



Drone Advisory Committee

06/19/2020 DAC Meeting • Virtual

Detailed Minutes

Introduction

The Drone Advisory Committee (DAC) meeting was held on June 19, 2020, from 12:00 PM to 3:00 PM EST. Due to the COVID-19 pandemic, this meeting was held virtually and livestreamed for the public to observe.

Designated Federal Officer (DFO) Opening Remarks

Mr. Elwell started his opening remarks by reading the Official DFO Statement. Before moving to the agenda, Mr. Elwell shared that the Secretary of Transportation, The Honorable Elaine Chao, had created a special video to share with the DAC members. The Secretary expressed her thanks for the hard work done by the DAC members and highlighted the important working being done by the FAA during COVID-19. After the conclusion of the video, Mr. Elwell moved on to the agenda and informed the audience that the agenda for the meeting today was sent ahead of time for everyone's review. Mr. Elwell shared that today's agenda and DAC meeting is planned to be shorter than normal. FAA responses to the task group recommendations for Facility Maps and Beyond Visual Line of Sight (BVLOS) Challenges, which would normally be done at this meeting, will be presented at the October 2020 meeting instead. Mr. Elwell shared that today's meeting will discuss additional DAC recommendations on Unmanned Aircraft Systems (UAS) Traffic Management (UTM) and interim recommendations on Aviation Safety Culture. Mr. Elwell thanked the DAC members for their hard work during the COVID-19 pandemic and in particular thanked David Silver and Captain Joe DePete for leading the task groups. Today's meeting will close out with an opportunity for the DAC members to highlight any new business or recommend future agenda topics.

Mr. Elwell noted there is one last housekeeping item, the approval of the meeting minutes from our February 27, 2020 DAC meeting. These minutes have been posted on the DAC website and were also included in the read ahead material for today's meeting. Mr. Elwell asked for a motion to approve the February 27, 2020 meeting minutes. DAC member Wade Troxell made the motion and other DAC members seconded the motion. Mr. Elwell asked if there are any objections. There were no objections and the motion passed. Next, the DFO shared that safety continues to be the FAA's core mission as evidenced by ongoing work to process requests for operations to support the response to the COVID-19 emergency. The FAA took a proactive approach and was able to anticipate the types of drone operations that might be required to support the response to the current pandemic. Waivers were granted and actual operations were conducted that enabled the delivery of virtual goods and services including; water, food, medical supplies, and testing kits. The DFO highlighted the FAA is continuing to work with several private companies and public safety organizations to assist them in developing safe and efficient concepts of operation to help out their local communities across the nation.

Mr. Elwell announced that the Federal Register notice was published yesterday announcing a 60-day solicitation period for new DAC members. At the end of June the DAC will have five



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vacancies and the FAA is looking to compile a list of qualified applicants for the Secretary's review. Mr. Elwell emphasized that it is very important that the DAC continues to have representation from all sectors of the drone community, in order for it to continue to accomplish its work. The DFO asked the DAC members assistance in spreading the word of this opportunity to qualified applicants across the drone community in order to recruit a diverse group of members to serve on the DAC committee.

The DFO emphasized that a priority within the agency is the work being done to finalize the Remote Identification (Remote ID) rule. The Notice of Proposed Rulemaking was published in the Federal Register in December and the FAA received over 53,000 comments. Currently, the FAA is reviewing these comments and plans to publish a final rule in December 2020. Mr. Elwell informed the audience the annual FAA UAS Symposium is going virtual this year. The FAA will continue to partner with the Association for Unmanned Vehicle Systems International (AUVSI). Registration is now open for to digital events on July 8-9 and August 18-19. Mr. Elwell concluded his opening marks by pointing out that it has been an unusual last three months. But, that does not mean that the FAA staff has not been busy. He thanked Jay Merkle, his team, and the DAC members for all the hard work during these challenging times. He then turned over the floor to DAC Chair Michael Chasen (PrecisionHawk).

DAC Chair Opening Remarks

Mr. Chasen welcomed all the DAC members from around the country to the first ever virtual DAC meeting. He then welcomed all of those viewing on livestream. The DAC Chairman shared that a lot has happened since the last time the DAC gathered at the last meeting. The world has started to face challenges that are truly unprecedented, maybe even unimaginable, from just four months ago. There is an ongoing global pandemic nationwide and protests, either of which on their own would be defining for the times. Yet together raises the challenges we must face as a nation, and as a world, to a level never seen before in his lifetime. Many of the people and companies around the table have been affected by both challenges and have realized as a group, and as a civilization, that to endure everyone must work together. Companies and governments each doing their part to work for the greater good and help us all get through these trying times.

Mr. Chasen shared that in many ways, this is what the DAC also represents. People, companies, and the government working together to move an industry forward. Drones have proven to be helpful in the coronavirus response, from package delivery to assisting with social distancing notifications. These positive use cases highlight just how important this work is. Mr. Chasen shared that we should not forget that there is other work to be done. We must all continue to focus on the tasks at hand, while at the same time lend our resources and commitment to help those people affected by the coronavirus and to stand alongside those fighting for equal human rights, the Black Lives Matter movement. Mr. Chasen finished his opening remarks by thanking the DAC members for their hard work and moved to the first agenda item. Mr. Chasen then invited Mr. David Silver to present the Task Group 7 final recommendations on UTM.



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Recommendation & Discussion for DAC Tasking #7: UTM Performance Capability Priorities

Presenters:

David Silver, Vice President, Civil Aviation Aerospace Industries Association

Max Fenkell, Director, Unmanned and Emerging Aviation Technologies, Aerospace Industries Association

Mr. Silver thanked the DFO and DAC Chair for bringing everyone together for today's meeting and for the opportunity to continue the work of Task Group 7. The Task Group's work has stretched into these last few months to finalize the product and the group's recommendation to the FAA. Mr. Silver went on to thank the members of Task Group 7 who were extremely flexible and helped deliver the product to the FAA. The continued tasking from the FAA required the group to finish what they had previously started. The FAA provided the Task Group with the FAA CONOPS 2.0 document. The group very much appreciates the FAA sharing this work with the group. Task Group 7 included an extremely diverse group who participated in the conversation and the work that was conducted through different means including; surveys, plenary meetings, and series of breakout calls focusing on areas that required more in-depth review.

The group has bucketed the items in into two main areas, the first area where the Task Group agreed that the FAA CONOPS 2.0 document enjoyed unanimous support. The group felt like the FAA was absolutely on the right track. Other areas were where the Task Group felt that discussion was needed between industry and the FAA. The group also added in stylistic comments because as a group of engineers and pilots, we felt like we had to comment on syntax. Areas the group felt had unanimous support:

- Description of the federated UTM system
- Recognition of the benefits of LAANC and the clear need for the UTM system
- Understanding that some of the technologies referenced in the document are not fully developed yet, but will be necessary to maintain the safety of the National Airspace System (NAS)
- Specification of performance rules governing UAS Service Suppliers (USSs) and certain UTM services
- Recognition of standards development organizations and their contributions to UTM and overall NAS safety
- Notion of Government-qualified services and/or service providers

Overall Task Group 7 felt the document is an accurate reflection of the state of UTM development and the group supports a majority of the document as written. The group felt like the system reflects this in terms of the federated approach which will allow maximum flexibility and the maximum number of operators. The Task Group is extremely supportive of this



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approach. LAANC continues to be the foundation of UTM the group thinks it is critical to recognize its benefits as we continue to build the UTM system. The Task Group does understand that a lot of the technology is not yet fully developed. However, it is good that we understand what will be required in order to ensure the continued safety of the NAS. Areas like detect and avoid, are needed so that we can eventually hit the full-scale integration that we anticipate and we appreciate the FAA's recognition of this within the CONOPs.

The group felt that the performance based rules and authoritative data requirements that the USSs must achieve in order to provide UTM service safely, was good. The group agrees that this includes making airspace available to all operators and the need to have the UAS information shared with other qualified USSs. The other topics the group supports is the work of ASTM, Remote ID, and the UTM standards and services that are required to be used by the operator or have a direct connection to the FAA systems. The Task Group is also fully supportive, and agrees with the FAA, that operators must be qualified against a specific set of performance based rules. Mr. Silver shared that the group understands that this is not the final version of the document and they anticipate further conversations with the FAA. The group did feel that were 12 specific areas where more discussion was required. He then invited Mr. Max Fenkell to speak on those 12 areas.

Mr. Fenkell reiterated the hard work the group put into the document. He shared the group agreed that the following areas requiring more discussion:

- Role of Flight Information Management System (FIMS)
- Participation of UAS within UTM
- Role of UAS Volume Reservations (UVR)
- Manned Aircraft Operations Participation
- Benefits of UTM
- Role of Performance Authorizations
- Networked Remote ID
- The accuracy of the scenarios contained within the document
- Data protection
- Volume-based vs. Trajectory-based Strategic De-confliction
- Roles and Responsibilities of the Operator and USS

Mr. Fenkell shared that the common theme in the areas of discussion: more clarity is needed. He acknowledged that this is also a recognition that this is only version 2.0 and there will be subsequent versions 3.0 and 4.0, which the group anticipates will clarify a lot of these areas.

Role of FIMS

The first area needing clarity is the role of the FIMS. Task Group 7 supports the FAA concept of FIMS as defined in Section 2.3.24 of the document. As shown in figure 3, of the notional UTM architecture details for the three areas, between FIMS and the UAS service suppliers need to be provided. Overall the CONOPS document should provide more clarity around the specific



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functions FIMS would serve, the separation of roles of FIMS and the USS, as well as how FIMS can provide information to the legacy air traffic control system (ATC).

Participation of UAS within UTM

Participation of UAS within UTM as stated in Section 2.4.1 is that all operators not receiving ATC separation services are required to participate in UTM at some level using applicable services to meet the performance requirements for their operations. The Task Group noted this is a departure from UTM CONOPS 1.0, which said that visual line of sight operations did not need to have UTM. The Task Group is seeking more clarity around the terms “all UAS” and “at some level.” Any corresponding requirements may change based on the operation, for example visual line of sight or BVLOS, the size of the aircraft, location, mission type, and many more factors.

Role of UVR

As UTM is rolled out, the group recognizes that there are many different incidents that could require airspace to be limited for a period of time. Task Group 7 supported the UVR concept but believes that more clarity is needed on how the UVR will be utilized. One question that came up constantly throughout the task groups work is, would UVRs be available only to public safety or would a similar functionality will be available to commercial entities?

Manned Aircraft Operators Participants

Manned aircraft operator participation or manned participation, was a topic of great conversation in the Task Group. Section 2.4.1.3 of the CONOPS, states manned aircraft operators are not required to participate in UTM, but may and are encouraged to voluntarily do so to gain the safety benefits from shared awareness among airspace users. Task Group 7 agrees with the text as is written in the section, that manned aircraft operators participation in UTM should be voluntary. However, more discussions are needed on responsibilities, safety risks, and other topics, as this issue takes shape. Task Group 7 fully supports that a more robust discussion is needed on responsibilities of manned operators within UTM.

Benefits of UTM

The group agrees wholeheartedly, with all of the benefits in section 2.2 of the CONOPS. However, the group added to some items for consideration and recognizes that there is probably far more items still out there. UTM would really do a lot in order to benefit the aviation community but the group wanted to add to additional considerations to the UTM for the FAA to review, to make sure that it is a more encompassing approach.

Role of Performance Authorizations

This is another area where the group recognizes will continue to become clear as we move through CONOPS 2.0 to 3.0 to 4.0. The groups agrees with the majority of the text in section 2.4.2, but feels that there is still some items that need greater clarity. Task Group 7 believes that subsequent versions of the CONOPS will likely include some of these areas but more information is needed about the specific type of performance linked to authorizations. There are some open questions about what qualifies, how exactly that will work, and what exactly this is



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going to look like in practice. Task Group 7 assumes that this will come out as we move forward to future versions of the CONOPS.

Networked Remote ID

We really limited our comments here to what was in the CONOPS specifically because of the Remote ID rulemaking. We unanimously support the notion of Remote ID due to safety benefits for all users of the NAS but we believe that the FAA should provide some more clarity on specifics tied to the UTM architecture. One question that came up was how a broadcast Remote ID would work within UTM. Could the sensors that relay info to the USS versus the aircraft receive messages? This is a question that we anticipate will come up as the rule comes out and other things become more clear.

The Accuracy of the Scenarios Contained within the Document

Next the group looked at the accuracy of the scenarios contained within the document. The group fully supports the accuracy of all five of the scenarios but recognizes that more complex scenarios will be needed, to address the future realities of the NAS. The task group was concerned that recreational fliers were not a part of any of the examples, even though they obviously make up a large segment of the population flying UAS today. The Task Group also believes that some of the scenarios appeared to over simplify the complexity of some of the issues. Lastly, the group felt that some more specifics could be used to help clarify some of the scenarios. These are all things that the Task Group anticipates will be made clearer as the CONOPS progresses.

Data Protection

The Task Group looked at the data protection within the CONOPS, which lays out principles for three types of UTM services that operators might use, in order to support their missions, including those services that are required by the FAA. The Task Group felt that that for these services the USS should use internationally accepted data protection standard in order to ensure that the customer, government, and peer services are secured for the continued and safe operation of the UTM network.

Volume-based vs. Trajectory-based Strategic De-confliction

For Volume-based vs. Trajectory-based strategic deconfliction, the group felt that the CONOPS assumes that the USS automation will use a series of intended four dimensional volumes or airspace volumes to identify operations that may be in conflict. The Task Group agrees with its approach, which will likely work for low bandwidth traffic but may not scale to high operational tempo or work when the majority of traffic is operating point to point. The task group is seeking clarity from the FAA on whether its trajectory-based approach, which is more aligned to the evolving air traffic management system used for legacy air traffic control, would be effective as UAS operations evolve into the future.



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Roles and Responsibilities of the Operator and USS

Lastly, the Task Group looked at the roles and responsibilities of the operator of the UAS. As the above themes have illustrated, the CONOPS laid out many new principles and concepts for managing UAS traffic. As the airspace continues to develop, the FAA must clearly define who is responsible for an individual piece of the UTM ecosystem. Task Group 7 recommends that in subsequent versions of the CONOPS, the FAA clearly define the roles and responsibilities for the operator and the USS platform.

After reviewing the points by the Task Group, Mr. Fenkell went on to share the group's thoughts on the stylistic comments. He shared that the group found a few typos and broken links that they wanted to present to the FAA. While not having to do with the substance of the document, it was important to highlight these typos and broken links. Lastly the document did not contain specific recommendations at the end. But the group felt that their recommendations were contained throughout the areas that they were seeking clarity from the FAA. The group felt that the areas they are seeking clarity take the place of specific recommendations at the end. The group also updated two parts of the previous report, which they included in the final report based on comments received at the last DAC meeting. The first being the definition of surveillance which was a question that was asked by Jay Merkle. The definition was updated to match the definition in the UTM CONOPS 2.0 document. The second being the FAA's responsibility on spectrum, which was based on a question that Mr. Christian Ramsey asked.

Mr. Fenkell ended his presentation by thanking the Task Group members for their hard work over the 180 days. He felt the group had put together a very good product. He also thanked the testers for all their hard work.

Motion to Accept

After Task Group 7's presentation, Mr. Chasen thanked the group for their hard work and time. Mr. Chasen then entertained a motion to forward Task Group 7's UTM recommendation to the FAA.

- Captain Houston Mills (UPS): Moved to forward the recommendations to the FAA.
- Todd Graetz (BNSF): Seconded the motion.

Mr. Chasen then asked if there were any objections. No objections were lobbied, so the motion was passed.

Discussion:

- Robie Samanta Roy (Lockheed Martin): I wanted to raise to the whole issue of spectrum. As you know, all of this interconnectivity is not going to be able to be effective, unless there is obviously spectrum allocation usage, etc. Looking through the notes and draft minutes from our last DAC meeting, there was some discussion about what the group had done. I wanted to ask how the FAA is going to be moving forward on the spectrum side internally. I also wanted to raise for their awareness that the Department of Commerce has the Commerce Spectrum Management Advisory Council (CSMAC),



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which is working on the spectrum issues. Wanted to know how the FAA, from interagency perspective, is working with the CSMAC?

- David Silver (AIA): I agree. I think that the work the CSMAC is doing is really important. I think that we would assess from Task Group 7 perspective, we would encourage the FAA to continue to work interagency coordination in this in this area, in addressing the operational requirements for spectrum resources. Obviously this wasn't in our CONOPS report and this wasn't something that we specifically reviewed. But we are aware of the effort and we think it's really important.
- Max Fenkell (AIA): One of the other things that I would note is I think the first meeting you referenced in the minutes in which Christian asked the FAA a question about the resource requirement for spectrum. I think at the time I called it the lifeblood of our industry. I think that has become ever clearer as we continue to develop new technologies and products that are going to require increased spectrum requirements. We would fully support the recommendation for the FAA and CSMAC to work together. I know that there great people looking at this issue. Obviously, as we continue to move forward and innovate new platforms, the spectrum requirements are going increase as well. We need to look at all possible options including; defined aviation safety spectrum, other options, mobile, wireless, requirements, etc. The CSMAC report add do a lot to that approach. I really appreciate the question and I fully support your views.
- Robie Samanta Roy (Lockheed Martin): Thank you both David and Max. And just as an FYI Lockheed Martin is a part of the CSMAC. So we have a little bit of connectivity on both ends.
- Captain Houston Mills (UPS): Echoing Robie's thanks stated to David and Max. You talked a little bit about the manned aviation interface with UTM on a voluntary basis. I was just kind of curious, in terms of how did you see that interface taking place and what does the team recommend to the FAA, to gain from that particular recommendation.
 - Jay Merkle (FAA): I can take that question for you Captain Mills and I can also address Robie's question. First remember this version of UTM CONOPS 2.0 is actually 400 feet and below only, so it is not taking on the larger question of say Class B airspace at 1,000 feet or 10,000 feet or something like that. This is 400 feet and below, so primarily that would be general aviation and helicopters, interacting with UAS in that airspace and obviously some sport aviation as well. What we really want to encourage here, and as you can see we also sent out the request for information (RFI) from the FAA out to everyone, about how could manned aviation take advantage of something like Remote ID information. We see a tremendous potential opportunity for manned aviation to receive information from UTM, including things like Remote ID and other information, to better create a joint situational awareness in low altitude airspace. It is really around that joint situational awareness in the low altitude airspace. Back to the spectrum, yes we are aware of all the spectrum issues and on almost a one-off basis, we deal with it right now with particular request for command



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and control links. The notice of proposed rulemaking for Remote ID stated, that we would not use protected aviation spectrum. But we are exploring other parts of spectrum and how they could be useful. Where I think you will see this evolve, we just aren't there quite yet, in UTM CONOPS 2.0 talks about performance authorization. Think about this a little bit like required navigation performance or required column performance, or whatever. I think as we get into those more complex operations and start codifying those performance authorizations that is where you will see the need and the opportunity for spectrum particularly, around command and control points to really mature.

- David Silver (AIA): Task Group 7 was clear the manned aviation participation at all levels, continues to be an area of great concern and that there remains the need for continued engagement. Because different stakeholders, quite honestly do have different views. I have my own personal views but I want to make sure that we fully engage everybody as we develop the next CONOPS so that we can arrive to the next CONOPS with an agreed upon solution and as opposed to having to re-litigate issues later.
- Jay Merkle (FAA): That is good feedback and I can't wait to really dig in and go through them with my colleagues and industry. We have also firmly heard that feedback as well. We are working on a way that CONOPS 3.0 will be able to engage industry and you should hear about that very soon. We want to do the same thing, we want to work together on future versions of UTM.
- Bob Brock (Kansas Department of Transportation): Thanks to David and Max, you guys took on one of the tougher task groups. UTM is a tough topic and it is going to drive a great deal of access and the ability for rural America. As I sit here in Kansas on a rainy day, we think about what it is going to be like to reach out touch and benefit those commercial farmers, the major organizations for emergency management, and those kind of things. So, that is an awful big deal and I appreciate the effort. My short question is our safety case through the FAA to be able to do our most important thing, we always talk about BVLOS. UTM is such a critical piece of risk mitigation, is there a recommendation or does the Task Group have any kind of language in your recommendation, to discuss at what level will the FAA consider UTM as an important part of a risk management process and to make certain that the entire holistic safety case, really does represent the entirety of the safety. UTM is one piece but I think it is a significant piece and the industry talks about a great deal as something that would be additional situational awareness in the NAS.
 - David Silver (AIA): Thank you, Bob. I think that we underlined in the report actually quite early that we see the UTM as really the basis of future safety risk system for UAS as a whole. It is an underlying concept that we understand the importance of we know the FAA does to. We offered I believe unequivocal calls for it.
 - Max Fenkell (AIA): What we said is, "critical to the safety of the NAS that UTM becomes fully operational." We agree with the majority of the text in Section 2.4.2 but feel that some items require greater clarity of discussion. Task Group 7



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believes that subsequent versions of the CONOPS will likely include some of these areas but more information is need about specific types of performance linked to an authorization. For example, will the aircraft or Communications Navigation Surveillance (CNS) capabilities determine the authorization? Likewise could an authorization be linked to the geographic location instead of the airspace? Those are just two of the questions of the many that came up in the discussion. We believe that these are just some of the questions that the FAA continues to clarify. I think the group had a heated discussion over the topics that you're talking about and I think we realized that CONOPS 2.0 is the launching point for those topics.

- Bob Brock (KS DOT): Thank you for the follow-up on that. The coordination amongst the AUS office to make it possible for us to actually go fly BVLOS and demonstrate the need of these things. This really provides connectivity across all the lines of business and FAA. The industry both respects it and appreciates the opportunity to demonstrate. Thanks guys, appreciate it.
- Mark Colburn (Dallas, TX Police Department): As a helicopter pilot, I have essentially operated mostly in low altitude airspace for the past 40 years. This area of manned aircraft operator participation in UTM is of great interest and concern to me. In the UAS CONOPS 2.0, the FAA clarified how manned operators could voluntary participate in UTM, either by passive or active means. Passive participation is to utilize UTM information but not make flight intent available, for active participation manned operators are encouraged and can make their flight intent available. Additionally in CONOPS 2.0, the following sentence was added to the active participation definition, "They can also voluntarily equip with capabilities, for instance ADS-B to provide additional data about their operations." I understand that ADS-B Out, that is pretty much a given. Because the way I understand the document is that information will be received by the ATC system, transmitted through the FIMS to the USS or to the UTM system. So, therefore that information should be made available to the drone operators. My question is does the FAA's concept of voluntary equipage with Remote ID only include a network solution? In other words, broadcasting their flight intentions via the internet through the LAANC to a USS provider before takeoff.
 - Jay Merkle (FAA): Mark, we are working on the final Remote ID rule and when that comes out the answer to your question will be revealed.
- Mark Colborn (Dallas, TX Police Department): Has the FAA given any additional consideration to exploring the less expensive alternative to ADS-B? For instance, an aftermarket standalone battery-powered broadcast Remote ID beacon. The owner with an unalterable serial number could register that. Ideally for use not only on UAS but perhaps manned aircraft?
 - Jay Merkle (FAA): We did receive comments about that in the Remote ID Notice of Proposed Rulemaking (NPRM) during the public comment period. We are looking at how to adjudicate those comments in the final policy. So the answer comes out with the rule. But I do want to circle back to the performance authorizations question and the regulatory question that Bob brought up.



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Absolutely agree that we need to flesh out more about this performance authorization. But, the role of the safety case, and particularly the role of the regulatory side, was a big leap from UTM CONOPS 1.0 to 2.0. We realized that we were not doing a good job of articulating the role of the regulatory side in the kind of things Aviation Safety brings to an ecosystem like UTM, in terms of operating rules, aircraft manufacturing, and production maintenance. That is the significant change you see in CONOPS 2.0 is clarifying an entire aviation safety ecosystem that includes the things that you would expect Flight Standards to do, Aircraft Certification, and the Air Traffic Organization. That is really why we wanted to clarify that message and we look forward to going through your comments and working on CONOPS 3.0 and making it even better. The question Max had about all UAS participating at some level, good feedback on clarifying that. But again, this is one of those that from CONOPS 1.0 didn't recognize things like registration or airspace authorization or Remote ID, as a part of the larger UTM ecosystem. So CONOPS 2.0 does recognize them as a part of that larger ecosystem. Therefore, we didn't do a great job of explaining it and thanks for the feedback. We will get back to that and what we meant by at least at some level.

- Jaz Banga (Airspace Systems): Two questions, I have for you. In the UTM system are we actually incorporating any non-cooperative information, as far as low altitude goes. There is you know radar coming online, RF, LIDAR. Who is responsible for receiving that information and are making sure that it is distributed to whoever is in the UTM system. That is my first question.
 - Jay Merkle (FAA): Right now we are investigating what type of non-cooperative would be necessary in order to support detect and avoid. I don't think we know the answer yet. But under the UTM concept it would mostly be a service supplier, putting that infrastructure out to the operator. It would not be the FAA.
 - Jaz Banga (Airspace Systems): Understood, various data that is coming online from all the different companies that are starting to protect their facilities. They are also deploying radars and RF's and systems like that. That information you know especially on the radar side could be available on the non-cooperative side. That is why I make that comment and would love to discuss that more.
- Jaz Banga (Airspace Systems): Second question, on the identity part in this system. We have talked a lot about aircraft identity and we have talked a lot about whether it is broadcasted or network or all that kind of stuff. I think that we are missing from an identity standpoint, how about the identity of the operator or in the world of autonomy, the system that is controlling it. When I think about from an international security angle, I know that it is not necessarily the FAA's purview. But, how do we know who is controlling a drone? I do not know if there is any room here to insert information about verifying that?



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- Jay Merkle (FAA): We received many public comments on that very topic and we are currently adjudicating them. I am going to give you the same answer, I gave Mark. You will know more about the role of Remote ID and identity, come December. We are also actively engaged with our security partners and we are working through, how across government, in all of government, how Remote ID will be used by them and what role it will play in their missions.
- Jaz Banga (Airspace Systems): I will reach out directly to you about some of that. I think I have some information there as well.
- Jay Merkle (FAA): Okay, and thank you. I just want to go back and clarify my first answer to you. It would most likely be in our interest in non-cooperative being developed as performance standard against something like detect and avoid. We would be technology agnostic, we would just say here is the performance that you would need in detect and avoid to get the safety risk credit. So that is where you would see us codify that.
- Jaz Banga (Airspace Systems): Got it and you know it is going to be in two places right, in the aircraft and on the ground. Going to have to figure out how people can get that information to those folks, is really what I'm asking about.
- Jay Merkle (FAA): Understood.
- Christian Ramsey (uAvionix Corporation): Jay, you mentioned the RFI regarding manned aviation use of Remote ID. What is the next steps with that? I think that has been closed and I am assuming you are reviewing responses, what next?
 - Jay Merkle (FAA): It has closed we are reviewing the responses and we could discuss with Dan or others, possibly presenting that here at the DAC or at some other forum. We have not really gotten to that stage yet Christian. We are really just digesting the information.

Interim Recommendation & Discussion for DAC Tasking #8: Safety Culture

Presenters:

Captain Joe DePete, President, Airline Pilots Association (ALPA)

Captain Steve Jangelis, Chairman for Safety, ALPA

After the completion of Task Group 7's discussion, Mr. Chasen invited Task Group 8 to present on Safety Culture recommendations.

Captain Joe DePete began his presentation by thanking the DAC and the FAA for their foresight and wisdom on this issue. Captain DePete shared that, "we know how to do this and it worked very well." Over the last several decades, aviation crews have been able to develop a very mature safety culture. We know today this was possible through building relationships and most importantly establishing trust and the lessons learned, by both our failures and our successes. I have to tip my hat to the former Associate Administrator for Safety Peggy Gilligan. Captain



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DePete shared when he spoke to former Associate Administrator about when the Commercial Aviation Safety Team (CAST) started its efforts to dramatically try to reduce the amount of fatality risk in aviation, which at the time was unacceptable based on what the growth of the industry. Ms. Gilligan informed Captain DePete, that she had all the decision-makers in a room, locked the door, and said nobody leaves until we figure this out.

What resulted was an incredible ability to work together collaboratively because everything great in aviation comes out of collaboration. But, also the creation of our program, Aviation Safety Information Analysis and Sharing (ASIAS). What that is, for the sake of the public that are viewing here right now, is a very robust data collection effort. We were able to make aviation, when you consider you know what aviation does, we are putting people in metal and composite tubes in the lowest stratosphere, we made that the safest form of transportation ever known to man. The risk was greater to get in your car and go to a supermarket than it was to come and get on an airplane. Captain DePete stated that this is a remarkable achievement, not only recently but in all of mankind. It was not long ago that an aircraft accident was literally kind of the starting point for our analysis, the findings, and the development of safety challenges or changes that we wanted to make. In other words, it was reactive. We had to wait for something to happen and now we have a predictive capability. It was forensic, in other words.

Now though, through these voluntary safety action programs, specifically ASAP which is the Aviation Safety Action Program and FOQA which is Flight Ops Quality Assurance, we see how effective these measures are. We utilize collaborative tools now that enhance aviation safety through the analysis of voluntary reported safety events and discrepancies. That leads to the prevention of accidents and incidents before they happen. In other words, we strive now to be proactive and it's an incredible. If you've never been over to MITRE and see what they're able to do with that data. It is absolutely incredible and quite an achievement. Captain DePete highlighted that being proactive requires all the elements of the operational community to work together. We always say, "We don't compete on safety." It is the tide that lifts all boats. Captain DePete expressed how impressed he is with the DAC for recognizing that and for the FAA knowing it as well. Captain DePete thanked Secretary Chao for all the work that she has done in this area. He thanked Administrator Dickson and the Deputy Administrator Dan Elwell, with whom Captain DePete has talked to this topic and shared the achievements that have been made. Safety is a good business practice right, if you want you want a successful business you have to be successful here. Everyone has seen the importance of being proactive and collaborative in terms of safety. Just recently with the COVID-19, it became clear that in order to ensure the safety of our passengers, crew, and to get this industry, that is so pivotal to maintaining our economy, that we have to work together, it is the only way we can succeed.

It has not been an easy road over the past several months. It has been hard for everyone and for all the stakeholders. However, we have to make sure that we are all vigilant because we can still stumble. That is why I say a culture, because a culture suggests something completely different. It is not directives, it is not rigid, rather it is an acceptance, and embodiment of a set of principles, and that is what we have built in this amazing industry. We keep telling this good



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story about what we have been able to do. We read this bad news but honestly I believe that given the restrictive nature of aviation in general, it being a very controlled environment, that with us all working together once again we will we will overcome another hurdle with the COVID crisis. We will be able to say to everyone “welcome back” and “welcome aboard”. That it is safer to come to your airport now and get on an airplane then it would be for you to go to the supermarket in your car. Captain DePete shared that this can be done because we have done it before.

In the drone community we have an incredible opportunity. The drone community does not have to repeat the long and often time painful learning curve that we had to go through in manned aviation. We can adopt a safety culture that has made manned aviation the safest form of transportation ever known to man. To that end the FAA tasked Task Group 8 to answer the question, “What other ways we can help the drone community fully adopt the safety culture that is so ingrained in manned aviation?” As President of the Air Line Pilots Association (ALPA), which includes 34 airlines, 63,000 pilots in both the U.S. and Canada and is the largest non-governmental safety organization in the world that has been involved in solving and working together on the COVID crisis. ALPA has an incredible toolbox as the largest non-government organization. Captain DePete shared that ALPA also has a Chairman for Safety, who is also the Chair of the Airport Committee, and many other different groups, Captain Steve Jangelis. Captain DePete tasked Captain Jangelis to take the lead in going over what the tasking and the work that was done by Task Group 8. Captain DePete invited Captain Jangelis to review Task Group 8’s recommendations.

Captain Jangelis shared that starting he would talk a little bit about the background of the tasking. After the February 2020 DAC meeting, Captain DePete sent out an email invitation to the DAC members for volunteers to support for the new Safety Culture Task Group. The solicitation received over 20 positive responses. In mid-March the task group received the official FAA tasking, including tasking question, tasking summary, and justification. Unfortunately that was just when the COVID pandemic was taking its grip on the world and the transportation industry. ALPA then turned its full attention to the crisis at hand for members, as well as the flying public. Thus delaying our start of the Task Group.

By mid-April we have developed a structure for the Task Group, including four operationally focused subgroups, and identified a leadership team from the Task Group membership. Realizing our time was short to develop full recommendations for the tasking, we decided, with DAC leadership support, to break our work into two goals.

- Goal number 1: Established an understanding across all stakeholders about the importance of foundational truths for tenets of a safety culture, and to help build a common view of how to move forward.
- Goal number 2: Develop an in-depth set of recommendations for the third quarter DAC meeting based on each operational task.



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To generate recommendations and ideas to assist the drone community in adopting an aviation safety culture, four subgroups were created along the lines of operational communities. Each of the four subgroup leads organized their subgroups and held weekly telecom meetings to develop and refine the safety culture tenets. The tenants were agreed to by the team leadership comprised of subgroup leads, the six consensus tenets are:

- Safety Ownership
- Safety Modeled by Leadership
- Organizational Values
- Learning Culture
- System-wide Approach
- Trust

Safety Ownership

Empowering each individual across all group with a share of the collective responsibility to learn, understand, advocate, and participate in the best safety practices and behaviors for the intended activity.

Safety Modeled by Leadership

Safety culture is driven throughout the aeronautical community from the operator to the executive level management. Leaders should model safe practices (walk the talk) and reinforce the critical importance of safety as the top priority in the community.

Organizational Values

A safety culture reflects the values, principles, and normal behavior of an individual engaged in an activity that presents risk to the life, safety or property of others and must be scalable to the organization.

Organizations can promote and enhance a culture of safety by modeling behavior, educating individuals, and emphasizing the importance of safety during activities that present heightened risks to the people or property.

Learning Culture

A positive safety culture will always continue to learn and grow; individuals can adapt and change. Few operations in the NAS are error-free but operators learn from failures going forward, utilize risk management tools (knowledge) to improve the safety and quality of operations or productions with the power of data sharing both internally and within the communities to which they belong.

System-wide Approach

Those who set and promote safety rules and parameters must share the responsibilities of system wide safety by the creation of risk-based rules that are reasonable and proportionate in light of the relative risk of the operation.



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It is also important to promote a voluntary non-punitive environment where the sharing/reporting of unintentional unsafe experiences (events) is fostered and supported by an educational approach to continuously improving safety in the NAS.

Trust

Captain Jangelis shared that this was the hot ticket issue. The one issue that came up over and over. When the group discussed it was going to take to get the drone community into adopting an aviation safety culture, they found trust was key.

A strong safety culture is enhanced by trust, a firm belief in the honesty, reliability and the ability of others

- Trust is a two-way street and assumes all stakeholders (individual and organizations) are committed to doing the right thing to ensure safe and successful operations.
 - Operators/stakeholders must trust that regulators and authorities will transparently act on and implement constructive input from operators/stakeholders and support best practices and constructive measures to address safety concerns.
 - Regulators must trust that operators/stakeholders will adhere to prescribed safety standards and operational norms.
- Trust promotes confidence amongst Operators, Stakeholders, and Regulators and leads to a cooperative environment for the sharing of safety related information, data and ideas.

Captain Jangelis shared the next steps to follow are: the four subgroups are already developing the recommendations to answer the FAA tasking and will be back in the fall to deliver the combined recommendations to address this most important issue.

Discussion

After completing his presentation, Captain Jangelis turned over the hosting duty to Captain DePete. Captain DePete then asked the DAC members if they had any questions or comments.

- Captain Houston Mills (UPS): Captain Mills thanked the presenters for their great work. We really appreciate the great work ALPA has done in really understanding what it takes each and every day, to keep the skyways safe around the world. One thing I would just add, these recommendations to the FAA build around tenants that are really universal. They are tenants that apply regardless of manned or unmanned. Anyone that operates in this space, these are tenants that everybody can build on whether it's the individual operator or a major entity. In terms of being able to take these concepts and bring them home to fruition. I think it's really important as we are talking about this roadmap and as we work to integrate eventually to full integration. Right now we are focused on 1.0 DAC, 2.0 DAC, but eventually we are going to be where we have full integration. So, as we talk through these tenants, we have talked



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about things that will stand the test of time. As we are looking at these concepts and throw them out there, these are foundational principles that should hold up no matter what the level of integration. I really just want to compliment your team for taking that concept and making sure we work through and are not just focused on a current environment. But we are looking forward to what we are going in the future. These tenants will not just apply today but they also apply tomorrow. I just want to comment on that, and thank you.

- Captain Joe DePete (ALPA): Thank you Captain Mills, I appreciate that. I know you and I have worked together a long time and the contributions that you have made, I just can't say enough about them. Thank you so much for all your work on that committee.
- Brendan Schulman (DJI): Thank you, very much. This is a really important topic and at DJI we are always looking for ways to make existing operations safe. Whether that is implementing a new technology or educating our customers. I am really glad that we are working on this we have got the initial set of tenants. We are continuing work and in particular in engaging the community by things like surveys, that I think will help inform the things that we contribute to the FAA. I do think it's important to put this topic in context and that's the unquestionably stellar safety record that small UAS have to date. We undertook an analysis based on data voluntarily shared with us and this is in our NPRM comment. What we determined is that in 2019 across the U.S., there were 87.8 million flights of small UAS, totaling at least 10.3 million hours of flight time. If you put that in the context of aviation as a whole and compared to things like general aviation for example, which does have a fatal accident rate. If you were to take out that amount of operational flight time, we would expect something like a 103 fatal accidents per year for small UAS. Instead we have zero and I'm proud there are zero. So it is important to try improving safety or develop a safety cultures. But putting principles like that into context. We want to make sure that we communicate with the operators on a level they understand. That we look for ways to actually develop a culture, and I was glad to see in this report reference, the importance of the rules being reasonable. If the rules make sense, if they are not just addressed to risk and they seem to balance the costs, the benefits, and the burdens. Then I do think that the operational community will step-up and take safety more seriously and inculcated as a culture rather than just a set of rules that an agency in Washington is asking everyone to comply with. That is really the key as we as we move forward, this is the safest form of aviation the world has ever seen. As Captain DePete pointed out, aviation itself is remarkably safe and we should be proud of that. We should look for ways to improve that, whether it is a Remote ID rule or other rules and restrictions on opening up future operations. Thank you to the group and looking forward to our continued discussions on it.
 - Joe DePete (ALPA): Thank you, Brendan. I couldn't agree with you more. That is why I said, and I mean this, this is really the beginning. We have such an incredible opportunity as the growth in the industry goes on. I think we are off to a good start and again I thank all the members of the task group and



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everybody that contributed. I agree with you that it cannot be a rigid set of rules but that is why I think the concept of stressing the culture right is more important at this point.

- Brian Wynne (AUVSI): Thank you, for your leadership on this and for Steve as well. I have been really pleased to participate. You mentioned Peggy Gilligan and I second that. I just wanted to point out for the group, many of us are already participating know, but it was in fact a meeting that that Peggy. Where she sat in on, she gave us a very good briefing on CAST, the history, and how CAST works. Many of us have been over to MITRE to look at the Aviation Safety Information Analysis and Sharing System (ASIAS). What came out of that of course was the unmanned UAS safety team, modeled after CAST. It is our effort in the spirit of this undertaking to try and get out ahead of any kind of heartache to try and leverage what has really worked very well on CAST. Which is the voluntary nature that is based on the trust that Steve underlined. I think I would urge us to really get behind, it is very expensive, the ASIAS system. It started out small based on that trust. More and more operators participated, as I understand it. We need to do the same thing with you UAST, so that as a community we are being data-driven as well and following on with the great work that has been done ahead of us in aviation. The General Aviation Joint Steering Committee (GAJSC) also falls in this category as well. I have benefited as a GA pilot.
 - Joe DePete (ALPA): Brian, The Airline Pilots Association (ALPA) was founded on the principle of safety. Our motto, “schedule and safety”. I remember back in 2015, I believe it was that you actually approached us as President of the Association Unmanned Vehicle System International (AUVSI) and you embody doing it right. You knew that that the importance in terms of the growth of the industry to get ahead of the curve in terms of it. We both had the concerns at the time with what was a slight bit of a hole, in terms of the hobbyists. Now that has kind of been addressed. I just cannot say enough about the work that you are doing and your participation in this. I appreciate it, thank you.
- Wade Troxell (Mayor of Fort Collins, CO): I one of the things that came up in the safe culture and related to stakeholders, which I brought to the table, a self-certification that firefighters use in our communities. Where it extends beyond, in this case the pilot and the aircraft itself, but it also has to be culture that's inculcated within the airspace in which they're flying. So 400 feet below in urban centers you need to create a safe environment within that. There can be self-certifications within communities for air safe UAS flight. I think there are some lessons to be learned and we talked about this. I appreciate the conversations that we had with regards to self-certification and in communities as it relates to UAS flight. As you know it is a more complex airspace than you would find at higher altitudes.
 - Joe DePete (ALPA): I know I totally agree and I hope everybody that is watching today is picking up how professional and dedicated everybody here is. In the DAC we pilots call it a shared mental model. That is kind of what we are working on and we are very excited about the socio-economic benefits of



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this industry. As Houston said, we are trying to work together on safe integration and when the pieces are all put in place. It will be just like manned aviation. Right now, it will be just a seamless experience. We are off to a good start, no question about that.

- Joe DePete (ALPA): I had one question maybe for the FAA, is it still towards the fall or towards the end of the year for the Remote ID component. Is that still on the books for NPRM?
 - Jay Merkle (FAA): Yes, we are still targeting for December 2020.
- Joe DePete (ALPA): Foundational component, right?
 - Jay Merkle (FAA): Yeah, for the final rule.

Motion to Accept

At the conclusion of the Discussion for Task Group 8, Captain DePete thanked all those who helped and then handed over to the DAC Chairman. The DAC Chairman then entertained a motion to forward Task Group 8's Interim Safety Culture Recommendations to the FAA.

- Todd Graetz (BNSF): Moved to forward Task Group 8 recommendations to the FAA.
- Captain Michael Leo (New York City Fire Department): Seconded the motion.

Mr. Chasen then asked if there were any objections. No objections were lobbied, the motion was passed.

Industry-Led Technical Topics/Open Discussion

The DFO thanked the task group members for their hard work. Before opening up the floor to the DAC members for any new business or agenda topics. The DFO shared he wished to highlight the status of the DAC solicitation. As mentioned previously, the Federal Register notice was published on June 18, 2020, which formally opens the 60-day window for the FAA to receive nominations for new DAC members. It is very important that the DAC continues to have representation from all sectors of the drone community. The DFO asked the DAC members assistance in spreading the word of the opportunity to qualified applicants across the drone community. Thus helping to assure the FAA has a diverse group of members on this committee to advise as we continue the work to safely integrate UAS into the NAS.

The next DAC meeting will be in the October 2020 time frame. A decision on whether it will be in person or virtual, has not yet been made. The FAA will share those details as we get closer to the meeting agenda items for the October meeting. The meeting will include FAA Responses to the Facility Maps, BVLOS, and UTM recommendations. The FAA will also look forward to the final recommendation report from Task Group 8 on Safety Culture. There are no new taskings from the FAA to the DAC at today's meeting. The DFO turned over the floor to the DAC Chair, to see if he or any other DAC members had new business.



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- Brendan Schulman (DJI): I just wanted to ask about the progress on what we refer to as the section 2209 rulemaking, concerning designated facilities that are eligible for flight restrictions. This is something that has been pending for a while I believe. It is on schedule for rulemaking in September, I know my organization is interested in helping contribute to good outcomes there by using geofencing features for example, to avoid locations that raise heightened security concerns. I think it has been a little while since we have heard an update on that process and I would appreciate if there is any insight.
 - Jay Merkle (FAA): Thank you, Brendan. The rulemaking team is hard at work and working towards the publish schedule and hope to get an NPRM out soon.
- Chris Anderson (3DR): I actually have two suggestions. The first one is perhaps maybe beyond the scope of this committee. I think is a broader one for the FAA to consider, it is about de-gender some of the terminology we use. As many of you may know at NASA and their style guide has ceased using unmanned and uses un-crewed as the as the preferred term. I am just wondering as I go through these wordings, every time I see unmanned. It kind of grates me. I'm wondering whether there could be some consideration of using some phrase like unpiloted or un-crewed in our in our conventions going forward. Second item, at the last act meeting I did present a suggestion that we consider a spinning up a working group on weather simulation data can be used in lieu of real-world data especially in the DNR (durability and reliability) type certification process. I would like to know whether that's appropriate for a DAC working group going forward.
 - Jay Merkle (FAA): I can address your first question we have recognized the same thing and we have been discussing some alternatives that we are considering. We are going back and looking at that as well, rather than burden everybody on the DAC was all that. If you want to talk to me I would be happy to talk to you about it. It is very clunky language and we have also recognized things like traditional aviation don't really tell the right story. The second one, I guess we can talk with Dan the DFO, and see if it is something we want to consider.
 - Captain Joe DePete (ALPA): If I may Chris, I support that as a president who just started a Presidential Committee on diversity inclusion. I have heard that from my members often and so I also lend my support and exploring new terminology that is a little more inclusive.
- Captain Houston Mills (UPS): One general question, just wondering is there anything that we have learned during this COVID-19? I know that there has been a lot of requests to take advantage of unmanned systems or UAS in these various environments. I know your team has been working really hard to grant exemptions under Part 107. Is there anything you guys have learned it you know perhaps we need to be thinking about? I mean obviously this is a very unique period of time and some would say that this is all for naught, we have trained for things to accelerate. Sometimes acceleration is good, sometimes you can accelerate too fast, so just



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curious if maybe if there's anything you can share just relative Covid-19 that was run during this time period.

- Jay Merkle (FAA): I will consult with Mr. Elwell to see if we want to give a longer presentation at the next DAC meeting. The most important thing we have learned is the people who are most effective in providing the response, are those that already knew how to operate safely and had their operation up and running. They can simply pivot in support of COVID-19 support. Those that were struggling to figure out how to get their operation running. At the same time they were trying to respond to the crisis, it is far more difficult for them. So one of the things that we are coming out of this with is how do we work with the community to get more operators into a position of either under Part 107 or 91 or 135 or someplace, that would have more of a capacity to respond. We also saw that due to where we are in this industry, there is a certain limit to the response that we can do. There are only so many aircraft that our pilot off board. I think as the industry grows it is something that both the industry and FAA need to stay in touch with. How do we make sure we are positioned well to respond to these things?
- Trish Gilbert (NATCA): I am going to go backwards to the safety culture great work that Task Group 8 did. There was a comment that was made about general aviation and I didn't want to let it sit. Just a little historical background, the airline industry has been doing voluntary safety reporting for a very long time. The FAA is only had in air traffic control for about eleven or twelve years. It is relatively new and we are still learning from a lot of stuff there, even though it's very robust. The general aviation community, when you compare it to drone activity, to general aviation. I just think we should be cautionary in that vein and that they do not really participate in a voluntary safety reporting program. They have NASA, Aviation Safety Reporting System (ASRS), they are testing in ASIAs, and they have a couple groups doing some work with confidential info share. I just want to say I think it's really important the work that Task Group 8 has done. But we must realize that there's a lot more work in other parts of the aviation industry that have not quite and got to that point. That is why you see bigger numbers over there and I think the Deputy Administrator just did a safety Town Hall with general aviation talking about this kind of thing. I just didn't want that to sit as something that we should compare ourselves to because again they really are in their early stages. Thank you.

Closing Remarks and Adjourn

The DAC Chairman shared he appreciates the FAA's dedication to keeping these channels of communication open between the drone community and the FAA. He agreed that this has been a productive meeting and wished want to thank not only all of the DAC and Task Group members for the presentations, but also all those behind the scenes who made it possible to hold this great virtual meeting. Kudos to the FAA production team for the many hours of prep work that went up to leading today. The DAC Chairman believed this was an incredibly productive meeting and



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worked well over zoom and is looking forward to the next DAC meeting, whether that be in person or virtual.

The DAC Chairman then asked for a motion adjourn the DAC.

- Todd Graetz (BNSF): Moved to adjourn the DAC meeting.
- Captain Michael Leo (New York City Fire Department): Seconded the motion.

Mr. Chasen then asked if there were any objections. No objections were lobbied, the motion was passed and the DAC meeting was adjourned.

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Appendix A: Meeting Attendees

Name	Title	Org.
1. Dan Elwell	Deputy Administrator and DAC Designated Federal Officer	FAA
2. Angela Stubblefield	Chief of Staff	FAA
3. Ali Bahrami	Associate Administrator for Aviation Safety	FAA
4. Jay Merkle	Executive Director, UAS Integration Office	FAA
5. Bill Crozier	Deputy Executive Director, UAS Integration Office	FAA
6. Arjun Garg	Chief Counsel, Office of General Counsel	FAA
7. Kirk Shaffer	Associate Administrator, Airports	FAA
8. Claudio Manno	Associate Administrator, Security and Hazardous Materials Safety	FAA
9. Timothy Arel	Deputy Chief Operating Officer, Air Traffic Organization	FAA
10. Brianna Manzelli	Assistant Administrator, Office of Communications	FAA
11. Teri Bristol	Chief Operating Officer, Air Traffic Organization	FAA
12. Alex Zektser	Attorney Advisor	DOT
13. Erik Amend	Manager, Executive Office, UAS Integration Office	FAA
14. Gary Kolb	UAS Stakeholder & Committee Liaison, UAS Integration Office	FAA
Confirmed FAA/DOT Observers		
Name	Title	Org.
1. Adrienne Vanek	Director, International Division, UAS Integration Office	FAA
2. Michael McCrabb	Foreign Affairs Specialist, UAS Integration Office	FAA
3. Christopher Swider	International Specialist, UAS Integration Office	FAA
4. William Stanton	UAS Integration Lead for Air Traffic Organization	FAA
5. Tonya Coultas	Deputy Associate Administrator, Security and Hazardous Materials Safety	FAA
6. Rico Carty	Deputy Executive Director, Flight Standards	FAA
7. Genevieve Sapir	Senior Advisor, Security and Hazardous Materials Safety	FAA
8. Julie Marks	Deputy Director, Safety and Integration Division, UAS Integration Office	FAA
9. Robert Sweet	Senior Advisor, Air Traffic Organization	FAA
10. Elizabeth Forro	Special Assistant, UAS Integration Office	FAA
11. Alison LePage	Digital Communications Manager, Office of Communications	FAA
12. Alison Duquette	Digital Communications Team Lead, Office of Communications	FAA
13. Jessica Orquina	Lead Communications Specialist, UAS Integration Office	FAA
14. Khurram Abbas	Communications Specialist, UAS Integration Office	FAA
15. Gretchen Tressler	Technical Writer, UAS Integration Office	FAA
16. Jennifer Riding	Program Analyst, UAS Integration Office	FAA



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