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Presenter: Lt. Gen. David Deptula, Deputy Chief of Staff for ISR and Col. Eric Mathewson, Director, Air Force UAS Task Force **July 23, 2009**

DoD News Briefing with Lt. Gen. Deptula and Col. Mathewson from the Pentagon

COL. KODLICK: Good afternoon, folks. We have a quick video for you, and then I'll start the session.

If we could roll the tape, please.

(Video plays.)

(In progress after video) -- director of public affairs for the Air Force. What you just saw is what we do today. I want to welcome you to the UAS flight plan press conference. And our objective today is to give you a vision of the UAS future operations. This afternoon we've got three speakers lined up for you to talk about the vision and the perspective that we have.

First up will be General Fraser. General Fraser's the vice chief of staff of the Air Force, and he's providing opening remarks. Second, many of you know Lieutenant General Dave Deptula. He's a deputy chief of staff for ISR. He's going to provide insight on how we continue to provide this -- critical ISR capabilities to the joint and coalition fight. Finally, to wrap things up we've got Colonel Eric Mathewson, the UAS task force commander with a lot of experience in this platform, with these capabilities. He'll give you a short briefing to outline the key aspects of the flight plan.

The entire session'll be on the record, so expect about 30, 40 minutes of opportunity for Qs and As. What I would ask you to do is, if you have a question, just please, you know, identify yourself, your affiliation. That'll help us better target the answer towards your publication or outlet. We'll do a first question with a follow-up, and if time constraints -- if we run out of time, basically, we'll follow up with you. We'll get the questions and answers for you off the press desk if we run out of time this afternoon.

Ladies and gentlemen, it's my pleasure to introduce the vice chief of staff of the Air Force, General Will Fraser.

GEN. FRASER: Thanks, Les. Appreciate it.

Thank you, ladies and gentlemen, for being here today to hear about our future initiatives in the unmanned aerial systems. Because, as you saw in this opening video that we showed

you, the future of our systems is really now. The Air Force today looks dramatically different than it did 35 years ago when I first came aboard on active duty. And I must tell you, I couldn't be prouder of our airmen and the way they've taken the reins to move us forward in airpower.

The positive transformations I've seen, over the last three decades, reflect our commitment to innovation as a service, to pioneer solutions that enable us to successfully fly, fight and win in air, space and cyberspace.

Today's rollout of our UAS flight plan marks another step in solidifying one of those milestones in our Air Force history. This, by doing so, is institutionalizing this responsive warfighting capability. We're laying out our vision for maximizing our efforts in unmanned aerial systems.

It's no secret that the demand for the unique ISR and strike capabilities of our unmanned aerial fleet, in today's fight, continues to increase. And so our efforts are very timely, especially in how we explore current and future employment of these platforms, how we develop a professional cadre of UAS operators, how we resource for and respond to the needs of our combatant commanders and how we achieve a number of other important milestones, to integrate unmanned systems into our Air Force.

Today's another step in our ongoing conversation, about the roles of unmanned systems, in collaboration with our joint and our interagency partners. Through these collaborative efforts and the actions in the flight plan, we'll continue to push the UAS envelope, to find more new and innovative ways to capitalize on this technology.

I want to offer one other thought too. Since these are called unmanned aircraft systems or unmanned aerial vehicles, the discussion often focuses strictly on the platforms, what we plan to buy and how we intend on employing the actual vehicle in the future.

I think it's certainly worth emphasizing that unmanned systems are unmanned in name only. While there may be no airmen onboard the actual vehicle, there indeed are airmen involved in every step of the process: readying them for flying, operating the systems and the sensors while airborne, analyzing and the forwarding data to commanders around the world.

So while the operator may not be sitting in the cockpit, at the heart of these unmanned systems, and really at the core of all of our missions, are highly skilled airmen of which we're very proud of.

We have embraced this impressive technology, one that is delivering game-changing capabilities today, and one that I'm confident will continue to be invaluable in the future. These systems represent an important addition to our comprehensive set of Air Force capabilities that actually define airpower.

I want to thank you all again for being here this afternoon, for the rollout of our UAS flight plan. And at this point, I'd like to turn it over to Lieutenant General Dave Deptula, to give you a little bit more of an in-depth perspective, before Colonel Mathewson gives you even a more in-depth look at this for awhile.

Thank you very much.

GEN. DEPTULA: Well, good afternoon, everyone. Once again, let me add my thanks for your all taking the time to be here.

I thought what I would do right up front is to give you a couple words and some charts that put where our unmanned aerial system's flight plan is in the context of the Air Force's ISR transformation.

This transformation that we embarked on started over three years ago, when essentially we stood up deputy chief of staff for Intelligence, Surveillance and Reconnaissance in the Air Force.

And a quick rationale for why we did that: What I like to tell folks is, we've spent about the last hundred years as airmen trying to figure out how to hit any target, anywhere on the surface of the Earth, all weather, day, night, rapidly and with precision. We can do that today.

The issue is not how to finish a target, but the finding and fixing, where is it that you want to strike. And oh, by the way, you might not want to strike to achieve a lethal effect; you might want to achieve a nonlethal outcome. So how do you do that?

So the find and the fix part of the equation becomes much, much more significant -- it's always been significant -- but it's more challenging, given the changing security environment that we're in. And we have the capabilities to do the finishing part.

So next chart, please.

It's these new challenges and new adversaries -- when you look back to the 21st century's (sic) -- the 21st-century (sic) industrial age of warfare, where we had large massed formations, it was easy to find. The challenge was in the finishing.

Well, today the situation's sort of reversed. You have very unique and small groups, if not individuals, that are hidden among populations, so it's hard to find; it's easy to finish.

So the approach we embarked on was a three-pronged one. We took a look at what are the major organizational changes that need to be made; what are the changes in our personnel system and how we train people, how we develop ISR operators; and then we took a look at – a deep dive into capabilities, how can -- we can increase our capabilities in the ISR arena.

Next chart.

We've done a significant number of major muscle movements, as I call them, in each one of these areas. But in fact we've codified them in four major processes in documents, if you will.

Last year we unveiled our Air Force ISR strategy, which lays out how we're going to approach the changes for the future and in what kind of shape and fashion, and where our emphasis points need to be.

Some of you were at an unveiling of our Air Force ISR flight plan a couple weeks ago, which is a process for looking at the entire inventory of capabilities that we have and looks at the way that we will resource the strategy and how we'll get to our goals. And of course, we've had a series of ISR CONOPS under continuous operation.

And today the capstone piece is how do we meld our unmanned aerial systems capability into this entire overarching ISR transformation, not just about the platforms, but about the entire spectrum of DOTMLPF issues that have to be addressed, and more on that later.

Next chart.

Just a couple of highlights, to get everybody on the same sheet of music, if you will, with respect to why are these unmanned aerial systems such a big deal and what do they bring to operations. I think probably first among equals there is persistence. What UAS is bringing to the table is the ability to stay in position or maneuver over large areas for a long period of time, and that's where a person in an aircraft becomes a limitation. Where, if you take the person out of the actual vehicle -- and as General Fraser stated, the system itself is very much manned, but now you can maintain your position, long period of time, with the opportunity to either watch or strike. You can conduct undetected operations and penetrations. You can operate in dangerous environments.

One thing that people tend to not think about, because of the focus on the platform, is that we're also able to operate these systems remotely, which allows us to project power without projecting as much vulnerability in the context of pushing a lot of human resources forward.

And finally, what you've seen capitalized on so well in recent operations is the combination of the find, fix and finish, in that we've put weapons on the sensors. So we've integrated sensors and shooters together on a platform.

Next chart.

The result of all of this is, obviously, the high demand that you've read about and heard about; and in fact, just in the medium- and high-altitude regime, over a 600-percent increase in the number of combat air patrols that we've been flying in the past six years. Currently, we're flying 35 MQ-1 and MQ-9 orbits in the CENTCOM AOR.

Next chart.

If there was any one chart that summarized kind of our approach to unmanned aerial systems, it would be this one. What the Air Force wants to do is get the most out of these systems, to increase our joint warfighting capability while promoting service interdependency and the wisest use of our taxpayer dollars.

Now, in order to do this, we need to achieve solutions in those four areas that are listed on the chart; got to come up with optimal joint concepts of operations that incorporate all of the different -- all the different levels and varieties of UAV's out there from all the different services. We've got to deal with the airspace integration challenges that exist with other airborne systems. We've got to wrap our arms around the challenges of operating in challenging air-defense environments. And of course, we've got to work ways to increase acquisition, efficiency, effectiveness and standardization.

But it's not just about what we need to do today. What this flight plan is all about is: How are we going to meet these challenges for the future?

Next chart.

So that's what this flight plan is designed to do: To lay out not just what the follow-on is going to be for MQ-1 and MQ-9 -- or RQ- 4, the Global Hawk -- but how do we apply these technologies across the board in all the different mission areas, not just in ISR and Strike, but all the other potential areas that encompass operations in the aerospace environment as well.

But we want to make sure that these capabilities are integrated with our manned systems. And you'll see an emphasis, when Colonel Mathewson gets up here and more in-depth describes what's in the flight plan, on autonomous operations as well as the concept of modularity, where we could plug and play different pieces of different systems to achieve different levels of capability.

And of course, we're interested in teaming with our sister services in the joint arena as well as ensuring that we combine with and inform the industry and academia to seek the potential and get the potential out of this capability that we have out there.

What I like to tell folks -- and I'll wrap it up and then turn it over to Colonel Mathewson here -- is that if you think of it in context of manned aviation, we are today about where -- with unmanned aerial systems -- about where we were in the 1920s with manned aircraft. Lots of potential out there. And we have to change the way that we think about using these systems across the entire spectrum of military operations.

So with that, let me introduce Colonel "Scam" Mathewson, who is the director of our Unmanned Aerial System Task Force, which we put together over two years ago. It is a -- one of those organizational changes that I talked about. It's a matrixed approach so that each one of the different elements, organizations inside the Air Force that have an interest in unmanned aerial systems come together under this task force and we can speak and operate with one voice.

So Colonel Mathewson is in charge of that organization. He is a former operations group commander, which means that he ran the UAS operation out at the 432nd Wing at Creech Air Force Base. So he has a lot of experience actually operating these things.

And I'll make a -- I'll tell you what. I'm going -- I'm going to anticipate the first question and answer you. You might ask -- someone might be wondering, well, why is this flight plan out to 2047? Why'd you pick 2047 as a date? Those of you who are familiar with the Air Force understand that we were born in 1947, so that's the 100th anniversary of the Air Force, and that's why we picked the 2047 date.

So with that, I'll turn it over to Colonel Mathewson. The floor is yours. He'll go into the detail of our specific flight plan.

COL. MATHEWSON: Well, good afternoon. I've got to admit I'm rather excited to be here. This is an incredible story, because what it does -- no kidding -- is finally provide a vision about where the Air Force is going on maybe arguably one of the next steps of its evolution, where it's going with UAS over a long haul, out to our 100th anniversary, because with vision comes commitment, and with commitment come resources and then reality.

So what we're going to talk about here, this flight plan doesn't lay out specific solutions, but what it does do is it addresses concepts and possibilities that will fill in and morph over time, and allows us to reach out and talk to academia and industry, the other services DOD-wide, our coalition and allied partners, and work together in a more efficient and synergistic way.

Next slide.

And we don't do UAS just because they're cool; we do UAS because they're compelling. And General Deptula touched on this. They're compelling where the human is the limitation.

And General Deptula used the example of where human is the limitation as far as fatigue goes, persistence, because the UAS writ large has various attributes, which aren't necessarily unique, but they're strengths of unmanned aircraft.

And persistence is what we highlighted before. I can put it in perspective. There's a ground-control station where the air crew sits, where the pilot and the sensor operator sit. And many of us who fly these systems refer to it as our cockpit. So if you think about it, we have a 1-G cockpit where I can always have a fresh crew, which enables any sort of persistence. I can design an aircraft that can stay airborne for five years, and I can man it that entire five years with little fatigue. So, persistence.

Next, if you look at connectivity, that same 1-G cockpit, that cockpit has no limitations that you normally have with traditionally manned aircraft, with fitting stuff in, cooling it, powering it within the constraints of the fuselage of the aircraft.

So I have all the processing power I need. I have all the plugs I need. I can speak to anyone globally. They can speak to me. I have access to every bit of information. There are no limitations to what I can disseminate or pass out.

That connectivity is key. And you saw it in that commercial, where you have a Predator, or in this case a Reaper, being flown from 8,500 miles away by a crew who's speaking to and working and integrated with a ground maneuver unit, saving lives and executing the mission more successfully. So connectivity is an attribute.

Flexibility and automation, which are also attributes, the idea that I can, if you will -- I'm not taking over the world with UAS, I'm augmenting the force with UAS. I'm relieving. Just like when you use your personal computer at home, perhaps spell-check saves you time from looking at a dictionary, perhaps the format -- the auto format feature, as you write your story, saves you the time with the formatting, it's that same concept with automation. The ability to automate more static or simplistic missions, or portions of missions, going from point A to point B, loitering, these sorts of missions, you automate them, and therefore you can save your valuable resources, the human.

And finally, efficiencies, because as you see, in this flight plan we're going to be driving towards the modularity and automation, but modularity is key, key in the fact that it enables common standard interfaces, both soft and hard; because we're not thinking just modularity necessarily of just plug-and-play black boxes, but we're thinking perhaps in a larger sense. And we'll touch on that in a minute.

Next slide.

This is just an example. Right now conventional harbors, typically, it's -- there are cranes operated by one person. But there are also harbors out there where you have multi-crane control.

And multi-crane control; there's a company which builds this system. It's one operator with six cranes simultaneously, so recognizable efficiency.

Next slide.

Right now we have multi-aircraft control at a 'tech' demonstration out at Creech Air Force Base. This is where one pilot can fly up to four aircraft. It is just a demonstrator. But it has allowed us to develop the tactics and the techniques and procedures associated with multi-aircraft control and also explore what one person can handle.

What kind of scope of mission responsibility and what sorts of missions are appropriate for one person to handle? Because this is the first step, if you will, to the future of greater efficiency.

So multi-aircraft control -- right now we're going to 50 CAPs in support of the joint fight. And those 50 CAPs are going to take nominally 570 crews. In this case, we're just pointing out the pilots, so 570 pilots.

Well, if I use multi-aircraft control to mitigate or to -- or fly it against some of the static portions -- going from Point A to Point B, maybe loitering at a location, doing intelligence collection or just surveillance -- arguably we have about a 50 percent savings.

And then if we automate that even more, where we don't even use one pilot and one sensor out there, to monitor for aircraft, but let them go autonomously -- maybe one person monitoring multiples, 100, 200 -- arguably there's a greater savings. Next slide.

From a modularity perspective, it's nothing new. We already spoke about it. We see it in our PCs. We have thumb drives. These are modular systems, standard interfaces.

That's what we're talking about. And the sense is that there are types -- right now we already use, say, in the B-52, different types of plug-and-play capabilities.

We're thinking about multi-mission in the large sense, where the aircraft could be a bomber one day, a tanker the next day, a cargo plane the next day, an intelligence resource the next day or maybe all of the above.

But the thing is, as far as the cross and change. But the idea is modularity in the sense that it defines the vehicle as more of a payload-agnostic platform, which enables operational flexibility and an incredible streamlining potentially in the test and acquisition, the development piece.

And certainly when you look at logistical sustainment, now you have commonality in parts, standard interfaces well-defined and so forth. So we think this is potentially where we're going to go. Next slide.

In fact, Air Mobility Command along with the Air Force's Special Operations Command have already been looking at this sort of capability, not necessarily associated with unmanned aircraft. But they've been looking at the same concept, because there are some incredible efficiencies here, from a logistical perspective, and savings potentially from -- (off mike) -- acquisition perspective. Next slide.

So how did we get here? Next slide. Well, we pretty much looked across all the various mission set that are in -- that the Air Force has on its books. And we sort of racked and stacked them and looked at recapitalization opportunities. And we looked at maybe shortfalls and gaps and so forth. We laid into the current programs.

So if you look at this slide from left to right, it goes out to 2047. You'll see some dark, black, bolded lines there. They're actually various colors but the bold ones, the solid ones. These are programs already existent. These are programs like RQ-4 Global Hawk, Predator, Reaper and so forth. And we sort of laid in where we think notionally we could lay in new platforms.

Now, at the top, you'll see nanos and micros. These are insect- size, bird-size. You'll see smalls, which are handheld or perhaps catapult-launched. And you'll see special-use UAS at the very bottom. These are hypersonic, low-observable, made to be extremely long- endurance, you know, five years, to go back to that example.

And this is -- in these designs, the mission design or the aircraft design is really critical or essential to mission success. See, you can modularize them, but not like we've been just talking about. When we talk about modularity, we're talking about the middle ones, the mediums and the larges, kind of fighter size and kind of tanker size or C-17-size aircraft.

And I don't know if you've ever seen a Skycrane helicopter, but all -- a Skycrane helicopter, typically you see it fighting forest fires, but it has a cockpit. It has a backbone with rotors for lift and steerage on the tail, but the guts are empty. And so it can be a cargo hauler one day or a firefighter the next day. And that's what we're talking about, that level of modularity.

And that's what we're looking at here. In fact, we've already begun work -- in fact, the initial capabilities document for the NQX has already been completed, and now it's beginning its way through the process. And that NQX is potentially going to be our -- if you will, our test bed for these concepts, and we'll see how it goes.

Next slide.

Just some examples, moving left to right, at the variety of missions, because one thing we want to make sure is that we consider UAS as alternatives -- as alternatives -- to traditionally manned aircraft in all competitions. They are not going to fit in every mission. They are not the best fit. But potentially they could be, so we need to consider them.

And with that in mind here -- this slide and next slide, please, and the next slide -- what you see is the same concept of more of a payload agnostic platform with various types of capability.

And if you think about it, also, if you have this streamlined, if you have just this one payload agnostic airframe, you're spending money on the effect, and the effect is in the payload. It also allows you a much quicker turnaround time on upgrading your capabilities.

Next slide.

And throughout it all, command and control is essential. Command and control sometimes can be tenuous, as we're starting off in the infancy as we are still today. The idea is

to have a spider web of connectivity, of redundant connectivity, where it's not just satellite-based, but it's numerous methods, whether it be satellite to ground, back up, line of sight, different types of frequencies, different types of bandwidth being used.

So that's the idea. But in addition to that, you have to be able to touch it globally. In that commercial you saw, the idea that someone is flying the aircraft 8,500 miles away, they have to sit, though. They're tied to a particular ground control station. Perhaps in the future that won't be the case, and there will be some mobility on control.

So in a permissive environment, I can take one of my payload agnostic vehicles, upload a bunch of bombs on it, park it over a particular area of interest with sensors and bombs, and provide it to a joint terminal air controller who's on the ground, basically utilizing those sensors and, if need be, the kinetic capability in those weapons. So there's all kinds of potential.

And here, too, I'm not sure if you can see it, but you'll see some teaming, because one of the aspects of the flight plan that we're really interested in is what we call loyal wingmen. This is where you have an aircraft -- say, like a C-17 -- as a force multiplier. We can tag on to it numbers of unmanned aircraft as augmenters.

If I'm flying an F-35, I can carry so many bombs in my formation. Perhaps I have five, six, 10 more of these loyal wingmen who are doing nothing but carrying weapons for me, so loyal wingmen is part of it.

It all comes down to the connectivity, the ability to -- even though you have that rheostatic autonomy and you can choose where you want to be on that scope, that connectivity allows you to always get back in control, because there's nothing unmanned about unmanned aircraft, and that can never change.

The next slide.

This is just to give you an idea we're talking about not just material solutions, but so many other things. So there are a lot of actions that have to be synchronized. This is actually -- these are in the Flight Plan document. This is not a comprehensive list. And even in the document it's not a comprehensive list, because that list is going to morph and grow as we move forward in working with industry, academia and our fellow services, and the idea that it'll grow and evolve and get better through that synergy.

Next slide.

So in the end, it's about integrate: UAS will have to be fully integrated with traditionally manned systems, period, full stop. And they have to have that connectivity, that command and control that assures that you are always in control of them.

Secondly, we have to maximize not just combat capability, but our ability to acquire and develop systems. And we think that's best in autonomy and in modularity. Those are our big -- big-ticket items.

And, lastly, the Flight Plan reaches out, provides a vision. And hopefully, we can team then with industry and academia, with the sister services, as well as DOD-wide and our allies, because, once again, without vision, there's no commitment.

So this is our vision. We're committing to it. And hopefully, a bunch of other folks will get onboard, and then we'll have reality.

Any questions? Yes.

Q Sara Carter, with the Washington Times. First -- more narrow -- what are the three main goals for the Air Force's UAS program in Afghanistan and Pakistan, as stands within the next maybe five years or less? And, you know, you talked about reaching out to the allies. One of the main complaints from Pakistani officials many times, when I've interviewed them, is that they feel that they don't have enough participation in the UAS program. And it's a constant complaint. It's a public complaint. I'm sure you've heard it many times. Is there anything changing in regards to that, and can you talk a little bit about that?

COL. MATHEWSON: Actually, I'm probably the wrong person to ask.

Q Probably -- probably, the general?

GEN. DEPTULA: Well, let me take a stab at it for you, in terms of three goals. First, I'd suggest to you that, you know, our overarching priority is, how can we best integrate unmanned aerial systems into the warfighting joint task force commanders' priorities, integrate them into his scheme of operations to meet his overall objectives?

That's number one, okay, across the board -- and across the different spectrums of where these vehicles can operate, not just in providing the intelligence, surveillance and reconnaissance piece, but the force application piece.

Second, ensuring that we develop the systems, the operators and the flexibility to match the increasing demand. And the -- third, I would tell you, it -- would be to capitalize on the leading- edge technology that we have today, but not get so enamored with what we have today that we don't reach out to the future and integrate and move forward, not just take what we have now and repeat it into the future.

I'll -- let me give you a specific example. Right now we're developing a pod that generically can be termed a wide-area airborne surveillance pod. People tend to focus on the numbers of combat air patrols or orbits, yes? They're very interested -- and our soldiers, sailor(s), airmen and Marines on the ground are interested -- in what? Motion. Motion video: Seeing a picture of what they're interested in over here.

Well, right now, the way our systems are structured is, you've got, you know, basically one sensor per vehicle. This wide-area airborne surveillance pod in its first iteration will provide 10 separate video images to joint forces on the ground simultaneously; the next iteration will provide up to 30 images, then the next iteration up to 65. So from one vehicle now, you can send images to 65-plus different joint folks on the ground. So that's what I mean about trying to break away from just thinking about where we've been in the past to capitalizing on technologies that we can go to in the future.

Okay. The second part of your four-part question --

Q (Laughs.)

GEN. DEPTULA: -- and this one probably applies to some others that might be out there -- the services organize, train and equip. We provide capability. The combatant commands and the joint task forces that are out there charged with dealing with operational contingencies are the ones who take these capabilities and apply them. So, while probably not satisfying to you at this moment, I would have to defer that kind of an operational question to the operational commander.

COL. KODLICK: (David ?).

Q The UAVs that are operating today are operating in areas where there are no significant air defenses. What happens to UAVs when you try to operate in areas where there are significant air defenses?

GEN. DEPTULA: It's an outstanding question. Thank you for asking it. It's one that -- to be honest, we have become accustomed to operating in battle space that we control, particularly the airspace, and have controlled over the last 18 years of operations that the -- that the Air Force have been involved in.

So survivability in a contested and denied airspace, as well as permissive airspace, is something that is part and parcel of the concern as we move into the future, because some of the systems that we have today, you put in a high-threat environment, and they'll start falling from the sky like rain.

Q So -- (off mike).

GEN. DEPTULA: That's part of the flight plan, how do we -- you know, what -- what are the next phases and steps that we take in terms of not just countermeasures, but that could be applied to current systems? But as we look to the future, capitalizing on low- observability, that is one means among many -- it's not just low- observability, but some of the appliqués in terms of different technological solutions to dealing in contested airspace is a significant part of where we need to go in the future.

Q The way -- the way the Air Force dealt with it the first time around, with manned aircraft, was through performance, until it started using stealth. And I thought I heard you use the word "hypersonic."

COL. MATHEWSON: I did mention hypersonic as one of the possibilities, but we --

Q (Off mike) -- are you talking about building unmanned high- performance vehicles?

COL. MATHEWSON: Potentially. I think it's too early. We can't answer that here. We provide a vision, and now, as it goes through the process and begins to mature, you'll start recognizing what the requirements are. We've begun now work on the CONOPS related to UAS writ large. And from those CONOPS will stem -- will come requirements.

And so, yes, it could very well be hypersonic. It could be very well low-observable. And so there will be a variety to meet the requirements of the force.

Q I think this is probably for General Deptula, but whoever wants to take it. Colin Clark with DoDBuzz. The talk about tankers has gone on fitfully for a while. Have you guys considered unmanned tankers in light of the upcoming RFP?

GEN. DEPTULA: The short answer to that question is no, just simply because the technologies have not matured to the state where it would be a viable solution this soon. That's not to discount the fact that at some point in the future that may be a possibility.

And certainly, reversing where the unmanned system is, as I think you're probably already aware, there are efforts out there and tests ongoing to refuel unmanned aerial systems, which would probably be the first step.

And then you also have to ask yourself the question, as Colonel Mathewson said, it's not -- we have to be careful that we don't turn UAS into a solution for missions out there where it doesn't make sense.

In our building this flight plan, we talked about building, perhaps in the future, unmanned cargo aircraft.

Well -- (chuckles) -- if you're going to transport people in the aircraft, well, why would you not have someone in the cockpit, too? So there are some -- you know, you have to take a look at what makes sense in the context of the unmanned system that you're building.

Q I'd like to do a follow-up. The question of using UAVs for comms --

GEN. DEPTULA: Right.

Q -- basically bringing it down to air breathing and building a second level from the satellites --

GEN. DEPTULA: Right.

Q -- how important do you see that as being in the next three to five years?

GEN. DEPTULA: Very. Very important. It's a -- it's a great area where the system -- again, the capabilities provide you an alternative to, you know, a space-based system, which is transitory and you have to have lots of them to have persistence.

And it gives you elevation that allows you coverage over a wide area. And that is, you know, a very -- very high on the top of priorities for the application of UAS.

Amy?

Q Amy Butler with Aviation Week. I'm just curious on the vision for UAS. Is -- have -- has the flight plan taken a position on the applicability of UASs to deliver nuclear weapons? And if not, why not? And if so, what's the position? And also, if not, what is your opinion on the matter?

GEN. DEPTULA: How many questions is that? (Chuckles.)

Q It's one question, but --

GEN. DEPTULA: We'll let -- go ahead, Scam.

COL. MATHEWSON: On most of these, it's -- unfortunately, it's got to be sort of the same answer. We expect them to be considered in all future competitions as viable alternatives. However, they may not be the right alternative. It may not be the right fit. And that's not just a material decision, but there are other decisions or other factors that weigh into that, certainly.

So -- really can't answer the question from -- regards to nuclear weapons. But we're open-minded. And that's where this is. And it will morph and evolve, and you get more fidelity as we move along.

GEN. DEPTULA: Yeah. Go ahead.

Q You know, for their -- combat commanders to have greater trust in the unmanned aircraft in places like Afghanistan and Pakistan, does the drones' technology have to get better, or do the humans have to get better at deciphering what the drone -- the information that the drones are gathering?

COL. MATHEWSON: You know, I'll tell you, it's -- if you had asked me that question about 10 years ago -- I was flying F-15s, and I hurt my back and ended up fortunate enough to get to be involved in Predator as a squadron commander. Back then, if you had asked me that question, I would agree with you that there was a lack of trust or understanding. It was sort of like, well, Predator's flying. We'll put it off over here. It has a mission we kind of recognize, but.

But now, if you look at the theater and how Predator and Reaper are operating, along with Global Hawk and all of the other various UASs, I believe the trust is established. And that -- at least, that's my impression, having been involved in this for at least eight, nine years.

Q Well, there's been some blowback in terms of, you know, that some of these strikes do more harm than good because they, you know, sometimes miss their target or they're mistargeted. You know, for commanders like General McChrystal to put more trust in them, to integrate them even more fully, you know, what needs to improve to not have that happen?

GEN. DEPTULA: Well, let me jump in there. The -- it's -- you got to be careful with the issue of trust. I think Colonel Mathewson's right. I mean, there's trust in the systems to be able to operate and deliver the ISR requirements back, as well as deliver lethal weapons.

The issue's one of force application. When you get to the -- you were saying, well, sometimes they miss.

Well, every means -- with -- using every means of force application, sometimes they miss.

So the issue isn't one that is abnormally associated or unusually associated with unmanned aerial systems. And in fact, I would tell you that ordnance delivered from the air, historically from UAVs, hits what it's aimed at over 95 percent of the time, which is probably one of the most precise means of force application that we have.

Now, as long as you have humans in the loop of any means of force application, you're going to run the risk of a mistake or an error that is unintentional.

Q Hi, Colonel Mathewson, you had said that your initial capabilities document for NQX is now complete. I wonder, what's your timeline going forward? When might we start seeing some of these modular aircraft? And is the low-observable on the table for NQX?

COL. MATHEWSON: I think it's a little too early to know when they're actually going to show up, but the analysis of alternatives is going to begin and take roughly one year. So I think you can anticipate towards late summer or end of next calendar year that the analysis of alternatives will be complete, and then we'll go from there.

And what was the second question?

Q The second question was, how soon -- what's the soonest we might be able to start seeing some of these modular aircraft?

COL. MATHEWSON: Not soon enough.

Q And the last one was, is low-observable on the table for NQX?

COL. MATHEWSON: Yes, it is on the table. And in the analysis, they'll come to the conclusion based on the requirements that are laid out. Yes, so it is on the table.

Yes. Sorry, yes.

Q (Inaudible name), AP. Part of Pakistan's resistance to the drone attacks is the casualties that they generate. And yesterday we had even Prime Minister Gilani saying that they've seriously impeded Pakistan's efforts to weed out militants. So what is being done to reduce the amount of casualties, especially nonmilitant casualties, civilian casualties? Thank you.

COL. MATHEWSON: I'll tell you one thing is -- you know, we -- in every instance we take it very seriously. We take our job and how we employ weapons very, very seriously.

And as we look towards the future in this flight plan with the systems we developed and the technology -- technologies we invest in, you know, it's all about connectivity, as far as communications, so we can communicate accurately, accurate information, and sensors that are accurate, that can recognize what you're looking at, and weapons that are accurate.

Q What's your -- (inaudible) -- coordination with Pakistan? I mean --

COL. MATHEWSON: : Actually, being here on the -- go ahead, sir.

GEN. DEPTULA : No, I just want -- I'm just going to get some water here.

COL. MATHEWSON (?): (Inaudible.) Here at the Headquarters Air Force, at the services, we simply just sort of, if you will, train and equip. We provide forces. So I think it's better to ask the -- one of the combatant commands or the joint-task force commanders that are --

GEN. DEPTULA (?): It's back to the point that we organize, train and equip the services. The operational commanders are the ones that you need to address the operational questions to.

Front row.

Q Can you talk a little bit about the implications for personnel, how you organize and train? And you know, traditionally pilots have flown aircraft. What does it mean when you have nonpilots, which I guess you're experimenting with, or operators, who are trained less?

How does that change the culture and the future of the service?

COL. MATHEWSON: Well, you know, frankly, I don't think it changes the culture. I think it -- well, perhaps it does. It evolves the culture, maybe is a better way to characterize it, in the sense that, starting with 1947, or actually before then, as the Army Air Corps, we've gone through, if you will, generational changes in how -- perhaps the nuances of perception and so forth and what the traditions are, certainly involved with new technologies, how we conduct operations. So we will see changes associated with that.

When it comes to the air crew, it's all about skill set. And the skill set that was required for an airman in 1918 changed when it went into 1945, and it's evolved. And it's evolved in other ways, as well, by technologies, whether it be missiles, cyberspace, space in general. These are all operators, all strongly representing the culture and the traditions of the Air Force, so I don't see that changing.

And as far as morphing -- this question about pilots, non-pilots and so forth -- it's all about the skill set, regardless of the terminology you use. And remember, UAS are not replacing manned aircraft; they're augmenting manned aircraft, and we'll fit them in where they fit.

GEN. DEPTULA: Let me amplify that, if I may, with an example. There's a great big difference, in terms of the skill set that Colonel Mathewson is talking about, when you're launching a hand-held UAV that might have a three- or four-hour duration, and all it has in it is a camera to look and see what's on the other side of a hill; and an MQ- 9, that carries the same ordnance load as an F-16. And you need to put a 500-pound, guided, precision munition in a very particular location to provide close-air support to troops in combat, so -- and people tend to have -- tended to think that UAS's are ubiquitous.

Very much different level of training required to do those two things. In the one instance, you can take someone with a -- with a very minor amount of training, and have them launch the aircraft, fly it around and recover it -- or it recovers itself. In the other instance, you need someone who is very savvy and aware of the situation around them, and can coordinate with someone on the ground, and who understands delivery techniques and so on and so forth. So, it's not one size fits all.

And our challenge is, to meet that demand, yes, we are moving away from your traditional pilot who goes through traditional flight school to become UAS operators. We simply have limited rated inventory. We have increased demand. So we are moving toward and are exploring alternatives, to ensure that folks have the proper degree and the proper skill sets and the proper degree of training to be able to operate the vehicles commensurate with the capabilities that they have.

Q On that point -- (off mike) -- can you give us a sense? Is there a matrix to measure where the Air Force is today, with this mix of aircraft, and where it will be at the end of '47, 2047, as far as unmanned versus manned?

GEN. DEPTULA: That's a good question. And we don't have that matrix yet. We can give you a matrix of where we are today, in terms of unmanned aerial systems versus manned systems. But because this is -- we haven't answered a lot of the questions yet.

Remember, I go back to my -- we're a 1920 equivalent. So I would suggest to you that there's still much discovery that lies ahead that, you know, we could probably make one up for you. But it wouldn't be very accurate.

COL. MATHEWSON: It's a long way away.

GEN. DEPTULA: Right.

COL. MATHEWSON: You know, we'll -- (off mike).

GEN. DEPTULA: (Laughs.)

Q General Deptula, Colonel, is this -- Marc Schanz, Air Force Magazine -- is it reasonable to expect that UASes will be -- would definitely be under consideration for a sixth-generation fighter platform?

COL. MATHEWSON: What our flight plan obviously suggests is that we just consider unmanned systems as alternatives. And whether or not it's going to be the right fit, I don't know.

Sir.

GEN. DEPTULA: Well, it depends on your -- depends on your definition of fighter.

See, I would tell you no, not yet. Maybe. Let me make that a maybe, because I think we have to be real careful here. But let me -- let me answer what I wanted to answer first. And then I'll go back and touch on that some more.

Traditional terminology has a tendency of fixing us in a time frame in the past. And that quite frankly has been some of our challenges with labeling fifth-generation fighters fighters. Some of you heard me say this before. But you know, some of our fifth-generation aircraft that we have onboard aren't just fighters. They're FBA, EARC, EW, AW, ACS aircraft.

They're flying sensor platforms that will have the ability to penetrate denied airspace and extract information. While at the same time, oh, by the way, yeah, they have some weapons-delivery capability.

So we may value some of these things that we call fighters today more for their ability to penetrate denied airspace and collect ISR information than they will what they -- what the traditional F fighter stood for.

You know, an F-22 or an F-35 is -- does not perform the same functions as a P-51 did. It's a flying -- they're a set of flying sensor systems. So when you say, can an unmanned aerial system -- may it replace a fighter in the future? It depends on how you're defining fighter.

If it is to deliver weapons on a target, yes, you bet. If it is to deal with controlling airspace, when your adversary is flying aircraft against it, we're not yet to the point where you can achieve

the degree of 360-degree spherical situation awareness, rapid assimilation of information, and translation of that information into action that the human brain can do yet.

At some day we might be able to, but until then, we'll still have manned aircraft.

Let me get someone who hasn't answered -- yes, sir?

Q Hi. In the small UAV area, in the flight plan it looks like you're trying to lay a road map for pushing more into that area. What are you doing to coordinate with the STUAS competition, if anything, in that area?

COL. MATHEWSON: Well, quite honestly, the flight plan is -- we've sort of on purpose, if you will, fenced it away it from ongoing competitions and so forth, although we're aware of what's happening, because, remember, this just provides a vision. It's a long-term vision.

Now, as we enter the implementation phase, then we're going to start rolling in, if you will, the reality, the current reality. Certainly the STUAS is part of that.

Q (So then are ?) the roles and missions clear on that? Because, I mean, that's kind of -- that area has kind of, I think, been dominated by the Navy and Marine Corps.

COL. MATHEWSON: You know, it's funny. I --

Q (Off mike.)

COL. MATHEWSON: No, it -- the roles and missions discussion, relative to small UAS, it's been widely accepted that all the services have their own, well, unique requirements, and small UAS of all different types and flavors serve as those requirements. I think that's -- it's a good way to go.

(What we ?) like about this flight plan is, we're working -- been working pretty closely with the other services, and we're beginning to increasingly, because hopefully we can all kind of get on board and use this more of a -- as a joint way ahead. Wouldn't that be good?

COL. KODLICK: Okay. We've only got time for one more question. (Off mike.)

Q I actually wanted to follow up a little bit on the questions regarding the use of UAS to date. I know you don't want to speak too much about the operational details, but would you be able to give a general evaluation of sort of how important they've been in the war on terror, specifically in the use for targeted killing in Afghanistan and Pakistan?

GEN. DEPTULA: Again, answering generically, they've been very important, they've been very effective.

Q Okay. Thank you.

GEN. DEPTULA: Maybe one more. That was pretty short.

Yes, sir?

Q I was going to ask about the UAS maintenance. I saw in the flight plan there are two options being considered right now, especially with pretty much all maintenance to these aircraft being done by civilian contractors. How far away is it to create a career field for UAS maintenance? And how urgent is that make the reality, especially with, especially at AFSOC, a hundred percent of that maintenance being done by contractors?

COL. MATHEWSON: Okay. Once again, I think you need to talk to the major command. Air Combat Command is the lead for this sort of question. I will say, though, that the total force, which is, you know, the Air Reserve component and the active component, for many of us also includes civilians, and that is our reality.

And they do an incredible job as part of the team. What it will look like in the future we don't know. And the flight plan actually speaks to maintenance, which is to some extent automated.

Q You said in the flight plan it describes how it's being done right now --

COL./GEN.: Yes.

Q -- as moving to military as being more -- being inexpensive and responsive. So it seems like, you know, from your flight plan you've made it clear which way the -- you would pick for the Air Force to go. I'm just wondering why you came to that decision.

COL. MATHEWSON: Well, actually, it will continue, I think for some time, to be a combination. But certainly in some mission sets, given deployment locations or just what the mission entails, it is better to have a uniformed member. But that's something the MAJCOMs decide.

Can we do one more? Are we --

COL. KODLICK: Yeah, you can do as much as you want.

COL./GEN.: No more, sir, thanks. (Laughter.)

Q General, Jason Simpson, Inside the Air Force. My question is regarding being with -- or the flight plan's notes of the need for advanced bandwidth capabilities in the future and protected communications, especially for Predator and Reaper. It mentions EHF but not a successor. I was wondering if TSAT or the capabilities TSAT was to bring were looked at in initial planning of the flight plan and how the plan was revamped due to the cancellation of TSAT.

COL. MATHEWSON: Actually, cancellation of TSAT had nothing to do with how the flight plan was written. We consider all these things in our various brainstorming sessions as we work through different sections.

One thing -- suffice it to say that, to us, communication or the connectivity piece is one of the largest vulnerabilities for all these systems. And so that is going to get -- one of our major areas of effort. In the very short term, there are some initiatives -- we call them the top 10; there are actually more than that, and they're in the flight plan -- on things we need to focus on to kick-start or jump- start this into the future, as far as where we go with unmanned aircraft.

And one of the key areas is an interoperable architecture for command and control. And with that comes protected communications. We --

GEN. DEPTULA: And I'd just jump onto there --

COL. MATHEWSON: Yes, sir.

GEN. DEPTULA: -- and say this goes back to David's question on vulnerability and the -- if you can move away from where we are today, we're highly dependent upon communications, satellite communications, which -- where we need to go is to an autonomous capability that completely eliminates that vulnerable link.

COL. KODLICK: Okay. I think that about wraps it up. And happy to -- after you have a chance to digest the flight plan, give us a call -- we're on the global -- and let us know what else you'd like to talk about.

Thanks very much for being here.