC, to Incirlik AB, Turkey, whereas the legacy C-5A/B would have to stop for fuel in Rota, Spain. The RERP test program is currently flying two modified aircraft with outstanding success. To effectively support the National Defense Strategy, we need the C-5 aircraft's unique lift capabilities in combination with the C-17. C-5 modernization is an essential companion to the remaining C-17 procurement to meet known and forecast mobility requirements.

C-130

As of February 2007, 53 Air Force C-130 aircraft are grounded or restricted. All but one of those aircraft resides in the active duty. At 38,000 equivalent baseline hours (EBH), restricted aircraft are deemed combat ineffective due to flight maneuver and cargo capacity limitations. At 45,000 EBH, aircraft are unworthy of safe flight and are grounded. Maintaining these aircraft adds an unnecessary expense while increasing workloads on our already stressed maintenance personnel. Only through innovative management and great cooperation with our Reserve and Guard Total Force partners have we been able to meet the needs of the warfighter. To mitigate the immediate effects, we have implemented both short-term and long-term strategies to maintain a combat effective intra-theater airlift fleet, which meets warfighter requirements.

The Center Wing Box (CWB) inspect and repair program provided the short-term fix to keep C-130 aircraft operational while awaiting CWB replacement. Aircraft inspected and repaired can operate up to 7,000 EBHs beyond the unrestricted limit. We have had near term success in repairing 27 of the CWBs and plan to repair up to 62 C-130E/H aircraft at an estimated average cost of $700K per aircraft. However, not all aircraft inspected will be repairable. Recently, three C-130E aircraft were inspected and found to have substantial damage. Repair estimates exceeded $2M per aircraft and were not considered fiscally prudent given their limited life expectancy.

The Air Force is using the C-130 Avionics Modernization Program (AMP) to upgrade the fleet. The purpose of the C-130 AMP is to lower the cost of ownership while complying with the Air Force Navigation and Safety (Nav/Safety) Master Plan and applicable CNS/ATM mandates. AMP is a cockpit modernization program that replaces aging, unreliable equipment and adds equipment necessary to meet Nav/Safety and CNS/ATM requirements. The new equipment will lower the cost of ownership by reducing cockpit crew manning, increasing aircraft reliability, maintainability, and sustainability as well as reducing the number of different aircraft configurations. The C-130 AMP includes improved precision airdrop capability, Night Vision Imaging System (NVIS), and improvements to the precision approach and landing capability. The standardized cockpit will allow crewmembers to be trained to fly in one aircraft type and require only one mission qualification thereby reducing training cost.

The Air Force supports the C-130 AMP and considers it a "must do" program. In order to support our National Military Strategy, the Air Force is retiring its oldest and least capable C-130E aircraft as allowed by Congress. The Air Force must start equipping the C-130 fleet with a more modern, more capable, and more cost effective cockpit to meet current and future warfighter requirements.

C-130J

The C-130J is a completely modernized version of the workhorse C-130 that has served us admirably for over 50 years. The C-130J will climb higher more quickly, and fly faster and longer than its predecessors. Its ability to takeoff and land in shorter distances will allow use of more locations. Improved reliability and maintainability will mean longer time between scheduled maintenance, reducing cost.

The Air Force is currently funded to complete Multi-Year Procurement #1 (MYP1) in FY08, delivering 79 USAF C-130J aircraft (62 Combat Delivery, 10 WC-130J and 7 EC-130J). Three aircraft were added in the FY06 Supplemental budget with delivery expected in FY10, bringing the total to 82 aircraft. GWOT Supplemental for FY07 and FY08 added five and fifteen MAF aircraft respectively.

The Commander of Air Mobility Command declared IOC for the C-130J on 5 October 2006. Mission capable rates were very impressive (96%) but the lack of instrument formation capability was rated as having substantial impact on operational effectiveness. A software modification to correct the anomalies is now part of the updated Multi-Year agreement.

JCA

The final piece to the intra-theater mix is the Joint Cargo Aircraft (JCA). The JCA will supplement the C-130 fleet by delivering smaller payloads more effectively. Procurement of the JCA will recapitalize a portion of the retiring C-130 fleet allowing your Air Force to attain the right mix of aircraft to meet COCOM requirements.

In December 2005, PDM-III directed merging the Army Future Cargo Aircraft (FCA) and the Air Force Light Cargo Aircraft (LCA) programs into the JCA with acquisition under the Joint Program Office. In June 2006, the Army Vice Chief of Staff and the Air Force Vice Chief of Staff signed a JCA Memorandum of Agreement (MOA). The USA/USAF will conduct Business Case Analyses to determine the most cost effective methods for implementing the USD (AT&L)-directed single supply chain, single training base, and single maintenance process.

In October 06 the JCA Joint Program Office stood up at Redstone Arsenal, Huntsville, AL. Air Force manpower is working permanent positions. Army production (two aircraft) will begin in FY07 if Joint Milestone C approval is received in May 2007. Air Force production begins in FY10 (eight aircraft).[2]

IV. Closing

We are building a 21st century Air Force prepared to dominate in the 21st century – strategically, operationally, and tactically. Airlift and tanker refueling provide us the means to asymmetrically provide Global Vigilance, Global Reach, Global Power, and worldwide Expeditionary Combat Support. These capabilities are critical to the joint team fight, and are a critical component of the future joint force. The Air Force is committed to advancing airlift and tanker programs to fully support the joint team. We appreciate your continued support in turning our vision into an operational reality. Our Nation must invest today to ensure tomorrow's air, space and cyberspace dominance.

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[2] RAND is currently completing the Intra-theater Airlift Capabilities Based Assessment (F-Studies) and will also provide a fleet mix analysis by December 2007. These studies will analyze the intra-theater airlift capability determining the right mix (C-130 and JCA) to meet COCOM requirements.

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
HOUSE COMMITTEE
ON ARMED SERVICES

STATEMENT BY

LIEUTENANT GENERAL JOHN M. CURRAN
DEPUTY COMMANDING GENERAL – FUTURES
AND DIRECTOR, ARMY CAPABILITIES INTEGRATION CENTER
TRAINING AND DOCTRINE COMMAND
UNITED STATES ARMY

AND

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

BEFORE THE

TACTICAL AIR AND LAND FORCES SUBCOMMITTEE

COMMITTEE ON ARMED SERVICES

UNITED STATES HOUSE OF REPRESENTATIVES

ON

THE JOINT CARGO AIRCRAFT PROGRAM

MARCH 7, 2007

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
HOUSE COMMITTEE
ON ARMED SERVICES

STATEMENT BY

LTG CURRAN
DEPUTY COMMANDING GENERAL – FUTURES
AND DIRECTOR, ARMY CAPABILITIES INTEGRATION CENTER
TRAINING AND DOCTRINE COMMAND
UNITED STATES ARMY
AND
MAJOR GENERAL (PROMOTABLE) JEFFREY A. SORENSON
DEPUTY FOR ACQUISITION AND SYSTEMS MANAGEMENT
OFFICE, ASSISTANT SECRETARY OF THE ARMY
(ACQUISITION, LOGISTICS, AND TECHNOLOGY)

INTRODUCTION

CHAIRMAN ABERCROMBIE, MR. SAXTON AND DISTINGUISHED MEMBERS OF THE SUBCOMMITTEE, I AM PLEASED TO BE HERE TODAY TO DISCUSS ARMY AVIATION. I WELCOME THIS OPPORTUNITY TO TESTIFY BEFORE YOU AND APPRECIATE THE TREMENDOUS AND ONGOING SUPPORT THIS COMMITTEE HAS PROVIDED TO ARMY AVIATION AND OUR SOLDIERS STATIONED AROUND THE WORLD.

THE SUCCESSFUL REINVESTMENT OF COMANCHE DOLLARS DIRECTLY INTO ARMY AVIATION OVER THE PAST 3 YEARS HAS PROVIDED THE FOUNDATION FOR ARMY AVIATION TRANSFORMATION AND MODERNIZATION. THE CONGRESS' CONSISTENT AND CONTINUED SUPPORT OF THIS REINVESTMENT STRATEGY HAS MADE A TREMENDOUS IMPACT ON OUR MODERNIZATION EFFORTS AND HAS ALLOWED ARMY AVIATION TO SUCCESSFULLY EXECUTE THE GLOBAL WAR ON TERROR. DURING THIS TIME, WE HAVE FLOWN OVER 1.5

MILLION FLIGHT HOURS ON OUR MANNED AND UNMANNED AIRCRAFT SYSTEMS WHILE CONSISTENTLY SUSTAINING OPERATIONAL READINESS RATES IN THEATER AT, OR EXCEEDING, DEPARTMENT OF THE ARMY STANDARDS. THIS IS AN INCREDIBLE TESTAMENT TO THE DEDICATED SERVICE PROVIDED TO OUR NATION BY THE MEN AND WOMEN IN THE ARMY; BOTH SOLDIERS AND GOVERNMENT EMPLOYEES.

THE JCA PROGRAM BEGAN AS AN ARMY ONLY FUTURE CARGO AIRCRAFT PROGRAM IN 1999 WITH THE F-SERIES STUDIES. THE RESULTS OF THESE STUDIES RECOGNIZED A GAP IN OUR ABILITY TO MEET ARMY DIRECT SUPPORT REQUIREMENTS FOR TIME/SENSITIVE, MISSION CRITICAL CARGO AND PASSENGER DELIVERY TO THE SERVICE. THIS CULMINATED WITH A JROC APPROVED INITIAL CAPABILITIES DOCUMENT IN MARCH, 2005. THIS WAS FOLLOWED BY A JROC APPROVED CAPABILITIES DEVELOPMENT DOCUMENT WHICH VALIDATED THE REQUIREMENTS NEEDED TO FILL THE GAP. THE ANALYSIS OF ALTERNATIVES ALSO VALIDATED THE KEY PERFORMANCE PARAMETERS CONTAINED IN THE CDD. THE ADDENDUM TO THE AOA IS CURRENTLY BEING COMPLETED AND WILL BE FORWARDED TO OSD-PAE FOR THEIR SUFFICIENCY REVIEW SUPPORTING THE MS C DECISION.

THE ARMY AND THE AF HAVE SUCCESSFULLY ADDRESSED ALL AGREEMENTS IN THE MOA AND THOSE DIRECTIVES GIVEN BY OSD AT&L, REGARDING ,TRAINING AND SUPPORTABILITY, HENCE DEMONSTRATING BOTH SERVICES' ACTION TO GO FORWARD WITH THE

JOINT CARGO AIRCRAFT PROGRAM. THESE DELIVERABLES HAVE BEEN PROVIDED TO OSD FOR VALIDATION. THEY WILL BE REVIEWED AND APPROVED AS PART OF THE MILESTONE C PROCESS.

THE ARMY AND AIR FORCE HAVE DEVELOPED THE JOINT CONCEPT FOR OPERATIONAL EMPLOYMENT AND COMMAND AND CONTROL PROCESSES BY WHICH THE JCA WILL BE FLOWN BY THE TWO SERVICES AND ARE GETTING THEM VALIDATED THROUGH THE JROC PROCESS.

THE ARMY WILL EQUIP AND MAN THEIR JCA THROUGH THE DIVESTITURE OF C-23 AND C-12 AIRCRAFT AND USE THEIR EXISTING FORCE STRUCTURE, ALL IN THE RESERVE COMPONENTS. WE HAVE IDENTIFIED THE INITIAL FOUR ARMY BASING SITES USING EXISTING BASES, WITH A MINIMUM OF FOUR AIRPLANES PER SITE WHICH EQUATES TO A PLATOON.

IN LIGHT OF THE GREAT PROGRESS AND SUCCESSES WE HAVE MADE WITH RESPECT TO THE JOINT PROGRAM, IT IS APPROPRIATE FOR THE JPO TO EXECUTE THE APPROPRIATED FUNDING IN SUPPORT OF THE JCA ACQUISITION STRATEGY AS APPROVED BY USD(AT&L).

CONCLUSION

THE GLOBAL WAR ON TERROR HAS ONLY CONFIRMED OUR NEED FOR THIS CAPABILITY AS WE HAVE ATTEMPTED TO FILL THIS GAP WITH

A MARGINAL SOLUTION USING AN INADEQUATE PLATFORM, THE C-23 SHERPA AND AN INAPPROPRIATE USE OF THE CH-47 CHINOOK.

FISCAL YEAR 2008 WILL BE A PIVOTAL YEAR FOR ARMY AVIATION. THE RESOURCES PROVIDED TO THE ARMY TO CONDUCT OPERATIONS WHILE TRANSFORMING AND MODERNIZING THE AVIATION FORCE WILL DETERMINE ARMY AVIATION'S ABILITY TO CONTINUE TO ACCOMPLISH ITS MISSION AND TO BE POSTURED TO MEET FUTURE COMMITMENTS. TO EXECUTE THESE PLANS, WE NEED YOUR CONTINUED LEADERSHIP AND SUPPORT TO PROVIDE FULL, TIMELY, AND SUSTAINED FUNDING SO WE WILL BE READY FOR CURRENT AND FUTURE CHALLENGES.

I AM READY TO ADDRESS ANY QUESTIONS YOU MAY HAVE.

DOCUMENTS SUBMITTED FOR THE RECORD

MARCH 7, 2007

United States Government Accountability Office

GAO

Report to Congressional Committees

September 2006

DEFENSE TRANSPORTATION

Study Limitations Raise Questions about the Adequacy and Completeness of the Mobility Capabilities Study and Report

GAO

Accountability * Integrity * Reliability

GAO-06-938

September 2006

GAO
Accountability·Integrity·Reliability
Highlights

Highlights of GAO-06-938, a report to congressional committees

DEFENSE TRANSPORTATION

Study Limitations Raise Questions about the Adequacy and Completeness of the Mobility Capabilities Study and Report

Why GAO Did This Study

The Department of Defense (DOD) issued the Mobility Capabilities Study (MCS), which was intended to identify and quantify the mobility capabilities needed to support U.S. strategic objectives into the next decade. The MCS found that projected capabilities are adequate to achieve U.S. objectives with an acceptable level of risk—that is, current U.S. inventory of aircraft, ships, prepositioned assets, and other capabilities are sufficient, in conjunction with host nation support, and assuming planned investments take place.

The Senate report accompanying the bill for the fiscal year 2005 Defense Authorization Act required GAO to report on the adequacy and completeness of the MCS. GAO assessed the extent to which the MCS met generally accepted research standards that this type of study would be expected to meet to be considered sound and complete.

What GAO Recommends

GAO recommends that the Secretary of Defense, in future mobility s capabilities studies beginning with any study currently under way, develop models and data for critical missions and processes; include in study reports an explanation of how stated limitations might impact results; and, incorporate both mobility and warfighting metrics to determine capabilities. In comments, DOD concurred with two of the recommendations and claimed they did not understand the third, which GAO clarified.
www.gao.gov/cgi-bin/getrpt?GAO-06-938.

To view the full product, including the scope and methodology, click on the link above. For more information, contact William M. Solis at (202) 512-8365 or solisw@gao.gov.

What GAO Found

DOD used an innovative approach in conducting the study and acknowledged methodological limitations in its report; however, it did not fully disclose how these limitations could affect the MCS conclusions and recommendations. Therefore, it is not transparent how the analyses done for the study support DOD's conclusions. Measured against relevant generally accepted research standards, GAO has identified limitations in the MCS and its report that raise questions about their adequacy and completeness. GAO suggests that Congress and other decision makers exercise caution in using the MCS to make investment decisions. Among GAO's findings:

- Aspects of modeling and data were inadequate in some areas because data were lacking and the models used could not simulate all relevant aspects of the missions. The report did not explain how these limitations could affect the study results or what the impact on projected mobility capabilities might be. Generally accepted research standards require that models used are adequate for the intended purpose, represent a complete range of conditions, and that data used are properly generated and complete. For example, the MCS modeled hypothetical homeland defense missions rather than homeland defense demands derived from a well defined and approved concept of operations for homeland defense, because the specific details of the missions were still being determined and the data used may be incomplete. The MCS also was unable to model the flexible deterrent options/deployment order process to move units and equipment into theater because of lack of data, but the study assumed a robust use of this process. In addition, the MCS report contains over 80 references to the need for improved modeling or data.
- While the MCS concluded that combined U.S. and host nation transportation assets were adequate, in describing the use of warfighting metrics in its analyses, the report does not provide a clear understanding of the direct relationship of warfighting objectives to transportation capabilities. Additionally, the report stated that further analysis is required to understand the operational impact of increased or decreased strategic lift on achieving warfighting objectives. Relevant generally accepted research standards require that conclusions be supported by analyses. The use of both warfighting and mobility metrics would allow decision makers to know whether combat tasks were achieved and how much strategic transportation is needed to accomplish those tasks.
- In some cases, the MCS results were incomplete, unclear, or contingent on further study, making it difficult to identify findings and evaluate evidence. Relevant research standards require results to be presented in a complete, accurate, and relevant manner. For example, the report contains recommendations for further studies and assessments, five of which are under way. However, DOD has no plans to report the impact of these studies on the MCS results after the studies are complete. In addition, the report contains qualified information that is not presented clearly, such as varying assessments of intra-theater assets in three different places.

Contents

Letter		1
	Results in Brief	2
	Background	5
	Limitations in the MCS Study and Report Raise Questions about Adequacy and Completeness	7
	Conclusions	13
	Recommendation for Executive Action	13
	Agency Comments and Our Evaluation	14
Appendix I	**Scope and Methodology**	18
Appendix II	**Comments from the Department of Defense**	22
Appendix III	**GAO Contact and Staff Acknowledgments**	29
Table		
	Table 1: Generally Accepted Research Standards Relevant to MCS Requirements	19
Figure		
	Figure 1: MCS Hypothetical Ongoing Contingencies during 7-year Baseline Security Posture Time Frame	9

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United States Government Accountability Office
Washington, DC 20548

September 20, 2006

Congressional Committees

The National Security Strategy of the United States requires global mobility through rapid, effective, and efficient projections of power at home and abroad to deploy and sustain America's armed forces. To improve its mobility capabilities, the Department of Defense (DOD) plans to spend more than $50 billion from fiscal years 2006 through 2011 for aircraft, ships, ground transportation, prepositioned assets, and other mobility assets. DOD has conducted several studies to determine mobility requirements and recently completed a study of its mobility capabilities and issued a report in December 2005. The intent of the Mobility Capabilities Study (MCS) was to identify and quantify the mobility capabilities needed to support U.S. strategic objectives into the next decade. The MCS determined that the projected mobility capabilities are adequate to achieve U.S. objectives with an acceptable level of risk during the period from fiscal years 2007 through 2013; that is, the current U.S. inventory of aircraft, ships, prepositioned assets, and other capabilities are sufficient, in conjunction with host nation support. The MCS emphasized that continued investment in the mobility system, in line with current departmental priorities and planned spending, is required to maintain these capabilities in the future. This includes, for example, fully funding Army prepositioned assets as planned and completing a planned reengineering of the C-5 aircraft. The MCS report also made recommendations to conduct further studies, develop plans and strategies, and improve data collection and mobility models. In fact, DOD officials told us that a Mobility Capabilities Study–2006 is underway.

In the Senate report accompanying the bill for the fiscal year 2005 Defense Authorization Act, you asked us to monitor the process used to conduct the MCS and report on the adequacy and completeness of the study.[1] Specifically, our objective was to determine whether the MCS was adequate and complete. On March 1, 2006, we briefed your staff on our preliminary observations. This report expands on that briefing and makes recommendations to the Secretary of Defense.

[1] S. Rep. 108-260, at 126 (2004).

To conduct our review of the MCS, we analyzed the final MCS report, the MCS Terms of Reference and MCS Study Plan, as well as other DOD policies and guidance concerning how DOD would conduct the MCS and the databases and models used in the study. We identified generally accepted research standards that define a sound and complete quality study that were relevant to the MCS, and assessed the extent to which the MCS report met these standards. We interviewed study officials, study participants, and subject matter experts from several DOD entities, including the combatant commands and the military services. As we monitored the development of the MCS, we requested that DOD provide documentation supporting and verifying key analytical and decision-making processes.[2] DOD officials could not produce this documentation during the development of the MCS or following issuance of the report. Consequently, we were unable to fully determine whether the analytical and decision-making processes that we believe are significant to the credibility of the study supported the MCS effort and its conclusions. Our scope and methodology are discussed in more detail in appendix I. We conducted our work from July 2004 through July 2006 in accordance with generally accepted government auditing standards.

Results in Brief

DOD used an innovative approach in conducting the study and acknowledged some methodological limitations in its report, as any sound study should. However, it did not fully disclose how these limitations could affect the MCS conclusions and recommendations. Therefore, it is not transparent how the analyses done for the study support DOD's conclusions. As measured against relevant generally accepted research standards, we identified limitations in the MCS study and report that raise questions about their adequacy and completeness. Among our findings:

[2] Examples of the documentation we requested to support and verify key analytical and decision-making processes used by DOD to conduct the MCS included (1) the accreditation report and supporting documentation or evidence of the verification, validation, and accreditation process for the models and data used in the MCS; (2) copies of MCS working group meeting minutes that verify and validate the analytical processes the various MCS study teams and study participants used to vet and agree upon data, scenarios, assumptions, models, and associated risk; and (3) copies of MCS General Officer Steering Committee and Executive Committee meeting minutes that verify and validate the analytical and decision-making processes the DOD senior leadership used to vet and agree upon the key data, scenarios, assumptions, models, and associated risk used to conduct the MCS, as well as agreement with the study results.

- Aspects of modeling and data were inadequate in some areas because data were lacking and some of the models used could not simulate all relevant aspects of the missions. The report did not explain how these limitations could affect the study results or what the effect on the projected mobility capabilities might be. Relevant research standards require that models used are adequate for the intended purpose, represent a complete range of conditions, and that data used are properly generated and complete. For example, the MCS modeled hypothetical homeland defense missions rather than homeland defense demands derived from a well defined and approved concept of operations for homeland defense, because the specific details of the missions were still being determined, and DOD acknowledged that the data used may be incomplete. The MCS also was unable to model the flexible deterrent options/deployment order process to move units and equipment into theater due to lack of data, but the study assumed a robust use of this process, which in one scenario accounted for approximately 60 percent of the airlift prior to beginning combat operations.[3] In addition, the MCS report contains more than 80 references to the need for improved modeling, and 12 of these references call for additional data or other refinements. Additionally, the MCS modeled the year 2012 to determine the transportation capabilities needed for the years 2007 through 2013. The year 2012 did not place as much demand for mobility assets in support of smaller military operations, such as peacekeeping, as other years. However, DOD officials considered 2012—the year modeled—as "most likely" to occur and stated that statistically it was not different from other years in the 2007 to 2013 period even though the number of smaller military operations is the least of any of the years reviewed.
- While the MCS concluded that combined U.S. and host nation transportation assets were adequate to meet U.S. objectives with acceptable risk, the report, in describing the use of warfighting metrics in its analyses, does not provide a clear understanding of the direct relationship of warfighting objectives to transportation capabilities. Acknowledging this point, the report stated that further analysis is required to understand the operational impact of increased or decreased strategic lift on achieving warfighting objectives. Relevant generally accepted research standards require that conclusions be supported by analyses. The use of warfighting metrics is a measure to determine whether combat tasks, such as achieving air superiority, are achieved.

[3] Deployment orders are issued to deploy specific capabilities as commitment decisions are made, rather than a deploying unit's full set of equipment or capabilities. Flexible Deterrent Options (FDOs) provide escalation options during the initial stages of a conflict. FDOs are employed under certain conditions to deter adversarial actions contrary to U.S. interests.

However, they do not measure whether appropriate personnel, supplies, and equipment arrived in accordance with timelines. As a result, we could not determine how the study concluded that planned transportation assets were adequate because the study did not contain a transparent analysis to support its conclusion or a clear roadmap in the report to help decision makers understand what that conclusion meant in terms of type and number of mobility assets needed. Previous DOD mobility studies primarily used mobility metrics, which measured success in terms of tons of equipment and personnel moved per day to accomplish military objectives. The use of both warfighting and mobility metrics to measure success would allow decision makers to know whether combat tasks were achieved and how much strategic transportation is needed to accomplish those tasks.

- In some cases, the MCS results were incomplete, unclear, or contingent on further study, making it difficult to identify findings and evaluate evidence. Relevant research standards require results to be presented in a complete, accurate, and relevant manner. For example, the report contains several recommendations for further studies and assessments, five of which are under way. However, DOD has no plans to report the effect of these studies on the MCS results after the studies are complete. In addition, the report contains qualified information that is not presented clearly, such as varying assessments of intratheater assets in three different places in the report. The lack of clarity and conciseness of the reported results can limit the study's usefulness to decision makers and stakeholders.
- Verification, validation, and accreditation (VV&A) of models and data used to conduct the study was not complete because it was not done in accordance with DOD policy or relevant research standards. Moreover, relevant research standards state that a study report should include a VV&A accreditation report that is signed by the study director and addresses the models and data certification. DOD officials acknowledged that they did not comply with DOD VV&A policy when using legacy models in the MCS because they contended that long-term use of models and data constitutes an equivalent VV&A process. Other than a description of the process contained in the MCS report, DOD officials could provide no additional documentation to verify and validate this equivalent process to provide the assurance that models and data used in the MCS reduced the risk inherent in modeling and simulation and added to the credibility of the results. Moreover, officials could not provide documentation to support key analytical and decision-making processes used by senior DOD leadership, thus undermining the credibility of the reported study results.

These limitations to the study's methodology raise questions concerning the accuracy of the study's finding that projected capabilities are adequate to achieve U.S. objectives with an acceptable level of risk. Until DOD

conducts an adequate and complete future MCS and clearly discloses all limitations and their effects on the study results, decision makers may be unable to clearly understand the operational implications of the study results and make fully informed programmatic investment decisions concerning mobility capabilities. We are recommending that the Secretary of Defense, when conducting future mobility capabilities studies, beginning with any study currently under way, develop and use models and data for critical missions and processes that are verified, validated, and accredited as required; include in study reports an explanation of how stated limitations might impact the study results and, at a minimum, describe how recommended future studies might be conducted to enhance the results of the original study; and incorporate both mobility and warfighting metrics in determining capabilities.

In commenting on a draft of this report, DOD concurred with the first and third recommendations and claimed that they did not understand the second. We have clarified that recommendation to the Secretary of Defense to include in study reports an explanation of how stated limitations might impact the study results and, at a minimum, describe how recommended future studies might be conducted to enhance the results of the original study. In its comments, DOD also stated that the report contained misleading information and factual errors. We disagree with DOD's assertion. We did modify our report to respond to a DOD technical comment related to homeland defense missions. DOD's comments and our evaluation of them are discussed in the agency comments section of this report.

Background

The MCS was the first assessment of DOD's mobility system since 2000. The study was designed to identify changes in DOD's transportation force structure due to changes in threats and national security and military strategies. The MCS is the fourth in a series of major mobility studies that DOD has conducted since the end of the Cold War. The first study, the Mobility Requirements Study, conducted in 1992, was undertaken because of concern about the DOD's strategic mobility capabilities in the wake of Operation Desert Shield and Operation Desert Storm. That study established mobility requirements for the post-Cold War era; defined baseline requirements for intertheater, or strategic, mobility; and proposed a long-range investment plan to meet these requirements. The Mobility Requirements Study Bottom-Up Review Update, conducted in 1994, reaffirmed the need for increases in key mobility components and validated the prior study's recommendation for the procurement of additional ships for afloat prepositioning and for surge deployments of

forces based in the continental United States. The Mobility Requirements Study—2005, issued in 2001, projected future mobility requirements based on two nearly simultaneous major regional contingencies. It included a broader range of factors, including host nation support and enemy use of weapons of mass destruction, than the previous studies.

The current MCS, which began in May 2004, reassessed DOD's mobility capabilities against the backdrop of a revised National Military Strategy that included the ongoing war against violent extremism, an evolving global defense posture, a new force-sizing construct, revised campaign scenarios, and ongoing departmentwide transformation efforts. The study results were intended to support decisions on future strategic airlift, aerial refueling aircraft, and sealift procurements needed to meet varying military requirements. The study used an innovative "capabilities-based" approach, measuring existing and currently projected mobility capabilities against warfighting demands that could be expected in fiscal year 2012 while also considering mobility demands during the 7-year period from fiscal year 2007 through fiscal year 2013. According to DOD officials, the Secretary of Defense believed this approach would give him greater flexibility in deciding which capabilities to fund in a constrained budget environment. In considering each aspect of the National Military Strategy,[4] the MCS modeled warfighting scenarios in the year 2012 using different premises with varying assumptions to develop and evaluate mobility capability mix alternatives. The models were used to evaluate transportation alternatives, including variations in alternative transportation modes (air, land, sea) and sources (military, civilian, foreign), as well as factors that affect transportation mode and source decisions. The scope of the MCS described the study as an assessment of the full range of transportation needs required to support (1) combat operations; (2) smaller military efforts, such as peacekeeping or overseas evacuation of American citizens; (3) homeland defense/civil support, such as disaster relief and antiterrorism response; and (4) other strategic missions, such as strategic nuclear and global strike missions. The study was coauthored by the Office of the Secretary of Defense, Office of the Director, Program Analysis and Evaluation (PA&E), and the Chairman,

[4] The 2004 National Military Strategy of the United States calls for a force sized to defend the homeland, proactively dissuade adversaries in and from four global regions, and conduct two overlapping "swift defeat" campaigns. Even when committed to a limited number of lesser contingencies, the force must be able to "win decisively" in one of the two campaigns. This "1-4-2-1" force-sizing construct places a premium on increasingly innovative and efficient methods to achieve objectives.

Joint Chiefs of Staff, Office of the Director of Logistics. Other DOD components involved in the study included the U.S. Transportation Command and its subordinate commands, the Office of the Under Secretary of Defense (Acquisition, Technology and Logistics), the combatant commanders, the military services, and others. The final report was signed on December 19, 2005, by the Deputy Secretary of Defense.

Limitations in the MCS Study and Report Raise Questions about Adequacy and Completeness

As measured against relevant generally accepted research standards, limitations in the MCS study and report raise questions about their adequacy and completeness. For example, aspects of modeling and data were inadequate in some areas because data were lacking and some of the models used could not simulate all relevant aspects of the missions. Furthermore, the exclusive use of warfighting metrics in the MCS analyses limited the usefulness of the report. Moreover, in some cases the MCS results were incomplete, unclear, or contingent on further study, making it difficult to identify findings and evaluate evidence. Finally, verification, validation, and accreditation of models and data used to conduct the study were incomplete because they were not done in accordance with DOD policy or relevant research standards, and supporting documentation for key processes could not be provided.

Aspects of Modeling and Data Were Inadequate

Aspects of modeling and data were inadequate in some areas because data were lacking and some of the models used could not simulate all relevant aspects of the missions. Relevant research standards require that models used are adequate for the intended purpose, represent a complete range of conditions, and that data used are properly generated and complete. As DOD acknowledged in the MCS report as a study limitation, some modeling tools were not available to analyze key missions. The MCS cited deficiencies in several existing mobility models and the need for follow-on MCS analyses. The MCS report also acknowledged that the identified deficiencies in data hindered analysis of future requirements and transportation system performance. However, the report did not explain how these limitations could affect the study results or what the effect on the projected mobility capabilities might be.

For example, the MCS modeled hypothetical homeland defense missions rather than homeland defense demands derived from a well defined and approved concept of operations for homeland defense, because the specific details of the missions were still being determined, and DOD acknowledged that the data used are incomplete. The MCS report recommended further analysis of mobility capabilities after homeland

defense needs are refined. However, the report did not identify the potential effect that using these hypothetical scenarios might have on the MCS results. The MCS also was unable to model the flexible deterrent options/deployment order process to move units and equipment into theater because of lack of data on how deployment orders have been issued in the past for major combat operations. However, the MCS assumed a robust use of the flexible deterrent option/deployment order process, which in one scenario accounted for approximately 60 percent of the early airlift movement prior to the beginning of combat operations. Instead, the MCS modeled the flow of forces and equipment contained in the time-phased force deployment data process.[5] Based on the scenarios provided for the MCS analyses, we could not determine how the deployment order process would affect the mobility assets required for major combat operations. The MCS report noted that additional analysis is required to determine the implications of the deployment order process and to provide sufficient information for decision makers concerning the amount of future mobility assets actually needed.

In addition to these modeling and data issues, the MCS report contains more than 80 references to the need for improved modeling, and 12 of these references call for additional data or other refinements, such as follow-on analyses, further assessments, future evaluations, additional study, and investigation of alternatives in a wide range of areas, such as antiterrorism response, infrastructure availability, intratheater airlift, strategic sealift, air refueling, and availability of civil reserve aircraft. Some of these studies are currently underway, as discussed later in this report.

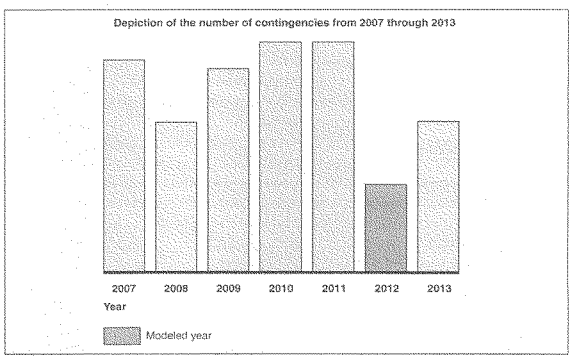
Moreover, our analysis of the MCS report showed that the year modeled (2012) to determine the DOD transportation capabilities needed for the years 2007 through 2013 did not place as much demand for mobility assets in support of smaller military operations, such as peacekeeping, as other years. To establish transportation demands for mission requirements, DOD developed and used a baseline security posture[6] that covered a 7-year

[5] In joint military planning, time-phased force deployment data are defined as a computer database that contains detailed personnel and cargo planning data; it usually includes priority and sequencing of deploying forces.

[6] The baseline security posture projects the position from which combatant commanders will perform future missions, including how they will address the global war on terrorism, ongoing operations, and other day-to-day activities to which U.S. forces remain committed and from which they are not likely to disengage entirely.

period. This baseline was developed, in part, using a historical analysis of DOD's movement of personnel, equipment, supplies, and other items. According to DOD officials, Office of the Under Secretary of Defense for Policy, which developed the baseline security posture, selected the year modeled in the MCS because it was deemed the "most likely" to occur in terms of transportation demands and because it was not statistically different from other years in the 7-year period. However, our analysis showed that 2012 involved the least demand for transportation assets in support of smaller military efforts than any year in the 7-year period and did not fully stress the defense transportation system. Figure 1 depicts the number of hypothetical ongoing contingencies for each year in the baseline as shown in the MCS.

Figure 1: MCS Hypothetical Ongoing Contingencies during 7-year Baseline Security Posture Time Frame



Source: GAO's analysis of MCS notional lesser contingency schedule.

Note: A particular contingency may be ongoing in more than 1 year. Each contingency has unique cargo and passenger requirements. For example, a contingency that may be ongoing over a 2- or 3-year time frame may require more or less mobility capability than a 6-month contingency.

Although not transparent in the study, DOD officials said scenarios in the year modeled were not intended to fully stress the defense transportation system. DOD officials provided no further explanation for the year selected to develop the DOD transportation capabilities other than it was

directed by Office of the Under Secretary of Defense for Policy and agreed to by the study leadership. We believe that selection of a different year that placed an increased demand on transportation assets for smaller military efforts may have revealed gaps in mobility requirements. Therefore, we found that the selection of 2012 as the modeling year was a limitation in the MCS with respect to smaller military efforts.

Because of these modeling and data limitations, the MCS may have incorrectly estimated the future mobility requirements needed to support homeland defense missions, major combat operations, and smaller contingencies. Until DOD improves aspects of the modeling and data used to conduct the MCS—to include defining its homeland defense mission needs, developing models for the deployment order process, and explaining how identified modeling and data limitations could affect the study results—decision makers may not have adequate and complete information about DOD's mobility capabilities.

Exclusive Use of Warfighting Metrics in MCS Analyses Limited Usefulness of Report

While the MCS concluded that combined U.S. and host nation transportation assets were adequate to meet U.S. objectives with acceptable risk, the report, in describing the use of warfighting metrics in its analyses, does not provide a clear understanding of the direct relationship of warfighting objectives to transportation capabilities. The report acknowledged that further analysis is required to understand the operational impact of increased or decreased strategic lift on achieving warfighting objectives. Relevant generally accepted research standards require that conclusions be supported by analyses. The use of warfighting metrics is a measure to determine whether combat tasks, such as establishing air superiority, are achieved. However, they do not measure success in terms of whether appropriate personnel, supplies, and equipment arrived in accordance with timelines. As a result, we could not determine how the study concluded that planned transportation assets were adequate because the study did not contain a transparent analysis to support its conclusion. In our opinion, it is important for decision makers to have an understanding of both combat tasks that must be achieved and the amount of transportation assets needed to achieve those tasks with some level of success. This understanding would allow creation of a clear roadmap for investment decisions. However, we could not determine how the study calculated the specific numbers of transportation assets needed or whether there are specific gaps, overlaps, or excesses in transportation assets, a key objective of the study. Previous DOD mobility studies, including the Mobility Requirements Study—2005, primarily used mobility metrics, which measured success in terms of tons of equipment and

personnel moved per day to accomplish military objectives. Million-ton-miles per day is a commonly accepted measure of airlift performance and reflects how much cargo can be delivered over a given distance in a given period of time based on the capability of each type of aircraft. A similar mobility metric—short tons—is used to measure ship capability. However, these studies did not fully integrate combat tasks as a metric. The use of both warfighting and mobility metrics to measure success would allow decision makers to know whether there is sufficient capability to achieve warfighting objectives, as well as to understand the number, type, and mix of mobility assets that are actually needed.

Results Are Not Always Complete or Presented Clearly and Are Qualified or Contingent on Further Study or Analysis

In some cases, the MCS results were incomplete, unclear, or contingent on further study, making it difficult to identify findings and evaluate evidence. Relevant research standards require results to be presented in a complete, accurate, and relevant manner; conclusions to be sound and complete; and recommendations to be supported by analyses. Our analysis of the MCS report found that it contains several recommendations for further studies and assessments, five of which are under way. The five studies address intratheater lift capabilities; sealift petroleum, oil, and lubricants; logistics contingency operations capabilities; aerial refueling; and integrated global presence and basing. However, the report does not explain the potential effect of these ongoing studies on the MCS results after the studies are complete, nor does DOD have plans to report the effect of these studies on the MCS results.

In addition, the report contains qualified information that is not presented clearly in the report, such as varying assessments of intratheater assets in three different places. For example, the report states in the assessment section of the executive summary that projected transportation assets are sufficient to address intratheater demands in the fiscal years 2007 through 2013 time frame. However, in the recommendations section of the executive summary, the report states that DOD should take action to determine the proper mix of intratheater assets needed to meet requirements. Then, in the part of the report that discusses intratheater airlift, the report states that a detailed analysis of intratheater airlift needs would require improved modeling tools to accurately capture interactions among land, sealift, and airlift capabilities and that data sets must be developed that accurately describe the requirement in light of emerging concepts.

VV&A of Models and Data Was Not Complete

VV&A of models and data used to conduct the study was not complete because it was not done in accordance with DOD policy or relevant research standards. DOD policy issued by the Under Secretary of Defense for Acquisition, Technology and Logistics requires that DOD models and data go through a VV&A process. Moreover, relevant research standards state that a study report should include a VV&A accreditation report that is signed by the study director and addresses the models and data certification. DOD officials acknowledged that they did not comply with the VV&A policy when using legacy models in the MCS because they believed such an approach was not warranted for legacy models that have been used for many years and have proved reliable. Moreover, these officials believe that such long-term use constitutes a VV&A process equivalent to that required in the policy. However, the DOD policy does not specify that the actual use of a model constitutes an equivalent VV&A process. VV&A of models and data reduces the risk inherent in the use of models and simulations by improving the credibility of modeling and simulation results. We previously reported our concerns that DOD did not follow its policy in executing the MCS and had little documentation to support the VV&A process used.[7] We found that the final MCS report contained a description of the equivalent VV&A process, but DOD officials could provide no further documentation to verify and validate this equivalent process other than the description included in the report. We also found no documentation in the study report to support DOD claims that the models have proven reliable.

Furthermore, DOD officials were unable to provide documentation to support and verify key analytical and decision-making processes used by senior DOD leadership throughout the study. Relevant research standards support documenting the study's analytical and decision-making processes to ensure the accuracy, completeness, and credibility of study results. DOD officials told us that the study's key analytical and decision-making processes were validated and approved by study participants during working group meetings and by senior leadership during General Officer Steering Committee meetings and Executive Committee meetings. PA&E officials could not produce documentation of these meetings because they said documentation did not exist. Nor could they produce other documents we requested during the development of the MCS or following

[7] See GAO, *Defense Transportation: Opportunities Exist to Enhance the Credibility of the Current and Future Mobility Capabilities Studies*, GAO-05-659R (Washington, D.C.: Sept. 14, 2005), for a more detailed discussion.

issuance of the report. Consequently, we were unable to determine the adequacy and completeness of the analytical and decision-making processes that supported the MCS effort and that we believe are significant to the credibility of the study and its conclusions.

Conclusions

The methodological limitations in the MCS that we identified—some of which were acknowledged by DOD in the MCS report—raise questions about the adequacy and completeness of the study and its report. Until DOD improves aspects of the modeling and data used to conduct the MCS—such as defining its homeland defense mission needs and developing models for the deployment order process—decision makers may not have adequate and complete information about DOD's mobility capabilities to enable them to make fully informed investment decisions. Furthermore, in the absence of an explanation of how identified modeling and data limitations could affect the study results or how such limitations could affect projected mobility capability requirements, the accuracy of the study's finding that projected capabilities are adequate to achieve U.S. objectives with an acceptable level of risk during the period from fiscal years 2007 through 2013 is unclear. Moreover, without a transparent comparison between existing mobility assets and projected needed assets, decision makers will be unable to use study results to identify and quantify the specific types and mix of mobility assets needed to address mobility gaps, overlaps, and excesses. Until DOD conducts an adequate and complete future MCS and clearly discloses all limitations and their effects on the study results, decision makers likely will not have full information concerning DOD's mobility capabilities. As a result, we suggest that Congress and other decision makers exercise caution in using the MCS to make programmatic investment decisions.

Recommendation for Executive Action

To provide decision makers with adequate and complete information concerning mobility capabilities so they are able to clearly understand the operational implications of the study and make fully informed programmatic investment decisions, and to improve the usefulness of future mobility capabilities studies, we recommend that the Secretary of Defense take the following three actions, when conducting future mobility capabilities studies beginning with any study currently underway:

- develop models and data for all critical missions, such as homeland defense, and processes, such as the flexible deterrent options/deployment order process;
- include in study reports an explanation of how stated limitations might impact the study results and, at a minimum, describe how recommended

future studies might be conducted to enhance the results of the original study; and

- incorporate both mobility and warfighting metrics in determining capabilities.

Agency Comments and Our Evaluation

In commenting on a draft of this report, DOD concurred with our first and third recommendations. DOD stated it did not understand our second recommendation that the Secretary of Defense, when conducting future mobility studies, beginning with any study currently underway, include in study reports an explanation of how ongoing and follow-on studies and modeling and data limitations that are referenced in the report could affect the reported results. DOD also noted that it plans to continue its ongoing efforts to enhance the models and data collection processes used to assess mobility capabilities across the full range of strategic missions and supports the notion that continual improvements are needed. As we noted throughout our report, the MCS report contains numerous and repeated references to the need for improved modeling and additional data or other refinements, such as follow-on analyses, further assessments, future evaluations, additional study, and investigation of alternatives in a wide range of areas. DOD further commented that while a completed study can recommend that follow-on studies be conducted, it cannot explain how future studies might affect the results of the current study. We acknowledge that DOD cannot quantitatively predict the outcome of an ongoing or future study. However, we believe DOD should be able to explain what ongoing follow-on studies or evaluations seek to determine, what changes are being made to the data inputs and modeling tools that are being used to conduct the studies, and how DOD expects the results may differ from current study results. While the explanation may be hypothetical, as are many operations research study hypotheses, it can provide decision makers with a better understanding of the current study's limitations and results and how an ongoing or future study's results may differ. Therefore, we refined our recommendation to recommend that the Secretary of Defense, when conducting future mobility studies, beginning with any study currently under way, include in study reports an explanation of how stated limitations might impact the study results and, at a minimum, describe how recommended future studies might be conducted to enhance the results of the original study. For example, if modeling and data are limitations to a study, the report should discuss the ways in which the results might change with better models and data.

DOD also commented that our report contained misleading information and factual errors and that it stands by the adequacy and completeness of

the MCS. The department provided examples in its technical comments where it believed our report contained misleading information and factual errors. We disagree with the department's comments regarding the facts in our report and have addressed each of the department's comments in appendix II.

Lastly, DOD stated that the MCS and its conclusions are well accepted by the civilian and military leadership of the department, and pointed out that in March 2006 testimony before the House Armed Services Committee, the Commander, U.S. Transportation Command, stated that the planned strategic airlift fleet determined by the MCS is "about the right capacity". However we note that in the same hearing, the Commander also stated that he thought DOD needed "somewhere in the neighborhood of" 20 C-17 cargo aircraft beyond what is planned. We also note that in the Commander's April 2006 testimony before the Senate Armed Services Committee, Subcommittee on Sealift, he stated that, in an internal Focused Mobility Analysis to study strategic mobility from a Transportation Command perspective, the MCS will be the baseline, "but we will explore how changes in key assumptions may impact the analytical outcome."

We are sending copies of this report to the Secretary of Defense; the Director of PA&E; and the Office of the Chairman, Joint Chiefs of Staff. We will also make copies available to others upon request. In addition, the report is available at no charge on the GAO Web site at http://www.gao.gov. If you or your staff have any questions regarding the briefing or this report, please contact me at (202) 512-8365 or solisw@gao.gov. Contact points for our Offices of Congressional Relations

and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix III.

William M. Solis
Director, Defense Capabilities and Management

List of Congressional Committees

The Honorable John Warner
Chairman
The Honorable Carl Levin
Ranking Minority Member
Committee on Armed Services
United States Senate

The Honorable Ted Stevens
Chairman
The Honorable Daniel K. Inouye
Ranking Minority Member
Subcommittee on Defense
Committee on Appropriations
United States Senate

The Honorable Duncan L. Hunter
Chairman
The Honorable Ike Skelton
Ranking Minority Member
Committee on Armed Services
House of Representatives

The Honorable C.W. Bill Young
Chairman
The Honorable John P. Murtha
Ranking Minority Member
Subcommittee on Defense
Committee on Appropriations
House of Representatives

Appendix I: Scope and Methodology

To conduct our review of the Mobility Capabilities Study (MCS), we reviewed and analyzed the final MCS report; the MCS Terms of Reference; the MCS Study Plan; applicable Department of Defense (DOD) strategic planning guidance; as well as other DOD guidance, directives, instructions, and memos that describe how DOD would conduct its MCS. We also reviewed the National Security Strategy of the United States of America and the National Military Strategy of the United States of America; DOD guidance concerning data collection, development, and management in support of strategic analysis; DOD modeling and simulation instruction; Defense Modeling and Simulation Office guidance; descriptions of models used to conduct the study; and the databases used in the models. We interviewed study officials from the Office of the Secretary of Defense, Program Analysis and Evaluation (PA&E), and the office of the Chairman, Joint Chiefs of Staff, Logistics, as well as study participants and subject matter experts from the U.S. Transportation Command, Air Mobility Command, Surface Deployment and Distribution Command, the combatant commands, and the military services concerning the extent of their input to the study. We also interviewed officials from the Office of the Secretary of Defense, Acquisition, Technology and Logistics, and the Modeling and Simulation Technical Director at the Defense Modeling and Simulation Office.

Additionally, we reviewed research literature and DOD guidance and identified frequently occurring, generally accepted research standards that are relevant for defense studies such as the MCS that define a quality or sound and complete study. The following were our sources for these standards:

- GAO, *Government Auditing Standards*: 2003 Revision, GAO-03-673G (Washington, D.C.: June 2003);
- GAO, *Designing Evaluations*, GAO/PEMD-10.1.4 (Washington, D.C.: March 1991);
- GAO, Dimensions of Quality, GAO/QTM-94-1 (Washington, D.C.: February 2004);
- RAND Corporation, *RAND Standards for High-Quality Research and Analysis* (Santa Monica, Calif.: June 2004);
- Air Force Office of Aerospace Studies, *Analysts Handbook: On Understanding the Nature of Analysis* (January 2000);
- Air Force, Office of Aerospace Studies, *Air Force Analysis Handbook, A Guide for Performing Analysis Studies: For Analysis of Alternatives or Functional Solution Analysis* (July 2004);

- Department of Defense, *DOD Modeling and Simulation (M&S) Verification, Validation, Accreditation (VV&A)*, Instruction 5000.61 (Washington, D.C.: May 2003);
- Department of Defense, *Data Collection, Development, and Management in Support of Strategic Analysis*, Directive 8260.1 (Washington, D.C.: December 2, 2003); and
- Department of Defense, *Implementation of Data Collection, Development, and Management for Strategic Analyses*, Instruction 8260.2 (Washington, D.C.: January 21, 2003).

During the process of identifying generally accepted research standards we noted that not all studies are conducted the same way. For example, while all studies use data, not all use baseline data. Likewise, all studies require analyses, but not all use models or simulation to conduct analyses. We tailored the research standards we identified as relevant to the MCS, as shown in table 1.

Table 1: Generally Accepted Research Standards Relevant to MCS Requirements

Design: The Study is well designed	
I.	**Study plan, scope, and objectives follow Defense Planning Guidance**
I.a	(Do the study scope and objectives fully address the charter presented in the 2004 Defense Planning Guidance?)
I.a.1	Does the study plan address specified guidance?
I.b	Was the study plan followed?
I.c	Were deviations from the study plan explained and documented?
I.d	Was the study plan updated over the course of the study and the updates explicitly identified in the study and updated study plan?
II	**Assumptions and constraints are reasonable and consistent**
II.a	Are assumptions and constraints explicitly identified?
II.a.1	(Are the study assumptions necessary and reasonable?)
II.b	Do the study assumptions support a sound analysis?
II.c	Are the assumptions used in analyses common throughout the study and models?
II.d	Do the assumptions contribute to an objective and balanced research effort?
III	**Scenarios and threats are reasonable**
III.a.	Are scenarios traceable back to formal guidance?
III.b	Were the threat scenarios validated and Defense Intelligence Agency approved and documented?
III.c	Do scenarios represent a reasonably complete range of conditions?
III.d	(Were the threats varied to allow for the conduct of sensitivity analysis?)
Execution: The study is well executed	
IV	**Methodology is successfully executed**
IV.a	Was the study methodology executed consistent with the (MCS) study plan and schedule?

IV.b	(Does the methodology support accomplishing the objectives presented in the study plan?)
IV.c	Were the models used to support the analyses adequate for their intended purpose?
IV.d	Were the model input data properly generated to support the methodology?
V	**(Analytical) Baseline data and other data used to support study and analyses validated, verified, and approved**
V.a	Is the (analytical) baseline fully and completely identified and used consistently throughout the study for the various analyses?
V.b	Were data limitations identified (and the impact of the limitations fully explained?)
V.c	Were the (baseline security posture) data verified and validated?
V.d	Was the data verification and validation process documented?
VI	**Models, simulations, and verification, validation, and accreditation are reasonable**
VI.a	Was a VV&A accreditation report that addresses the models and data certification signed by the study director and included in the report?
VI.b	Were modeling and simulation limitations identified and explained?
VI.c	Has each model in the study been described?
VI.d	Are the model processes clearly explained, documented and understood?
VII	**Measures of effectiveness (MOEs) and essential elements of analysis (EEAs) are addressed**
VII.a	(Do MOEs adhere to the guidance in the study terms of reference?)
VII.b	(Are the MOEs fully addressed in the study?)
VII.c	(Are the EEAs addressed in the study?)
Presentation of results: Timely, complete, accurate, concise, and relevant to the client and stakeholders	
VIII	**Presentation of results support findings**
VIII.a	Does the report address the objectives?
VIII.b	Does the report present an assessment that is well documented and conclusions that are supported by the analyses?
VIII.c	Are conclusions sound and complete?
VIII.d	Are recommendations supported by analyses?
VIII.e	Is a realistic range of options provided?
VIII.f	Are the study results presented in the report in a clear manner?
VIII.g	Are study participants/stakeholders (i.e., services and Combatant Commands) informed of the study results and recommendations?

Source: GAO analysis of industry and DOD study and research standards.

We used these relevant standards as our criteria to assess the reported MCS results. All eight key areas of the study process were considered to have equal importance relative to the soundness and completeness of the study; that is, a sufficiently serious concern in any category could raise questions concerning the adequacy and completeness of the report. The analysts independently reviewed evidence relevant to each subquestion, including the study itself, the study Terms of Reference, and its strategic planning guidance. For each of the subquestions in the key study process areas, the analysts determined whether (1) the evidence had no limitations

or raised no concerns, (2) the evidence had some limitations or raised some concerns, (3) the evidence had significant limitations or raised significant concerns, or (4) we could not determine the extent of limitations or concerns because there was not sufficient information. The analysts then met, compared, and discussed their individual assessments, and reached an overall assessment for each subquestion. Areas of the study where we identified either "some" or "significant" limitations or concerns were considered to affect the adequacy or completeness of the study. Additionally, areas of the study that could not be assessed because of the lack of supporting documentation were considered to affect the credibility of the study.

Throughout our review PA&E officials told us that the documentation needed to support and verify the key analytical and decision-making processes used to conduct the MCS, documentation that was vetted and approved by DOD leadership and all of the study participants, would not be completed and available for our review until the study report was issued. However, after the report was issued, we were told that the report provides all of the supporting documentation needed and that the other documentation we requested could not be provided. As a result, we were unable to determine the adequacy and completeness of the analytical and decision-making processes that supported the MCS effort to evaluate the credibility of the study. We believe these processes are significant to the credibility of the study and its results.

We conducted our review from July 2004 through July 2006 in accordance with generally accepted government auditing standards.

Appendix II: Comments from the Department of Defense

DEPUTY SECRETARY OF DEFENSE

1010 DEFENSE PENTAGON
WASHINGTON, DC 20301-1010

AUG 30 2006

The Honorable David M. Walker
Comptroller General of the United States
U.S. Government Accountability Office
441 G Street, N.W.
Washington, DC 20548

Dear Mr. Walker:

This is the Department of Defense (DoD) response to the GAO draft report, GAO-06-938, "DEFENSE TRANSPORTATION: Study Limitations Raise Questions about the Adequacy and Completeness of the Mobility Capabilities Study (MCS) and Report," dated August 21, 2006 (GAO Code 350558). DoD's responses to the report's recommendations are enclosed.

The GAO draft report contains misleading information and factual errors. The Department stands by the adequacy and completeness of the MCS, which is one of the most comprehensive capability studies ever conducted by the Department of Defense. The data and models used by the study are sound, and the results of the study are valid. Furthermore, in its groundbreaking assessment of homeland defense mission needs, the MCS accurately reflects the Department's most current understanding of this developing national mission. Lastly, MCS insights – drawn from the study's broad array of mobility metrics and detailed operational simulations – significantly enhanced senior leaders' deliberations during the 2005 Quadrennial Defense Review.

The MCS was a collaborative effort led by the Office of the Secretary of Defense and the Joint Staff, and its conclusions are well accepted by the civilian and military leadership of the Department. In his March 2006 Congressional testimony, the Commander, U.S. Transportation Command acknowledged the study's finding by stating that the planned strategic airlift fleet of 292 aircraft "is about the right capacity." Likewise, during a press conference in November 2005, the Vice Chairman of the Joint Chiefs of Staff expressed his support for the study, citing the MCS finding that the Department has "a very capable and adequate airlift fleet."

Enclosure:
As stated

UNCLASSIFIED

GAO DRAFT REPORT – DATED August 21, 2006
GAO CODE 350558/GAO-06-938

"DEFENSE TRANSPORTATION: Study Limitations Raise Questions about the Adequacy and Completeness of the Mobility Capabilities Study and Report"

DEPARTMENT OF DEFENSE COMMENTS TO THE RECOMMENDATIONS

RECOMMENDATION 1: The GAO recommended that the Secretary of Defense, when conducting future mobility capabilities studies, beginning with any study currently underway, develop models and data for all critical missions, such as homeland defense, and processes, such as the flexible deterrent options/deployment order process.

DOD RESPONSE: DoD concurs. The Department plans to continue its ongoing efforts to enhance the models and data collection processes used to assess mobility capabilities across the full range of strategic missions. The models used in the MCS are sound and have consistently produced valid results in the four mobility studies conducted by DoD since the end of the Cold War. Furthermore, as recommended in the MCS report, DoD supports the notion that continual improvements are needed to provide enhanced analytic tools for the Department as it strives to address complex real-world processes.

RECOMMENDATION 2: The GAO recommended that the Secretary of Defense, when conducting future mobility studies, beginning with any study currently underway, include in study reports an explanation of how ongoing and follow-on studies and modeling and data limitations that are referenced in the report could affect the reported results.

DOD RESPONSE: DoD does not understand this recommendation. While a completed study can recommend that follow-on studies be conducted, it cannot explain how future studies might affect the results of the current study.

RECOMMENDATION 3: The GAO recommended that the Secretary of Defense, when conducting future mobility capabilities studies, beginning with any study currently underway, incorporate both mobility and warfighting metrics in determining capabilities.

DOD RESPONSE: DoD concurs. In fact, the MCS employed a rigorous process by which the Services, Combatant Commands, and the Joint Staff collaboratively developed warfighting metrics. These metrics were used along with a comprehensive set of mobility metrics for airlift, sealift, surface transport, and prepositioned equipment to determine the adequacy of the full spectrum of mobility capabilities.

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GAO DRAFT REPORT – DATED August 21, 2006
GAO CODE 350558/GAO-06-938

"DEFENSE TRANSPORTATION: Study Limitations Raise Questions about the Adequacy and Completeness of the Mobility Capabilities Study and Report"

DEPARTMENT OF DEFENSE TECHNICAL COMMENTS

The following are three examples of factual errors and misleading information contained in the draft GAO report:

See comment 1.

1. Page 3: "The [modeled] year of 2012 did not place as much demand for mobility assets in support of smaller military operations, such as peacekeeping, as other years."

Response: False. The seven-year demand (2007-2013) developed as part of the Baseline Security Posture, and used by the MCS, does not have significant variance from year to year. 2012 demand is not significantly less than 2009, and is larger than 2013.

It is important to note the fact that the MCS modeled a surge demand on the mobility system in 2012 that far exceeds anything this nation has experienced since World War II. In doing so, the study correctly applied the Department's strategic planning framework (1-4-2-1) and its guidance with respect to the conduct of concurrent lesser contingencies during overlapping war fights. GAO has incorrectly focused on the number of operations, not the level of effort.

See comment 2.

2. Page 4: "The use of war fighting metrics is a measure to determine whether combat tasks, such as achieving air superiority, are achieved. However, they do not measure whether appropriate personnel, supplies, and equipment arrived in accordance with timelines."

Response: False. The war fighting metrics developed by the MCS do measure whether appropriate personnel, supplies, and equipment arrived in accordance with timelines.

In fact, the MCS employed a rigorous process to develop war fighting metrics that were used along with a comprehensive set of mobility metrics for airlift, sealift, and surface transport. These metrics were used to determine if the modeled war fights accomplished the commander's objectives within the right timelines. As we explained to GAO, being able to achieve a desired task within the desired timeline requires the appropriate personnel, supplies and equipment to be in place on time, indicating that the transportation capabilities are adequate.

See comment 3.

3. Page 3: "The MCS also was unable to model the flexible deterrent options/deployment order process . . ."

Response: False. The MCS DID analyze flexible deterrent option (FDO) movements to the theater. As part of the MCS analysis, the study modeled the flow of forces in response to rising tensions in various regions of the world. Forces were flowed to the region in anticipation of operations before war plans were executed. These flexible deterrent options were included in the MCS analysis. What the study did not do was model the deployment order process used in OIF. Rather, the study used the time-phased force deployment data (TPFDD) process as the accepted methodology for flowing follow-on forces.

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See comment 4.

4. Page 3: "The MCS modeled hypothetical homeland defense missions rather than actual homeland defense demands because the specific details of the missions were still being determined, and DoD acknowledged that the data used may be incomplete."

Response: The statement is misleading. We are not sure what the report means by "actual homeland defense demands." Actual demands are encountered in response to actual events. The MCS was intended to inform the DoD leadership concerning the impact of potential demand on the mobility system, and to assess the risks associated with different potential demand levels. The study used the latest approved homeland defense scenarios developed by NORTHCOM and PACOM, as well as the Department's current planning guidance, to determine the range of mobility assets needed to support a range of missions. Given the many unknowns associated with homeland defense, the study assessed low, moderate, and high levels of DoD support for these missions.

See comment 5.

5. Page 3: "Aspects of modeling and data were inadequate . . ."

Response: This statement is misleading. These are the same models that the Department has relied on to complete three previous mobility studies since the end of the Cold War. Furthermore, the Department has dedicated significant resources to make sure that these models and the data collection processes are adequate. The fact that the study recommends future improvements was meant to focus future enhancements as the Department strives to address increasingly complex real world issues. The MCS models and data were adequate to assess relevant aspects of the missions required to support the National Military Strategy.

UNCLASSIFIED

TOTAL P.03

GAO's Responses to DOD's Technical Comments

1. DOD disagreed with our assessment that the modeled year—2012—did not place as much demand for mobility assets in support of smaller military operations, such as peacekeeping, as other years. DOD also stated that we incorrectly focused on the number of operations, not the level of effort. We disagree. The MCS report (Annex A to Appendix F) made no distinction between the number of lesser contingencies and the level of effort. Specifically, the Vignettes for Baseline Security Posture Analysis did not report the level of effort by year and instead aggregated the data, in many instances across several modeled years. Consequently, we compared the number of operations conducted in the model year. Throughout our review, PA&E officials consistently told us that the completed MCS report would contain all the documentation needed to support its analyses. Furthermore, although demand in the modeled year may exceed previous efforts, the MCS was chartered to assess the ability of the mobility system to support the National Military Strategy into the next decade. The size of the selected model year in relation to efforts conducted between 1941 and 2006 is not at issue. As our report makes clear, our concern is that modeling what appears to be the least demanding year does not address whether the United States has sufficient capability to support national objectives during a peak demand period and may underestimate and underreport demands to senior decision makers.

2. DOD disagreed with our observation that the MCS report does not provide a clear understanding of the direct relationship of warfighting objectives to transportation capabilities. We disagree. We understand that achieving a combat task requires delivering the right commodity to the right place at the right time. However, the specific combat tasks (e.g., attaining air superiority) necessary to satisfy the commander's campaign objectives are not a direct measure of mobility capability. For example, the problems in using a single metric are reflected in the MCS Appendix H, where the MCS report states that "the study itself still had difficulty in evaluating the operational impact of the delivery of theater support elements," adding that "we [DOD] were unable to develop a satisfactory mechanism to capture the linkage of the closely related, but delayed, follow-on support needed..." Finally, the MCS concludes that "there was no way to model a decrease in [Air Force] squadron effectiveness if this support was late. Additional effort is required to develop a methodology for evaluation the operational impact of support equipment availability." We continue to believe, and DOD agreed with our recommendation, that warfighting metrics, in conjunction with mobility metrics, can give decision makers a full picture of the capabilities needed to meet a specific warfighting goal.

3. DOD disagreed with our statement that the MCS was unable to model the flexible deterrent options/deployment order process and that the study in fact analyzed flexible deterrent option (FDO) movements to theater. We do not dispute that DOD analyzed FDO movements as part of the MCS analysis. However, the degree to which the MCS analyses successfully modeled FDOs is in question. The MCS report, Appendix H, stated that an individual FDO is essentially the same as a deployment order. It also states in that section that "Deployment orders [DEPORDS] are issued to deploy specific capabilities as commitment decisions are made. This was not modeled due to lack of data on how DEPORDS would have been issued for an MCO [major combat operation] deployment." In the same paragraph, the MCS concludes that "the impact on the mobility system of the DEPORD process should be assessed in follow-on MCS analyses," adding that "there is a data deficit on how to model and execute a DEPORD process." Furthermore, the MCS report states that "additional analysis is required to investigate the implications of the DEPORD process decisions and provide data for future decision-makers to develop a DEPORD execution process."

4. DOD believes our statement concerning homeland defense missions is misleading and is not sure what the report means by "actual homeland defense demands." We removed the word "actual" and clarified our report to discuss "demands derived from a well defined and approved concept of operations for homeland defense", which were not available for the study according to the MCS report. Furthermore, in chapter 4, the MCS report states that "maintaining a dedicated capability to support multiple, nearly simultaneous homeland defense/civil support events concurrent with the peak demand period of two overlapping warfights, greatly exceeds programmed lift capabilities". This raises questions about the conclusions of the MCS that there are adequate mobility capabilities to meet national security objectives. Also, in Chapter 3 of the MCS report, it states that the DOD homeland defense concept of operations required refinement and was one of nine issue areas cited within the homeland defense portion of the study that "need to be addressed and investigated in more detail." All of these nine areas potentially impact mobility support for homeland defense operations. Moreover, the MCS Executive Summary notes that reassessment of these missions is required as DOD's role in homeland defense evolves. The MCS report, chapter 4, concludes by calling for further refinement of mission requirements, continuing risk assessments, and an effort to determine corresponding mobility solutions. We continue to believe that the MCS conclusion that adequate mobility capability exists is conditional given the results of

the homeland defense portion of the study and that the accuracy and completeness of the data, modeling, and results for this portion of the MCS remain in question.

5. We disagree with DOD's characterization that our information was "misleading" regarding the adequacy of some aspects of the MCS' modeling and data. Furthermore, we continue to disagree with DOD's statement that the models and data used by the study were sound and adequate to assess relevant aspects of missions required to support the National Military Strategy, and that the results of the study are valid. In this report, as in our September 14, 2005 report,[1] we reaffirm our concern that the data and models used by the study may not be sound and the results may not be valid since the verification, validation, and accreditation (VV&A) of the models and data used to conduct the study was not done in accordance with DOD policy or relevant research standards. VV&A of models and data reduces the risk inherent in the use of models and simulations by improving the credibility of modeling and simulation results. We do not dispute DOD's assertion that it has relied upon the same models to produce mobility studies done "since the end of the Cold War". However, as we discuss in our report, the MCS report fails to explain or qualify the impact that identified data or modeling limitations might have on its results. For example, in the MCS chapter 4, entitled Operational Data, the MCS states that "data deficiencies negatively affected MCS's ability to use current execution data to project future requirements and assess system performance." Unclear is the extent to which these deficiencies impacted the MCS ability to meet the objective of identifying mobility capability gaps, overlaps, or excesses and provide associated risk assessments, an MCS objective. Similarly, in the section of chapter 4 entitled Analysis Tools, the report states that "MCS analysis revealed several deficiencies in existing mobility models." The section concludes with five recommended tool enhancements but it does not explain the impact that the absence of these enhanced tools may have. We continue to believe that because of these modeling and data limitations, the MCS may have incorrectly estimated the future mobility requirements needed to support homeland defense missions, smaller contingencies, and major combat operations.

[1] See GAO, *Defense Transportation: Opportunities Exist to Enhance the Credibility of the Current and Future Mobility Capabilities Studies*, GAO-05-659R (Washington, D.C., September 14, 2005), for a more detailed discussion.

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

William M. Solis, (202) 512-8365 or solisw@gao.gov

Acknowledgments

Ann Borseth, Assistant Director; Brian Lepore, Assistant Director; Nabajyoti Barkakati; Renee Brown; Claudia Dickey; Ron La Due Lake; Oscar Mardis; Deborah Owolabi; Kenneth Patton; and Stephen Woods made significant contributions to this report.

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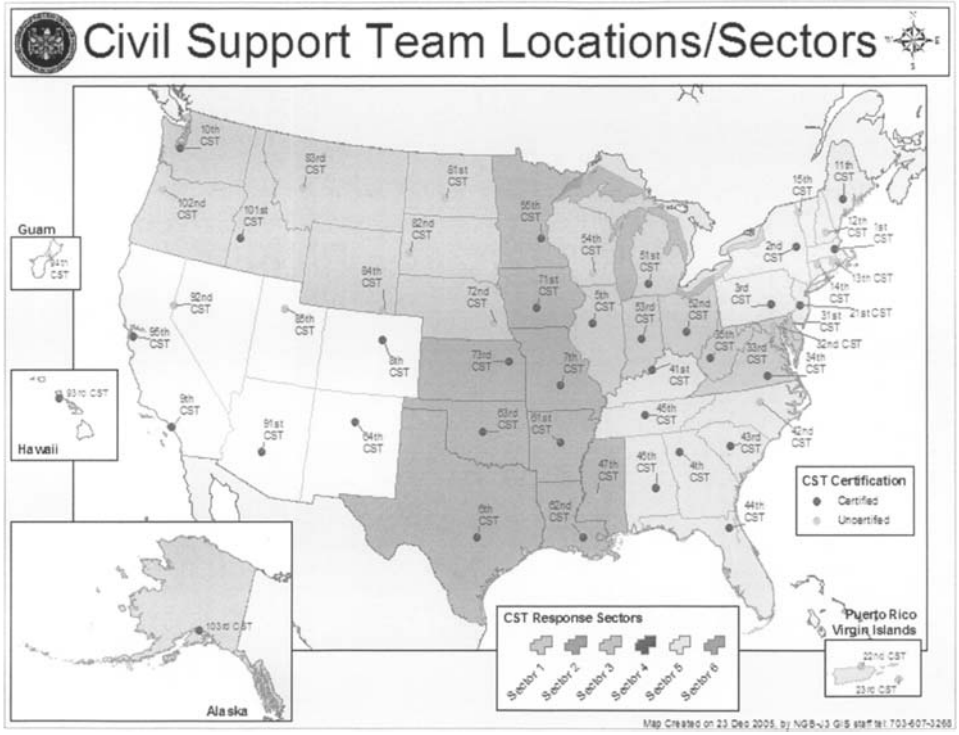

Civil Support Team Locations/Sectors
Guam
Hawaii
Alaska
Puerto Rico
Virgin Islands
CST Certification
Certified
Uncertified
CST Response Sectors
Sector 1
Sector 2
Sector 3
Sector 4
Sector 5
Sector 6
Map Created on 23 Dec 2005, by NGB-J3 GIS staff tel: 703-607-3268

Methods of Deployment

- Responses within 250 miles radius of unit location, generally deploys using organic vehicles.

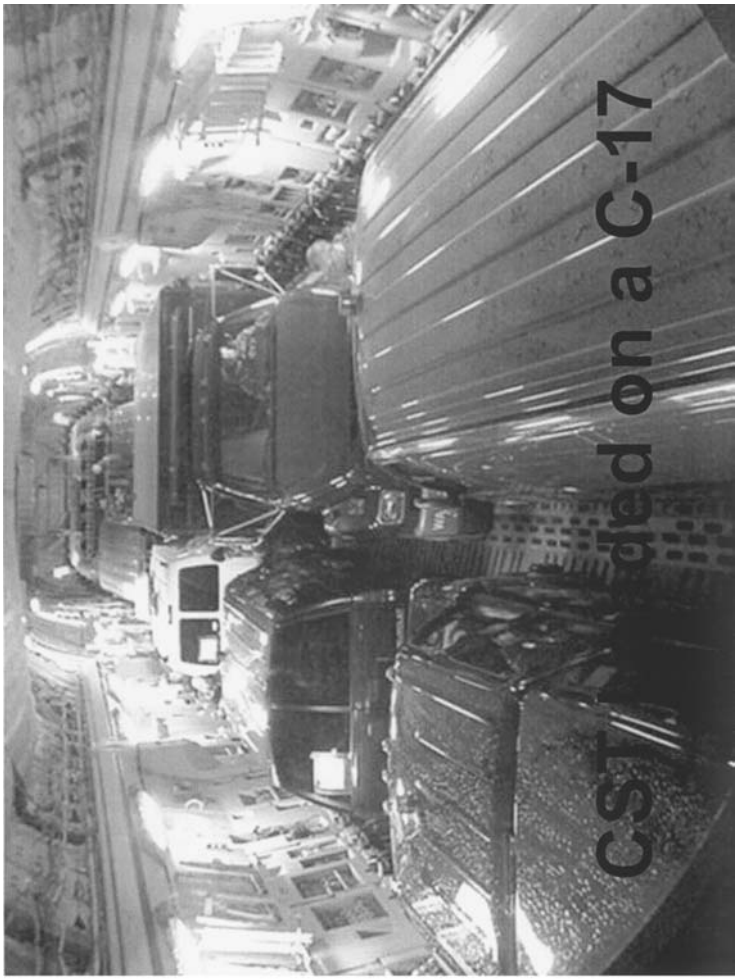
- Deployment greater than 250 miles, airlift may reduce arrival time

- Situation, weather conditions, and urgency influence decisions to self-deploy or move by air assets

CST Airlift Requirements

- 22 Personnel, 8 Vehicles and 2 Trailers
  - Approximate weight, 80,500 LBS

- Aircraft required to lift the team
  - 6 C-130
  - 2 C-17
  - 1 C-5


CST ded on a C-17

QUESTIONS AND ANSWERS SUBMITTED FOR THE RECORD

MARCH 7, 2007

QUESTIONS SUBMITTED BY MR. ABERCROMBIE

Mr. ABERCROMBIE. Does the Air Force see the Joint Cargo Aircraft as necessary in meeting its intratheater airlift requirements and obligations for Air Mobility Command? Why would additional procurement of C–130J aircraft not meet these requirements?

General CHANDLER and General KANE. The JCA and C–130J have similar capabilities for use in the intra-theater airlift role. Both are capable of short takeoff and landing at fields as short as 2000 feet and in high altitude and hot conditions (95 degrees F at 6000 ft pressure altitude). Both aircraft are capable of moving the department's standard 463 L pallet and can airdrop container delivery system bundles. Additionally, both aircraft will be equipped with all the requisite communications, navigation, and defensive gear to operate as an integral part of our combat theater airlift system.

Still, the C–130J offers capabilities that the JCA does not, and the JCA offers efficiencies not available in the C–130J. The C–130J is faster and offers greater cargo capacity, higher climb gradients, and more flexibility on similar sized runways than the JCA. The C–130J is compatible with all current Air Force Material Handling Equipment (MHE) and can accept a 463L pallet configured at a standard height of 96 inches, both of which the JCA cannot. Finally, the C–130J can carry many vehicle types that the JCA cannot (Stryker, Fire Engine, Up-armored HMMVVE etc). However, our experience in Iraq and Afghanistan shows frequent, and required, movement of less-than-C–130 sized loads. In these situations, the JCA offers more efficiency than the C–130J because its cost to operate per flight hour is less. Similarly, depending on which aircraft is selected for the JCA, it may burn fewer pounds of fuel per passenger or pallet mile than the C–130J.

Mr. ABERCROMBIE. There have been concerns raised about promoting fair and open competition during the tanker recapitalization program in regards to World Trade Organization subsidy allegations between the U.S. and European Union, Berry Amendment compliance for specialty metals, and International Traffic in Arms Regulations for construction and final assembly. How do you plan to mitigate these issues during the KC–X program and what factors go into source selection?

General HOFFMAN. Our planned approach for all of the issues listed is focused on legal and regulatory compliance, rather than issue mitigation. Our specific actions taken on each issue are detailed in our Request for Proposal (RFP) and listed below. None of these concerns are considered as separate or specific evaluation factors in the RFP and all offerors must comply with all applicable laws and regulations.

World Trade Organization (WTO): Wording in the special clauses section of the RFP (Section H034) disallows contractor pass-on of costs resulting from past, present, or future WTO rulings:

> "H034 WORLD TRADE ORGANIZATION DISPUTE—COSTS UNALLOWABLE Any penalties, taxes, tariffs, duties, or other similar-type costs imposed by a Governmental entity as a sanction, enforcement or implementation measure resulting from a decision in the Matters of European Communities and Certain Member States Measures Affecting Trade in Large Civil Aircraft, United States - Measures Affecting Trade in Large Civil Aircraft before the World Trade Organization shall not be included in the negotiated price of this contract, nor shall such costs be an allowable direct or indirect charge against this contract."

Berry Amendment: Offerors must comply with applicable specialty metals restrictions, although offerors may submit waiver requests in accordance with applicable law and regulations. Per the RFP, paragraph 8.3.3, Berry Amendment Compliance:

> "If an Offeror is unable to comply with the specialty metals restrictions set forth in the clause, and intends to seek an exception under 10 USC 2533b(b) ("Availability Exception"), the Offeror shall submit a request for a Domestic Non-Availability Determination (DNAD) waiver no later than 30 days after release of the RFP. Offerors requesting a DNAD shall provide factual information to justify approval of the determination as part of their DNAD request."

International Traffic in Arms Regulations (ITAR): Offerors must comply with established ITAR guidelines and regulations.

Mr. ABERCROMBIE. How do you plan to fairly evaluate the airlift and aerial refueling capabilities of the KC–X bidders' submissions and what metrics will you use?

General HOFFMAN. Our acquisition planning has focused on ensuring the KC–X program proceeds in a fair, full and open competition and all efforts have been made to present program information in a fully transparent manner. We emphasized this environment of fairness in the source selection planning and in the evaluation. The following KC–X program Request for Proposal sections are included to highlight our evaluation process and list the metrics used in the source selection evaluation. The following is an excerpt from the KC–X request for proposal, Section M001 Source Selection and Section M002 - Evaluation Factors:

> "The Government will select the best overall offer, based upon an integrated assessment of Mission Capability, Proposal Risk, Past Performance, Cost/Price and the Integrated Fleet Aerial Refueling Assessment (IFARA). Contract(s) may be awarded to the offeror who is deemed responsible in accordance with the FAR, as supplemented, whose proposal conforms to the solicitation's requirements (to include all stated terms, conditions, representations, certifications, and all other information required by Section L of this solicitation) and is judged, based on the evaluation factors and subfactors, to represent the best value to the Government. The Government seeks to award to the offeror who gives the AF the greatest confidence that it will best meet, or exceed, the requirements. This may result in an award to a higher rated, higher priced offeror, where the decision is consistent with the evaluation factors and the Source Selection Authority (SSA) reasonably determines that the technical superiority and/or overall business approach and/or superior past performance, and/or the IFARA of the higher priced offeror outweighs the cost difference. The SSA will base the source selection decision on an integrated assessment of proposals against all source selection criteria in the solicitation (listed below). While the Government source selection evaluation team and the SSA will strive for maximum objectivity, the source selection process, by its nature, is subjective and, therefore, professional judgment is implicit throughout the entire process.
>
> 2.1 Evaluation Factors and Subfactors
>
> The following factors and subfactors will be used to evaluate each proposal. Award will be made to the offeror submitting the most advantageous proposal to the Government based upon an integrated assessment of the evaluation factors and subfactors described below. The Mission Capability, Proposal Risk, and Past Performance evaluation factors are of equal importance and individually more important than either Cost/Price or IFARA evaluation factors individually. The IFARA is equal in importance to Cost/Price. Within the Mission Capability factor, the five (5) subfactors are listed in descending order of relative importance from 1 to 5. In accordance with FAR 15.304(e), the Mission Capability, Proposal Risk, Past Performance, and IFARA evaluation factors, when combined, are significantly more important than Cost/Price; however, Cost/Price will contribute substantially to the selection decision."

List of Evaluation Factors and Subfactors:

- Factor 1: Mission Capability
  - Subfactor 1: Key System Requirements
  - Subfactor 2: System Integration and Software
  - Subfactor 3: Product Support
  - Subfactor 4: Program Management
  - Subfactor 5: Technology Maturity and Demonstration
- Factor 2: Proposal Risk
- Factor 3: Past Performance
- Factor 4: Cost/Price
- Factor 5: Integrated Fleet Aerial Refueling Assessment

Mr. ABERCROMBIE. Does the Army view the Joint Cargo Aircraft as a core asset? Does the Air Force, Air Mobility Command and/or regional air component commander adequately meet intra-theater airlift requirements of the Army by moving required equipment and supplies the "last tactical mile"?

General SORENSON. The Joint Cargo Aircraft (JCA) is a core asset to the Army for delivery of time-sensitive mission-critical supplies. As per Joint Publication 4–0 (Doctrine for Logistic Support of Joint Operations), it is the Service Component's responsibility to distribute supplies to their subordinate units after the component receives the supplies at the Service Component hand-off point, which in most cases

is the Sustainment Brigade area. The Army's JCA complements the Air Force Common-user Airlift pool. Both are necessary to get things where they need to be (point of need) when they need to be there (timeliness).

Given the amount of supplies that must be transported, the JFC must ensure this is done efficiently. Most bulk supplies (such as fuel, non-perishable food, and water) are moved by surface transport (ships and trucks). Other supplies must be transported more rapidly (such as low density or high demand repair parts, ammunition, perishable goods, blood and medical supplies, etc). These are typically moved by air to the theater by strategic airlift, and further distributed within the theater by Air Mobility Command assets OPCON to the JFC. These common-user airlift assets routinely deliver their cargo to Service Component hand-off nodes, typically Army Sustainment Brigades. These supplies, now under the ownership and control of the Ground Component, must be further distributed to the point of need - "the last tactical mile." This portion of tactical distribution (i.e., "the last tactical mile") is the responsibility of the Ground Component Commander (Army). To effectively accomplish this tactical distribution of supplies to the point of effect, the Ground Component Commander uses a mix of ground, rotarywing and fixed wing transportation assets under his control. The Army JCA will be used to provide responsive transport of time-sensitive mission-critical assets to forward units - "the tip of the spear."

Mr. ABERCROMBIE. In September 2005, GAO completed a report titled Air Mobility Command Needs to Collect and Analyze Better Data to Assess Aircraft Utilization; what lessons were gained from that report and what actions have been taken in response to the GAO report?

General KANE. Air Mobility Command's (AMC) Air Mobility Master Plan (AMMP) recognizes that "Accurate tracking of cargo is critical to efficient deployment and sustainment operations." Improving data collection and subsequent analysis is an ongoing effort within AMC and TRANSCOM. Innovative technologies, such as Radio Frequency Identification Tags (RFID), have been incorporated into the Global Transportation Network (GTN) to significantly improve in-transit visibility. Requisitions may now be tracked in a manner similar to UPS or Federal Express. Further, the formation of the Joint Distribution Process Analysis Center (JDPAC) will consolidate the analytic power of the Army Surface Deployment and Distribution Command (SDDC) and the AMC Analysis Directorate (A9) into one center of excellence; improving the distribution process from an end-to-end perspective.

Mr. ABERCROMBIE. General Schwartz, Commander, United States Transportation Command, and General McNabb, Commander, Air Mobility Command, testified in March 2006, that no more than 200 C–17s would be the ideal C–17 force structure as long as it did not affect procurement of the KC–X tanker aircraft. Further, given the increased C–17 utilization rate for intra-theater airlift operations, the condition of the C–130E/H fleets, the lack of defined airlift requirements for Army modularity and Future Combat Systems operations, and the personnel end strength increases of the Army and Marine Cops, what does Air Mobility Command now believe is the ideal number of C–17s to have in the Air Force inventory?

General KANE. Air Mobility Command, through United States Transportation Command, is currently engaged with the joint community to help define the scope of the planned Army/Marine Corps end strength increase and its impacts on air mobility. Quantifiable insights in response to this question are anticipated in the early June 2007 timeframe.

Neither the most recent Mobility Capability Study (MCS) published in 2005 nor the follow-on excursions in MCS–06 included the force structure in question. OSD and the Joint Staff anticipate the next MCS round to begin in the Spring of 2008. This study should fully incorporate and examine the changes to Service force structure and impacts on mobility (air, land, sea, and prepositioning).

QUESTIONS SUBMITTED BY MR. MILLER

Mr. MILLER. What is the current critical need of the Joint Cargo aircraft and the status of the acquisition?

General HOFFMAN and General CHANDLER. Based on experience in Afghanistan and Iraq, the JROC validated the JCA Capability Development Document (CDD) to address a capability gap for delivery of time-sensitive/mission-critical cargo.

The Milestone C decision to proceed to Low Rate Initial Production (LRIP) is planned for 30 May 07. Assuming approval to enter LRIP, the Joint Program Office will announce the winner of the JCA competition in the summer.

Mr. MILLER. Have there been major conflicts regarding the JCA between the Army and the Air Force?

General HOFFMAN and General CHANDLER. Sir, to answer your question up front—absolutely not. The Army and the Air Force have been rapidly moving out on this joint program ever since receiving guidance in December 2005 to join the Army's Future Cargo Aircraft (FCA) and the Air Force's Light Cargo Aircraft (LCA) programs. The Army and Air Force Vice Chiefs of Staff signed a Joint Memorandum of Agreement (MOA) that outlines the way ahead addressing roles and missions, command and control, standardization and training, sustainment, resources and public affairs efforts. On the current timeline, we anticipate a milestone decision in late May with source selection announcement to follow about a week later. The Army and the Air Force are on track to jointly procure the same basic aircraft platform for the Joint Cargo Aircraft program.

Mr. MILLER. What is the current critical need of the Joint Cargo aircraft and the status of the acquisition?

General CURRAN AND GENERAL SORENSON. The JCA is one of the key elements of Army Aviation Transformation, specifically in regards to the Army National Guard and the Army Reserve. The JCA will replace aging and inadequate C–23 Sherpas, C–26s and some C–12 aircraft with a more capable, modernized, cargo aircraft. The JCA will also provide relief to the CH–47 fleet which is currently carrying a large portion of the logistics transportation burden. The JCA will reduce stress on the CH–47 fleet for logistical transport, while increasing the availability of CH–47s for tactical missions. The JCA will also reduce ground tactical convoys and risk to Soldiers.

The JCA will meet the Army's critical need for a robust, multi-functional fixed wing cargo aircraft able to operate on short, austere, unimproved landing areas. Service component commands are responsible for logistic support of their forces, including the distribution of supplies from the Service hand-off point to the point of need. The Army JCA will deliver critical cargo and personnel to the point of need—the last tactical mile. The Army's primary mission for the JCA is responsive, on-demand transportation of time-sensitive/mission-critical cargo and key personnel to forward deployed tactical units. The JCA will deliver cargo as far forward as feasible, either directly to the tactical maneuver units or the closest forward support base for further movement by Army rotary wing aircraft or ground transportation. On return missions, the JCA will backhaul personnel and repairable equipment for repair.

The JCA is a joint Army/Air Force program with the Army as the lead agency. A joint program office was established on 1 October 2006. The Army and the Air Force have agreed that the Army and Air Force JCA will be the same basic platform. However, the Air Force may include selected mission equipment packages (MEP) on the JCA to address broader intra-theater airlift requirements. The Army will initially procure 64 TOE aircraft plus 4 training and 7 operational readiness floats, for a total of 75 JCAs. These aircraft will be split 75/25% between the Army National Guard and the Army Reserve. The Air Force will initially procure 40 JCAs. Further Air Force JCA procurement plans are pending completion of an intra-theater fleet-mix analysis in December 2007.

On 17 March 06 the Defense Acquisition Executive approved the Acquisition Strategy for a nondevelopmental aircraft for the JCA, and the Request for Proposals was subsequently released. The JCA is currently nearing the completion of the source selection process. Milestone C is scheduled for 30 May 2007. The Army plans to start fielding the JCA in late 2008 with the first unit to be equipped in 2010. The Air Force will start fielding the JCA in 2012.

Mr. MILLER. Have there been major conflicts regarding the JCA between the Army and the Air Force?

General CURRAN AND GENERAL SORENSON. Today the Army and the Air Force are working closely together towards the fruition of the Joint Cargo Aircraft (JCA) program. To the Army, the JCA shores-up its direct support capability to deliver time-sensitive/mission-critical equipment to Brigade Combat Teams and subordinate units on the current and future asymmetrical battlefield. To the Air Force, it supplements it current intra-theater bulk hauler, the C–130, with added efficiency and effectiveness. The benefits to both Services are clear and consequently we are working together towards this common end.

Only a year ago both Services were still grappling with the challenges inherent in merging two programs into one as directed by the Director, Acquisition Executive for Office of the Secretary of Defense. The Army had a two year jump start with its Future Cargo Aircraft program and had obtained Joint Staff approval and OSD approval. The Air Force had just determined a possible need for a light, bulk hauler to compliment its C–130 fleet, but did not have the opportunity to begin the analysis to determine the specifics defining the requirement. Obviously this program mismatch in regards to concept and requirement development resulted in initial clashes

between the Army and Air Force in regards to platform, utilization and the defining lines of debarkation between Army and Air Force pertaining to operating on the battlefield. Over the past few months, the Army and Air Force have resolved these issues as witnessed in obtaining Joint Staff and OSD approval for the program in regards to business case analysis, Joint Concept of Operations (CONOPS) and programmatics. The program's Milestone C decision is schedule for May 2007, we anticipate contract award following that decision.

QUESTIONS SUBMITTED BY MS. TAUSCHER

Ms. TAUSCHER. The USAF Program of Record supports modernization of the entire C–5 Fleet (A/B/Cs). The 2006 QDR and 2005 Mobility Capabilities Study validated that 292 strategic airlifters meets national requirements and included modernized C–5s as part of that solution set. Your FY08 PB submission fully supports both AMP and RERP programs for the entire C–5 fleet. These documents and reports indicate complete DoD support for the C–5 modernization program, yet recent AF comments in testimony and to the media raise questions regarding your commitment to this important program, and quite honestly, are sending mixed signals. For the record, does the AF support the results of their own studies to modernize the entire C–5 fleet? If not, what new studies have the AF done that would now suggest that fleet modernization of the C–5s is not the right solution?

General CHANDLER. A November 2000 Analysis of Alternatives on Outsize and Oversize Cargo Airlift Capability came to the conclusion that the C–5 RERP program offered the best value approach at that time, and the Air Force crafted its program based on that conclusion. No new formal studies, along the lines of the 2005 Mobility Capabilities Study, have addressed this issue. However, the Air Force continually examines force structure options based on the most up-to-date information available and is currently refining analyses to inform decisions on the most cost-effective mixture of C–5s and C–17s to meet strategic airlift requirements. Also, the Department is examining options and inputs from ongoing analyses associated with defense planning that may impact strategic airlift requirements.

Ms. TAUSCHER. AF and Industry studies have previously affirmed the value of C–5 modernization as the most cost effective solution for the entire fleet. In a fiscally constrained environment, it simply makes sense to modernize all the C–5s as part of your baseline capability and if there is a need for more airlift, you build additional capability with C–17s? The AF has testified that it would prefer to rid itself of C–5As and buy more C–17s, yet the AF's own data suggests they have similar annualized O&M cost, and the C–5 already has a cheaper cost per-ton-mile. Trading serviceable C–5s simply doesn't seem to be good stewardship of the taxpayer's money, especially when C–5s carry twice as much cargo and you can RERP three C–5s for the cost of one C–17. It seems to me that a more balanced approach is the right way to go and that for the AF to enter into a trade—discussion is simply not the correct way to view the current situation. Why isn't a fully modernized 111 C–5 fleet and 190 C–17s (or more if needed) an adequate solution? Why does the AF feel compelled to make this an either/or discussion on C–5As and C–17s?

General KANE. Since the AMC Outsize and Oversize Cargo Analysis of Alternatives recommended modernization of the C–5 fleet in August of 2000, projected modernization costs have risen significantly. Additionally, the C–5A fleet has begun to exhibit stress corrosion cracking that must be repaired. This further adds to the investment needed to maintain the viability of the fleet. Hence, the years required for operational cost savings from C–5 RERP to recover expenses of the program have increased. At current projected prices, an investment to modernize 40-year-old C–5s makes much less business sense than it did just a few years ago. Adding to this concern is the looming shutdown of the C–17 line, currently projected to start in October of this year and be complete in September 2009. Should production line shutdown begin, and we then decide to procure more C–17s, the cost to start a new aircraft line would be very high, not to mention the potential operational cost we'd pay as we dealt with the production gap.

Operationally, the C–17 provides improved reliability over the C–5, even the fully modernized version, and is more flexible and responsive to warfighter needs with the ability to safely fly into more short and unimproved airfields. Overall, it's the best platform for providing enhanced support to the warfighter on a dispersed battlefield. To maintain our baseline strategic airlift capability we need a mix of C–5s and C–17s. Current cost projections combined with the operational advantages of the C–17 point to the retirement of some of our oldest C–5As and replacing them with newer, more flexible C–17s that cost less per flying hour.

QUESTIONS SUBMITTED BY MR. AKIN

Mr. AKIN. So if you are planning a mission and you have both of these rebuilt A models—unless you are a gambling man—you are going to send two sets of gear for every one that wants to land and do the job?

General KANE. Some of the payloads the C–5 can carry are the Mark V Special Ops Patrol Boat and towing vehicle; Navy FFG–7 Frigate Reduction Gear on Light Tactical Vehicle (LTV); Navy Deep Submergence Rescue Vehicles on LTV; Space Shuttle Solid Rocket Motor and LTV; Minuteman SSCBM; and the Mobile Medical 53 ft. Hospital. These are six common "C–5 only" payloads as certified by the Air Transportability Test Loading Agency.

1. Mark V Special Ops Patrol Boat and towing vehicle

2. Navy FFG–7 Frigate Reduction Gear on LTV

3. Navy Deep Submergence Rescue Vehicles on LTV

4. Space Shuttle Solid Rocket Motor & LTV

5. Minuteman SSCBM

6. Mobile Medical 53 ft Hospital

■ **These are six common "C–5 only" payloads. See below for other "C–5 only" ATTLA certified loads**

Additional List of "C–5 Only" Items:

SEAWOLF PROPULSOR AND TALBERT HEAVY LIFT TRANSPORTER.	TITAN IV STAGES 1 & 2 CORE VEHICLE TRANSTAINER
45 TON LIMA TRUCK CRANE	TITAN IV UPPER FLIGHT SECTION UFS
BATCH PLANT AGGREGATOR CEMENT MIXER	TITAN IV UPPER FORWARD ADAPTER SIMULATOR UFS
MILLER ADVANCED TRANSPORTATION SYSTEM MATS VAN	ATLAS II/CENTAUR II
ARBAU-KLAUS KM32 SIDE LOADING CRANE, ARBAU KLAUS	AN/TSM–163 Maintenance Center-Battalion
AFOG THEATER VAN WITH HYDRAULIC FIFTH WHEEL TRACTOR	Small Repair Parts Transporter (SMPT) M–1032
BW SHIPPING CONTAINER TRAILBLAZER COMPONENTS	AN/TSM–164 Maintenance Center-Battery
AFE-PRO 93–03 SV–424 TRAILER AFE/PRO 93–03	DGA TRUMP D40–D DEICING TRUCK, DG–A DEICING TRUCK
DSV SEACLIFF TURTLE	MINI MUTES
SM97,NAUTILE,FRENCH SUBMERSIBLE, FRENCH SUBMARINE	M703 TRAILER, M–313 TRAILER, M–656 HMTT, S–280
CATERPILLAR 3516 POWER PLUS MODULE GENERATOR/TRANSFORM	AN/TSQ–112 GENERAL PURPOSE DETECTING SET (TACELIS)
S/C CONTAINER PPLU TRAILER TDRSS NASA	S101, S102 SHELTERS, M113 PERSONNEL CARRIER
GODDARD	MODIFIED
GPS–12 SPACECRAFT	AFRTS SYSTEM
LMSC VBG EQUIPMENT	VERTEX EARTH STATION, NABORS TRI-AXLE TRAILER
HUGES SYNCOM IV LEASAT Spacecraft and Associated Equip	COMMUNICATIONS RESTORAL SYSTEM AN/TSC–115
ESS SPACECRAFT TRANSPORTER/SPACECRAFT HANDLING FIXTURE	DBA SYSTEMS ELECTRONICS VANS, INTERNATIONAL F–2375

XTE X-Ray Timing Explorer Transporter System	MILSTAR MOBILE CONSTELLATION CONTROL STATION MMCCS (Lockheed)
GLOBAL GEOSPACE SCIENCES (GGS) POLAR PROJECT SPACECRAFT/TRANSPORTER	DORSAY TRL.MODEL DDG & FREIGHT -LINER TRACTOR MODEL 120
TITAN II PAYLOAD FAIRING, MARTIN MARIETTA	MOBILE ADVANCE DISASTER ELEMENT - ONE (MADE-ONE) FEMA
COMMERCIAL TITAN MISSILE, CORE VEHICLE STAGES I AND II	40 FOOT VAN ID# B17890 SV–459
ARFOR Trailer (Mobile Training Classroom with HVAC extension)	Mobile Telemetry Data System (MTDS) Trailer
P&H 430–ATC Crane (Harnischfeger)	JPL ELECTRONICS VAN TRAILER
SMC Missile Transporter Tractor/Trailer	AN/MSQ–118, CSS SHELTER
AVCATT–A Simulators & Electrical Equipment Trailers	AFE/PRO 94–01 ALUMINUM BODY TS1 TRAILER
USCENTAF 609 ACOMS Van Trailers	AFE/PRO 96–04 AND 96–05
PTS Support Benson 48–ft aluminum single drop flatbed	Milstar Mobile Constellation Control Station (MMCCS) with Antenna Deployment Enhancement Sattelite Communication Control Central (SCCC) AN/TSQ–180VO
PTS support Fontaine 48'–70' Single Drop flatbed (7D–FT–5–4AW Extend)	Mine Hunter
PTS Support Great Dane 48–ft Flatbed trailers (GPS–248)	Advanced Seal Delivery System (ASDS) Navy & LTV Submersible on Trailer
JSF F–35 Air Transportability & Wing Fixture	Thule Tracking Station A-Side Upgrade Program
CECOM Harris/Mobilized Systems 40' x 14' x 10.5' Shelter SEES & SBX (ref 2002.11.25)	Deployable Trailers for AH–64 Aircrew Trainer Devices
Boeing Spacecraft Next Generation Shipping Container	AFE/PRO 00–01 (Stacked S/V shipping container)
CALIPSO Sattellite on NASA double drop trailer	AFE/PRO 00–01 (Stacked S/V shipping container) Amended
MK V Special Operations Craft (SOC), Production version with Trailer	Mobile Training Semi Trailer
F–18 Recovery	Medium Payload Transporter
C–5 AMARC Horizontal Stabilizer Trailer	

ACTION OFFICER INFORMATION

Action Officer's Name and Phone	Office Symbol
Lt Col Christopher Smith, DSN 779–2266	AMC/A8XL

COORDINATION

Office Symbol	Action	Name	Phone	Date	Comments
AMC/DA5/8–1	Coord	Mr. Scott McMullen	779–3314	13 Apr	
AF/A5RM	Coord	Col Genshiemer	697-4939	17 Apr	
AF/A5R	Coord	Brig Gen Sabol	695–3018	18 Apr	

Office Symbol	Action	Name	Phone	Date	Comments
AF/A3/5	Approve	Lt Gen Chandler	697–3331	19 Apr	

QUESTIONS SUBMITTED BY MR. JOHNSON

Mr. JOHNSON. The National Guard is responsible for Civil Support Teams (CST) to support homeland security threats (Biological, Chemical and Nuclear) in each state and territory. These teams consist of 22 personnel and 8 vehicles and that must be air/land transportable and be able to deploy CONUS wide to support any and all threats in the three categories mentioned as well as natural disasters. However, I understand that these teams cannot be transported on the Army's two Twin-engine Joint Cargo Aircraft candidate aircraft due to the limited size of the cargo compartment. In these times of war and tight budgets, I am questioning if we have the luxury of purchasing an aircraft that has limited utility in the theater airlift mission and for Homeland Security mission without any flexibility for growth potential that may be required for future. Can you comment on these observations?

General KANE. To address the main issue of purchasing the JCA at this time; the Air Force and the Army have collectively determined there is a need for JCA now and in the future. The JCA will have a dual role: Homeland Security/Defense, and a combatant commander support at home and abroad. The JCA will help satisfy the critical needs of the Combatant Commanders as well as Governors.

The JCA fits a niche as a light cargo tactical airlifter. It will be capable of landing and taking off on short, unimproved surfaces while being able to carry as much as 6,000 pounds of cargo in a hot and high pressure altitude environment, much like Afghanistan or Nevada. Additionally, the JCA will be able to fly 1200 nautical miles with 18,000 pounds of cargo.

As the question relates to a CST package; the primary method to transfer a CST package to an incident is by land versus air due to 250 NM response radius. CST's teams were established to deploy rapidly in order to assist local first-responders in determining the nature of an attack, provide medical and technical advice, and pave the way for the identification and arrival of follow-on state and federal military response assets.

Currently, there are 55 CST packages that are strategically positioned throughout the United States. Stationing criteria used to identify the CST locations included coverage of major metropolitan areas based on population density; minimizing overlap with adjacent CSTs and other DoD response elements; and availability of existing facilities and support capabilities. The use of airlift requires coordination and additional time. The use of airlift is conditions-based depending on the disaster scenario (e.g., earthquakes, weather) which causes decision makers to employ CSTs via the most expeditious means. Airlift is always a consideration; however, CST responders have built their Concept of Employment around ground movement. The JCA would augment responding forces especially to response times needed.

If an incident location is greater than 250 miles away from the CST package, airlift may be considered; however, this is a decision for the supported COCOM to make (in this case USNORTHCOM) it would depend on a number of factors, such as weather, airfield availability/conditions. The current airlift requirement for a CST package is either 6 C–130's, 2 C–17's, or 1 C–5.

[See map and slides in the Appendix beginning on page 150.]

QUESTIONS SUBMITTED BY MR. MEEK

Mr. MEEK. As you undertake the KC–X acquisition to buy the next generation Tanker, can you comment on how you will ensure our taxpayers get the best value (best capability for best price) for our future warfighting requirements?

General HOFFMAN and General KANE. Our documented and approved KC–X acquisition plan and source selection strategy is based on obtaining the best value (best capability for best price) for the taxpayer, while meeting all warfighter Key Performance Parameter thresholds. We have provided excerpts from the KC–X Request for Proposal that highlight our focus on a best value source selection. Per the KC–X Request for Proposal, section M001 - SOURCE SELECTION, 1.1 Basis for Contract Award:

> "The Government will select the best overall offer, based upon an integrated assessment of Mission Capability, Proposal Risk, Past Performance, Cost/Price and the Integrated Fleet Aerial Refueling Assessment (IFARA).

Contract(s) may be awarded to the offeror who is deemed responsible in accordance with the Federal Acquisition Regulations, as supplemented, whose proposal conforms to the solicitation's requirements (to include all stated terms, conditions, representations, certifications, and all other information required by Section L of this solicitation) and is judged, based on the evaluation factors and subfactors, to represent the best value to the Government. The Government seeks to award to the offeror who gives the AF the greatest confidence that it will best meet, or exceed, the requirements. This may result in an award to a higher rated, higher priced offeror, where the decision is consistent with the evaluation factors and the Source Selection Authority (SSA) reasonably determines that the technical superiority and/or overall business approach and/or superior past performance, and/or the IFARA of the higher priced offeror outweighs the cost difference. The SSA will base the source selection decision on an integrated assessment of proposals against all source selection criteria in the solicitation."

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