

Center for Strategic and International Studies

Online Event

“A New Strategy for Countering Small Unmanned Aerial Systems”

RECORDING DATE:

Friday, January 8, 2021 at 9:00 a.m. EST

FEATURING:

Major General Sean A. Gainey,
Director, C-UAS Office

Nicole M. Thomas,
Division Chief for Strategy and Policy, Joint C-UAS Office

CSIS EXPERTS:

Tom Karako,
Senior Fellow, International Security Program and Director, Missile Defense Project, CSIS

Transcript By
Superior Transcriptions LLC
www.superiortranscriptions.com

Tom Karako:

All right. Well, hello and welcome, everyone. I'm Tom Karako. I'm a senior fellow with CSIS and moderator for today. We're very excited to serve as the forum for the release of the Defense Department's new report describing its strategy for countering small unmanned aerial systems. At one time the missile defense conversation was focused on ballistic missile threats. And to be sure, ballistic missiles remain a profound piece of the problem. Yesterday, for instance, was the one-year anniversary of Iran's missile attack on U.S. forces at the Al Asad Air Base in Iraq. But while that threat is still there, and increasing, it's definitely not just about rogue state ballistic missiles anymore.

So we here at the CSIS Missile Defense Project focused really on the challenges across the spectrum of air and missile threats. Essentially, every that arrives in or through the atmosphere that flies somewhere between mud and space. Now, at the outset, we want to briefly acknowledge that this has been a challenging week for the country, meaning of course the events of the Capitol on Wednesday. But the work of the Department of Defense and its professionals must go on, and we have two of those professionals with us this morning, the report's lead authors Major General Sean Gainey and MS. Nicole Thomas.

First up, who I feel like I've been on a half-dozen panels with you, sir, Major General Gainey is director of the Joint Counter Small UAS Office and the director of fires, G-357. Prior to that he served as deputy director for force protection, J-8 Joint Staff. Part of that was being the head of the Joint Integrated Air and Missile Defense Organization, or JIAMD, which is especially important for our topic today, how C-UAS fits together with everything else. He's also served as the commander of the 108th Air Defense Artillery Brigade from the 94th Army air, and a number of other air defense roles. So great to see you, sir. You're a repeat offender at CSIS, welcome back.

Our second speaker will be Ms. Nicole Thomas, division chief for strategy and policy in the Joint Counter Small UAS Office, or JCO. She really led the team that wrote the report we're talking about this morning. As a senior civilian with the Army, Ms. Thomas has previously served as senior strategist to the Army staff, director of the U.S. Army Pacific Command Washington Office, and has been detailed to the House Appropriations Committee Surveys and Investigations Division.

We're going to start with some short opening remarks from our speakers, move to a conversation about the report, and then we'll be running through audience questions. And for those tuning in – and from the looks of it we have a healthy audience this morning – I would encourage you to please submit those questions. You can do so through the CSIS event page by clicking on the button that says, "ask live questions." We ask that you please be sure to include your name and affiliation so our speakers in the audience know who you are and where you're coming from. I've got a long list of questions, but we want to make sure and hear what is on your minds as well.

And so with that I'm going to turn it over to you, General Gainey, to get us started. Welcome.

Gen. Sean A. Gainey:

Thanks, Tom. (Audio break) – this event today, and really giving us this platform to rely what we've done with the DOD strategy. And for all – I'd also like to thank,

for all of you listening in and joining us today, to really listen on this important topic.

The secretary of defense designated the Army as the executive agent for counter small unmanned aircraft systems, which we'll commonly refer to as counter small UAS. That included group one, two, and three unmanned aircraft. And when he designated us as the executive agent he added into group three because prior to that we were only focused in the department on groups one and two, and we'll talk about that a little bit later. But with the authority to lead and direct the efforts of developing a joint materiel solution, joint training doctrine. And this was done because the secretary understood the importance of the threat and felt we needed an enterprise approach to get after this problem set.

The secretary of the army then stood up the Joint Counter UAS office, you'll also hear referred to as the JCO. And I was designated as the director to develop integrated plans, technology, training concepts and doctrine, and to focus appropriate resources on countering the UAS threat while minimizing unnecessary duplication and redundancy. It's important to note that the secretary also assigned the Army's Rapid Capabilities and Critical Technology Organization, you'll commonly hear referred to as RCCTO, under Lieutenant General Thurgood as the materiel and acquisition lead in support of my organization.

So since we were designated in the February timeframe, some of the main efforts we had moved besides the strategies. In June, the DOD leadership approved the results of an operational assessment of counter UAS capabilities currently in the field and selected 10 initial joint counter UAS systems for continued investment. To build on these capabilities with emerging technologies the JCO and RCCTO held an industry open house in October of 2020. At this event we described the path for industry to bring new capability to meet our requirements. And speaking of requirements, the Joint Counter UAS Operational Requirements coordinated with all service combat commanders and DOD stakeholders provides the parameters that address current and future capabilities required in every phase of the kill chain within a modular open system command and control architecture.

The DOD counter-UAS strategy provides the framework for addressing small UAS across the spectrum. And you'll hear us refer to the terms of hazards and threats in the homeland, host nation, and contingency locations. These guiding documents serve as the basis for providing a path ahead for industry demonstrations, experimentation, and innovation opportunity. The Department will continue to work with industry to bring interlinked systems to full maturity and to eventually replace them with follow-on enduring solutions.

So, Tom, that's all I have for opening comments. I'll pass it back to you.

Tom Karako: All right. Thank you, sir.

Now over to you, Nicole.

Nicole M. Thomas: Thank you for giving us the opportunity to share this strategy.

So this is the first DOD strategy for counter small UAS. The services and combatant commands developed their own regional or service-specific document,

but this one looks at the challenge across the department. One of the first and most important things that we did is to ensure that all the stakeholders were part of developing the strategy. And together we spent a considerable amount of time making sure that we accurately captured the problems so that we could develop a relevant and executable framework for the strategy.

We used three documents to provide kind of the left and right limits of the document. And the first one was the NDS, or the National Defense Strategy. The second one was the DOD directive that established the executive agency. And the third one was the threat assessment. In terms of process, the team spent time thinking about the current state of affairs and how would we describe where the department is for counter small UAS. We then identified what the desired end state would mean and what does success look like. And it was that space between where we were and where we wanted to be that we called, you know, what was getting in the way.

And that's where we spent the bulk of our time. You know, we churned those items in the what is getting in the way into actions that would move us from where we were to where we wanted to be. So we identified probably several dozen things that were getting in the way, and they fell into three categories that became our lines of effort.

So the first line of effort is called Ready the Force. And it addresses our concerns about our ability to keep pace with this rapidly evolving challenge. So one of the actions that we're taking to address the challenge is to leverage existing S&T work that's been done by research facilities and academia and industry so that we can more rapidly develop and deploy innovative solutions.

The second line of effort is called Defend the Force. And this line of effort is dedicated to the development and refinement of common nonmaterial solution, such as doctrine, joint doctrine, training, and concepts.

And finally, the team discussed how the joint force could maximize its counter small UAS effectiveness in the homeland and host nations. So to do that, we needed to improve our interoperability with both our international partners and federal agencies. So we developed a line of effort called Build the Team. And that prioritizes interoperability and information sharing among our critical partners.

So through the implementation of the strategy the department will position to address the small UAS challenge we encounter across all three operating environments. That's homeland, host nation, and contingency locations. So the department is taking a holistic approach to the problem so we can provide commanders with forces to protect DOD personnel, assets, facilities, and missions from current and future small UAS threats. Thank you.

Tom Karako:

Great. Well, thank you – thank you both. We'll go ahead and just dive right in. I think maybe to just set the table a little bit here, I wonder if you might speak to why it was necessary, why I was important for this office, for the strategy to be set up and done in the sense that, as you alluded to, General Gainey, there had been a number of surface programs? Why was it important for this to be a joint and a defense-wide effort? Why was it set up in this way?

Gen. Sean A. Gainey: Yeah. And, Tom, that's a great question, because we get that question asked a lot because, as everybody understands, the services have been working on this problem set really since about 2016 and producing a lot of capability against this threat set. However, we were spending a lot of money in the department – you know, a couple billion dollars' worth – developing equipment with urgent requirements. So essentially, services were getting capability out to the warfighter quickly – rightfully so, because we want to get capability where the combat commander sees a gap and get it to them quickly. However, we never followed that up with maturation of the systems that went out initially.

So you essentially ended up with a situation where you had every service working on a problem set, several redundant systems out there, all with the commander. Not all of it worked as advertised to the commander. So the secretary felt we needed an enterprise approach to get after the combatant commander's requirements and to essentially be able to deliver it from a joint perspective and reduce the redundancy that was out there at the time.

Tom Karako: Great. Thank you.

Let me now just sort of start, in some respects, at the beginning, with the threat or, put differently, the utility of small UASs, both ours and our adversaries'. The document suggests that the proliferation, the exponential growth of these systems is going to change the character of warfare. It also has this interesting observation about these things existing in the gap between air defense, force protection, and air/space control. Just wonder if you could just sort of – one of you, unpack that force a little bit. How is – how is it that this is kind of coming at us at the gaps and seams? Why is this so important?

Maybe Nicole, would you like to hop in there?

Nicole M. Thomas: I can – I can start out a little bit. I'll start off. So the changing character of warfare. So with the increased capability of these systems and the decreasing price points and the accessibility has led to this exponential growth. And so that's kind of lowered the barrier to entry and expanded the number of actors that can, you know, enter into the conflict. So that's why we're sort of seeing this changing character of war. So for instance, recently Turkey – (inaudible, technical difficulties) – and you can see that in – (inaudible, technical difficulties). So less-funded countries now have access to airpower where they wouldn't have in the past, so that's changing who's entering the fray.

Tom Karako: Great. Great.

Gen. Sean A. Gainey: Hey, Tom, I would like to offer another piece to that. And it really picks up on why the Army was selected and was found to be the best fit for this when we looked at it. So at the time, the Army was really focused on the groups four and above, the larger UAS, and with our current systems being developed in the integrated air and missile defense. The focus on one and two was seen as more of a force protection problem by the services. So you had different efforts moving out. And it wasn't a synchronized effort of, you know, Army Air Defense Force Fires Center of Excellence focus – I'm speaking from an Army perspective right now, but if you can imagine this across the joint force and other services having these same problems.

So essentially you created this seam where through the operational urgent requirements you had the acquisition community just rapidly developing stuff, but with no PF framework around that, like in the groups four and above with the Integrated Air and Missile Defense portion. So by selecting the Army as the executive agent you now took the Army that's already – as you look at some of our roles and responsibilities at air-based defense and protection of the joint force – you now give us that groups through two, and you add three because the Integrated Air and Missile Defense was, you know, with some of our Patriot systems, you know, could engage some of the three. It's not cost effective, but you could engage some of the three.

So now you put that under the Army. And my role specifically, if you look – that's why my title is not only Joint Counter-UAS Office but also director of fires. So you put it all under one army – general officer under one service to really start to close those seams and look at this holistic problem, as opposed to an isolated problem.

Tom Karako: Great. Thank you. That's important.

Let me just sort of follow that up with a little bit of the missions that are presumably going to be attached to these – to these systems. The document talks about it being useful, not just for direct attack or ISR, but really talks a little bit about novel applications as well – you know, thinking of them as platforms for EW, cyberattack, AI, facial recognition, and all that sort of thing. So having described kind of the fact that this has arrived, where do you see this going? How do you think over the next five to 10 years the threat of the small UAS problem is going to affect how we think about air power and kind of that seam between what we call today UASs and, frankly, cruise missiles and fixed-wing aircraft? Where do you see this going?

Gen. Sean A. Gainey: OK. I'll jump on that one, because we looked at this extensively. So you can look at this a couple ways. All right, look at us as the U.S. and how we're looking to leverage and are leveraging these capabilities in the areas of unmanned – whether it's unmanned teaming of just unmanned systems out there. There's exponential growth. And if you look at the threat we're looking at now and systems we developed now and the areas we're focused in on is really looking at the UASs that have a controlled operator and finding ways to cut that link between operators.

But where we see the threat going in the future is autonomous. And you highlighted some of that. Massing, swarming capability, and integrating AI and potentially leveraging 5G out in the future. These are some of the challenge areas that we're looking at as we look at our requirements for developing future capabilities. These are the areas we're looking to address to be able to have capability as that technology comes on board and become more prevalent.

Tom Karako: Great. Thank you.

So let me now turn to the threshold of the counter UAS mission. You know, you described – painted a picture here of a pretty robust threat. And so the question becomes, OK, what are we trying to accomplish with the counter mission? How much counter capability is going to be enough? At one point, the document talks about layered defenses. So, you know, when we think about, when we envision

countering UAS, how thick of – how thick of a defense do we need? How robust? And put differently, you know, is this something that we're going to be able to keep up with on the counter side, or is it, you know, seemingly just too much of a – too much of a challenge? Your thoughts there on scoping the mission.

Gen. Sean A. Gainey: Yeah. Another great point, and I'm glad you brought it up, Tom. You know, with my background in air and missile defense I'm able to use a lot of similarities when assigned this role, because if you look at the Integrated Air and Missile Defense and the capability we have – we'll never have enough to meet the demand that's out there because you can only create so much. And as you look at the entire department budget you have other priorities that you have to look at. So you have to maximize the capabilities you have. And the way, even when I was in the Joint Integrated Air and Missile Defense, was you got to synergize your efforts amongst the services and leverage the interoperability of all your systems to be able to bring that capability to bear.

When looking at the counter UAS problem set, the challenge is several threats down to several different spaces, to where you look at the capacity piece. But I would say the integration in that aspect also, taking our current systems that we have that have capability against the stress, and be sure they're integrated into the systems that we're bringing on board. And really our methodology in this with the common C2 aspect that we did up front, taking my lessons learned from – in the Joint Integrated Air and Missile Defense.

What you want to start with first is have a common interoperability with the services. Don't do that on a back end, do that on a front end. So we start there. So as we did this started with that FAAD C2 and had directed the other services, if they have a system, if they're not going to use it for FAAD C2 so we can leverage CENTCOM and C2, and to integrate the command and control system to an open architecture to where we then integrate systems components into that. So you have a changing, improving, componentized architecture to keep up with technology.

Now, the capacity piece is always going to be the challenge. So therefore you have to leverage the other aspect, the passive defense aspect of it, and then leverage the other systems that you have and that we can utilize to get after this problem set. So don't – we're trying not to look at it as just one silver bullet, but, you know, can you leverage the current technology movement and can you leverage the system that you have now, for example, some of the gun systems. Can you use technology with some of the ammunition to better get after the counter UAS so every operator has the ability to engage a UAS, as opposed to just a specific MOS with a capability to get after it? Everybody on the battlefield, it's got all arms against counter UAS moving forward.

Tom Karako: Oh, well, you jumped ahead to the C2 thing and you mentioned FAAD C2 in particular. So I better to a two-finger just to clarify. Is FAAD C2 going to be the basis for the joint counter UAS?

Gen. Sean A. Gainey: Well, the decision – like, I said, and that's some of the goodness of having an air defender of working in this area and working with the services from JIAMD, looking at this problem set. So we laid out – we looked at, from a perspective of what we have right now, what's the best C2 system we have right now? And FAAD

C2 was that system. You know, we can get the kinetic fire control off of that system. However, we understand that there are other systems out there that the services are using that show promise.

For example, the Medusa system for the Air Force. So we've worked with the Air Force, put funding for the integration of that system with FAAD C2 so it's interoperable, and the same with the Marine Corps, as they move forward with their ASDI program. But eventually where we want to get to – so we use FAAD C2 as the basis. However, where we want to get to is really an open architecture standards-based C2 system. So we're just plugging in based off of these standards as opposed to being a box in itself. But right now it's FAAD C2.

Tom Karako: Great. Thank you. Let me just follow up. You mentioned the passive defense side of this as well. And I'm going to tie this in with a question that was submitted by Sydney Freedberg from Breaking Defense. He asked: Look, with – you know, it's one thing to talk about the rogue states but what about Russia and China? Let me – let me add onto that question, look, is this – how are we going to be able to wrestle this mission to the ground? It used to be said at the – in the 19-what-50s – the bomber would always get through. Then it was the ICBM that would always get through. Given where the threat's going is the counter mission something that we can do, do you think, or is it something that's going to become so robust that we're not going to be able to keep up? So just to be a little provocative there and tie it to the past defense thing as well.

Gen. Sean A. Gainey: Yeah. No, no. Totally agree and understand the question. And it's a very good question. And, yeah. So I would tell you we're doing the mission now, again, with the great work of the services and the systems that are being used now. We are being successful out there right now. And we're having engagements that we're tracking out there right now. However, you know, just in the Integrated Air and Missile Defense area, I would never sit here and advocate that we would have a seamless, impregnable architecture where nothing would get through. You're always going to have that potential for something to get through. So, you know, that's why I highlighted the passive measures.

Still the same as you would in any missile defense or air and missile defense area, same with counter UAS. You know, there are several studies out there that we've looked at and several conflict lessons learned. Simple use of netting, camouflage, hardening and dispersion can minimize the effects of – whether it's an ISR platform or if it's a one-way bombing platform. You can still gain benefits from that.

Tom Karako: Great. Great. Well, you just mentioned the systems so I think probably this is a good point to move to the acquisition – first the acquisition then the programs side. And I might throw this to you, Nicole. The document talks about leveraging a risk-based assessment process. And you alluded to that in your remarks, I think, and talked about how that will help us make better informed decisions, especially about budgets and resource allocation. So I guess I'm wondering, OK, going forward who's the "us" here? Who's going to be managing that process, doing the assessments and then, I guess, telling the services how to translate that into materiel and programmatic decisions?

Nicole M. Thomas: All right. Thank you. So the “us” is, you know, us as a department, that we need to take a risk-based approach. We can’t put every defensive measure at, you know, every DOD location. So we have to look at the different locations to see what is the risk, what is the vulnerability, and to then get the appropriate countermeasures for that particular location. So we have a DDS that performs those assessments and provides that information back to the installation about what they could potentially use to help them with their threats or vulnerabilities.

Tom Karako: Great. Great. Let me go to something that I think you put right on the cover of the document, or right at the front. It was this quote from the National Defense Strategy about how, you know, DOD management structure and processes are not written in stone. And the document – your document emphasizes that, you know, look, if these processes are not well enough suited to the end then they need to be changed. I guess I was curious why you chose to highlight that with respect to this particular mission. Do you see the need for change in terms of the acquisition management and processes here?

Nicole M. Thomas: Well, with the rapidly growing – well, with the rapidly evolving threat we need to be more agile. Some of the acquisition processes that are better suited for longer lead times won’t work in this type of environment. So we just as a department need to be flexible so that we can continue to get after the threat, to keep pace, or to stay ahead of it. So it’s not just applicable to counter UAS. It’s applicable to anything else where the technology’s evolving.

Gen. Sean A. Gainey: And, Tom, I’d like to jump on that one also. And I think it was – it was also highlighting what’s already being put in place. And one of the things, from my J-8 background and being very familiar and worked definitely with this area, you know, Honorable Lord and now General Hyten, the vice chairman, fully recognize the ability to move fast. You know, so some of the things that are already put in place, like the middle-tier acquisition for the service to rapidly develop prototypes and get capability out there, are in place for the department to leverage to give us that ability to move fast.

And one of the things we know in this mission set, like Nicole highlighted, is we have to be able to keep pace with an ever-changing threat. And to do that, we have to leverage things like rapid prototyping, middle-tier acquisition, to be able to bring these components into our open architecture system as we’re seeing changes on the battlefield out there moving forward. But also, Tom, it’s also from a requirements perspective. And you know, one of the things General Hyten is adamant about moving faster is also taking – not just focusing on service-specific requirements but taking overarching joint requirements and apply them across the services, so we start moving at this from a joint perspective.

And I think that’s – you know, also adds to why the Army and the Joint Counter UAS Office is looking at this from a joint perspective. And that’s what we did. We codified our requirements, took it to General Hyten in the JROC, and got it approved from a joint perspective, so as we refer to capabilities we’re moving forward with we focus it from a joint perspective, as opposed to a service perspective.

Now, services still have service requirements. And as part of our construct, you know, services will continue to move forward. The Navy’s going to continue to

move forward of integrating capability into their ships. We're not going to stop that or change that based off of our joint requirements. This just takes what's commonality amongst the services – for, example, like a fixed site installation. All the services have that same challenge, so the requirements are relatively the same moving forward in that area.

Tom Karako: Great. Great. I want to come back to the Navy in just a few minutes here, but let's stay with the programs and the materiel side. You know, this is very much a Joint Staff document. It really emphasizes that architecture-wide approach. It really emphasizes the DOTMLPF and how the materiel needs to be aligned with the rest of the DOTMLPF. In some respects it reads as a lot about the ends and the ways, but there's not a whole lot of discussion of the programs themselves. In fact, I don't think any programs are mentioned. There's some pictures in there, but there's not a discussion of the programs.

So I think, General Gainey, you mentioned ten or so programs earlier on. What's going on in this space? Who's doing what? What programs are there? And then we can kind of go from there. Either of you want to jump on that?

Gen. Sean A. Gainey: Yeah. And we specifically didn't focus on programs up front. We're more focused on the broadness piece. And that's where Nicole came in. She brought me up the broadness piece because I was always hey, I'm a warfighter. I was like, hey, let's get into this, let's get into this. She says, hey, sir, remember this is enterprise approach. Let's keep this broad and let's keep this overarching but highlight now we're moving forward to allow the development of that capability.

So what we started out with is, as I highlighted earlier, there are a lot of systems out there, and still are. And as we work to narrow that down and invest RTD new funding. So what we did up front is we took an assessment. We worked with DOT&E here at OSD in the Joint Department of Analysis, named JDA team, and sent them out to the AOR and also some locations in CONUS and said: Hey, do an assessment of the systems out there. Now, they weren't able to get every system that was out there, but they were able to get to the majority of the systems and provide us assessment and feedback of what they felt was working best.

So what they came back and essentially laid out for us was, hey, a system of systems layered architecture, where essentially you integrate the EW capability, if that's what you have, the radar factor, and whatever factor you have into a common C2 is the best way to get after this problem set. And essentially, we knew that we had to narrow this down, because we had to – and also what they found out was that the – what we already knew, is that soldiers were trying – from a DOTMLPF perspective – trying to on the ground train on several systems as opposed to focusing on a few systems that we can incorporate into training for them.

So essentially, based off of the information that we had – the best information we had, we narrowed it down to 10 interim systems. And from a fixed site perspective, we did that with a system of systems approach. For example, the fixed site LIDS system from the Army has those systems of systems of radar capability, EW capability, and a kinetic capability – a kinetic drone-on-drone type of capability with the radar. You know, and then we also look at – brought in the Air Force's NINJA system, which is an EW-type capability. And the same with the

Navy's CORIAN-type system. And we also looked at – the Marines did a lot of great work on their MADIS system. You know, we took the interim system that was on the cover that showed success out there, but that's not the system that's going to be enduring. That's just right now the – you know, they're evolving that system to an increment one system, and the Army's doing some stuff with some of their mobile systems.

And then we looked at handheld systems. You know, we worked with SOCOM, and you know, they have some dismounted systems and some systems that they used that can attach to their individual weapon. And this kind of gave us our framework of interim systems. And essentially what we did was we said, OK, services, we're going to assign you responsibility for that system that we've selected and you're going to put RTD into that money, and you're going to get that – mature that system to meet the current joint requirements that we have. Simultaneously, we're going to look at what's the future capability, what's out there next? They high-energy laser, the low-collateral effector. And we've assigned some of those areas to a service.

For example, the Air Force has the low-collateral effector. So they will go to our test range with RCCTO in April, issue an announcement to industry, and say: Hey, in April we're going to look at all the low-collateral interceptors, bring that capability to our common test range in Yuma. And we will down-select to that. And then we will open up a contract for all the services to then buy it. And that gets after that open architecture concept. So then next capability, whether it's high-energy laser or whatever, same type of concept moves forward. And so it creates an on-ramp/off-ramp path.

The current systems, if they can't keep up with the requirements – and we see there would be a point where they no longer are able – we off-ramp that component capability and then we on-ramp what's next, based off of how we're delegating assignment to the service, and now they're bringing that with RCCTO to our standard range, where that – where those systems are evaluated, and then a path for on-ramp. And that's how we're moving forward from the materiel perspective, in a broad sort of view moving forward. And I can go – delve deep into more individual questions if you need more detail.

Tom Karako: Great. Great. I mean, I guess the one thing that comes to mind there is, you know, it's great to be able to tell the services what they ought to do, but the question is whether the teeth is going to be there in terms of the budget authority. That's the perennial issue with other air defense programs and iteration as well.

Gen. Sean A. Gainey: Well, what's different about this, Tom – what's different about this is that, you know, we've already worked the approval through our construct where the JCO has an RTD&E where the services put all that money into one line moving forward across the FYDP. So we have a known, predictable funding line for new capability in our enabling efforts. And our enabling efforts are things like our common ranges to be able to do studies and evaluation, and also, more importantly, fund our common threat library where ITWD is essentially, for all the services.

Because before that we were, you know, looking at different ones. And now we've consolidated under one organization moving forward. But with this common RTD&E line, we're now able to – like I highlighted – select a service to do a

capability area and then give them the funding to move forward with that. So that's how we're able to do this. And we're looking to demonstrate success in April with the Air Force as the lead for the low collateral interceptor. And that's in the April timeframe, with the RCCTO common range at Yuma.

Tom Karako: Great. Great. One more quick thing, I'd be remiss if I didn't ask a laser question. Most of the pictures in the document are – appear to be – not all – but most appear to be a form of directed energy of one kind or another. What do you kind of see as the relative role of DE for the class one to three threat? And, again, considering it could be very numerous in capacity is going to be a question. How much of this is going to be DE, but you also mentioned gun solutions as well. Nicole, do you want to take a stab at that?

Nicole M. Thomas: Yeah. Yeah, so we – I guess that was not intentional to have those similar pictures. But so we're agnostic to the actual specific effector. We're really more focused on the capability requirements to meet the threat.

Tom Karako: Great. All right. Let me, in that case, circle back to really what I think you were speaking to, General Gainey, a minute ago. And that's kind of the relation between the Joint Office and the Army as the executive agent and the other services. We had a reporter from Inside Defense put in a question about the – Aidan Quigley from Inside Defense talking about asking what the Navy's role is going to be in the – in your office, and if the Marines are involved. I might broaden that a little bit to say, OK, how is this going to work in terms of the division of labor between the Army and everybody else. Take a step at that?

Gen. Sean A. Gainey: Yeah. And it's how it's working now, because one thing we did, Tom, as we stood this up 10 months ago we essentially didn't waste much time. The services have been very supportive of this effort – you know, the service chiefs on down. And immediately every service sent a liaison officer that plugged into our organization, highly capable, highly respected individuals. So the Navy, Marine, Air Force, and now the Air Force's, you know, Space Force is going to – is also plugging in to this effort.

So they've been with us every step of the way in the development of our, you know, down-select all the way moving forward, hip to hip with us. And essentially, you know, we're trying to take a smart approach to this. We're not trying to redo everything. So, you know, RCCTO is our materiel arm to this from executive agent, but we're not building a JPEO. That was understood up front. We were going to leverage the work that the services – because the services were doing great work. You know, there was just a lot of redundancy that the secretary wanted us to eliminate and harness the efforts that they were already doing.

So, you know, for example, the Air Force is doing a lot of great work on high-energy lasers. You know, we have them out there right now, combat testing. High-power microwave. Everybody's probably pretty familiar with the THOR system that they're working on right now. We're going to get that out there in a location. The Marines – the work that they're doing with their MADIS system, their mobile system. In the Army, the work we're doing with our C2 systems, even our mobile systems, and our fixed-site LIDS system of systems. And then the Navy, again, doing work with not only the CORIAN and fixed-site LIDS system, but as you can

see in some of the pictures the Navy's been, you know, working on high-energy lasers and also high-powered microwave. So we're harnessing that work.

And so what we've done, so as I highlight some of the work of those services, we essentially designate a joint lead for DOD, essentially. So right now, for example, highlighting Air Force would be the department's lead on high-energy laser and high-power microwave. However, we're looking at future technology and future things that are out there, and Navy's doing a lot of great work with solid-state high-power microwaves. So we've tagged Navy to be the lead in that area.

And so they'll develop and harness that and then essentially recommend whether we as a department need to continue moving forward with this technology, or based off of prototypes or the work that's being done introduce it as, hey, this is the effort we believe we need to go forward with as a department, and then essentially as they develop that through their program offices the other services show up from a procurement perspective, and then buy out of their service budgets from a procurement piece.

And so you – essentially what you do is you create a menu of options in a systems of systems layered approach to give you the ability to, you know, mix and match the best capabilities out there and maybe, you know, the cost-effective, best, and you're able to build your architecture with the great work that's being done by all the services, but just doing it from a joint perspective.

Tom Karako:

So just to draw that out ever so slightly more, that – when you talk about the division of labor, particular services, high-energy lasers, and yet you still have your roles and missions. You highlighted the Army for the joint lead on joint missions for air base protection, for instance. Doesn't that suggest that you're going to see a lot more of, let's just say, the Army buying a Navy-developed system, and maybe vice versa? More of than that what we see today? Is that fair?

Gen. Sean A. Gainey:

It could. And as we create efficiencies – so what we hope to do is to see less of Air Force building a counter UAS laser, Army building a counter UAS laser, Navy building a counter UAS laser, when you can have – sponsor on service to do it. Now, we're not saying all services are going to get out of that area, but at some point they coalesce and a decision is made that we want to move forward with this type of laser, because as you know – fully understand that the Army's working lasers also from an air and missile defense approach.

We have – you know, we're looking at development of prototypes with our, you know, Stryker vehicles with a high-energy laser on that. So when you – when you look at a counter UAS perspective, at some point, you know, the Air Force's lead for counter UAS will make a designation for the entire joint force, is this is how we need to proceed forward with this one – or maybe it's two – type systems.

And we have a – and the good news is we have a governance process that we're able to work decisions through up to the secretary. And Honorable Lord, we're grateful to have her role as OSD A&S and the Vice Chief of Staff of the Army General Martin, that simply make decisions or make recommendations to the secretary of defense for final decisions – with all of the services as part of that program, and their voices are inputted and heard. And in bringing in the COCOMs. So it's, once

again, an enterprise approach to deliver the best capability and the best decisions for the warfighter.

Tom Karako: Great. Great. Well, look, we could spend the rest of the remaining 25 minutes on the – (laughs) – roles and missions alone, but let me move a little bit to a different topic. And this is partners and allies. This is one of the three things you really emphasized in the document. You talk about the United States being the partner of choice as one of our competitive advantages here. So I guess let me just push back on that. First of all, what do you envision in terms of, you know, interoperability concretely? What other kind of cooperation with allies and partners might be possible here? And then given the proliferation of all this stuff, are we – can we take for granted that the United States will be the partner of choice? We're going to have a lot of competition out there in terms of developments and other things.

Nicole M. Thomas: So I'll start off first. So we will be operating – when we're forward-stationed we're operating in the vicinity of our partners and allies. So investing in our shared security is critical. So we need to be able to have systems that plug and play. We need to have that interoperability. Now, the partner of choice is not just specific to counter UAS. It's across the board. And, yes, there will be competition. But when we are co-located with our partners and allies, we have to be able to have systems that talk to each other, that work together. And that's what we mean by that.

Tom Karako: Great.

Gen. Sean A. Gainey: And, Tom, I'll pick up a little bit and add a little bit more to that, because – just piggybacking off of what Nichole stated and your point, the partner of choice, you're right. As this problem continues to grow, countries are looking for capability that's out there. And some countries are moving faster than others. And this is a space right now where there's a race between countries to try to develop something and put it out there.

And the approach we're trying to take is not just throw equipment and gear out there. We're trying to put that DOTMLPF framework, leveraging the fires center of excellence for the training piece behind these systems that we're developing. That – you know, from a joint perspective the fires center. Not just Army, but, you know, look at standing up a joint counter UAS center of excellence as we move forward. You know, looking around the FY '24 timeframe.

So then by doing that, by putting the whole DOTMLPF framework around it, so then you're developing capability, training to go with that capability to where when you're putting equipment out there you're getting the best effects possible, because these systems that we're putting out there aren't, you know, rudimentary-type systems. You know, they're EW-type systems. You know, we talked about high-power microwaves and high-energy lasers. There's this complex technology involved with this, so there's a training curve that's required for this, for the operators to understand. So as countries are developing this and throwing equipment out there and – you know, and maybe other countries are buying it, I'm not so sure they're getting the best capability but also the best training package with that capability.

So as we take these systems to programs of record and work with the OSD-level partners that are already in this space, and then to work with our allies, I think it's

a good space because already, you know, when we look at organizations like NATO, where the U.S. is incorporated, has already talked about developing a NATO-type counter-UAS system. And our team – Nicole and our team is already integrated into NATO and briefing what we’re doing. And we already see interest from other countries coming back to us, saying: Hey, we’d like to hear more about this – what you’re doing to be able to open those doors to get after what Nicole highlighted.

Tom Karako: Great. Great. Let me go back to you, Nicole, in terms of the three lines of effort that you highlighted in the opening. Readiness being the first line. The document talks about synchronizing our science and technology investments and it talks about developing a common information sharing architecture. So in terms of the investments, how is that synchronization going to be done? Who’s going to be making the decisions? And then in terms of the common architecture, this actually connects with a question we got from Boswyck Offord from the Naval Postgraduate School in terms of how do you get a common operational picture to support decision making? So I think both of those two things on the readiness side.

Nicole M. Thomas: OK. In terms of the common operating picture, we are – we are participating in working groups with DHS, and TSA on the – on developing a common operating picture. But in terms of, you said, synchronization, the – all the services are investing in their S&T. And so what we’re going to be doing is we’re going to be consolidating their S&T portfolios and kind of creating a roadmap to see – you know, get a bigger picture of where we are as a department, so that we can then see where the gaps are in S&T, and we can then prioritize and invest in some of those gaps.

Gen. Sean A. Gainey: And, Tom, I’ll pick up. You know, Nicole highlighted the interagency aspect of common operating picture, which is very important and something we’re excited about that we could do in this space that’s, you know, not seen done across some of the other areas because everybody – Homeland’s reaching out to us, Department of Energy reaching out to us. Everybody wants to be part of this, and everybody wants to work together on this. And so we have a unique opportunity.

From a perspective – like the officer that probably asked that question from the Naval Postgraduate School is probably looking at it from a service-specific question, because this is a common challenge we have in integrated air and missile defense with Army, Navy BMD-type systems, and how do we share that picture to synergize our effects and maximize our effects? So what we did – you know, I highlighted to you what the current systems of, you know, back door patching those together right now and leveraging FAAD C2.

But we took a step further as part of this. As part of our joint requirements that I highlighted that was approved through the JROC, we took the effort to write in where we want to go with common C2 standards, so we create that common operating picture for decisions moving forward. And this is an effort that the department’s going holistically. So this – you know, these standards were written to look forward to, you know, that future joint architecture. You know, a lot of discussion on JADC2 and those type of things. So how do we create something that’s going to meet our future architecture common operating picture?

And that's what we focused – that's why we focused the standards-based piece to where essentially you get your systems build to that standard, then you're able to operate with that C2 architecture to be able to – where we all want to go in as a department in the future is that, you know, any sensor, any shooter out there has that common operating picture to be able to make rapid decisions based off of the threat that we're seeing.

Tom Karako: Great. Thank you, both. Let me move to the second line of effort, and that's defense the force. General Dick Formica, retired U.S. Army Space and Missile Defense Command, he asks: How do you see offense-defense integration as a component of handling the counter small UAS threats? And of course, General Gainey, your dual-hat position as chief of fires would presumably inform that. I want to connect that with the document's repetition in terms of combined arms. So offense-defense integration, what kind of arms do you see being combined here to handle the threat?

Gen. Sean A. Gainey: Yeah. Great question by Retired Lieutenant General Formica, sir. Thank you for that question. And he would beat me over the head if I wasn't addressing it. (Laughs.)

But no, I think we're – once again, by having my role from the Army perspective – and, once again, as we're going to be the fires center of excellence for the joint force also that's one of the critical aspects of it, just with the integrated air and missile defense, the offensive and defensive fires. We fully embrace that pillar of attack operations when you look at integrated air and missile defense, same to the counter UAS problem set. And I would tell you, we're already doing it now. One of the advantages of right now where we're at is, you know, as the threat utilizes the radio controlled – with some of – you know, you'll be able to develop that capability within your system.

So we're definitely looking at how do we maximize the attack operations into ours – because that's – because part of the problem – what I meant to highlight earlier when you asked the question, Tom, about things getting through, you probably can't get everything. You have to find that point well, where do you go after the point of origin of some of these threats. Now, it's a little harder because it's spread out.

But I think with some of the technology we're trying to move forward with, within our C2 systems, to give us that ability to be able to track that information, will provide us a capability even greater than what we're doing now, because that's a critical aspect of trying to be able to get after this treat set of so many. Because it would be a whole lot easier to hit, you know, somebody that's about to launch some swarms at us prior to them launching those swarms, and then trying to get after that swarm aspect.

Tom Karako: Great. Well, that actually connects to the last third line of effort about building the team. There's a whole lot going on there, but I was struck by the reference to, you know, developing these capabilities not just to mitigate and defeat the threat, but you also talk about deterring it. And I guess, as I think about this, look, they're plentiful, they're cheap. How – what do you have in mind there in terms of deterring the employment of small UASs in a conflict? Nicole, do you want to maybe take that?

Nicole M. Thomas: So I'll take a stab at it. So, obviously, we prefer to win without fighting. So when our adversaries know we have capability and systems, that acts as a natural deterrent. General Gainey, do you want to talk about specific systems?

Gen. Sean A. Gainey: Yep. I'm going to take this from the homeland aspect of our challenge, the bases that we have out there right now that we're putting on – putting capability and looking at the – you know, some of the authorities that we have in the homeland and host nation in working with our FAA and host nation partners on freedom of navigation where, you know, you may not, you know, use some of your high kinetic stuff. You may have to use other means – other capabilities and other means.

One of the areas that I'm excited about, which helps us get after this, is, you know, the FAA is now directing the use of remote ID for UASs out there. So allows us the ability now, if we embed the technology into our systems, to be able to identify and work with law enforcement to be able to – if we identify something – somebody, you know, violates a restricted airspace or we see somebody from an ISR perspective continually lowering around an area, that we can work with law enforcement to then go to that individual.

And sometime – things that are already happening right now with our interagency partners, you know, Homeland defenses, as they do some of their work out there having that ability. And that's some of the things that they're leveraging with our partners to be able to extend our arm from a, you know, materiel/non-materiel ability, using other ways to get after – you know, going after the point or origin as opposed to shooting down each thing.

So as you do that, and as the – you know, hopefully you start compelling some of that activity as – you know, from a hazard aspect, or even some of the threat aspect, knowing that you have that capability to track down and trace down if they are going to do something moving forward.

Tom Karako: Well, you've anticipated my interest in moving to some of the homeland questions. But since you just mentioned the allies there, I want to weave in a question from Paul Enderle from Lockheed Missiles and Fire Control. He's asking about especially the NATO cooperation. He mentions the high-visibility project for ground-based air defense. And wants to know: How is DOD's approach going to be integrated and aligned with NATO or individual NATO countries in the future?

Gen. Sean A. Gainey: Yeah, great question, Paul. And I know Paul Enderle very well. And I already highlighted earlier, from a counter UAS perspective, NATO decided that they were going to get after the counter UAS problem set together as NATO. And we're plugged in to that effort from the JCO aspect to see how we can help influence or be part of that process with NATO. And I also fully understand his comment of, you know, what they're doing in Europe to try to get after this problem set from, you know, counter UAS all the way through hypersonic, and how do we integrate a common air picture to get after that? And so we're plugged into all those efforts and we're moving forward.

You know, we don't have as much control when we talk of NATO organization. We input and we try to help shape an align. But I think the way we do that is by continuing to engage and show them what we were doing and how we were

moving forward with, like I highlighted, when Nicole and her team did that there was a lot of immediate interest on, you know, what we're doing and how we're moving forward.

And by us sharing that and moving forward with that together I think is the best way to move forward, because at the end of the day, you know, if you produce something that's good and it works, people are going to come and want to try to leverage that. And that's what we're trying to do, working with industry and the services out there to develop something that works and that our NATO allies feel confident in, and they want to bring it on as part of their program moving forward.

Tom Karako: Great. Thank you. I just want to say real quick we have a ton of questions coming in. I'm doing my best to sort through them. We have 45 or something. But let me take one more question before we move to some of the homeland issues. This is from Bill Darne at Raytheon. And he's asking the budget question. Given flattening budgets, you know, what's – and maybe even force structure cuts – how do we see – and what's the prospect for these interesting counter UAS capabilities actually transitioning to programs of record and being solidified?

Gen. Sean A. Gainey: Well, you know, I'm going to keep pushing, based off of the budget line that we laid out and the new program starts that we laid out moving forward. And won't be able to control what happens. You know, the department will make prioritization decisions and I'll move out based off of the decisions that are made moving forward. But I think we have a pretty good initial plan for the new capability, working with the services, to get there. And we're going to continue to drive down that lane, kind of what I highlighted earlier, with services that are aligned to certain technologies, and leveraging our ranges to be able to deliver that capability moving forward. And that's the best we can do at this point.

Nicole M. Thomas: That also goes also back to the risk-based approach. You know, being smart about the kind of countermeasures you need at different facilities, that, you know, you have the appropriate scale and scope of the type of things that you need for one installation versus another.

Tom Karako: Great. Thank you.

So let me transition now to the – some of the homeland and more civ-mil aspects of this problem set. Yushi Matsuyama, who is a visiting fellow in the Japan Chair here at CSIS. Yushi asks: You know, given that DOJ and DHS, as you mentioned, are also working on drone countermeasures, can you speak to the collaboration with those departments?

Nicole M. Thomas: So we're meeting regularly with them, particularly our requirements and capability division. So we're trying to find ways, as we talked about several times in the document, about trying to be interoperable with those – with those other organizations. Because we need – you know, each of the different agencies has different sets of authorities. And so we need to be able to work together.

Tom Karako: Great. Let me pick up on another aspect of this. The document – I was struck by the relative attention, of course, to the unique challenges of operating in the homeland for these problems. And it's interesting, the attention to the hazard part of the small UAS rather than just the threat. And so, you know, what is it about the

threat that makes that important to highlight and talk to us a little bit about how the department's going to need to work with the FAA and other civilian authorities. At the end of the day, the military is going to have to be able to shoot down the threat to a sensitive facility, even in the homeland. So talk to us a little bit about that.

Nicole M. Thomas: OK. So CENTCOM is not the only theater where we see small UAS. We see them in, you know, all – across all three operating environments. And so the ROE is different in all three of those areas. Oftentimes, you know, drones are also talked about as, you know, like the IED – the new IED. There are similarities, but the biggest difference is, is that there never was a good use for the IED. There are legitimate uses for drones. And so we need to understand how to distinguish between, you know, legitimate users and nefarious actors.

A drone in and of itself is not a threat. And so you have to assess, you know, determine what the threat is – the capability and the intent. And so if a – if a recreational user is using a drone, and they accidentally move into protected airspace, it's not necessarily a threat. It's a hazard to an ongoing mission, potentially. But it's not a threat. And so, you know, how you mitigate that situation is going to vary. So it's important that we don't look at every single small UAS that flies around, particularly in the homeland, as a threat. We really need to get – have a better understanding of the intent.

Tom Karako: And on that point, the document talks about the need for the DOD to, it says, adopt a posture of anomaly detection and the need to highlight abnormal behavior. That's tied up with FAA in terms of who owns the airspace. So how would you characterize the progress that's been made both in terms of your working with FAA, but how that's going to be hammered out so, again, we can have the no-kidding protection of military bases within the homeland?

Nicole M. Thomas: So I think the first step would be the remote ID. When that finally comes online that will be a good way to distinguish. So if you have a drone, you're supposed to have it registered. And so instead of looking at a screen full of drones that you're not sure which is a nefarious actor and which is a legitimate actor, if you're registered then you can kind of disregard those. Now the things that you're looking at are now much more narrow. And so that will help.

Tom Karako: Great. Great.

Gen. Sean A. Gainey: And, Tom, just to highlight that – to that point. You know, in accordance with our, you know, authorities within the Title 10 130i, the department – OSD policy specifically – and I know Boswyck's my counterpart – has done a lot of great work with the FAA on getting authorities. So, you know, we don't want to create the impression that there's – you know, that the FAA's handcuffing us. The FAA, you know, we have several systems out there right now that are providing counter UAS capability. It's obviously – it's how do we time the on-ramp of technology with the authorities in a timely manner.

And we have, you know, a seat, you know, within the FAA from a DOD perspective, to where we have those forums where we can work through these issues and work through how do we bring on that capability so that, you know, FAA is comfortable

with the freedom of navigation piece, and we're comfortable with having the ability to protect our installations with the right capability.

- Tom Karako: Great. Well, let me – let me take a question from Melissa Hersh. She's a strategy and risk consultant. And she asks something that, I think, General Gainey, you referenced earlier. How is the JCO collecting, standardizing, and sharing small UAS and counter UAS use cases to update and inform requirements? And she mentions Ukraine but also the Armenia and Azerbaijan conflict, which of course had some pretty interesting events there. You mentioned the library. Could you speak to how that's, again, being collected and worked into the library?
- Gen. Sean A. Gainey: Yeah. The library effort that we have and that we're working with ITWD essentially is that central repository that they're putting in, you know, all the threat data into one common database, and have already set up a way to ensure that each service is able to pull that data out of a central repository. And we highlighted that early through our assessment, that we had several, you know, different databases amongst the services that they were all pulling from. So you didn't have that single picture. And so now we've done that, and all the services agreed that this was the right thing to do moving forward, and all of them were excited about it. And so we've already started that effort, funded that effort. And they're moving forward with that effort to where we have that repository.
- Tom Karako: Great. Great. All right. So we're close to time here. I want to just first ask, you know, what's – what the next steps? You've got the strategy out. It's been signed out. But what are the next steps to making this a reality?
- Nicole M. Thomas: So we are in actually the final stages of the final staffing of the implementation plan. So that should be released at the end of – end of this month. And so that's – that's where all the action plans of things that we're going to do to make the strategy a reality.
- Gen. Sean A. Gainey: And, Tom, what I would highlight is that as far as next steps we're moving forward. So as the strategy was released the organization had already been moving forward and decisions made. So, you know, April, you will see the first common test range testing that with industry, where RCCTO and the Air Force will bring in the – all the – we're going out to industry. They're going to release a message out to industry, you know, 15 January saying: Bring all your low-collateral effectors to the range first week of April, and we'll select the best ones and move forward with that as the joint solution. So the process is now moving forward. And then it will just – all these other efforts we've discussed, then you'll just start seeing the results of these efforts moving over the next few months moving forward.
- Tom Karako: Great. Well, look, this has been a rich discussion. But I want to end on something a little bit fun. You know, look threats sometimes it's helpful, as they get into the popular imagination – pop culture plays a role here. So I want to ask you both kind of what are some shows or maybe a movie that is your favorite to kind of depict the current and future small UAS threat?
- Nicole M. Thomas: I would say two things. One, Angels Fallen, the opening scene of that is terrifying. And also, there is an episode in Black Mirror maybe last season ago where there are, like, tiny drones, maybe the size of a bee, that uses facial recognition. So that's also very frightening, but interesting. So I recommend those two things.

Gen. Sean A. Gainey: Yeah. And Nicole stole my thunder on the Angles Fallen, because when I first watched that I was when I was first assigned as the director of JCO and my son and daughter looked at me says: You got that? (Laughs.) And I – (laughs) – as we all know, with the several problem sets involved in that scenario, essentially creates the challenge that we're faced and that we're moving forward. But what I will tell you is with the work that the services have done and are doing right now in support of this effort, the great teamwork with the services and my organization, and the great teamwork with industry and excitement from teamwork from the industry to be part of this and to continue to move forward in developing capability – the excitement is out there.

And I've had the opportunity to speak to about anybody who wants to be part of this space, because I always tell my team if they want to talk to me about it and they have something to contribute, I want to talk to them and because I want to hear from them, because this is a complex problem. It's going to take an enterprise approach to be able to get after this problem. And I just really appreciate everybody who's reached out to the JCO, all the services, for being such great team players in this process, and everybody within the JCO organization that are – you know, you see Nicole here today – integrate what they've done with the strategy. But there are several members of the team doing requirements, operations, acquisition. It's just a great team, built rapidly and quickly, that's getting after this complex problem. And I appreciate this opportunity, Tom, that you've provided and this platform that you've provided.

It's always great being on a panel with you or being at one of these events with you. You're a good friend and a good advocate for what we're doing. And I'd like to thank you for that.

Tom Karako: Well, thank you, sir. Thank you, Nicole.

Nicole M. Thomas: Thank you.

Tom Karako: And really appreciate your taking the time to roll out. And I'm sure you can tell your kids you got it. You're in good hands. So thanks again. And thanks, everybody, for tuning in. Apologies if we didn't get to your questions. We had just an enormous number. But thanks, and we'll stay tuned for the future. So have a good day.

(END)